

## Project Report

### Supporting and demonstrating small scale shrimp farmer group to access international market through certification schemes



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This document was prepared by the Network of Aquaculture Centres in Asia-Pacific (NACA) for the World Wildlife Fund (WWF)

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Aquastar Europe



Department of Fisheries Thailand



National Centres for Sustainable Aquaculture  
(NaCSA)



Network of Aquaculture Centres in Asia-Pacific  
(NACA)



Samroi yod Shrimp farmer Cooperative



Seafresh Industry Public Company Limited



World Wildlife Fund

## **1. Executive summary**

The phase 2 of the project has been conducted in Thailand and India, since July 2009 to support and demonstrate small scale shrimp farmer group access to international markets through certification schemes. This project demonstrated successfully that small-scale farmers organised into groups, improved their technical capacities, and achieved access to profitable markets. This achievement was the result of strong partnerships with producers, private sector operators, and government agencies all working towards the common goal of the development of a sustainable business model for small scale aquaculture.

Participating in the Dialogue: Reflecting the WWF's intention to develop the Shrimp Aquaculture Dialogue (ShAD) standards in multi-stakeholder manner, the project supported 4 people (representing small scale production sector in Thailand and India), to participate in the dialogue in March 2010 in Jakarta, Indonesia. Detailed surveys and discussions were held among the selected farmer groups in Thailand and India to formulate and submit public comments in April 2010 during their first public comment period. The comments covered all the proposed standards; however core points focused on the issues of capacities of resource limited small scale farmers, particularly around the financial burden and the monitoring mechanism.

Capacity building of small scale farmers towards meeting ShAD standards was conducted in related small groups. The farmers were closely monitored and able to access both technical and financial services in the group. The project staff facilitated the interaction between the farmer groups and other partners (a processing plant and EU buyer) to establish the market linkage. The small-scale farming sector is often considered too difficult to work with, due to the large numbers of unorganized farmers; however, the large total numbers of such farmers provide a significant business opportunity once they are organized.

Estimated cost and benefit analysis of compliance with ShAD standards indicated that average costs ranged from US\$ 14,113 in India (6 cases) to US\$ 24,678 per farm in Thailand (1 case). These values highlighted the financial concerns and other difficulties. For examples lack of technical knowledge on the Biodiversity inclusive Environmental Impact Assessment (BEIA) and the Participatory Social Impact Assessment (p-SIA) of the small-scale farming sector in complying with the ShAD standards.

The way forward is suggested as follows:

- 1) Further adjust the draft ShAD standards to provide more scope for improved participation by resource poor but innovative small-scale farmers to comply with these standards, or
- 2) Facilitate involvement of other stakeholders such as government agencies and private sector representatives to support/partner with the small-scale farming sector.

## 2. Background

For the past decades NACA and other development organizations have been focusing on supporting the small scale farmers to improve their farming technologies and practices for sustainable production. Building on those experiences (International principles and Better Management Practices), current issues and needs of farmers are increasingly shifting towards marketing of their products and attaining fair and profitable prices.

In order to respond to the demand from consumers and market to purchase sustainably produced aquaculture products, WWF has initiated the Shrimp Aquaculture Dialogues (ShAD) to establish credible standards for sustainable shrimp farming products.

The phase 1 of WWF funded project focused on 1) Assessment of feasibility of implementation of standards at a small scale farm level, 2) Field testing the ShAD indicators, and 3) Initiated efforts towards adoption of the standards by buyers.

The Shrimp Aquaculture Dialogues is in the process of developing environmental standards for shrimp farming based on the International Principles for Responsible Shrimp farming<sup>1</sup>. These standards will quantitative reduce the key environmental and social impacts associated with shrimp aquaculture. NACA has a clear and successful track record of small farmer engagement and has developed Better Management Practices (BMPs) manuals for shrimp aquaculture in several countries in Asia.

As small-scale producers form the majority of the shrimp aquaculture industry, it is important to understand the result of BMPs adoption and the environmental consequences. Thus, there is a need to determine what the results of these practices are on the ground in producing countries and how these results can be measured at the level of the small-scale producers.

Essential to the sustainability of the shrimp industry in India and Thailand will be the industry's implementation of BMPs. However, BMPs are a mean to an end and in order to determine BMP effectiveness, it is important to realize their results. The ShAD standards are intended to measurably reduce the environmental impacts of shrimp farming.

The objectives of this project phase 2 was to;

1. Participate in the process of shrimp standards development by Shrimp Aquaculture Dialogue (ShAD), and provide small scale farming perspectives to the dialogue process
2. Build capacity of shrimp farming groups in Thailand and India to comply with Shrimp Aquaculture Dialogue Standards and achieve market access,
3. Conduct detailed cost / benefit analysis (technically and financially) for small scale farming groups to comply with those standards (available version 1.0 is considered)

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<sup>1</sup> FAO/NACA/UNEP/WB/WWF. 2006. International Principles for Responsible Shrimp Farming. Network of Aquaculture Centres in Asia-Pacific (NACA). Bangkok, Thailand. 20 pp.

<http://www.enaca.org/modules/wfdownloads/singlefile.php?cid=142&lid=735>

### 3. Methodology

The following small scale farmer groups were selected as a project site to implement the project activities following the methodologies described below.

**Thailand:**

- Samroi yod Shrimp Farmer Cooperative, Prchuap Khirikhan Province

**India:** 6 groups (3 NaCSA societies, and 3 NGO supported groups)

- Gokarneswara Swamy Aquafarmers Welfare Society, Gokarnamattam, Nazampatnam Mandal, Guntur District.
- Vasista Godavari Aquafarmers Welfare Society, Sakinetipallilanka, Sakenetipalli Mandal, East Godavari District
- Sri. Vinayaka Aquafarmers Welfare Society, Narasapuram Mandal, West Godavari District
- Pedapulugivaripalem, Guntur District, Andhra Pradesh.
- Tummalapalem, Guntur District, Andhra Pradesh
- Karlapalem, Prakasam District, Andhra Pradesh

Activities	Methodologies
Participate in the development of shrimp standards development process (ShAD)	<ul style="list-style-type: none"> <li>• Participate in the process of ShAD, and attend upcoming ShAD meetings (Jakarta meeting)</li> <li>• Receive the ShAD committee and experts group visit to the project sites and host meetings</li> <li>• Collect data on performance range on each Dialogue</li> <li>• Determine standards implementation feasibility at small scale farm level</li> <li>• Based on production practices and data collection, determine where improved performance can be achieved</li> </ul>
Improve the capacity of shrimp farming groups to achieve access to export market chain and comply with ShAD	<ul style="list-style-type: none"> <li>• Provide regular support for farmer groups to improve performance to comply with standards (continuation from above mentioned gap analysis at Activity 1)</li> <li>• Facilitate the visit by project partners</li> <li>• Arrange trial audit by a certification body</li> <li>• Provide focused support to farmer group, based on the feedbacks from buyers and trial audit</li> <li>• Shrimp Aquaculture Dialogue project and standards will be promoted to create awareness and interest among small scale farmer</li> </ul>
Assess the efforts needed (technically and financially) for small scale farming group to comply with those standards	<ul style="list-style-type: none"> <li>• Cost and benefit analysis for small scale farmer group to achieve certification scheme (<i>in case scheme is not fully established by this date, use projected values for benefit</i>)</li> <li>• Provide summary report and guidance for other small scale farmer groups to follow</li> </ul>
Communicate with partners and seek the possibilities for expanding the	<ul style="list-style-type: none"> <li>• Maintain regular communication between partners through monthly coordination conference (online)</li> <li>• Explore and contact new potential partners to strengthen the project. E.g. socially oriented NGO, Marketing/Certification focused NGO,</li> </ul>

cooperation with other organizations	Sustainable food initiatives.
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Expected outputs in each country are:

- 1) Small-scale farmer groups in Thailand and India participated in ShAD process and provided feedback to standard development process.
- 2) Small scale farmer groups in Thailand and India improved their performance towards complying with ShAD standards (If scheme are not available then provide detail gap analysis and recommendations)
- 3) Comprehensive report on the cost and benefit analysis for complying with ShAD standards (If scheme are not available then projected benefit value will be used).

Thailand part of the project was implemented through strong collaboration between the Thai Department of Fisheries (DOF), Aquastar Europe, Seafresh Industry Ltd., Samroi yod Shrimp farmer cooperative, and local communities to ensure the successful outcome of the work conducted. Additionally, implementation of the project in India was conducted in collaboration with the National Centres for Sustainable Aquaculture (NaCSA).

All assessments were conducted at the selected group member sites using the draft ShAD standards issued in March 2009 (Version 1.0). The project was financially supported by the World Wildlife Fund (WWF).

#### ***4. Participate in the development of Shrimp Aquaculture Dialogue (ShAD) process***

WWF Shrimp Aquaculture Dialogue (ShAD) was held at the Grand Melia Hotel, Jakarta 9-10 March 2010. This was the second dialogue held in Asia, following the dialogue in Bangkok November 2008. The draft ShAD standards was posted to the website on 1st of March 2010, and the first public comment period started just before this Jakarta Dialogue. Under the full support of the project, the following four people participated in the Shrimp Aquaculture Dialogue in Jakarta, Indonesia

- 1) President of Thai Federation of Shrimp Farming Cooperative-Pinyo Kiatpinyo,
- 2) National Centre for Sustainable Aquaculture (NaCSA) officer in India - A.B.C. Mohan,
- 3) Indian farmer welfare society leader/Shrimp farmer association representative - V.M.R. Balasubramaniam,
- and 4) NACA staff - Koji Yamamoto.

All of them actively contributed to the discussion and provided comments particularly related to small-scale farming sector in Asia.



Figure 1: Photo of ShAD, Jakarta March 2010

Under the project supervision, the public comments documents were prepared based on both Thai and Indian shrimp farming groups. The draft Standards (Version 1) was translated into local languages (Thai and Telugu), and number of meetings were held with farmer groups, and individual farmers to obtain their feedbacks. The survey was conducted and reported by the NACA local staff, Ms. Nanthana Pidthong in Thailand, and Mr. M.Kalyanaraman with assistance with NaCSA personnel – Mr. Venkat, Mr. Vara Prasad, Mr. Kiran, Mr. Amaranth and Mr. Madhu Kiran in India. The full copies of public comments are shown in **Annex 1** and **Annex 2**.

The suggestion and comments were made as follows:

- 1) Address the nature of small scale farmers' public services dependencies (e.g. Department of Fisheries, NaCSA)
- 2) Consider the limitation for small scale farmer's capacities to conduct assessments (i.e. BEIA, p-SIA) and mechanisms for appropriate supporting service structures, create exception for certain scale of operations, or recognize alternatives ways of demonstrating compliance, adapted to local conditions,
- 3) Consider "group certification" as a viable mechanisms to improve compliance by small scale farmers, and
- 4) Consider options for standards related to feed mills and hatcheries because shrimp farmers have very little control or negotiating power over the issues (particularly small scale farmers).

## ***5. Building capacity of groups to comply with ShAD standards and achieve market access***

The project has worked closely with small scale farmer groups in Thailand and India to improve their farming performance towards complying with ShAD standards. Various activities has been conducted in both countries and finding are shown in the sections below.

### ***5-1. Thai case study***

#### **Established a smaller farm group for the project – basis for building capacities**

As it is described in the final report for first phase of WWF-NACA project (2008-2009), a shrimp farmer cooperative was established in 2007 in Samroi yod. On 16 November 2009, the shrimp cooperative members, NACA, Seafresh and Aquastar organised a meeting to select 10 cooperative members to establish a new cluster and register with the local government as a community enterprise. The objective of forming the smaller group was to have better control of farm activities by the committed members, to target the compliance to ShAD standards and other certification scheme such as Fairtrade.

Table 1: The members of the community enterprise for shrimp farming in Samroi yod

	Name	Location	Number of ponds
1	Mr.Decha Bunluedej	Samroi yod	5
2	Mr.Somsak Maklai	Samroi yod	2
3	Mr.Chuchat Larpkorkiat	Samroi yod	8
4	Mrs.Bussarakham Wanthong	Samroi yod	3
5	Mr.Dalat Boonkai	Samroi yod	2
6	Mr.Wichai Sa ngoansai	Samroi yod	3
7	Mr.Worrawit Rotborwornwittaya	Pranburi	1
8	Mr.Suthep Thipwong	Pranburi	1
9	Mr.Punjaborn Boonma	Samroi yod	1
10	Mr.Sombat Kaewkun	Samroi yod	1

### Registration of the small scale group with local authority

On 4 December 2009, 10 cluster members participated in the meeting with Seafresh and NACA in order to prepare for registration. The community was registered to Samroi yod Agriculture Office as a legal entity under the name “**Cluster of Samroi yod Fairtrade Shrimp Farmer Community Enterprise**”. This meeting documented the objectives of the cluster, and elected Mr. Somsak Makai as the first president of the cluster.

### Cooperation with other organisations, and achieving market access

The project has been implemented by conducting activities at all levels with the strong collaboration with Department of Fisheries (DOF), Aquastar Europe (Buyer), Seafresh Industry Ltd (Local processing plant), and Samroi yod Shrimp farmer cooperative, and local communities.

In particular Aquastar has been providing essential support to the project, by providing the business incentives and driving to establish long-term connections between small producers and identified markets.

The details supports providing by the other partners are summarized below:

NACA (funded by WWF):	Provide a full time officer based in Samroi yod. The officer implements project activities and facilitate communication between farm groups and other project partners. Conduct environmental monitoring on regular bases. Monitoring and reporting of project activities.
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Aquastar Europe:	Coordinate and facilitate the market access, and related technical inputs to the projects. Establish commercial linkage and establish business relationship with Farmer group, and local processing plant. Donated a motor bike (for NACA field officer) and water monitoring equipment (DO, salinity, temperature).
Seafresh Industry Ltd:	Provide technical inputs for shrimp farming management as well as harvesting. Establish business agreement, contract, with farmer group.
Thai Department of Fisheries:	Conduct water quality monitoring at the major river in the project farming area (Special request from the project).

Based on the project activities conducted under this project, the cooperation from the private sector brought opportunities for the farmer to export its products to EU in a very short and through a direct supply chain. There was a strong incentive for the farmer group to improve their production protocols and administrative system, by following this business model all partners agreed to cooperate. The farmer group and Seafresh processing plant entered into contract agreement in 2008 with obligation to comply with requirements jointly set by the project partners and in consideration the retailer specification in the EU, draft ShAD standard and Fairtrade standards. The before mentioned obligations were in addition to compliance with the Thai GAP and the Cooperative regulations. Between the end of 2008 and the date of this report, contract shrimp prices were negotiated between Seafresh and the farmer group at the beginning of the crop cycle, and those prices were generally higher than that of Mahachai central market price (on average THB 20/kg higher) except in mid 2010 when market price of shrimp increased significantly.

The shrimp produced were compliant with the requirements established and implemented by the partners and recently appeared in a few branches of Marks & Spencer stores in London. No certification is yet in place, but the M&S label clearly states; “Our sustainability sourced prawns are naturally sweet in flavor & selected from small farms within a co-operative on the Gulf of Thailand. This co-operative works to a high standard of care for the environment, welfare & community”.



Figure 2: Packaged shrimp produced under the project in Samroi yod

It is significant milestone achievement, perhaps the very first shrimp products that were recognised and promoted as “shrimp

from small farms in Thailand”. However, partners consider this as an initial phase and are now aiming for compliance with the ShAD standards and certified by Aquaculture Stewardships Council (ASC) when that scheme is available.

Fairtrade is another certification scheme that partners have been considering since the early stage of the cooperation. Fairtrade made two visits to Samroi-yod farming area, and latest visit in March 2010, Maya Spaul (TransFair USA), Kenneth Boyce (Fairtrade Foundation UK), Chen Fye Tham (FLO, Thai liaison officer), and an aquaculture consultant hired by Fairtrade: Rene Benguerel (Blueyou), conducted a review of the farmer communities, ongoing project, and agree to go ahead with setting Fairtrade shrimp standards. During these visit, there was some discussion about developing Fairtrade shrimp standards that are designed to add on to the ShAD standards.

### **Facilitated and hosted the external visitors to Samroi-yod farmer group**

In order to provide the support and necessary technical transfer for the project activities, during the reporting period, 12 field visits were conducted.

### **Trial Audit by existing Certification Body**

The trial audit of the group using the draft ShAD standard by Certification body (CB) was considered but could not be successfully conduct within the project period. Since ShAD standards are not yet final, and no CB or their accredited auditors have yet to be trained in ShAD audit, the project could not identify an appropriate auditor to conduct the trial audit. In Thailand, the Department of Fisheries released the revised version of Good Aquaculture Practices (GAP) in early 2010, and established a new division “Aquaculture Development and Certification Center (ADCC)”. However, their primary mandate is to certify the farms with GAP.

### **Environment monitoring**

There are two environmental monitoring programs initiated by the project and ongoing in the farmer group. One program is conducted by partnership with local Department of Fishery station in Prachuap Khiri Khan Province, and other by the project field staff since March 2009. The water quality of main rivers upstream and downstream, irrigation cannels between rice field and shrimp farm, and wells for 1) temperature, 2) DO, 3)Salinity, 4) conductivity by the NACA field staff, and additionally 5)BOD, 6)ammonia, 7)Nitrite, 8) Nitrate, 9)Hydrogen Sulfide, 10)Calcium, and 12)Magnesium.

Although shrimp farmer and local community had been conducting conservation activities in the area (e.g. organised waste management, organise awareness raising campaigns), the adoption of water monitoring programs by the participating farmers is one of the improvements that the farmer group has achieved through this project.

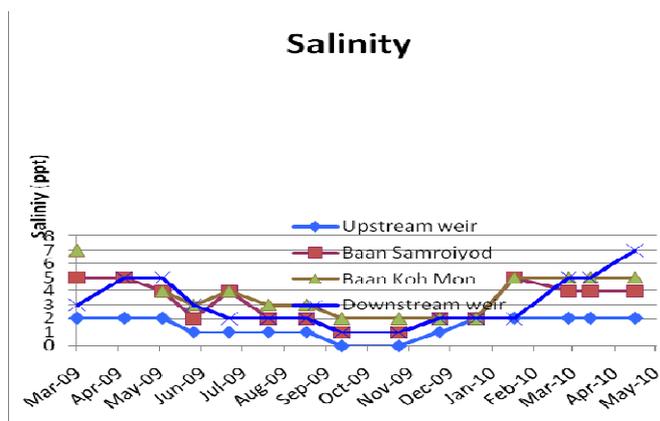


Figure 3: Seasonal salinity changes of Khao Deng River in Samroi yod Thailand at 4 different sampling locations. Showing the general trends of higher salinity during the dry season (October to January) and lower salinity at wetseasons. The salinity changes in this area seems to have relation with rainfall, natural tidal effects as well as possible discharges of culture water from aquaculture facilities<sup>2</sup>. It is important for the group to monitor the quality of common water to better manage their local environment.

### 5-2. Indian case study

This section of the report was prepared by **M.Kalyanaraman** (NACA project staff in India) with the assistance rendered by NaCSA personnel – Venkat, Vara Prasad, Kiran, Amaranth and Madhu Kiran.

WWF has approached NACA towards dissemination of ShAD and WWF Draft Standard among the small scale farmers in India. NACA has identified

- i) 3 small scale Aqua Societies in association with NaCSA
- ii) 3 Farmers’ Group with are associated with an NGO to carry out the above mentioned objectives and
- iii) A leading Processing plant appraising on ShAD Standards.

Table 2: List of Aqua Societies and Farmers’ Group interacted for the study

Particulars	AQUA SOCIETIES			NGO FARMER GROUP			TOTAL
	Sri Vinayaka Aqua Society, Rajulanka	Vasista Godavari Aqua Society	Sri Gokarne eswara swami Aqua Society	Peda Puluguvar i palem	Thummn apalli	Karlapalem	
Number of Farmers	25	20	21	30	38	28	<b>162</b>
Number of ponds	32	31	36	44	72	45	<b>260</b>
Area (Ha)	26.66	20.33	15.5	18.4	33.5	19.64	<b>134.03</b>

<sup>2</sup> There is no record available to indicate salinity intrusion in these rivers prior to the farms being operational.

## Achievements and issues identified

Shrimp Aquaculture is the livelihood for the small scale farmers and necessitates safety and security of investment besides consistency in production in each crop in every year. The awareness on importance of seed, water quality and feed on the success of culture operations and the need to adopt Better Management Practices (BMPs) to ensure Sustainable Aquaculture is getting increased among the small scale shrimp farmers (of the Aqua Societies). Prevalence of diseases leading to the contamination of water bodies, fluctuation in market price, need to improve the product quality to cope up with the fierce market competition is forcing the producers to look in to aspects like biosecurity, and Certification. It is in this regard the small scale farmers look forward the WWF ShAD Standards as trusted guidance towards sustainable production and to demonstrate a broader market access.

- Small scale shrimp farmers have acknowledged the initiative (and efforts) taken by WWF to bring down Aquaculture in to a regulated activity aimed at enhanced product quality at sustainable levels.
- Equally the small farmers are hopeful that the initiative of WWF as follow up of ShAD would be the CERTIFICATION of the aquaculture produce, leading to opening up of easy and effective marketing channels (especially Exports) beside brings the Seafood processors / Exporters closer to small scale farmers thus avoiding middlemen.
- Stakeholders acknowledged that encouraging the culture of native species in the shad standards was endorsed. With regard to WWF ShAD Standards, farmers' initial reaction being that it covered the whole gamut of shrimp culture operation with emphasis on social, environmental, and food safety issues.
- The farmers added that the ShAD Standard aims on unity in diversity on National, Regional and Local practices evolved over a period of time than focusing on the conditions that prevail at the farm site. Thus **the small scale farmers strongly reiterated that the types of culture operations need to be considered while laying down the standards.** For example for many of the small scale farmers practicing extensive / modified extensive type culture operations (involving stocking densities 4-7 / m<sup>2</sup>) and with small land holdings coupled with limited infrastructure & financial capabilities, the option of reservoir and process of water treatment would be



Figure 4: The book cover of draft Shrimp Aquaculture Dialogue standards translated in to local language (Telugu ) under the project.

prohibitively expensive besides not practicable as it involves considerable alteration in pond layout.

- Equally worth mentioning that small scale farmers have built in the shrimp culture ponds along the bank of sub creeks that flows into their field criss-cross making optimum use of the available resources as per the prevailing situations at that time (15 years ago). Clauses on WWF ShAD Standards like the maintenance of buffer zone, distance between the farm boundary and the Natural Waters, mangrove vegetation etc., are quite stringent that would exert tremendous pressure and burden hence to be revised to consider small scale shrimp aquaculture.
- Small scale farmers pointed out that the Principle 7 of ShAD outlining feed formulation & quality control has to be monitored by a committee comprising of representatives of Feed mills, National Agencies & Premier Research Institutions (MPEDA, CAA, CIBA, CMFRI etc.,). Farmers added that with the escalation of feed cost, the input costs have significantly increased which has put them in a dilemma for consideration on the usage of local made feeds over the reputed brand feeds.
- Small scale farmers do realize that for energy efficiency, ELECTRIFICATION is the key, and are up with folded hands looking for a possible assistance from any quarter in this regard.
- The doubt / fear that the adoption of ShAD Standard might lead to the loss of identity cannot be hidden by few farmers; nevertheless the concern for the environment, social issues coupled with economic incentives dangle in front of them as factors of motivation and farmers are getting prepared to change! (The increase in number of Societies formation every year and the adoption of BMPs is a testimony for the change). This paradigm shift needs to be gradual involving time towards adaptability, preferably in stages to be efficient, continual and consistent.
- Further the small scale farmers' concern on this transformation being: a) the financial burden and b) the monitoring mechanism. Probably this need detailed discussion with farmers to arrive at time frame schedule and a scheme of financial assistance.

In this connection the small farmers sincerely hope that the WWF would take the lead and the ShAD Standards would be a guide / companion in the path of Progress & Prosperity.

### **Interaction with NGO on WWF ShAD Standard**

SEARCH (Socio Economic Alternatives Research & Resource Community for Humanity) primarily engaged in imparting training to fishermen and aqua farmers have shown interest on popularizing WWF ShAD.

### **Interaction with Processor on WWF ShAD Standard**

M/S. Devi Sea Foods, the leading Processor and Exporter of Seafood has been appraised (The plant Manager, Singarayakonda, Prakasam District, Andhra Pradesh) on the WWF ShAD Standards with a request to communicate to material suppliers (farmers) and buyers. The plant Manager has

acknowledged the WWF ShAD Standard as a tool to improve the product quality at farm level leading to better market accessibility.

## **6. Cost and benefit analysis for complying with ShAD standards**

The challenges for small scale farmer to comply with standards have been highlighted in various occasions including Shrimp Aquaculture Dialogues. Those challenges mostly related to lack of technical and/or financial capacities for those less privileged farmers. The detailed analysis has been conducted by the project to identify gap between ShAD standard and current farming practices, and cost was estimated to enable those farmers to improve their practices and to comply with ShAD standards.

Based on the assessment conducted in the selected pilot sites, the estimated cost in Thailand and India ranged between USD 10,126 to USD 24,678 per farm (Table 3). Details of cost item were described in Table 4 and 5. The highest estimated cost was installation of High Density Polyethylene (HDPE) pond liner (to minimise water seepage in both Thailand and India), accounting for 61% and 33% of total cost respectively. According to the field assessments, average water loss in the pond were 2-3 cm/day in Thailand and 5-10 cm/day in India, and addressing the strong need of improving the system to minimize the water loss less than 1cm/day (the ShAD standards). Other estimated cost were improvement of biosecurity (treatment ponds, crab fence, bird nets), and consultant fees for BEIA. Shifting to Non GM feed estimated to cost additional THB 4 / kg of feed compare to conventional feed in Thailand, and it is identified to be third major cost. *Penaeus monodon* is major aquaculture species in India, and the availability of SPF seed from hatchery was notable difficulties in India.

Although result shows higher estimated cost per farm for the group in Thailand compare to India, it is important to note number of group member is only 10 in Thailand, compare to 20-30 in India. There are number of cost item that are conducted at group level (e.g. BEIA, p-SIA) and it is less cost per farm if there is larger number of member in the group.

In term of benefit of complying with the ShAD standards, it is too early to assess quantitative price benefit at this stage, where the standards are still under development. However, there are number of benefits identified, and in fact used as the incentives for farmers under the project. It is often challenging topic for small-scale farmer to fully understand concepts of farm certification and market trends to source sustainable seafood. Going through the excises of checking their farm practices against the ShAD standards highlighted the knowledge gap and provided opportunity to inform farmers what market is looking for. In other words, farmer groups will be in better positions to access increasingly tough markets.

Table 3: Summary of estimated cost for the group to comply with ShAD standards. The estimation was conducted in local currency first and then converted to USD, and shown as per group and per farm. The full details are shown in **Annex 3** and **Annex 4**.

Farmer group	Cost [USD/group]	Cost [USD/ farm]	Shrimp production [tonnes/farm/year]
Samroiody Farmer group, Thailand	246,784	24,678	7
Average for Thai group	246,784	24,678	7
Sri Vinayaka Aqua Farmers welfare society, India	409,374	16,375	2
Vasista Godavari Aqua Farmers Welfare Society, India	382,127	19,106	3
Sri Gokarneswaraswami Aqua Farmers Welfare Society, India	301,365	14,350	1
Pedapulugivaripalem farmer group, India	303,780	10,126	1
Tummalapalem farmer group, India	468,071	12,318	2
Karlapalem farmer group, India	347,257	12,402	2
Average for India groups	368,662	14,113	2

Table 4: Estimated cost for the Samroiody farmer group in Thailand to comply with ShAD standards, and its percentage of total cost. Detailed table is shown in **Annex 3**.

Improvement requirements	[USD]	% cost
Plastic lining of the ponds	150,151	61
Consultant for BEIA	30,303	12
Additional cost for changing to non GM feed from conventional feed	14,170	6
Improve biosecurity (Pond, birds nets & Crab fence)	8,480	3
Modify pond dyke	7,270	3
Modify canal dyke	7,270	3
Construction of sludge pond	6,060	2
Predator monitoring program	5,818	2
Hire technician for technical advise	5,514	2
Community consultations	3,030	1
Local staff for regular monitoring of activities	2,916	1
Inlet water mesh (finer mesh size)	1,520	1
Chemical storage on farm	1,520	1
Health & safety training for farmer	1,015	-
Documents & training for monitoring	576	-
Safety awareness promotion (sign board in the community)	303	-
Test kits for Chlorine	300	-
Periodical review of community by authority	267	-
Pond soil analysis	210	-
Distribution of Extension materials	91	-
<b>Per Group (10 members)</b>	<b>246,784</b>	
<b>Per Farm</b>	<b>24,678</b>	

Table 5: Estimated cost for the Sri Vinayaka Aqua Society in India to comply with ShAD standards, and its percentage of total cost. Details table for Sri Vinayaka Aqua Society and 5 other societies/groups are shown in **Annex 4**.

<b>Improvement requirements</b>	<b>[USD]</b>	<b>% cost</b>
Plastic lining of the ponds	133,300	33
Improve biosecurity (reservoir construction, bird net, crab fence & test kits)	112,222	27
Initial establishing budget for closed hatchery system for <i>P.monodon</i>	44,445	11
Electrification of farm operation	26,667	7
Consultant for BEIA	22,222	5
Establish treatment ponds for discharge water	18,889	5
Additional cost for using SPF <i>P.monodon</i> PL	16,000	4
Assessment of fish meal fish stock	11,111	3
Pond dyke improvements	7,109	2
Predator monitoring program	4,267	1
Water quality monitoring officer & test kits	3,600	1
Consultant fees p-SIA	2,222	1
Health & safety training and first aid items	1,478	-
Inlet water mesh (finer mesh size)	1,351	-
Accident Insurance for farmer	1,000	-
Training for hatchery operations and sourcing	956	-
safety awareness promotion	667	-
Consultant fees for liaison officer	333	-
Water analysis of fresh water wells/area	333	-
Safety items (gum boots)	333	-
periodical review of community	267	-
Soil analysis	111	-
Meeting to decide crop planning	111	-
Annual meeting operation cost	111	-
test kits for Chlorine	78	-
Local advertisement of farm position	56	-
Sediment discharge area/test	45	-
Meeting to initiate documentation for contracts	45	-
Waste management improvements	45	-
	<b>Per Group (25 members)</b>	<b>409,374</b>
	<b>Per Farm</b>	<b>16,375</b>

## 7. Conclusions

Small-scale producers are facing a number of important challenges in today's volatile markets, particularly related to the globalisation of agricultural trade. Prior to the initiation of this project, small-scale producers in both Thailand and India knew little about various market requirements, including aquaculture certification. Small-scale producers were familiar with national standards (i.e. GAP in Thailand) but very little interaction with global certification schemes. In addition prior to this work, most such small-scale producers did not have good knowledge about what is expected of producers in relation to the ShAD.

The project was designed to work closely with the targeted producer groups, and introduced the ShAD standards to these producers, and more broadly familiarised them with the concept of better market access, certification, and the associated organisational requirements. One of the important outcomes of this project, was building this awareness combined with a better understanding of the importance of long term market access and the growing future need to comply with various third party certification schemes including the ASC. Producers have also indicated the advantages of being a part of the early stages of this process which also well positioned them for future compliance.

However there still are number of concerns blocking their compliance:

- The added capital costs to implement the necessary improvements
- The technical knowledge to conduct the necessary improvements (i.e. BEIA, p-SIA)
- Understanding the need and having the ability to maintain the detailed records needed in this work
- The necessity of their involvement in addressing matters not directly related to producers (i.e. feed and seed requirements which they feel should be the responsibility of feed mills and hatchery operators, including the development of a collaborative compliance mechanism).
- The challenges of complying with the proposed biosecurity standards in the often very densely populated production areas, which as well are usually dependent on common water resources.

Clearly social organization of these small scale producers has now been demonstrated to be of critical importance. The application of the cluster model and the development of the aqua societies illustrated the advantages of group behavior compared to the earlier independent farmer approach. Moreover, the project demonstrated that small-scale producers not only improved their technical capacities as a group, but also achieved access to profitable markets (as was achieved in Thailand), or attracted the attention of buyers and certification schemes (as was achieved in India). However, the small scale farmer needs strong links with other stakeholders such as government agencies and other private sector groups and more needs to be done to build on these initial steps in supporting such partnerships.

# ANNEXES

- Annex 1: ShAD standard public comments - Thailand
- Annex 2: ShAD standards Public comments- India
- Annex 3: Cost and benefit analysis for complying with ShAD standards: Thailand
- Annex 4: Cost and benefit analysis for complying with ShAD standards: India
- Annex 5: Background information about group in Thailand
- Annex 6: Background information about groups in India

## **Annex 1: ShAD standard public comments - Thailand**

<u>COMMENTS on</u> Draft Standard for Responsible Shrimp farming (Version 1, March 2010)	
<b>Provided by:</b>	<b>Network of Aquaculture Centres in Asia-Pacific</b> (Mr. Koji Yamamoto & Ms. Nanthana Pidthong) <b>Aqua Star Europe</b> (Dr. Dominique Gautier) In collaboration with; <b>Samroyod Shrimp Farmer Cooperative, Thailand</b>
<b>Date of submission:</b>	30 April 2010
<b>Objectives:</b>	The objectives of this comments is to request Shrimp Aquaculture Dialogue GSC to consider the situation of small-scale shrimp farmers in Thailand in the review of the draft standards.
<b>Methodology:</b>	These comments were collected using Thai translated Draft Standards (Version 1) through discussion at the farmer group meeting, and individual surveys of small-scale shrimp farmers in Samroyod, Prachuap Khirikhan Province, Thailand. The survey was done by the NACA field officer based in the area.
<b>Comments:</b>	Comments are inserted in the document directly <u>as underlined text</u> .

### General Comments

- Although scope of the standards documents says “the shrimp aquaculture operation”, there are standards for feed mills and hatchery (6.1-6.4, and 7.1-7.5) that shrimp farmers have very little control or negotiating power (particularly small scale). Propose to separate those standards out of this document, and to be included in other sets of documents for feed mills and hatcheries, or consider mechanisms for enabling their cooperation.
- Small farmers rely more than large companies on conditions dictated and services provided by governments and commercial partners. Therefore ability of demonstrating compliance will depend on these external conditions.
- Small scale farmer concerns about their technical and financial capacities to conduct various assessments (such as EIA & BEIA). Suggest considering the mechanisms for appropriate supporting service structures, exception for certain scale of operations, or recognize alternatives ways of demonstrating compliance, adapted to local conditions.
- In order to facilitate compliance of small-scale farmers to the standards, "group certification" should be considered as a one of the viable mechanisms.

Principle 1: Comply with all applicable national laws and local regulations

Criterion 1.1: Legal Requirements

	Indicator	Standards
1.1.1	Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	Yes
1.1.2	Documents proving compliance with all tax requirements <b><u>In Thailand shrimp farmer do not pay the tax directly, and therefore it is more straight forward to state “farming related tax” rather than “all tax”. The requirement should be limited to taxes paid directly by individual farmers or companies operating farms.</u></b>	Yes
1.1.3	Documents proving compliance with all labor laws and regulations. <b><u>In the context of small-scale shrimp farming, it is challenging to provide evidence for compliance, where many agreements between farm owner and worker are based on verbal agreement. Suggest auditing of this standard to be considering practical and locally adopted ways (e.g. interviews instead of copy of contract document).</u></b>	Yes
1.1.4	Documents proving compliance with discharge regulations or permits. <b><u>This is controlled by the Thai Department of Fisheries through the Good Aquaculture Practices (GAP) certification, but this specific point is not necessarily covered by GAP audits.</u></b>	Yes
1.1.5	Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used  <b><u>This is controlled by the Thai Department of Fisheries through the Good Aquaculture Practices (GAP) certification.</u></b>	Yes

**Principle 2: Site farms in environmentally suitable locations while conserving biodiversity and important natural habitats.**

Criterion 2.1: Ecological and biotic siting considerations

**In general, the question of the appropriate scale is an issue for small producers. There is no clear separation between small farms and they usually share water resources. Farmers feel that requirements for private land should be less than for state land.**

	Indicator	Standards	
		(Existing Farms)	(New/Expanding Farms)
**2.1.1	Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI  <b><u>Acceptable if built before date of declaration of PA and compatible with PA management plan. In the case of Samroi yod national park, special measures have been adopted by cabinet decree for PA.</u></b>  <b><u>Reference to management plan must</u></b>	None, except for those with IUCN PA category V or VI

	Indicator	Standards (Existing Farms)	Standards (New/Expanding Farms)
		<b><u>be made.</u></b>	
**2.1.2	Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.  <b><u>Exception for extensive aquaculture provided establishment of the farm was legal and a reforestation program is put in place.</u></b>	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.
**2.1.3	Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics  <b><u>Retroactive assessment will not always be possible and limits of the natural wetland is not clear as the area has been heavily intervened by humans and waterways were modified. In Samroi yod a zoning of activities has been established, which defines a conservation area (wetland). Reference to such zoning appears as the only practical way of defining “natural wetland”.</u></b>	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics
**2.1.4	Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of critical habitat for such species.  <b><u>Current presence of such species on farm does not imply that farm was built on their natural habitat (ponds, water, trees developed by farms may attract animals that would not be there otherwise). Would only apply to areas surrounding the farm. Then the requirement should be to contribute to the protection of these areas. Contribution as a group of</u></b>	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of critical habitat for such species.  <b><u>The category of IUCN Red list should be considered. At least “Least Concerned” species should be exempted.</u></b>

	Indicator	Standards (Existing Farms)	Standards (New/Expanding Farms)
		<b><u>farmers rather than an individual farm must be accepted.</u></b>	
**2.1.5	Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None  <b><u>This indicator should be grouped with 2.1.4.</u></b>	None
2.1.6 	Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m <sup>-2</sup>  <b><u>Reference should be legislation by the time farms were established + Same comments as for new farms.</u></b>  <b><u>Small farms located very close to each other and often do not have buffer zone.</u></b>	>/=100m, with tree density >/=30 trees *100 m <sup>-2</sup>  <b><u>We talk here of mangrove forest as buffer, which is always located below maximum high tide. Therefore, the indicator must consider distance between farm and low tide line (or at least mangrove limit on exposed coast). Allowance for pumping stations and canals needs to be considered. How to consider situations of coastal erosion?</u></b>  <b><u>Also, the case of salt flats or other areas that are improper to tree growth could not be forested.</u></b>
2.1.7 	Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.  <b><u>Reference should be legislation by the time farms were established.</u></b>  <b><u>Allowance for pumping stations and canals needs to be considered. Rivers are dynamic in tropical countries; how to account for natural modifications of watercourses?</u></b>  <b><u>+ Same comments as for new farms.</u></b>  <b><u>Sometime, resource poor farmers are locating very close to natural waterways, due to limited land resources. Exceptions should be made if farmer can demonstrate measures to minimise impact to</u></b>	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.  <b><u>Guidance says it must be forested, but why should it be if natural vegetation is different?</u></b> <b><u>Natural vegetation of Samroi vod wetland does not count trees. Reference should be native vegetation type.</u></b>

	Indicator	Standards (Existing Farms)	Standards (New/Expanding Farms)
		<u>natural waterways.</u>	
2.1.8. 	Size of corridors on farms	<p>Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions</p> <p><u>Suggest including simple drawing/diagram to understand the standard clearly.</u></p> <p><u>Design of farms cannot be modified. Presence of alternative corridors, especially around small farms needs to be accepted. Size of farms needs to be considered. The proper scale is not farm, but it needs to include areas around the farms.</u></p> <p><u>There would be accountability issues for a group of small farms established on private land.</u></p>	<p>Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions</p> <p><u>What is the purpose if farms surrounded by buffer zones? Surely they would act as wildlife corridors. Farm size should be considered: what is the point of a corridor in a small farm?</u></p>
2.1.9 	Presence and content of a BEIA statement.	<p>BEIA statement in accordance with guidance document framework</p> <p><u>Refer to legal requirements by time farms were built. EIAs have never been mandatory for shrimp farms in Thailand. EIAs are not retroactive. An alternative needs to be identified for existing farms. Funding is a problem for small farms.</u></p> <p><u>In the case of Samroi yod, a number of studies and management decisions have been made in relation to the inclusion of the wetland in a national park and Ramsar site. Reference could be made to existing studies and regulations.</u></p>	BEIA statement in accordance with guidance document framework
2.1.10 	Accreditation of the BEIA assessment team	<p>BEIA carried out by accredited national body in accordance with national legislation</p> <p><u>Refer to legal requirements by time</u></p>	BEIA carried out by accredited national body in accordance with national legislation

	Indicator	Standards (Existing Farms)	Standards (New/Expanding Farms)
		<p><b><u>farms were built.</u></b></p> <p><b><u>It is unknown what capacities exist in Thailand and could be accessible by small farmers. Biological information about Samroi yod was produced by academics and NGOs in relation to the creation of the national park and the Ramsar registration of the site.</u></b></p>	
<p><b>2.1.11</b></p> 	Public availability and transparency of BEIA.	<p>BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language</p> <p><b><u>Consider the requirement of an environmental management plan. This should have to be developed by a farmer group as individual farmers would have the capacity to establish such management plans.</u></b></p>	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language
<p><b>2.1.12</b></p> 	Allowance for siting in High Conservation Value Areas (HCVA)	<p>HCVAs maintained</p> <p><b><u>In Samroi yod a zoning of activities has been established, which defines a conservation area (wetland). The consultation process used to achieve such zoning could be considered as an acceptable way of defining a HCVA.</u></b></p>	HCVAs maintained
<p><b>2.1.13</b></p> 	Scientific conservation planning	<p>Farms provide relevant information (see guidance), at the scale of <math>\geq 10</math> km to the ASC over 3 years following certification.</p> <p><b><u>Scientific information about Samroi yod wetland was produced by academics and NGOs in relation to the creation of the national park and the Ramsar registration of the site. But otherwise, it is unclear how small farms could comply with that requirement.</u></b></p>	Mandated use starting five years after release of the ISFRSF, at the scale of $\geq 10$ km. Farms sited only in zones identified as having appropriate characteristics for shrimp culture.

Criterion 2.2: Prevention of salinization of adjacent freshwater and soil resources

	Indicator	Standards
2.2.1	Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content >10% and sand content <70%.
2.2.2	Allowable water loss in ponds	< 1 cm/day  <b><u>The standard was tested in the field following the methodologies specified. The result shows much higher level of water loss, and suggests revising the standard. There are many factors causing seepage and it is not easy for small scale farmer to improve the system in limited resources (e.g. without using plastic liners).</u></b>
2.2.3	Allowance for the use of fresh groundwater for diluting salinity in pond  <b><u>The farmer group use salt ground water, and just wanted to make sure this is OK, and suggest making foot note to clarify this point.</u></b>	None
2.2.4	Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L  <b><u>Small farmers do not have the equipment to perform this test and they would need to find a way of financing it as a group.</u></b>  <b><u>No well in the area had conductance lower than the standard.</u></b>  <b><u>Monitoring surface freshwater is complex due to interactions between saltwater and freshwater and significant knowledge of the area is required to establish an appropriate monitoring plan.</u></b>
2.2.5	Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L  <b><u>This has not been tested yet.</u></b>
2.2.6	Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall  <b><u>Little accumulation of sediments. Ponds are cleaned once a year and dry sediment spread over banks.</u></b>
2.2.7	Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone,

	Indicator	Standards
		<p>specific conductance &lt;1,500 µmhos/cm or chloride concentration &lt;300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.</p> <p><b><u>No accumulation of sediment.</u></b></p>

Criterion 2.3: Prevention of soil erosion

	Indicators	Standards
2.3.1	Side slope of open canals	<p>&gt;3:1 for a loose clay or sandy loam, &gt;1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.</p> <p><b><u>The farmer group felt this is too much details and sometime out of their control. Some farms located next to irrigation cannels and little control over the design of it. Suggest removing this standard.</u></b></p>
2.3.2	Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	<p>Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity</p> <p><b><u>Not relevant as water is pumped directly to ponds.</u></b></p>
2.3.3	Presence of a freeboard on open canals	<p>Yes</p> <p><b><u>Not relevant as water is pumped directly to ponds.</u></b></p>
2.3.4	Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	<p>Yes</p> <p><b><u>Not relevant as water is pumped directly to ponds.</u></b></p>
2.3.5	Side slope of pond banks	<p>&gt;3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side</p> <p><b><u>In general ponds have slopes of 3:1 to 2:1</u></b></p>
2.3.6	Freeboard of pond banks after settlement	>30cm

2.3.7	Top width of pond banks	>2m
2.3.8	Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter <b>natural</b> hydrological conditions of the area.  <b><u>The area was already highly intervened (roads, railway, paddy fields, aquaculture ponds, etc;) and it is not clear what would constitute “natural hydrological conditions”.</u></b>

**Principle 3: Develop and operate farms with consideration for surrounding communities**

Criterion 3.1: All impacts on surrounding communities, ecosystem users, and land owners are accounted for and are, or will be, negotiated in an open and accountable manner

	Indicator	Standards
3.1.1	Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.  <b><u>That is difficult for small scale farmers to conduct, so suggest auditors interview local authorities for receiving information.</u></b>	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.

Criterion 3.2: Complaints by affected stakeholders are being resolved

	Indicator	Standards
3.2.1	Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used. <b><u>That is difficult for small scale farmers to conduct, so suggest to allow mechanisms to receive complains at group levels, instead of individual farm.</u></b>	Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).

Criterion 3.3: Providing employment within local communities

	Indicator	Standards
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<p>3.3.1</p> 	<p>Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>
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Criterion 3.4: Contract farming arrangements (if practiced) are fair and transparent and are beneficial to the contract farmer

	Indicator	Standards
3.4.1	The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance <b><u>Concern about the privacy of business, and suggest removing from standard or placing safety measures to protect it.</u></b>
3.4.2	The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance <b><u>Concern about the privacy of business, and suggest removing from standard or placing safety measures to protect it.</u></b>
3.4.3	There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year. Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.

**Principle 4: Operate farms with responsible labor practices**

Criterion 4.1: Child labor

	Indicator	Standards
4.1.1	Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None

Criterion 4.2: Forced, bonded compulsory labor

	Indicator	Standards
4.2.1	Number of incidences of forced, bonded or compulsory labor	None

Criterion 4.3: Discrimination in the work environment

	Indicator	Standards
4.3.1	Evidence of proactive anti-discrimination policy	Yes
4.3.2	Number of incidences of discrimination	None

4.3.3	Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance
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Criterion 4.4: Work environment health and safety

	Indicator	Standards
4.4.1	Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.
4.4.2	Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents.	100%
4.4.3	Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%

Criterion 4.5: Basic needs and living wages

	Indicator	Standards
4.5.1	The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%

Criterion 4.6: Access to freedom of association and the right to collective bargaining

	Indicator	Standards
4.6.1	The percentage of employees with access to trade unions, self-organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference.	100%  <b><u>Not applicable to small farmers where workers are relatives or neighbors.</u></b>

Criterion 4.7: Disciplinary practices in the working environment causing temporary or permanent physical and/or mental harm

	Indicator	Standards
4.7.1	Incidences of physically or mentally abusive disciplinary actions	None
4.7.2	Evidence of abusive disciplinary policies and procedures	None

Criterion 4.8: Overtime compensation and working hours

	Indicator	Standards
4.8.1	Incidences, violations, abuse of working hours, and overtime laws/ expectations	None

Criterion 4.9: Employee and worker contracts fair and transparent

	Indicator	Standards
4.9.1	<p>Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee.</p> <p>Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.</p>	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers.

Criterion 4.10: Fair and transparent mechanism to resolve conflicts

	Indicator	Standards
4.10.1	Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	<p>Evidence of these meetings taking place</p> <p><b><u>Not applicable to small farmers where workers are relatives or neighbors.</u></b></p>

**Principle 5: Manage shrimp health in a responsible manner**

*Impact: The culture of shrimp under stressful conditions can lead to the transfer of diseases or the amplification of diseases in the receiving waters. Additionally, heavy reliance on the use of therapeutic chemicals at shrimp aquaculture facilities not only can cause pollution but also can stimulate and/or introduce antibiotic resistant bacteria in the receiving waters, which can potentially have a negative effect on the local ecosystem.*

Criterion 5.1: Disease prevention

	Indicator	Standards
5.1.1	<p>Demonstration of functional and documented preventive tools to prevent:</p> <ol style="list-style-type: none"> <li>1) Diseases from the surrounding environment entering the farm (predator and vector control),</li> <li>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</li> <li>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen(s), and monitor external signs of pathologies and moribund animal]</li> </ol>	Yes

	Indicator	Standards
5.1.2	 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector  Or  Mesh size for mechanical filtration of supply water	Yes       $\leq 250 \mu\text{m}$  <u>Consider to revise the mesh size (Typically shrimp farms use 600 micron, and hatchery for 250). Is it really necessary to go down 250 micron?</u>
5.1.3	Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	>3ppm
5.1.4	Daily minimum pond water pH	>7
5.1.5	Annual average farm survival rate (SR) and relative standard deviation (RSD) in :  1) Unfed and non-aerated ponds  2) Fed but non-aerated ponds  3) Fed and permanently aerated ponds	SR >50% and RSD <15%  SR >60% and RSD <15%  SR >80% and RSD <15%  <u>Consider to revise the SR lower, such as 70%.</u>  <u>Set separate standards for P.monodon and p. vannamei?</u>
5.1.6	% of stocked post larvae (PL) that are SPF or SPR  <u>Duplicate with 6.2.2.</u>	100%

Criterion 5.2: Predator control

	Indicator	Standard
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5.2.1	Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or state, local or national governments	None
5.2.2	Allowance for use of lead shot for predator control of non- protected, threatened or endangered species	None
5.2.3	Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes

Criterion 5.3: Disease management and treatment

	Indicator	Standards
5.3.1	Allowance for use of antibiotic and medicated feed on labeled products	None
5.3.2	Presence of records listing all product stocked and used on the farm	Yes
5.3.3	Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes
5.3.4	Allowance for treating water with pesticides, with the exception of Tea-seed-cake and Rotenone in the absence of shrimp  Or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None  None
5.3.5	Allowance for discharge of all chemicals without previous neutralization	None
5.3.6	Pesticide and chlorine residues in pond water when shrimp are present	Not detectable
5.3.7	Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes

Principle 6: Manage broodstock origin, stock selection and effects of stock management

*Impact: Shrimp farming has been shown to have negative impacts on wild shrimp populations and on the environment due to the collection of wild post-larvae and broodstock; the introduction of non-native species and/or the escape of genetically-distinct native shrimp.*

Criterion 6.1: Presence of natural or established shrimp species

	Indicator	Standards
6.1.1	Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None
6.1.2	For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes

Criterion 6.2: Origin of post larvae

	Indicator	Standards
6.2.1	Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes
6.2.2	Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes
6.2.3	% of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	<i>P. Vannamei</i> 100%  <i>P. Monodon</i> must be improved over time (100% within 6 years after the publication of the standards)
6.2.4	Wild-caught broodstock must be sourced from fisheries with an established fishery management plan <u>or</u> certified fisheries	Yes
6.2.5	Allowance for wild-caught PL	None

Criterion 6.3: Escapes from culture facilities

	Indicator	Standards
6.3.1	Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following	

	requirements:	
	A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes
	B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	yes
	C. Regular, timely inspections are performed, and recorded in a permanent register	Yes
	D. Evidence of timely repairs to the system are recorded	Yes
	E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes
	F. Traps on water outlets to catch/kill escapes	Yes
	G. Evidence of escape recovery protocols	Yes
	H. Harvested shrimp shall be killed or slaughtered on site	Yes
6.3.2	Evidence of records on escapes and actions taken to prevent reoccurrence	Yes

Criterion	Indicator	Standards
6.4: Transgenic shrimp		
6.4.1	Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None

**Principle 7: Use resources in an environmentally efficient and responsible manner**

Criterion 7.1 - Origin of aquatic ingredients

**(General points)There is need for government and regional organisation to support and work on these issues. Suggest WWF to consider supporting such initiatives.**

	Indicator	Standards
7.1.1	Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISEAL member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability
7.1.2	By-product feed ingredients used are unsuitable for human consumption, not from <i>Penaeid</i> shrimp, and acquired from a sustainable source	Yes
7.1.3	The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes

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**Interim Plan for 7.1.1**

	Indicator	Standards
7.1.1a	Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None
7.1.1b	Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories: Near Threatened, Vulnerable, Endangered, and Critically Endangered)	None
7.1.1c 	Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes
7.1.1d 	Demonstrate consideration for species interaction issues	Yes

Criterion 7.2 – Origin and content of terrestrial feed ingredients

	Indicator	Standards
7.2.1	Timeframe for producers to source non-marine ingredients from sources certified by an ISEAL member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability
7.2.2	The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes

***In the interim period, the following indicators and standards apply for compliance with 7.2.1:***

	Indicator	Standards

7.2.1a	Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes
7.2.1b	Chemical and Pesticide Use in agriculture	

Criterion 7.3: Use of GMO ingredient in feed

	<i>Indicator</i>	<b><u>Standards</u></b>
7.3.1	% feed that is of GMO origin	<p><b><u>Options:</u></b></p> <ul style="list-style-type: none"> <li>a) 0% GMO</li> <li>b) GMO allowed with label</li> <li>c) GMO allowed, but no labeling</li> <li>d) GMO allowed with GMO free label on product that don't use GMO's</li> <li>e) other</li> </ul>

Criterion 7.4: Use of land animal by product in feed

	<b>Indicator</b>	<b>Standards</b>
7.4.1	Land Animal Byproducts	<p><b><u>Options:</u></b></p> <ul style="list-style-type: none"> <li>a) 0% Land Animal Byproducts</li> <li>b) Land Animal Byproducts allowed with label</li> <li>c) Land Animal Byproducts allowed, but no labeling</li> <li>d) Land Animal Byproduct allowed with Land Animal Byproduct free labeled on products that don't use them</li> <li>e) other</li> </ul>

Criterion 7.5: Use of wild fish for fishmeal and oil

	Indicator	Standards
7.5.1	Feed Fish Equivalence Ratio (FFER)	<i>L. vannamei</i> : 1:1  <i>P. monodon</i> : 1.5:1
7.5.2	Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or  Standard deviation

Criterion 7.6: Effluent contaminant load

	Indicator	Standards
7.6.1	Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	<17.6 kg/tonne of shrimp for <i>P. vannamei</i>  <28.5 kg/tonne of shrimp for <i>P. monodon</i> and other <i>Penaeid</i> shrimp species
7.6.2	Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	<2.7 Kg/tonne of shrimp for <i>P. vannamei</i>  < 5.5 kg/tonne of shrimp for <i>P. monodon</i> and other <i>Penaeid</i> shrimp species
7.6.3	Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L
7.6.4	Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation

Criterion 7.7: Energy efficiency

	Indicator	Standards
7.7.1	Presence of records summarizing the facilities' energy consumption by sources	Yes

7.7.2	Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes
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Criterion 7.8: Handling and disposal of hazardous materials and wastes

	<b>Indicators</b>	<b>Standards</b>
7.8.1	Percentage of combustibles contained in bunds	100%
7.8.2	Percentage of chemicals stored in impermeable containers or buildings	100%
7.8.3	Percentage of used lubricants recycled or turned over to an accredited waste management company	100%
7.8.4	Percentage of chemical containers reused or turned over to an accredited waste management company	100%
7.8.5	Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%
7.8.6	Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	>50%

## Annex 2: ShAD standards Public comments- India

Sri Vinayaka Aqua Society, Rajulenka, West Dodavari District, Andhra Pradesh, India

Principle 1: Comply with all applicable national laws and local regulations				
Indicator	Standards	Status	Remarks pertaining to standards	Suggestions
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Family owned lands</li> <li>• License from the CAA (Coastal Aquaculture Authority) has been obtained.</li> <li>• Registered with Regional (AndhraPradesh State) Registrar, Societies vide Number 86/2007 dated 21st February 2007</li> <li>• Registered with Marine Products Export Development Authority (MPEDA) vide no: AQ/HO/SOC/REG-44/2007 - 08</li> </ul>	Compliance with local and National Authorities is necessary (for being cohesive and effective).	Compliance with local and National Authorities is necessary for being cohesive and effective. It would be better to bring the remaining small scale farmers also in to the society fold at the earliest to have an effective regulation and control.
1.1.2 Documents proving compliance with all tax requirements	YES	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Land tax is being paid annually every year: No water tax</li> </ul>	Necessary	
1.1.3 Documents proving compliance with all labor laws and regulations	YES	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> <li>• Ponds are managed by family members ,who form the workers.</li> <li>• Few farmers hire labours from neighboring villages on crop basis as per the need                             <ul style="list-style-type: none"> <li>• Terms between the owner and worker are verbal and not written on paper as contract.</li> </ul> </li> </ul>	To be adoptive as per local conditions	Probably this can be applied for an Aqua Society that employs 10 or more labours.
1.1.4 Documents proving compliance with discharge regulations or permits	YES	<ul style="list-style-type: none"> <li>• <b>Regulation exists but yet to be implemented in field</b></li> <li>• By and large Covered under CAA License</li> </ul>	Probably looked in to on trail basis	Hydrographical data on water discharge to be measured and recorded for a crop and based on the discharge water quality the regulations may be imposed or waived.

1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	<ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• Banned Chemicals and antibiotics are not used</li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory monitored by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>	Banned antibiotics and chemicals are not used.	<b>There is no list of authorized list of therapeutants and chemicals for Aquaculture use</b>
<b>Principle 2: Site farms in environmentally suitable locations while conserving biodiversity and important natural</b>				
<b>Indicator</b>	<b>Standards</b>			
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in National Protected Areas</li> </ul>	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Mangrove eco systems</li> </ul>	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Natural wet lands</li> </ul>	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in habitats of species listed by the IUCN Red list</li> </ul>	Nil	
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in critical habitats of species at risk as defined by National listing processes</li> </ul>	Nil	

2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	<ul style="list-style-type: none"> <li>• Small / sub creeks of Godavari River is flowing cross across the site and the pond lay out is designed accordingly. <ul style="list-style-type: none"> <li>• <b>About 20 m width mangrove vegetation lies at both sides of the Godavari river.</b></li> </ul> </li> <li>• The distance between the farm site and the Godavari river being 1 Km</li> <li>• The tidal influence is felt in the River Godavari (= water source) which drains in to Bay Of Bengal at Antharveedhi 5Km (as the crow flies) from the farm site.</li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	Probably applicable to the farms located along the coastal areas.
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	<ul style="list-style-type: none"> <li>• <b>The distance between society ponds and the Natural Water Source , Godavari River is about 1 Km</b></li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions			
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	<ul style="list-style-type: none"> <li>• <b>No BEIA / EIA have been done</b></li> <li>• The practice of Aquaculture over 2 decades in the area is a testimony to the (least) impact on environment.</li> </ul>	BEIA for Aqua societies operated by small scale farmers may not be necessary	BEIA may be considered for the fresh farms that will be constructed in future
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation			
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language			
2.1.12 Allowance for siting in High	HCVAs maintained	<ul style="list-style-type: none"> <li>• <b>The society Shrimp ponds are not</b></li> </ul>	Nil	

Conservation Value		located in High Conservation Value Areas		
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification	<ul style="list-style-type: none"> <li>• <b>Yet to be done</b></li> </ul>		
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<ul style="list-style-type: none"> <li>• <b>Mostly clay (Clay &gt; 20%)</b></li> </ul>		
2.2.2 Allowable water loss in ponds	< 1 cm/day	<ul style="list-style-type: none"> <li>• <b>Up to 5 cm / day</b></li> </ul>	The soil composition of all the ponds belonging to an Aqua Society may not be uniform and therefore allowance of seepage up to 10 cm / day would be appropriate	Allowance of seepage up to 10 cm / day would be appropriate
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	<ul style="list-style-type: none"> <li>• <b>NIL</b></li> <li>• The irrigation canal (fresh water) crosses the farm site and it is a practice that farmers pump in irrigation canal water (fresh water) in to pond to dilute / maintain salinity</li> </ul>	Agreed	
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 $\mu$ mhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>No fresh water (drinking water) well close to farm site.</b></li> <li>• Drinking water from Lakshmaneswaram (3 Km away from farm site) is supplied through pipe line.</li> </ul>	This clause becomes relevant only where the fresh water well exists close to farm site. Further Farmers to be provided the equipment if testing to be done.	Probably this is applicable wherein fresh water well exists within 100m from the peripheral embankment of the farm.

2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>5-7 m width man made canal is present between the Aqua Ponds &amp; Agriculture paddy field to prevent saline water seepage in to paddy fields.</b></li> <li>• Agriculture &amp; Aqua culture is co existing here for the last 20 years.</li> </ul>	This is an index on intrusion of salt water in to Agriculture field: Aquaculture is being practiced on the land not suitable for agriculture; generally on banks of brackishwater creek. As long as the Aquaculture co exists with Agriculture and at Sustainable levels as seen for the last 2 decades, the issue of intrusion of salt water becomes irrelevant.	
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	The sediment is removed once a year and spread over pond embankments for drying.	Very little sediment accumulation	
2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>• <b>No feeder canal runs over embankments.</b></li> <li>• It is a practice to have a Diesel engine positioned on pond embankment of each pond through which water is pumped directly in to</li> </ul>	May not be relevant as water is pumped directly in to ponds	It is difficult to quantify this as the geometry and pond locations are unique and differ greatly from place to place. Further every farmer certainly will maintain the

2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity	ponds.		canal such that water gets in to the pond without difficulty
2.3.3 Presence of a freeboard on open canals	Yes			
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes			
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side	(Peripheral ) Pond Embankments Top width =2.to 2.5 m Height = 1.5 m Slope = 1:3 Bottom width = 10.5 to 11.5 m	The cross bunds between the ponds will have a top width about 1m as it is meant only for foot travel. Vehicle (especially 4 wheelers) does not ply on cross bunds.	For the cross bunds the following dimensions may be adequate. Top Width 1m , Height 1.3m, slope 1:2
2.3.6 Freeboard of pond banks after settlement	> 30cm	<ul style="list-style-type: none"> <li>Free board is &lt; 0.2m</li> <li>However a small hume pipe is fixed just below the free board level for multipurpose</li> </ul>	Free board of 30 cm is necessary	Free board of 30 cm is recommended
2.3.7 Top width of pond banks	> 2m	<ul style="list-style-type: none"> <li>&gt; 2m (peripheral bund)</li> </ul>		
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	<ul style="list-style-type: none"> <li><b>Society ponds are not located adjacent to sub creeks and there is no Natural water ways immediate to the pond area.</b></li> </ul>	Nil	
Principle 3: Develop and operate farms with consideration for surrounding communities				
<b>Indicator</b>	<b>Standards</b>			

<p>3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.</p>	<p>Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.</p>	<p><b>• p - SIA yet to be done</b></p> <ul style="list-style-type: none"> <li>• This is family owned operations carried out by the village community in consensus. • More so it is the same farmers who practice both Agriculture and aquaculture in the same locality in such a way that one activity does not affect the other • The aquaculture has been carried out since two decades and there is hardly any social issues.</li> <li>• Therefore the need to carry out Social Impact Assessment has not been felt.</li> </ul>		<p>Aqua Society Shrimp Farms may be exempted from the Participatory Social Impact Assessment</p>
<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<ul style="list-style-type: none"> <li>• Issues if any will be taken up in village level community meetings and sorted out amicably.</li> </ul>	<p>The age old practice exists in Village level regarding addressing the complaints , debating on the same paving for amicable settlement</p>	

<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<ul style="list-style-type: none"> <li>• <b>No migrant / distant workers</b></li> <li>• Mostly family members are engaged in the work</li> <li>• In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.</li> <li>• Few farmers engage labours from Rajulanka village itself for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}</li> </ul>		<p>Migrant / distant workers are not encouraged owing to anonymity</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<ul style="list-style-type: none"> <li>• <b>No written contracts</b></li> <li>• Mostly ponds are managed by family members</li> <li>• Few labours are engaged from neighboring villages for crop basis (4-5 months) as per need</li> </ul>		<p>Engaging labour is a bit sensitive issue and is governed by age old practice of verbal terms.</p>
<p>3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood</p>	<p>100% compliance</p>			
<p>3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion</p>	<p>Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.</p>	<ul style="list-style-type: none"> <li>• <b>Meetings are held between the Purchaser and Contract farmers</b></li> <li>• The arrangement between the farmer and the Processor is by and large on faith and oral communication.</li> <li>• Harvested Material is given to Processor who offer a higher price</li> </ul>		

Principle 4: Operate farms with responsible labor practices				
Indicator	Standards			
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	<ul style="list-style-type: none"> <li>• <b>No deployment of Child labour</b></li> </ul>	Nil	
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	<ul style="list-style-type: none"> <li>• <b>No forced, bonded or compulsory labour</b></li> </ul>	Nil	
4.3.1 Evidence of proactive anti-discrimination policy	Yes	<ul style="list-style-type: none"> <li>• <b>There is no discrimination policy on women employment.</b></li> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> </ul>		
4.3.2 Number of incidences of discrimination	None	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> </ul>		
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	<ul style="list-style-type: none"> <li>• Women are not employed</li> <li>• Employees are locals and belong to the same ethnic group</li> </ul>		
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<ul style="list-style-type: none"> <li>• No formal training imparted but oral instructions</li> </ul>		

4.4.2 Occurrences of health- and safety-related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	<ul style="list-style-type: none"> <li>• Such accidents are rare</li> </ul>		
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	<ul style="list-style-type: none"> <li>• No industrial insurance policy undertaken</li> </ul>	Difficult for the small scale farmer to initiate on this	
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	<ul style="list-style-type: none"> <li>• <b>Payment as per the norms of the locality</b></li> <li>• Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</li> <li>• The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</li> <li>• Besides they are paid incentive after harvest depending on the production</li> </ul>		

4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	<ul style="list-style-type: none"> <li>• <b>Limited</b></li> <li>• Ponds are managed by and large by Family members and hardly there will be employees :</li> <li>• The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</li> </ul>	Not applicable as the farm is managed by family members	
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are rare</b></li> <li>• Workers being family members , made to realize the mistake and instructed not to repeat the same</li> </ul>		
4.7.2 Evidence of abusive disciplinary policies and procedures	None			
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are uncommon (owing to the farm being managed by family members)</b></li> </ul>		
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	<ul style="list-style-type: none"> <li>• <b>No paper contracts</b></li> <li>• Managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal contract conditions</li> </ul>	Not applicable as the farm is managed by family members	
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	<ul style="list-style-type: none"> <li>• <b>No such formal meetings are conducted</b></li> <li>• The farm affairs is managed by family members</li> </ul>	Not applicable as the farm is managed by family members	
Principle 5: Manage shrimp health in a responsible manner				

Indicator	Standards			
<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>• <b>Few Functional disease preventive tools exist in farm</b></li> <li>• Filtration bags and Crab fencing, bird netting done</li> <li>• Source water after filtration through mesh bags are put into the ponds .</li> <li>• By and large no disinfection / sterilization is done (There is no reservoir pond )</li> <li>• However few farmers do the chlorination at the beginning in the grow out ponds prior to stocking and subsequently use source water after filtration without disinfection.</li> <li>• The river Godavari drains in to Bay of Bengal at Antharveedhi 5km from farm site. A creek branching out of Godavari River forms the water source for the farm site.</li> <li>• The tidal effect is so pronounced that during lowtide hardly there is any water in the creek and the high tide brings considerable quantity of brackish water in to the creek. This Natural phenomenon is taken advantage by the Farmers in a way to use the same creek as the source of water (during high tide) and a means of drainage canal (during low tide) •</li> <li>• The incidence free on disease break out is a testimony to the efficiency of the system and the understanding of the farmers on shrimp culture operation.</li> </ul>		

<p>5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water</p>	<p>Yes = 250 m</p>	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Mesh bags (80 and 60p ) are employed for water filtration</li> </ul>	<p>The mesh size of filtration being around 500 micron. Keeping in volume and pressure of water flow, mesh size less than 500 would be impractical.</p>	
<p>5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise</p>	<p>&gt; 3ppm</p>	<ul style="list-style-type: none"> <li>• In general, dissolved oxygen is checked once in a week ( the frequency is enhanced based on need basis depending on pond water quality and biomass)</li> </ul>		
<p>5.1.4 Daily minimum pond water pH</p>	<p>&gt; 7</p>	<ul style="list-style-type: none"> <li>• Normally it ranges from 7.5 - 8.5</li> </ul>		
<p>5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds</p>	<p>SR &gt; 50% and RSD &lt; 15% SR &gt; 60% and RSD &lt; 15% SR &gt; 80% and RSD &lt; 15%</p>	<ul style="list-style-type: none"> <li>• These are aerated ponds and</li> <li>• Annual average farm survival ranges between 80 -90% with a variation among the ponds of the society &lt; 15%</li> </ul>		
<p>5.1.6 % of stocked post larvae (PL) that are SPF or SPR</p>	<p>100%</p>	<ul style="list-style-type: none"> <li>• <b>No SPF/ SPR seeds are stocked</b></li> </ul>		
<p>5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local</p>	<p>None</p>	<ul style="list-style-type: none"> <li>• <b>No intentional lethal predator control</b></li> <li>• Filtration bags are the tools employed for non lethal prevention of predators</li> </ul>		

5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	<ul style="list-style-type: none"> <li>• Lead Shot for predator control not employed</li> </ul>		
5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	<ul style="list-style-type: none"> <li>• <b>Study not done</b></li> </ul>	As the small farmers need to spend his whole time on culture operation ,documentation of details pertaining to this would be very difficult	
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	<ul style="list-style-type: none"> <li>• <b>Banned Chemicals and antibiotics are not used</b></li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory managed by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>		
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	<ul style="list-style-type: none"> <li>• <b>No records available</b></li> </ul>	<ul style="list-style-type: none"> <li>• Record on the same to be maintained</li> </ul>	To carry out such type of work farmers will have no time: an assistant may be given one per society (consisting of 20 farmers or more)

5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	<ul style="list-style-type: none"> <li>• Oral instructions given but not through placards / boards etc., etc..</li> </ul>		As the ponds are managed by the family members, they are by and large aware of the chemical product instructions
5.3.4 Allowance for treating water with pesticides, with the exception of Tea-seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	<ul style="list-style-type: none"> <li>• Pesticides are not used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.5 Allowance for discharge of all chemicals without previous neutralization	None	<ul style="list-style-type: none"> <li>• Hardly any chemicals are used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	No Detectable 0	<ul style="list-style-type: none"> <li>• Pesticides and Chlorine residues in pond water not being tested at present</li> <li>• However, for Shrimp ELISA test is done but not for water</li> </ul>		

5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	<ul style="list-style-type: none"> <li>• Harmful strains of probiotics are not used</li> </ul>		
Principle 6: Manage broodstock origin, stock selection and effects of stock management				
<b>Indicator</b>	<b>Standards</b>			
6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	<ul style="list-style-type: none"> <li>• <b>Native species are cultured.</b></li> <li>• Penaeus monodon is the species under culture for summer crop and Macrobrachium rosenbergii (scampy) in winter crop</li> </ul>	Nil	
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	<ul style="list-style-type: none"> <li>• Hatchery raised Post larvae is stocked in ponds</li> </ul>		
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	<ul style="list-style-type: none"> <li>• <b>Not applicable (as the cultured species is the Native species)</b></li> </ul>		

6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	<ul style="list-style-type: none"> <li>• <b>No SPF seed is used</b></li> </ul>		
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	<ul style="list-style-type: none"> <li>• Shrimp PLs obtained from wild caught brood stock</li> <li>• For P.monodon pond rearing brood stock is very difficult as it fails to mature</li> </ul> <p>For scampy, the broodstocks are sourced from the grow out ponds</p>		
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	<ul style="list-style-type: none"> <li>• Fishery management plan prohibits collection of wild broodstock during spawning months</li> </ul>		
6.2.5 Allowance for wild-caught PL	None	<ul style="list-style-type: none"> <li>• <b>Wild caught shrimp PL not used</b></li> </ul>		
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:			This may not be applicable to native species	
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Outlet is the hume pipe and cap is used both inside and outside to arrest the escapes .</li> <li>• Further mesh screen is installed to prevent the escapes from the pond</li> </ul>		

B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	<ul style="list-style-type: none"> <li>• Pond embankment has a free board of &lt; 0.2m besides a hume pipe for multipurpose use.</li> </ul>		
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	<ul style="list-style-type: none"> <li>• Inspections are done; but to be recorded.</li> </ul>		
D. Evidence of timely repairs to the system are recorded	Yes	<ul style="list-style-type: none"> <li>• Periodical maintenance and timely repair are carried out; but to be recorded</li> </ul>		
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes		Not applicable for native species	
F. Traps on water outlets to catch/kill escapes	Yes	<ul style="list-style-type: none"> <li>• <b>Yes ; Traps to catch escapes</b></li> </ul>		
G. Evidence of escape recovery protocols	Yes	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> </ul>		
H. Harvested shrimp shall be killed or slaughtered on site	Yes	<ul style="list-style-type: none"> <li>• Harvested Shrimps are chill killed at the site prior to transportation to Processing plant</li> </ul>		
6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	<ul style="list-style-type: none"> <li>• Hardly there would be any escapes:</li> <li>• No records are maintained on escapes and the actions taken to prevent the same</li> </ul>	Not applicable for native species	
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Nil		

Principle 7: Use resources in an environmentally efficient and responsible manner				
Indicator	Standards			
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability	<ul style="list-style-type: none"> <li>This would depend on the standards imposed on Shrimp Feed Mills and the extent they comply to the same as the farmers buy formulated feeds of reputed brands from the market</li> </ul>	To be discussed with feed manufacturers	Probably this needs Local Government and Regional Fishery Organisations involvement to achieve the objective.
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	<ul style="list-style-type: none"> <li>Yes.</li> <li>The farmers use formulated feeds of reputed companies.</li> <li>It is believed that the feed ingredients comply to this.</li> </ul>	To be discussed with feed manufacturers	
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	<ul style="list-style-type: none"> <li>Yes.</li> <li>Name of few ingredients (Qualitative) used for manufacture is displayed on feed bag</li> </ul>	<ul style="list-style-type: none"> <li>Feed supplier to be approached (preferably through Governmental Agencies) enabling feed manufacturer to declare the list of ingredients employed towards feed formulation</li> </ul>	
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1d Demonstrate consideration for species interaction issues		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member’s certification scheme that addresses environmental and social sustainability	Within five years of commercial availability	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
In the interim period, the following indicators and standards apply for compliance with 7.2.1:		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1b Chemical and Pesticide Use in agriculture		Nuvakron, Chlorophitos		

7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details. Based on which the FEER can be calculated</li> <li>[Assuming that % of Fish meal in Shrimp Feed is 15% &amp; FCR = 1:2] The FFER = ( 15*2 )/22.2 = 1.35</li> </ul>		
7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	<ul style="list-style-type: none"> <li>Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>The eFCR generally ranges between 1.3 - 1.5</li> </ul>		
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannemei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2000 -2500 kg / Ha ( monodon + scampy) FCR = 1: 1.5, the <b>Nitrogen released = 18.74 kg / Tons of Shrimp</b> production		

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2000 -2500 kg / Ha ( monodon + scampy) FCR = 1: 1.5, the <b>Phosphorous released = 4.15 kg / Tons of Shrimp</b> production		
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	<ul style="list-style-type: none"> <li>• Small scale farmers are not equipped with effluent treatment ponds.</li> <li>• Discharge water is directly released in to water source</li> </ul>	A study may taken up with WWF assistance to evaluate the quality of drainage from shrimp ponds	
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	<ul style="list-style-type: none"> <li>• Dissolved oxygen of source water around 3 to 4 ppm</li> </ul>		
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	<ul style="list-style-type: none"> <li>• Data generation to be done</li> </ul>		
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	<ul style="list-style-type: none"> <li>• Data generation to be done</li> </ul>		
7.8.1 Percentage of combustibles contained in bunds	100%	<ul style="list-style-type: none"> <li>• Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement</li> </ul>		
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	<ul style="list-style-type: none"> <li>• Chemicals (used for water application &amp; feed additives) are generally stores in the containers they were bought and are kept in the house of the respective farmers and is taken to the site daily to meet day requirement.</li> </ul>		
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Usage of lubricants is negligible		

7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Generally sold to merchants for recycling / reuse		
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Usually such items are burnt		
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Sold to merchants		

**Vasista Godavari Aqua Society, Sakhinetipallienka, East Godavari District, Andhra Pradesh, India**

Principle 1: Comply with all applicable national laws and local regulations				
Indicator	Standards	Status	Remarks pertaining to standards	Suggestions
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• 60% of the land is Government land leased to the farmers about 40% Family owned lands</li> <li>• License from the CAA (Coastal Aquaculture Authority) has been obtained.</li> <li>• Registered with Regional (AndhraPradesh State) Registrar, Societies vide Number 347/2009 dated 23rd July 2009</li> <li>• Registered with Marine Products Export Development Authority (MPEDA) vide no: AQ/HO/SOC/REG-171 /2009 - 10</li> </ul>	Compliance with local and National Authorities is necessary (for being cohesive and effective).	Compliance with local and National Authorities is necessary for being cohesive and effective. It would be better to bring the remaining small scale farmers also in to the society fold at the earliest to have an effective regulation and control.
1.1.2 Documents proving compliance with all tax requirements	YES	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Land tax is being paid annually every year: No water cess</li> </ul>	Necessary	

1.1.3 Documents proving compliance with all labor laws and regulations	YES	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> <li>• Ponds are managed by family members ,who form the workers.</li> <li>• Few farmers hire labours from neighbouring villages on crop basis as per the need</li> </ul>	To be adoptive as per local conditions	Probably this can be applied for an Aqua Society that employs 10 or more labours.
1.1.4 Documents proving compliance with discharge regulations or permits	YES	<ul style="list-style-type: none"> <li>• <b>Regulation exists but yet to be implemented in field</b></li> <li>• Covered under CAA License</li> </ul>	Probably looked in to on trail basis	Hydrographical data on water discharge to be measured and recorded for a crop and based on the discharge water quality the regulations may be imposed or waived.
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	<ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• Banned Chemicals and antibiotics are not used</li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory monitored by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>	Banned antibiotics and chemicals are not used.	<b>There is no list of authorised list of therapeutants and chemicals for Aquaculture use</b>

**Principle 2: Site farms in environmentally suitable locations while conserving biodiversity and important natural**

Indicator	Standards			
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in National Protected Areas</li> </ul>	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Mangrove eco systems</li> </ul>	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Natural wet lands</li> </ul>	Nil	

2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in habitats of species listed by the IUCN Red list</li> </ul>	Nil	
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in critical habitats of species at risk as defined by National listing processes</li> </ul>	Nil	
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	<ul style="list-style-type: none"> <li><b>The mangrove vegetation of about 5 to 10 m width exists in patches between the Godavari river water and the Peripheral bund of another society (Murthy Aqua Society)</b> <ul style="list-style-type: none"> <li>The tidal influence is felt in the River Godavari (= water source) which drains in to Bay Of Bengal at Antharveedhi 5Km (as the crow flies) from the farm site.</li> <li>The shrimp culture ponds of another society (Murthy Aqua Society) lies in between the water source and Vasista Godavari Aqua Society., the buffer width being 100m</li> </ul> </li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	Probably applicable to the farms located along the coastal areas.
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	<ul style="list-style-type: none"> <li><b>100 m from Natural Water source (Godavari Creek)</b></li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions			

2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	<ul style="list-style-type: none"> <li>• <b>No BEIA / EIA has been done</b></li> <li>• Aquaculture has been practiced in the area since 15 years.</li> </ul>	BEIA for Aqua societies operated by small scale farmers may not be necessary	BEIA may be considered for the fresh farms that will be constructed in future
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation			
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language			
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	<ul style="list-style-type: none"> <li>• <b>The society Shrimp ponds are not located in High Conservation Value Areas</b></li> </ul>	Nil	
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification	<ul style="list-style-type: none"> <li>• <b>Yet to be done</b></li> </ul>		
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<ul style="list-style-type: none"> <li>• <b>Moderate clay (clay content about 60%)</b></li> </ul>		
2.2.2 Allowable water loss in ponds	< 1 cm/day	<ul style="list-style-type: none"> <li>• <b>&gt; 1 cm / day</b></li> </ul>	The soil composition of all the ponds belonging to an Aqua Society may not be uniform and therefore allowance of seepage up to 10 cm / day would be appropriate	Allowance of seepage up to 10 cm / day would be appropriate

2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	<ul style="list-style-type: none"> <li>• Nil</li> <li>• There is no fresh water underground Aquifer</li> </ul>	Agreed	
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>No fresh water (drinking water) well close to farm site.</b></li> <li>• Drinking water is supplied from Malkipuram (9 km away from the village Sakhinetipalli Lenka and 10 km from farm site) through pipe line.</li> </ul>	This clause becomes relevant only where the fresh water well exists close to farm site. Further Farmers to be provided the equipment if testing to be done.	Probably this is applicable wherein fresh water well exists within 100m from the peripheral embankment of the farm.
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>The Agriculture drain canal ( Muriki canal ) with a width of 5m and depth of 2 m separates the aqua farm and Agriculture field, which prevents seepage of saline water to Agriculture fields.</b></li> <li>• Coconut trees are dotted along the muriki canal followed by Agriculture (paddy ) fields.</li> <li>• Agriculture &amp; Aqua culture is co existing here for the last 15 years.</li> </ul>	This is an index on intrusion of salt water in to Agriculture field: Aquaculture is being practiced on the land not suitable for agriculture; generally on banks of brackishwater creek. As long as the Aquaculture co exists with Agriculture and at Sustainable levels as seen for the last 2 decades, the issue of intrusion of salt water becomes irrelevant.	
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	<ul style="list-style-type: none"> <li>• <b>No sedimentation tank.</b></li> <li>• Agriculture is done by Gannavaram irrigation canal originating from Rajamundry (Dowleeswaram barrage) ; the flow controlled at several places viz., Razole, Pothilada, Nagulanka, etc., the nearest being at Sakhinetipalli lock at 7 km far away from farm site</li> </ul>	Very little sediment accumulation	

2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>• For most of the ponds, water from the creek is directly pumped in to the Grow out ponds employing diesel pumpsets.</li> <li>• For few ponds a small passage is made on the embankment with semi hume pipes (concrete pipes) to draw water in to the Grow out ponds.</li> </ul>	May not be relevant as water is pumped directly in to ponds	It is difficult to quantify this as the geometry and pond locations are unique and differ greatly from place to place. Further every farmer certainly will maintain the canal such that water gets in to the pond without difficulty
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			
2.3.3 Presence of a freeboard on open canals	Yes			
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes			
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side	(Peripheral ) Pond Embankments Top width =2.to 2.5 m Height = 1.5 m Slope = 1:3 Bottom width = 10.5 to 11.5 m	The cross bunds between the ponds will have a top width about 1m as it is meant only for foot travel. Vehicle (especially 4 wheelers) do not ply on cross bunds.	For the cross bunds the following dimensions may be adequate. Top Width 1m , Height 1.3m, slope 1:2
2.3.6 Freeboard of pond banks after settlement	> 30cm	<ul style="list-style-type: none"> <li>• &gt; 30 cm</li> </ul>	Free board of 30 cm is necessary	Free board of 30 cm is recommended
2.3.7 Top width of pond banks	> 2m	<ul style="list-style-type: none"> <li>• &gt; 2 to 2.5 m</li> </ul>		

2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	<ul style="list-style-type: none"> <li>• <b>Society ponds are not located in Natural water ways</b></li> </ul>	Nil	
<b>Principle 3: Develop and operate farms with consideration for surrounding communities</b>				
<b>Indicator</b>	<b>Standards</b>			
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.	<ul style="list-style-type: none"> <li>• <b>p - SIA yet to be done</b></li> <li>• This is family owned operations carried out by the village community in consensus. <ul style="list-style-type: none"> <li>• Farmers belong to various communities but get along well with each other</li> <li>• The aquaculture has been carried out since fifteen years and there is hardly any social issues.</li> </ul> </li> <li>• Therefore the need to carry out Social Impact Assessment has not been felt.</li> </ul>		Aqua Society Shrimp Farms may be exempted from the Participatory Social Impact Assessment
3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.	Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).	<ul style="list-style-type: none"> <li>• Issues if any will be taken up in village level community meetings and sorted out amicably.</li> </ul>	The age old practice exists in Village level regarding addressing the complaints , debating on the same paving for amicable settlement	

3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers	Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers	<ul style="list-style-type: none"> <li>• <b>No migrant / distant workers</b></li> <li>• Mostly family members are engaged in the work</li> <li>• In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.</li> <li>• Few farmers engage labours from nearby villages (Lakesswaram, Perupalem etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}</li> </ul>		Migrant / distant workers are not encouraged owing to anonymity
3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance	<ul style="list-style-type: none"> <li>• <b>No written contracts</b></li> <li>• Mostly ponds are managed by family members <ul style="list-style-type: none"> <li>• Few labours are engaged from neighbouring villages for crop basis (4-5 months) as per need</li> </ul> </li> </ul>		Engaging labour is a bit sensitive issue and is governed by age old practice of verbal terms.
3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance			
3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	<ul style="list-style-type: none"> <li>• <b>Meetings are held between the Purchaser and Contract farmers</b></li> <li>• The arrangement between the farmer and the Processor is by and large on faith and oral communication.</li> <li>• Harvested Material is given to Processor who offer a higher price</li> </ul>		Long term policy on price fixation is preferred over the fluctuation of price within and every crop period.
Principle 4: Operate farms with responsible labor practices				
<b>Indicator</b>	<b>Standards</b>			
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	<ul style="list-style-type: none"> <li>• <b>No deployment of Child labour</b></li> </ul>	Nil	

4.2.1 Number of incidences of forced, bonded or compulsory labor	None	<ul style="list-style-type: none"> <li>• <b>No forced, bonded or compulsory labour</b></li> </ul>	Nil	
4.3.1 Evidence of proactive anti-discrimination policy	Yes	<ul style="list-style-type: none"> <li>• <b>There is no discrimination policy on women employment.</b></li> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> </ul>		
4.3.2 Number of incidences of discrimination	None	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> </ul>		
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	<ul style="list-style-type: none"> <li>• Women are not employed</li> <li>• Employees are locals and belong to the same ethnic group</li> </ul>		
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<ul style="list-style-type: none"> <li>• No formal training imparted but oral instructions</li> <li>• Hardly any safety equipment is provided for use</li> </ul>		
4.4.2 Occurrences of health- and safety-related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	<ul style="list-style-type: none"> <li>• Such accidents are rare</li> </ul>		
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	<ul style="list-style-type: none"> <li>• No industrial insurance policy undertaken</li> </ul>	Difficult for the small scale farmer to initiate on this	
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	<ul style="list-style-type: none"> <li>• <b>Payment as per the norms of the locality</b></li> <li>• Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</li> <li>• The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</li> <li>• Besides they are paid incentive after harvest depending on the production</li> </ul>		

4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	<ul style="list-style-type: none"> <li>• <b>Limited</b></li> <li>• Ponds are managed by and large by Family members and hardly there will be employees :</li> <li>• The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</li> </ul>	Not applicable as the farm is managed by family members	
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are rare</b></li> <li>• Workers being family members , made to realise the mistake and instructed not to repeat the same</li> </ul>		
4.7.2 Evidence of abusive disciplinary policies and procedures	None			
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are uncommon</b></li> </ul>		
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	<ul style="list-style-type: none"> <li>• <b>No paper contracts</b></li> <li>• Managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal contract conditions</li> </ul>	Not applicable as the farm is managed by family members	
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	<ul style="list-style-type: none"> <li>• <b>No such formal meetings are conducted</b></li> <li>• The farm affairs is managed by family members</li> </ul>	Not applicable as the farm is managed by family members	
Principle 5: Manage shrimp health in a responsible manner				
<b>Indicator</b>	<b>Standards</b>			

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>• <b>Few Functional disease preventive tools exist in farm</b></li> <li>• Filtration bags and Crab fencing, bird netting done</li> <li>• Source water after filtration through mesh bags are put into the ponds .</li> <li>• By and large no disinfection / sterilization is done</li> <li>• However few farmers do the chlorination at the beginning in the grow out ponds prior to stocking and subsequently use source water after filtration without disinfection.</li> <li>• The river Godavari drains in to Bay of Bengal at Antharveedhi 5km from farmsite. A creek branching out of Godavari River forms the water source for the farmsite.</li> <li>• The tidal effect is so pronounced that during lowtide hardly there is any water in the creek and the high tide brings considerable quantity of brackish water in to the creek. This Natural phenomenon is taken taken advantage by the Farmers in a way to use the same creek as the source of water (during high tide) and a means of drainage canal (during low tide)</li> </ul>		
<p>5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector</p> <p>Or</p> <p>Mesh size for mechanical filtration of supply water</p>	<p>Yes = 250 m</p>	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Mesh bags (80 and 60p ) are employed for water filtration</li> </ul>	<p>The mesh size of filtration being around 500 micron. Keeping in volume and pressure of water flow, mesh size less than 500 would be impractical.</p>	
<p>5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise</p>	<p>&gt; 3ppm</p>	<ul style="list-style-type: none"> <li>• In general, dissolved oxygen is checked once in a week ( the frequency is enhanced based on need basis depending on pond water quality and biomass)</li> </ul>		
<p>5.1.4 Daily minimum pond water pH</p>	<p>&gt; 7</p>	<ul style="list-style-type: none"> <li>• Normally it ranges from 7.5 - 8.5</li> </ul>		

5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	<ul style="list-style-type: none"> <li>• These are aerated ponds and • annual average farm survival being 85% with a variation among the ponds of the society &lt; 15%</li> </ul>		
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<ul style="list-style-type: none"> <li>• <b>No SPF/ SPR seeds are stocked</b></li> </ul>		
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	<ul style="list-style-type: none"> <li>• <b>No intentional lethal predator control</b></li> <li>• Filtration bags are the tools employed for non lethal prevention of predators</li> </ul>		
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	<ul style="list-style-type: none"> <li>• Lead Shot for predator control not employed</li> </ul>		
5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	<ul style="list-style-type: none"> <li>• <b>Study not done</b></li> </ul>	As the small farmers need to spend his whole time on culture operation ,documentation of details pertaining to this would be very difficult	
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	<ul style="list-style-type: none"> <li>• <b>Banned Chemicals and antibiotics are not used</b></li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory managed by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>		
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	<ul style="list-style-type: none"> <li>• <b>No records available</b></li> </ul>	<ul style="list-style-type: none"> <li>• Record on the same to be maintained</li> </ul>	
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	<ul style="list-style-type: none"> <li>• Oral instructions given but not through placards / boards etc., etc..</li> </ul>		

5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	<ul style="list-style-type: none"> <li>• Pesticides are not used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.5 Allowance for discharge of all chemicals without previous neutralization	None	<ul style="list-style-type: none"> <li>• Hardly any chemicals are used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	<ul style="list-style-type: none"> <li>• Pesticides and Chlorine residues in pond water not being tested at present</li> <li>• However, for Shrimp ELISA test is done but not for water</li> </ul>		
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	<ul style="list-style-type: none"> <li>• Harmful strains of probiotics are not used</li> </ul>		
Principle 6: Manage broodstock origin, stock selection and effects of stock management				
<b>Indicator</b>	<b>Standards</b>			
6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	<ul style="list-style-type: none"> <li>• <b>Native species</b> Penaeus monodon is the species under culture</li> </ul>	Nil	
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	<ul style="list-style-type: none"> <li>• Hatchery raised Post larvae is stocked in ponds</li> </ul>		
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE	Yes	<ul style="list-style-type: none"> <li>• <b>Not applicable (as the cultured species is the Native species)</b></li> </ul>		

and ICES) for the prevention of disease introduction and the introduction of invasive species				
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	• <b>No SPF seed is used</b>		
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	• Shrimp PLs obtained from wild caught brood stock • For P.monodon pond rearing brood stock is very difficult as it fails to mature		
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	• Fishery management plan prohibits collection of wild broodstock during spawning months		
6.2.5 Allowance for wild-caught PL	None	• <b>Wild caught shrimp PL not used</b>		
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:			This may not be applicable to native species	
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	• Yes • Outlet has mesh screen shutter and wooden shutters that prevent the escapes from the pond		
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	• Pond embankment has a free board of about 0.3 to 0.5 m		
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	• Inspections are done; but not recorded.		
D. Evidence of timely repairs to the system are recorded	Yes	• Periodical maintenance and timely repair are carried out; but to be recorded		
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes		Not applicable for native species	
F. Traps on water outlets to catch/kill escapes	Yes	• <b>Yes ; Traps to catch escapes</b>		
G. Evidence of escape recovery protocols	Yes	• <b>Not available</b>		
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Harvested Shrimps are chill killed at the site prior to transportation to Processing plant		
6.3.2 Evidence of records on escapes and	Yes	• Hardly there would be any escapes:	Not applicable for native	

actions taken to prevent reoccurrence		<ul style="list-style-type: none"> <li>No records are maintained on escapes and the actions taken to prevent the same</li> </ul>	species	
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Nil		
Principle 7: Use resources in an environmentally efficient and responsible manner				
<b>Indicator</b>	<b>Standards</b>			
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability	<ul style="list-style-type: none"> <li>This would depend on the standards imposed on Shrimp Feed Mills and the extent they comply to the same as the farmers buy formulated feeds of reputed brands from the market</li> </ul>	To be discussed with feed manufacturers	
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	<ul style="list-style-type: none"> <li>Yes.</li> <li>The farmers use formulated feeds of reputed companies.</li> <li>It is believed that the feed ingredients comply to this.</li> </ul>	To be discussed with feed manufacturers	
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	<ul style="list-style-type: none"> <li>Yes.</li> </ul>	<ul style="list-style-type: none"> <li>Feed supplier to be approached (preferably through Governmental Agencies) enabling feed manufacturer to declare the list of ingredients employed towards feed formulation</li> </ul>	
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

organization that created the assessment				
7.1.1d Demonstrate consideration for species interaction issues			<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	
7.2.1 Timeframe for producers to source non-marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	
In the interim period, the following indicators and standards apply for compliance with 7.2.1:			<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	
7.2.1b Chemical and Pesticide Use in agriculture			Nuvakron, Chlorophitos	
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>	

	Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other			
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details. Based on which the FFER can be calculated</li> <li>[Assuming that % of Fish meal in Shrimp Feed is 15% &amp; FCR = 1:2] The FFER = <math>(15 \times 2) / 22.2 = 1.35</math></li> </ul>		
7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	<ul style="list-style-type: none"> <li>Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>The eFCR generally ranges between 1.3 - 1.8 (Average 1: 1.6)</li> </ul>		
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Nitrogen released = 22.2 kg / Tons of Shrimp</b> production		
7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Phosphorous released = 4.6 kg / Tons of Shrimp</b> production		
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	<ul style="list-style-type: none"> <li>Small scale farmers are not equipped with effluent treatment ponds.</li> <li>Discharge water is directly released in to water source</li> </ul>	A study may taken up with WWF assistance to evaluate the quality of drainage from shrimp ponds	
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Dissolved oxygen of source water around 3 to 4 ppm		
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data generation to be done		
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	Data generation to be done		
7.8.1 Percentage of combustibles contained in	100%	Diesel and lubricants are kept in		

bunds		farmers houses in the village and is brought to site daily basis to meet the day requirement		
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	<ul style="list-style-type: none"> <li>Chemicals (used for water application &amp; feed additives) are generally stores in the containers they were bought and are kept in the house of the respective farmers and is taken to the site daily to meet day requirement.</li> </ul>		
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Usage of lubricants is negligible		
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Generally sold to merchants for recycling / reuse		
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Usually such items are burnt		
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Sold to merchants		

**Sri Gokarneswaraswamy Aqua Society, Gokarnamatam, Guntur District, Andhra Pradesh**

Principle 1: Comply with all applicable national laws and local regulations				
Indicator	Standards	Status	Remarks pertaining to standards	Suggestions
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	<ul style="list-style-type: none"> <li><b>Yes. Available</b></li> <li>Family owned lands with clear &amp; defined title</li> <li>License from the CAA (Coastal Aquaculture Authority) has been obtained.</li> <li>Registered with Regional (AndhraPradesh State) Registrar, Societies vide Number 258/2008</li> <li>Registered with Marine Products Export Development Authority (MPEDA)</li> </ul>	Compliance with local and National Authorities is necessary (for being cohesive and effective).	Compliance with local and National Authorities is necessary for being cohesive and effective. It would be better to bring the remaining small scale farmers also in to the society fold at the earliest to have an effective regulation and control.
1.1.2 Documents proving compliance with all tax requirements	YES	<ul style="list-style-type: none"> <li><b>Yes. Available</b></li> <li>Land tax is being paid annually</li> </ul>	Necessary	

1.1.3 Documents proving compliance with all labor laws and regulations	YES	<ul style="list-style-type: none"> <li>every year: No water cess</li> <li>• <b>Not available</b></li> <li>• Ponds are managed by family members ,who form the workers.</li> <li>• Few farmers hire labours from neighbouring villages on crop basis as per the need</li> </ul>	To be adoptive as per local conditions	Probably this can be applied for an Aqua Society that employs 10 or more labours.
1.1.4 Documents proving compliance with discharge regulations or permits	YES	<ul style="list-style-type: none"> <li>• <b>Regulation exists but yet to be implemented in field</b></li> <li>• Covered under CAA License</li> </ul>	Probably looked in to on trail basis	Hydrographical data on water discharge to be measured and recorded for a crop and based on the discharge water quality the regulations may be imposed or waived.
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	<ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• Banned Chemicals and antibiotics are not used</li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory monitored by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>	Banned antibiotics and chemicals are not used.	<b>There is no list of authorised list of therapeutants and chemicals for Aquaculture use</b>
Principle 2: Site farms in environmentally suitable locations while conserving biodiversity and important natural habitats.				
<b>Indicator</b>	<b>Standards</b>			
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in National Protected Areas</li> </ul>	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Mangrove eco systems</li> </ul>	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Natural wet lands</li> </ul>	Nil	

	wetlands area and characteristics.			
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in habitats of species listed by the IUCN Red list</li> </ul>	Nil	
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in critical habitats of species at risk as defined by National listing processes</li> </ul>	Nil	
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	<ul style="list-style-type: none"> <li><b>The distance between the farm peripheral embankment and the water source varies from 10 m to 50 m sandwiched by sporadic mangrove vegetation</b></li> <li>The tidal influence is felt in the Creek (East Tungabadra Canal = water source) which drains in to Bay of Bengal about 6 Km (as the crow flies) from the farm site.</li> <li>Further the irrigation canal from Tenali also joins the East Tungabadra canal (the quantity of flow controlled to meet the water requirement of Agriculture fields) During monsoon months (July to November ) the canal also receives the rain water discharge and the salinity is diluted to &lt; 10 ppt.</li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	Probably applicable to the farms located along the coastal areas.
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	<ul style="list-style-type: none"> <li><b>The distance between the farm peripheral embankment and the water source varies from 10 m to 50 m sandwiched by sporadic mangrove vegetation</b></li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions			
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document	<ul style="list-style-type: none"> <li><b>No BEIA / EIA has been done</b></li> <li>Aquaculture has been practiced</li> </ul>	BEIA for Aqua societies operated by small scale farmers may not be	BEIA may be considered for the fresh farms that

	framework	in the area since 17 years.	necessary	will be constructed in future
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation			
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language			
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	<ul style="list-style-type: none"> <li>• <b>The society Shrimp ponds are not located in High Conservation Value Areas</b></li> </ul>	Nil	
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification	<ul style="list-style-type: none"> <li>• <b>Yet to be done</b></li> </ul>		
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<b>Mostly sandy with clay about 20%</b>		
2.2.2 Allowable water loss in ponds	< 1 cm/day	<ul style="list-style-type: none"> <li>• <b>&gt; 5 cm / day</b></li> </ul>	The soil composition of all the ponds belonging to an Aqua Society may not be uniform and therefore allowance of seepage up to 10 cm / day would be appropriate	Allowance of seepage up to 10 cm / day would be appropriate
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	<ul style="list-style-type: none"> <li>• <b>Nil</b></li> <li>• There is no borewell at the farm site and no usage of underground water</li> </ul>	Agreed	
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>No fresh water (drinking water) well close to farm site.</b></li> <li>• Drinking water is supplied from Nizampatnam Panchayat (1 km away from the village Gokarnamatam and 2 km from farm site) through pipe line.</li> </ul>	This clause becomes relevant only where the fresh water well exists close to farm site. Further Farmers to be provided the equipment if testing to be done.	Probably this is applicable wherein fresh water well exists within 100m from the peripheral embankment of the farm.

2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 $\mu$ mhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>The Agriculture fields are at higher elevation in relation to Aquaculture ponds and the chances of seepage of saline water into agriculture fields are limited.</b></li> <li>• The members of the Aqua society have Shrimp ponds and paddy fields adjacent (separated by man made canal of about 1 m width to minimise seepage of saline water into Agriculture field.</li> <li>• Agriculture &amp; Aquaculture is co existing here for the last 17 years.</li> </ul>	This is an index on intrusion of salt water in to Agriculture field: Aquaculture is being practiced on the land not suitable for agriculture; generally on banks of brackishwater creek. As long as the Aquaculture co exists with Agriculture and at Sustainable levels as seen for the last 2 decades, the issue of intrusion of salt water becomes irrelevant.	
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	<ul style="list-style-type: none"> <li>• <b>No sedimentation tank.</b></li> <li>• Agriculture is done by irrigation Krishna canal originating from Vijayawada 90 Km from the site ; the flow controlled at several places , even at Nizampatnam 2 km far away from farm site</li> </ul>	Very little sediment accumulation	
2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 $\mu$ mhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>• <b>PVC Pipelines (that carries the water from the junction box) runs below the embankments</b></li> <li>• For most of the ponds, water from the creek is directly pumped in to the Grow out ponds employing diesel pumpsets.</li> </ul>	May not be relevant as water is pumped directly in to ponds	It is difficult to quantify this as the geometry and pond locations are unique and differ greatly from place to place. Further every farmer certainly will maintain the canal such that water gets in to the pond without difficulty
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			
2.3.3 Presence of a freeboard on open canals	Yes			

2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes			
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side	(Peripheral ) Pond Embankments Top width =2. to 2.5 m Height = 1.5 m Slope = 1:3 Bottom width = 10.5 to 11.5 m	The cross bunds between the ponds will have a top width about 1m as it is meant only for foot travel. Vehicle (especially 4 wheelers) do not ply on cross bunds.	For the cross bunds the following dimensions may be adequate. Top Width 1m , Height 1.3m, slope 1:2
2.3.6 Freeboard of pond banks after settlement	> 30cm	<ul style="list-style-type: none"> <li>• Free board is &lt; 0.2m</li> <li>• However a small hume pipe is fixed just below the free board level for multipurpose</li> </ul>	Free board of 30 cm is necessary	Free board of 30 cm is recommended
2.3.7 Top width of pond banks	> 2m	<ul style="list-style-type: none"> <li>• &gt; 2m</li> </ul>		
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	<ul style="list-style-type: none"> <li>• <b>Society ponds are not located in Natural water ways</b></li> </ul>	Nil	
Principle 3: Develop and operate farms with consideration for surrounding communities				
<b>Indicator</b>	<b>Standards</b>			

<p>3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.</p>	<p>Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.</p>	<ul style="list-style-type: none"> <li>• <b>p - SIA yet to be done</b></li> <li>• The members of the Aquasociety have Shrimp ponds and paddy fields adjacent and is family owned operations carried out by the village community in consensus.</li> <li>• Shrimp farming is done only in summer months (one crop / year) while Agriculture is carried by and large throughout the year.</li> <li>• Farmers belong to various communities and get along well with each other</li> <li>• The aquaculture has been carried out since seventeen years and there is hardly any social issues.</li> <li>• Therefore the need to carry out Social Impact Assessment has not been felt.</li> </ul>		<p>Aqua Society Shrimp Farms may be exempted from the Participatory Social Impact Assessment</p>
<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>		<ul style="list-style-type: none"> <li>• Issues if any will be taken up in village level community meetings and sorted out amicably.</li> </ul>	<p>The age old practice exists in Village level regarding addressing the complaints , debating on the same paving for amicable settlement</p>
<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<ul style="list-style-type: none"> <li>• <b>No migrant / distant workers</b></li> <li>• Mostly family members are engaged in the work</li> <li>• In case of additional labours are needed (example while stocking or harvesting etc.) members of the adjacent ponds assist.</li> <li>• Labour from neighbouring village(s) is engaged in as per the need.</li> </ul>		<p>Migrant / distant workers are not encouraged owing to anonymity</p>

3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance	<ul style="list-style-type: none"> <li>• <b>No written contracts</b></li> <li>• Mostly ponds are managed by family members</li> <li>• Few labours are engaged from neighbouring villages for crop basis (4-5 months) as per need</li> </ul>		
3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance			
3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	<ul style="list-style-type: none"> <li>• <b>Meetings are held between the Purchaser and Contract farmers</b></li> <li>• The arrangement between the farmer and the Processor is by and large on faith and oral communication.</li> <li>• Harvested Material is given to Processor who offer a higher price</li> </ul>		Long term policy on price fixation is preferred over the fluctuation of price within and every crop period.
Principle 4: Operate farms with responsible labor practices				
<b>Indicator</b>	<b>Standards</b>			
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	<ul style="list-style-type: none"> <li>• <b>No deployment of Child labour</b></li> </ul>	Nil	
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	<ul style="list-style-type: none"> <li>• <b>No forced, bonded or compulsory labour</b></li> </ul>	Nil	
4.3.1 Evidence of proactive anti-discrimination policy	Yes	<ul style="list-style-type: none"> <li>• <b>There is no discrimination policy on women employment.</b></li> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> </ul>		
4.3.2 Number of incidences of discrimination	None	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> </ul>		
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal	100% compliance	<ul style="list-style-type: none"> <li>• Women are not employed</li> <li>• Employees are locals and belong to the same ethnic group</li> </ul>		

work				
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<ul style="list-style-type: none"> <li>No formal training imparted but oral instructions</li> </ul>		
4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	<ul style="list-style-type: none"> <li>Such accidents are rare</li> </ul>		
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	<ul style="list-style-type: none"> <li>No industrial insurance policy undertaken</li> </ul>	Difficult for the small scale farmer to initiate on this	
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	<ul style="list-style-type: none"> <li><b>Payment as per the norms of the locality</b></li> <li>Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</li> <li>The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</li> <li>Besides they are paid incentive after harvest depending on the production</li> </ul>		
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	<ul style="list-style-type: none"> <li><b>Limited</b></li> <li>Ponds are managed by and large by Family members and hardly there will be employees :</li> <li>The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</li> </ul>	Not applicable as the farm is managed by family members	

4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are rare</b></li> <li>• Workers being family members , made to realise the mistake and instructed not to repeat the same</li> </ul>		
4.7.2 Evidence of abusive disciplinary policies and procedures	None			
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are uncommon</b></li> </ul>		
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	<ul style="list-style-type: none"> <li>• <b>No paper contracts</b></li> <li>• Managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal contract conditions</li> </ul>	Not applicable as the farm is managed by family members	
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	<ul style="list-style-type: none"> <li>• <b>No such formal meetings are conducted</b></li> <li>• The farm affairs is managed by family members</li> </ul>	Not applicable as the farm is managed by family members	
Principle 5: Manage shrimp health in a responsible manner				
<b>Indicator</b>	<b>Standards</b>			

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>• <b>Few Functional disease preventive tools exist in farm</b></li> <li>• Filtration bags and Crab fencing, bird netting done</li> <li>• Source water after filtration through mesh bags are put into the ponds .</li> <li>• By and large no disinfection / sterlization is done</li> <li>• However few farmers do the chlorination at the beginning in the grow out ponds prior to stocking and subsequently use source water after filtration without disinfection. <ul style="list-style-type: none"> <li>• The Tungabadra East canal drains in to Bay of Bengal at 6km from farmsite.</li> </ul> </li> <li>• Tungabadra East canal forms the water source for the farmsite.</li> <li>• The tidal effect is so pronounced that during lowtide hardly there is any water in the creek and the high tide brings considerable quantity of brackish water in to the creek. <ul style="list-style-type: none"> <li>• This Natural phenomenon is taken taken advantage by the Farmers in a way to use the same creek as the source of water (during high tide) and a means of drainage canal (during low tide) • Further the free incidence of disease break out in the society ponds for the last 5 years is a testimony to the efficiency of the system and the understanding of the farmers on shrimp culture operation.</li> </ul> </li> </ul>		
<p>5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector</p> <p>Or</p> <p>Mesh size for mechanical filtration of supply water</p>	<p>Yes = 250 m</p>	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Mesh bags (80 and 60p ) are employed for water filtration</li> </ul>	<p>The mesh size of filtration being around 500 micron. Keeping in volume and pressure of water flow, mesh size less than 500 would be impractical.</p>	

5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	<ul style="list-style-type: none"> <li>In general, dissolved oxygen is checked once in a week ( the frequency is enhanced based on need basis depending on pond water quality and biomass)</li> </ul>		
5.1.4 Daily minimum pond water pH	> 7	<ul style="list-style-type: none"> <li>Normally it ranges from 7.5 - 8.5</li> </ul>		
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	<ul style="list-style-type: none"> <li>50% of the Society ponds are Feed and aerated ponds : Survival &gt; 80% :</li> <li>50% of the society ponds fed but not aerated- survival &gt; 80%</li> </ul>		
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<ul style="list-style-type: none"> <li><b>No SPF/ SPR seeds are stocked</b></li> </ul>		
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	<ul style="list-style-type: none"> <li><b>No intentional lethal predator control</b></li> <li>Filtration bags are the tools employed for non lethal prevention of predators</li> </ul>		
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	<ul style="list-style-type: none"> <li>Lead Shot for predator control not employed</li> </ul>		
5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	<ul style="list-style-type: none"> <li><b>Study not done</b></li> </ul>	As the small farmers need to spend his whole time on culture operation ,documentation of details pertaining to this would be very difficult	
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	<ul style="list-style-type: none"> <li><b>Banned Chemicals and antibiotics are not used</b> <ul style="list-style-type: none"> <li>Further prior to harvest pond reared shrimps have to be tested by Laboratory managed by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> </ul> </li> <li>Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>		

5.3.2 Presence of records listing all product stocked and used on the farm	Yes	<ul style="list-style-type: none"> <li>• No records available</li> </ul>	<ul style="list-style-type: none"> <li>• Record on the same to be maintained</li> </ul>	
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	<ul style="list-style-type: none"> <li>• Oral instructions given but not through placards / boards etc., etc..</li> </ul>		
5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	<ul style="list-style-type: none"> <li>• Pesticides are not used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.5 Allowance for discharge of all chemicals without previous neutralization	None	<ul style="list-style-type: none"> <li>• Hardly any chemicals are used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	<ul style="list-style-type: none"> <li>• Pesticides and Chlorine residues in pond water not being tested at present</li> <li>• However, for Shrimp ELISA test is done but not for water</li> </ul>		
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	<ul style="list-style-type: none"> <li>• Harmful strains of probiotics are not used</li> </ul>		
Principle 6: Manage broodstock origin, stock selection and effects of stock management				
<b>Indicator</b>	<b>Standards</b>			

6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	<ul style="list-style-type: none"> <li>• <b>Native species</b> Penaeus monodon is the species under culture</li> </ul>	Nil	
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	<ul style="list-style-type: none"> <li>• Hatchery raised Post larvae is stocked in ponds</li> </ul>		
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	<ul style="list-style-type: none"> <li>• <b>Not applicable (as the cultured species is the Native species)</b></li> </ul>		
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	<ul style="list-style-type: none"> <li>• <b>No SPF seed is used</b></li> </ul>		
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	<ul style="list-style-type: none"> <li>• Shrimp PLs obtained from wild caught brood stock</li> <li>• For P.monodon pond rearing brood stock is very difficult as it fails to mature</li> </ul>		
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	<ul style="list-style-type: none"> <li>• Fishery management plan prohibits collection of wild broodstock during spawning months</li> </ul>		
6.2.5 Allowance for wild-caught PL	None	<ul style="list-style-type: none"> <li>• <b>Wild caught shrimp PL not used</b></li> </ul>		
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated			This may not be applicable to native species	

through the following requirements:				
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Outlet is the hume pipe and cap is used both inside and outside to arrest the escapes .</li> <li>• Further mesh screen is installed to prevent the escapes from the pond</li> </ul>		
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	<ul style="list-style-type: none"> <li>• Pond embankment has a free board of &lt; 0.2m besides a hume pipe for multipurpose use.</li> </ul>		
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	<ul style="list-style-type: none"> <li>• Inspections are done; but to be recorded.</li> </ul>		
D. Evidence of timely repairs to the system are recorded	Yes	<ul style="list-style-type: none"> <li>• Periodical maintenance and timely repair are carried out; but to be recorded</li> </ul>		
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Outlet mesh & plank shutters	Not applicable for native species	
F. Traps on water outlets to catch/kill escapes	Yes	<ul style="list-style-type: none"> <li>• <b>Yes ; Traps to catch escapes</b></li> </ul>		
G. Evidence of escape recovery protocols	Yes	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> </ul>		
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Harvested Shrimps are chill killed at the site prior to trnsportation to Processing plant		
6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	<ul style="list-style-type: none"> <li>• Hardly there would be any escapes:</li> <li>• No records are maintained on escapes and the actions taken to prevent the same</li> </ul>	Not applicable for native species	
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Nil		
Principle 7: Use resources in an environmentally efficient and responsible manner				
<b>Indicator</b>	<b>Standards</b>			
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses	100% within five years of commercial availability	<ul style="list-style-type: none"> <li>• This would depend on the standards imposed on Shrimp Feed Mills and the extent they comply to the same as the farmers buy formulated feeds of reputed brands from the market</li> </ul>	To be discussed with feed manufacturers	

environmental and social sustainability				
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	<ul style="list-style-type: none"> <li>• Yes.</li> <li>• The farmers use formulated feeds of reputed companies.</li> <li>• It is believed that the feed ingredients comply to this.</li> </ul>	To be discussed with feed manufacturers	
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	<ul style="list-style-type: none"> <li>• Yes.</li> </ul>	<ul style="list-style-type: none"> <li>• Feed supplier to be approached (preferably through Governmental Agencies) enabling feed manufacturer to declare the list of ingredients employed towards feed formulation</li> </ul>	
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	<ul style="list-style-type: none"> <li>• Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	<ul style="list-style-type: none"> <li>• Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes	<ul style="list-style-type: none"> <li>• Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1d Demonstrate consideration for species interaction issues		<ul style="list-style-type: none"> <li>• Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
In the interim period, the following indicators and standards apply for compliance with 7.2.1:		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1b Chemical and Pesticide Use in agriculture		Nuvakron, Chlorophitos		
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other	Local Government Agencies to approach Feed Manufacturers to obtain the required details		

7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details. Based on which the FEER can be calculated</li> <li>[Assuming that % of Fish meal in Shrimp Feed is 15% &amp; FCR = 1:2] The FFER = <math>(15 \times 2) / 22.2 = 1.35</math></li> </ul>		
7.5.2 Economic Feed Conversation Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	<ul style="list-style-type: none"> <li>Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>The eFCR generally ranges between 1.3 - 1.6 (Average 1: 1.5)</li> </ul>		
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 1875 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.5, the <b>Nitrogen released = 18 kg / Tons of Shrimp production</b>		
7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 1875 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.5, the <b>Phosphorous released = 4.1 kg / Tons of Shrimp production</b>		
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	<ul style="list-style-type: none"> <li>Small scale farmers are not equipped with effluent treatment ponds.</li> <li>Discharge water is directly released in to water source</li> </ul>	A study may taken up with WWF assistance to evaluate the quality of drainage from shrimp ponds	
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	<ul style="list-style-type: none"> <li>Dissolved oxygen of source water around 3 to 4 ppm</li> </ul>		
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	<ul style="list-style-type: none"> <li>Data generation to be done</li> </ul>		
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	<ul style="list-style-type: none"> <li>Data generation to be done</li> </ul>		
7.8.1 Percentage of combustibles contained in bunds	100%	<ul style="list-style-type: none"> <li>Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement</li> </ul>		

7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	<ul style="list-style-type: none"> <li>Chemicals (used for water application &amp; feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site daily to meet day requirement.</li> </ul>		
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Usage of lubricants is negligible		
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Generally sold to merchants for recycling / reuse		
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Usually such items are burnt		
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Sold to merchants		

**Pedapulugivaripalem (NGO facilitated farmer group), Guntur District, Andhra Pradesh**

Indicator	Standards	Status	Remarks pertaining to standards	Suggestions
Principle 1: Comply with all applicable national laws and local regulations				
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	<ul style="list-style-type: none"> <li><b>Yes. Available</b></li> <li>All the lands are owned by the farmers</li> <li>License from the CAA (Coastal Aquaculture Authority) has been obtained by 10 farmers. And others are applied for the licenses.</li> </ul>	Compliance with local and National Authorities is necessary (for being cohesive and effective).	Compliance with local and National Authorities is necessary for being cohesive and effective.
1.1.2 Documents proving compliance with all tax requirements	YES	<ul style="list-style-type: none"> <li><b>Yes. Available</b></li> <li>Land tax is being paid annually every year: No water cess</li> </ul>	Necessary	

1.1.3 Documents proving compliance with all labor laws and regulations	YES	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> <li>• Ponds are managed by family members ,who form the workers.</li> <li>• Very few farmers hire labours from neighbouring villages on crop basis as per the need</li> </ul>	The workers may not come under the labour act because all the farmers are very small and having smallscale farming. This would also treated as Agriculture work.	
1.1.4 Documents proving compliance with discharge regulations or permits	YES	<ul style="list-style-type: none"> <li>• <b>Regulation exists but yet to be implemented in field</b></li> <li>• Covered under CAA Licence</li> </ul>	Probably looked in to on trail basis	Hydrographical data on water discharge to be measured and recorded for a crop and based on the discharge water quality the regulations may be imposed or waived.
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	<ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• Banned Chemicals and antibiotics are not used <ul style="list-style-type: none"> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory monitored by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> </ul> </li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>	Banned antibiotics and chemicals are not used.	<b>There is no list of authorised list of therapeutants and chemicals for Aquaculture use</b>
<b>Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats</b>				
<b>Indicator</b>	<b>Standards</b>			
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in National Protected Areas</li> </ul>	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Mangrove eco systems</li> </ul>	Nil	

2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in Natural wet lands</li> </ul>	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in habitats of species listed by the IUCN Red list</li> </ul>	Nil	
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in critical habitats of species at risk as defined by National listing processes</li> </ul>	Nil	
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	<ul style="list-style-type: none"> <li><b>The mangrove vegetation of about 5 to 10 m width exists in patches between the Godavari river water and the Peripherral bund of another society (Murthy Aqua Society)</b> <ul style="list-style-type: none"> <li>The tidal influence is felt in the River Godavari (= water source) which drains in to Bay Of Bengal at Antharveedhi 5Km (as the crow flies) from the farm site.</li> </ul> </li> <li>The shrimp culture ponds of another society (Murthy Aqua Society) lies in between the water source and Vasista Godavari Aqua Society., the buffer width being 100m</li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	Probably applicable to the farms located along the coastal areas.
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	<ul style="list-style-type: none"> <li><b>100 m from Natural Water source (Godavari Creek)</b></li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	

2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions			
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	<ul style="list-style-type: none"> <li>• <b>No BEIA / EIA has been done</b></li> <li>• Aquaculture has been practiced in the area since 15 years.</li> </ul>	BEIA for Aqua societies operated by small scale farmers may not be necessary	BEIA may be considered for the fresh farms that will be constructed in future
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation			
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language			
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	<ul style="list-style-type: none"> <li>• <b>The society Shrimp ponds are not located in High Conservation Value Areas</b></li> </ul>	Nil	
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification	<ul style="list-style-type: none"> <li>• <b>Yet to be done</b></li> </ul>		
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<ul style="list-style-type: none"> <li>• <b>Moderate clay (clay content about 60%)</b></li> </ul>		
2.2.2 Allowable water loss in ponds	< 1 cm/day	<ul style="list-style-type: none"> <li>• <b>&gt; 1 cm / day</b></li> </ul>	The soil composition of all the ponds belonging to an Aqua Society may not be uniform and therefore allowance of seepage up to 10 cm / day would be appropriate	Allowance of seepage up to 10 cm / day would be appropriate

2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	<ul style="list-style-type: none"> <li>• Nil</li> <li>• There is no fresh water underground Aquifer</li> </ul>	Agreed	
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>No fresh water (drinking water) well close to farm site.</b></li> <li>• Drinking water is supplied from Malkipuram (9 km away from the village Sakhinetipalli Lenka and 10 km from farm site) through pipe line.</li> </ul>	This clause becomes relavent only where the fresh water well exists close to farm site. Further Farmers to be provided the equipment if testing to be done.	Probably this is applicable wherein fresh water well exists within 100m from the peripheral embankment of the farm.
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>The Agriculture drain canal ( Muriki canal ) with a width of 5m and depth of 2 m sepearates the aqua farm and Agriculture field, which prevents seepage of saline water to Agriculture fields.</b></li> <li>• Coconut trees are dotted along the muriki canal followed by Agriculture (paddy ) fields.</li> <li>• Agriculture &amp; Aqua culture is co existing here for the last 15 years.</li> </ul>	This is an index on intrusion of salt water in to Agriculture field: Aquaculture is being practiced on the land not suitable for agriculture; generally on banks of brackishwater creek. As long as the Aquaculture co exists with Agriculture and at Sustainable levels as seen for the last 2 decades, the issue of intrusion of salt water becomes irrelavent.	
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	<ul style="list-style-type: none"> <li>• <b>No sedimentation tank.</b></li> <li>• Agriculture is done by Gannavaram irrigation canal originating from Rajamundry (Dowleeswaram barriage) ; the flow controlled at several places viz., Razole, Pothilada, Nagulenka, etc., the nearest being at Sakhinetipalli lock at 7 km far away from farm site</li> </ul>	Very little sediment accumulation	

2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 $\mu$ mhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>• For most of the ponds, water from the creek is directly pumped in to the Grow out ponds employing diesel pumpsets.</li> <li>• For few ponds a small passage is made on the emankment with semi hume pipes (concrete pipes) to draw water in to the Grow out ponds.</li> </ul>	May not be relevant as water is pumped directly in to ponds	It is difficult to quantify this as the geometry and pond locations are unique and differ greatly from place to place. Further every farmer certainly will maintain the canal such that water gets in to the pond without difficulty
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			
2.3.3 Presence of a freeboard on open canals	Yes			
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes			
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side			

2.3.6 Freeboard of pond banks after settlement	> 30cm	<ul style="list-style-type: none"> <li>&gt; 30 cm</li> </ul>	Free board of 30 cm is necessary	Free board of 30 cm is recommended
2.3.7 Top width of pond banks	> 2m	<ul style="list-style-type: none"> <li>&gt; 2 to 2.5 m</li> </ul>		
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	<ul style="list-style-type: none"> <li><b>Society ponds are not located in Natural water ways</b></li> </ul>	Nil	
Principle 3: Develop and operate farms with consideration for surrounding communities				
<b>Indicator</b>	<b>Standards</b>			
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.	<ul style="list-style-type: none"> <li><b>p - SIA yet to be done</b></li> <li>This is family owned operations carried out by the village community in consensus.</li> <li>Farmers belong to various communities but get along well with each other</li> <li>The aquaculture has been carried out since 18 years and there is hardly any social issues.</li> <li>Therefore the need to carry out Social Impact Assessment has not been felt.</li> </ul>		Aqua Society Shrimp Farms may be exempted from the Participatory Social Impact Assessment
3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.	Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).	<ul style="list-style-type: none"> <li>Issues if any will be taken up in village level community meetings and sorted out amicably.</li> </ul>	The age old practice exists in Village level regarding addressing the complaints , debating on the same paving for amicable settlement	

3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers	Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers	<ul style="list-style-type: none"> <li>• <b>No migrant / distant workers</b></li> <li>• Mostly family members are engaged in the work</li> <li>• In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.</li> <li>• Few farmers engage labours with in the village only ( for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling, stocking and harvesting}</li> </ul>		Migrant / distant workers are not encouraged owing to anonymity
3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance	<ul style="list-style-type: none"> <li>• <b>No written contracts</b></li> <li>• Mostly ponds are managed by family members <ul style="list-style-type: none"> <li>• Few labours are engaged from with in the village crop basis (4-5 months) as per need</li> </ul> </li> </ul>		Engaging labour is a bit sensitive issue and is governed by age old practice of verbal terms.
3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance			
3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	<ul style="list-style-type: none"> <li>• <b>Meetings are held between the Purchaser and Contract farmers</b></li> <li>• The arrangement between the farmer and the Processor is by and large on faith and oral communication.</li> <li>• Harvested Material is given to Processor who offer a higher price</li> </ul>		Long term policy on price fixation is preferred over the fluctuation of price within and every crop period.
Principle 4: Operate farms with responsible labor practices				
<b>Indicator</b>	<b>Standards</b>			

4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	<ul style="list-style-type: none"> <li>• <b>No deployment of Child labour</b></li> </ul>	Nil	
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	<ul style="list-style-type: none"> <li>• <b>No forced, bonded or compulsory labour</b></li> </ul>	Nil	
4.3.1 Evidence of proactive anti-discrimination policy	Yes	<ul style="list-style-type: none"> <li>• <b>There is no discrimination policy on women employment.</b></li> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> </ul>		
4.3.2 Number of incidences of discrimination	None	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> </ul>		
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	<ul style="list-style-type: none"> <li>• Women are not employed</li> <li>• Employees are locals and belong to the same ethnic group</li> </ul>		
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<ul style="list-style-type: none"> <li>• No formal training imparted but oral instructions</li> <li>• Hardly any safety equipment is provided for use</li> </ul>		
4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	<ul style="list-style-type: none"> <li>• Such accidents are rare</li> </ul>		
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	<ul style="list-style-type: none"> <li>• No industrial insurance policy undertaken</li> </ul>	Difficult for the small scale farmer to initiate on this	

4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	<ul style="list-style-type: none"> <li>• <b>Payment as per the norms of the locality</b></li> <li>• Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</li> <li>• The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</li> <li>• Besides they are paid incentive after harvest depending on the production</li> </ul>		
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	<ul style="list-style-type: none"> <li>• <b>Limited</b></li> <li>• Ponds are managed by and large by Family members and hardly there will be employees :</li> <li>• The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</li> </ul>	Not applicable as the farm is managed by family members	
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are rare</b></li> <li>• Workers being family members , made to realise the mistake and instructed not to repeat the same</li> </ul>		
4.7.2 Evidence of abusive disciplinary policies and procedures	None			
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are uncommon</b></li> </ul>		
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	<ul style="list-style-type: none"> <li>• <b>No paper contracts</b></li> <li>• Managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal contract conditions</li> </ul>	Not applicable as the farm is managed by family members	
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	<ul style="list-style-type: none"> <li>• <b>No such formal meetings are conducted</b></li> <li>• The farm affairs is managed by family members</li> </ul>	Not applicable as the farm is managed by family members	

Principle 5: Manage shrimp health in a responsible manner				
Indicator	Standards			
5.1.1 Demonstration of functional and documented preventive tools to prevent: 1) Diseases from the surrounding environment entering the farm (predator and vector control), 2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization), 3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]	Yes	<ul style="list-style-type: none"> <li>• <b>Few Functional disease preventive tools exist in farm</b></li> <li>• Filtration bags are there and Crab fencing, bird netting not done</li> <li>• Source water after filtration through mesh bags are put into the ponds .</li> <li>• By and large no disinfection / sterilization is done</li> <li>• However few farmers do the chlorination at the beginning in the grow out ponds prior to stocking and subsequently use source water after filtration without disinfection.</li> <li>• A creek cum drain called Thungabhadra from Bay of Bengal is the water source for the ponds.</li> <li>• The tidal effect is so pronounced that during lowtide hardly there is any water in the creek and the high tide brings considerable quantity of brackish water in to the creek. This Natural phenomenon is taken advantage by the Farmers in a way to use the same creek as the source of water (during high tide) and a means of drainage canal (during low tide)</li> </ul>		
5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 m	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Mesh bags (80 and 60p ) are employed for water filtration</li> </ul>	The mesh size of filtration being around 500 micron. Keeping in volume and pressure of water flow, mesh size less than 500 would be impractical.	
5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	<ul style="list-style-type: none"> <li>• In general, dissolved oxygen is checked once in a week ( the frequency is enhanced based on need basis depending on pond water quality and biomass)</li> </ul>		

5.1.4 Daily minimum pond water pH	> 7	<ul style="list-style-type: none"> <li>• Normally it ranges from 7.5 - 8.5</li> </ul>		
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	<ul style="list-style-type: none"> <li>• These are aerated ponds and • annual average farm survival being 85% with a variation among the ponds of the society &lt; 15%</li> </ul>		
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<ul style="list-style-type: none"> <li>• <b>No SPF/ SPR seeds are stocked</b></li> </ul>		
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	<ul style="list-style-type: none"> <li>• <b>No intentional lethal predator control</b></li> <li>• Filtration bags are the tools employed for non lethal prevention of predators</li> </ul>		
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	<ul style="list-style-type: none"> <li>• Lead Shot for predator control not employed</li> </ul>		
5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	<ul style="list-style-type: none"> <li>• <b>Study not done</b></li> </ul>	As the small farmers need to spend his whole time on culture operation ,documentation of details pertaining to this would be very difficult	

5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	<ul style="list-style-type: none"> <li>• <b>Banned Chemicals and antibiotics are not used</b> <ul style="list-style-type: none"> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory managed by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul> </li> </ul>		
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	<ul style="list-style-type: none"> <li>• <b>No records available</b></li> </ul>	<ul style="list-style-type: none"> <li>• Record on the same to be maintained</li> </ul>	
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	<ul style="list-style-type: none"> <li>• Oral instructions given but not through placards / boards etc., etc..</li> </ul>		
5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	<ul style="list-style-type: none"> <li>• Pesticides are not used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.5 Allowance for discharge of all chemicals without previous neutralization	None	<ul style="list-style-type: none"> <li>• Hardly any chemicals are used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	<ul style="list-style-type: none"> <li>• Pesticides and Chlorine residues in pond water not being tested at present</li> <li>• However, for Shrimp ELISA test is done but not for water</li> </ul>		
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	<ul style="list-style-type: none"> <li>• Harmful strains of probiotics are not used</li> </ul>		
Principle 6: Manage broodstock origin, stock selection and effects of stock management				
<b>Indicator</b>	<b>Standards</b>			
6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	<ul style="list-style-type: none"> <li>• <b>Native species</b> Penaeus monodon is the species under culture</li> </ul>	Nil	
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	<ul style="list-style-type: none"> <li>• Hatchery raised Post larvae is stocked in ponds</li> </ul>		
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	<ul style="list-style-type: none"> <li>• <b>Not applicable (as the cultured species is the Native species)</b></li> </ul>		

6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	• <b>No SPF seed is used</b>		
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	• Shrimp PLs obtained from wild caught brood stock • For P.monodon pond rearing brood stock is very difficult as it fails to mature		
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	• Fishery management plan prohibits collection of wild broodstock during spawning months		
6.2.5 Allowance for wild-caught PL	None	• <b>Wild caught shrimp PL not used</b>		
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:			This may not be applicable to native species	
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	• Yes • Outlet has mesh screen shutter and wooden shutters that prevent the escapes from the pond		
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	• Pond embankment has a free board of about 0.3 to 0.5 m		
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	• Inspections are done; but not recorded.		
D. Evidence of timely repairs to the system are recorded	Yes	• Periodical maintenance and timely repair are carried out; but to be recorded		
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes		Not applicable for native species	

F. Traps on water outlets to catch/kill escapes	Yes	• Yes ; Traps to catch escapes		
G. Evidence of escape recovery protocols	Yes	• Not available		
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Harvested Shrimps are chill killed at the site prior to trnasportation to Processing plant		
6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	<ul style="list-style-type: none"> <li>• Hardly there would be any escapes:</li> <li>• No records are maintained on escapes and the actions taken to prevent the same</li> </ul>	Not applicable for native species	
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Nil		
<b>Principle 7: Use resources in an environmentally efficient and responsible manner</b>				
<b>Indicator</b>	<b>Standards</b>			
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member’s certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability	<ul style="list-style-type: none"> <li>• This would depend on the standrads imposed on Shrimp Feed Mills and the extent they comply to the same as the farmers buy formulated feeds of reputed brands from the market</li> </ul>	To be discussed with feed manufacturers	
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	<ul style="list-style-type: none"> <li>• Yes.</li> <li>• The farmers use formulated feeds of reputed companies.</li> <li>• It is belived that the feed ingredients comply to this.</li> </ul>	To be discussed with feed manufacturers	
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	<ul style="list-style-type: none"> <li>• Yes.</li> </ul>	<ul style="list-style-type: none"> <li>• Feed supplier to be approached (preferrably through Governmental Agencies) enabling feed manufacturer to declare the list of ingredients employed towards feed formulation</li> </ul>	

7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened, Vulnerable, Endangered, and Critically Endangered)	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1d Demonstrate consideration for species interaction issues		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1 Timeframe for producers to source non-marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
In the interim period, the following indicators and standards apply for compliance with 7.2.1:		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1b Chemical and Pesticide Use in agriculture		Nuvakron, Chlorophitos		
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details. Based on which the FEER can be calculated</li> <li>[Assuming that % of Fish meal in Shrimp Feed is 15% &amp; FCR = 1:2] The FFER = <math>(15 * 2) / 22.2 = 1.35</math></li> </ul>		

7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 (Average 1: 1.6)</li> </ul>		
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Nitrogen released = 22.2 kg / Tons of Shrimp</b> production		
7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Phosphorous released = 4.6 kg / Tons of Shrimp</b> production		
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	<ul style="list-style-type: none"> <li>• Small scale farmers are not equipped with effluent treatment ponds.</li> <li>• Discharge water is directly released in to water source</li> </ul>	A study may taken up with WWF assistance to evaluate the quality of drainage from shrimp ponds	
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	<ul style="list-style-type: none"> <li>• Dissolved oxygen of source water around 3 to 4 ppm</li> </ul>		
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	<ul style="list-style-type: none"> <li>• Data generation to be done</li> </ul>		
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	<ul style="list-style-type: none"> <li>• Data generation to be done</li> </ul>		
7.8.1 Percentage of combustibles contained in bunds	100%	<ul style="list-style-type: none"> <li>• Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement</li> </ul>		

7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	<ul style="list-style-type: none"> <li>Chemicals (used for water application &amp; feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site daily to meet day requirement.</li> </ul>		
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Usage of lubricants is negligible		
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Generally sold to merchants for recycling / reuse		
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Usually such items are burnt		
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Sold to merchants		

**Tummalapalem (NGO facilitated farmer group), Guntur District, Andhra Pradesh**

Indicator	Standards	Status	Remarks pertaining to standards	Suggestions
Principle 1: Comply with all applicable national laws and local regulations				
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	<ul style="list-style-type: none"> <li>Yes. Available</li> <li>60% of the land is Government land leased to the farmers about 40% Family owned lands <ul style="list-style-type: none"> <li>License from the CAA (Coastal Aquaculture Authority) has been obtained.</li> </ul> </li> <li>Registered with Regional (Andhra Pradesh State) Registrar, Societies vide Number 347/2009 dated 23rd July 2009</li> <li>Registered with Marine Products Export Development Authority (MPEDA) vide no: AQ/HO/SOC/REG- 171 /2009 - 10</li> </ul>	Compliance with local and National Authorities is necessary (for being cohesive and effective).	Compliance with local and National Authorities is necessary for being cohesive and effective. It would be better to bring the remaining small scale farmers also in to the society fold at the earliest to have an effective regulation and control.

1.1.2 Documents proving compliance with all tax requirements	YES	<ul style="list-style-type: none"> <li>• Yes. Available</li> <li>• Land tax is being paid annually every year: No water cess</li> </ul>	Necessary	
1.1.3 Documents proving compliance with all labor laws and regulations	YES	<ul style="list-style-type: none"> <li>• Not available</li> <li>• Ponds are managed by family members ,who form the workers.</li> <li>• Few farmers hire labours from neighbouring villages on crop basis as per the need</li> </ul>	To be adoptive as per lcal conditions	Probably this can be applied for an Aqua Society that employs 10 or more labours.
1.1.4 Documents proving compliance with discharge regulations or permits	YES	<ul style="list-style-type: none"> <li>• Regulation exists but yet to be implemented in field</li> <li>• Covered under CAA Licence</li> </ul>	Probably looked in to on trail basis	Hydrographical data on water discharge to be measured and recorded for a crop and based on the discharge water quality the regulations may be imposed or waived.
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Banned Chemicals and antibiotics are not used</li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory monitored by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>	Banned antibiotics and chemicals are not used.	<b>There is no list of authorised list of therapeutants and chemicals for Aquaculture use</b>
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats				
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in National Protected Areas</li> </ul>	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Mangrove eco systems</li> </ul>	Nil	

2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in Natural wet lands</li> </ul>	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in habitats of species listed by the IUCN Red list</li> </ul>	Nil	
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in critical habitats of species at risk as defined by National listing processes</li> </ul>	Nil	
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	<p>&gt;/=100m, with tree density &gt;/=30 trees *100 m-2</p>	<ul style="list-style-type: none"> <li>The mangrove vegetation of about 5 to 10 m width exists in patches between the Godavari river water and the Peripherral bund of another society (Murthy Aqua Society) <ul style="list-style-type: none"> <li>The tidal influence is felt in the River Godavari (= water source) which drains in to Bay Of Bengal at Antharveedhi 5Km (as the crow flies) from the farm site.</li> </ul> </li> <li>The shrimp culture ponds of another society (Murthy Aqua Society) lies in between the water source and Vasista Godavari Aqua Society., the buffer width being 100m</li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	Probably applicable to the farms located along the coastal areas.

2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	<ul style="list-style-type: none"> <li>• <b>100 m from Natural Water source</b> (Godavari Creek)</li> </ul>	The issue of buffer zone may not be applicable to this Society farm as the farm is on the banks of the sub creeks and far away from main River / creek	
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions			
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	<ul style="list-style-type: none"> <li>• No BEIA / EIA has been done</li> <li>• Aquaculture has been practiced in the area since 15 years.</li> </ul>	BEIA for Aqua societies operated by small scale farmers may not be necessary	BEIA may be considered for the fresh farms that will be constructed in future
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation			
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language			
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	<ul style="list-style-type: none"> <li>• <b>The society Shrimp ponds are not located in High Conservation Value Areas</b></li> </ul>	Nil	
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification	<ul style="list-style-type: none"> <li>• <b>Yet to be done</b></li> </ul>		

2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<ul style="list-style-type: none"> <li>• <b>Moderate clay (clay content about 60%)</b></li> </ul>		
2.2.2 Allowable water loss in ponds	< 1 cm/day	<ul style="list-style-type: none"> <li>• <b>&gt; 1 cm / day</b></li> </ul>	The soil composition of all the ponds belonging to an Aqua Society may not be uniform and therefore allowance of seepage up to 10 cm / day would be appropriate	Allowance of seepage up to 10 cm / day would be appropriate
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	<ul style="list-style-type: none"> <li>• Nil</li> <li>• There is no fresh water underground Aquifer</li> </ul>	Agreed	
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>No fresh water (drinking water) well close to farm site.</b></li> <li>• <b>Drinking water is supplied from Malkipuram (9 km away from the village Sakhinetipalli Lenka and 10 km from farm site) through pipe line.</b></li> </ul>	This clause becomes relevant only where the fresh water well exists close to farm site. Further Farmers to be provided the equipment if testing to be done.	Probably this is applicable wherein fresh water well exists within 100m from the peripheral embankment of the farm.
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>The Agriculture drain canal ( Muriki canal ) with a width of 5m and depth of 2 m separates the aqua farm and Agriculture field, which prevents seepage of saline water to Agriculture fields.</b></li> <li>• <b>Coconut trees are dotted along the muriki canal followed by Agriculture (paddy ) fields.</b></li> <li>• <b>Agriculture &amp; Aqua culture is co existing here for the last 15 years.</b></li> </ul>	This is an index on intrusion of salt water in to Agriculture field: Aquaculture is being practiced on the land not suitable for agriculture; generally on banks of brackishwater creek. As long as the Aquaculture co exists with Agriculture and at Sustainable levels as seen for the last 2 decades, the issue of intrusion of salt water becomes irrelevant.	

2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	<ul style="list-style-type: none"> <li>• <b>No sedimentation tank.</b></li> <li>• Agriculture is done by Gannavaram irrigation canal originating from Rajamundry (Dowleeswaram barrage) ; the flow controlled at several places viz., Razole, Pothilada, Nagulenska, etc., the nearest being at Sakhinetipalli lock at 7 km far away from farm site</li> </ul>	Very little sediment accumulation	
2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 $\mu$ mhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>• For most of the ponds, water from the creek is directly pumped in to the Grow out ponds employing diesel pumpsets.</li> <li>• For few ponds a small passage is made on the emankment with semi hume pipes (concrete pipes) to draw water in to the Grow out ponds.</li> </ul>	May not be relevant as water is pumped directly in to ponds	It is difficult to quantify this as the geometry and pond locations are unique and differ greatly from place to place. Further every farmer certainly will maintain the canal such that water gets in to the pond without difficulty
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			
2.3.3 Presence of a freeboard on open canals	Yes			
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes			

2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side	(Peripheral ) Pond Embankments Top width =2.to 2.5 m Height = 1.5 m Slope = 1:3 Bottom width = 10.5 to 11.5 m	The cross bunds between the ponds will have a top width about 1m as it is meant only for foot travel. Vehicle (especially 4 wheelers) do not ply on cross bunds.	For the cross bunds the following dimensions may be adequate. Top Width 1m , Height 1.3m, slope 1:2
2.3.6 Freeboard of pond banks after settlement	> 30cm	• > 30 cm	Free board of 30 cm is necessary	Free board of 30 cm is recommended
2.3.7 Top width of pond banks	> 2m	• > 2 to 2.5 m		
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	• <b>Society ponds are not located in Natural water ways</b>	Nil	
Principle 3: Develop and operate farms with consideration for surrounding communities				
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA)and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.	<ul style="list-style-type: none"> <li>• p - SIA yet to be done</li> <li>• This is family owned operations carried out by the village community in consensus.</li> <li>• Farmers belong to various communities but get along well with each other</li> <li>• The aquaculture has been carried out since fifteen years and there is hardly any social issues.</li> <li>• Therefore the need to carry out Social Impact Assessment has not been felt.</li> </ul>		Aqua Society Shrimp Farms may be exempted from the Participatory Social Impact Assessment

<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<ul style="list-style-type: none"> <li>• Issues if any will be taken up in village level community meetings and sorted out amicably.</li> </ul>	<p>The age old practice exists in Village level regarding addressing the complaints , debating on the same paving for amicable settlement</p>	
<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<ul style="list-style-type: none"> <li>• No migrant / distant workers</li> <li>• Mostly family members are engaged in the work <ul style="list-style-type: none"> <li>• In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.</li> </ul> </li> <li>• Few farmers engage labours from nearby villages (Lakesswaram, Perupalem etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.), water exchange, water filling}</li> </ul>		<p>Migrant / distant workers are not encouraged owing to anonymity</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<ul style="list-style-type: none"> <li>• No written contracts</li> <li>• Mostly ponds are managed by family members <ul style="list-style-type: none"> <li>• Few labours are engaged from neighbouring villages for crop basis (4-5 months) as per need</li> </ul> </li> </ul>		<p>Engaging labour is a bit sensitive issue and is governed by age old practice of verbal terms.</p>
<p>3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood</p>	<p>100% compliance</p>			

3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	<ul style="list-style-type: none"> <li>• Meetings are held between the Purchaser and Contract farmers</li> <li>• The arrangement between the farmer and the Processor is by and large on faith and oral communication.</li> <li>• Harvested Material is given to Processor who offer a higher price</li> </ul>		Long term policy on price fixation is preferred over the fluctuation of price within and every crop period.
Principle 4: Operate farms with responsible labor practices				
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	<ul style="list-style-type: none"> <li>• <b>No deployment of Child labour</b></li> </ul>	Nil	
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	<ul style="list-style-type: none"> <li>• <b>No forced, bonded or compulsory labour</b></li> </ul>	Nil	
4.3.1 Evidence of proactive anti-discrimination policy	Yes	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> </ul>		
4.3.2 Number of incidences of discrimination	None	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> </ul>		
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	<ul style="list-style-type: none"> <li>• Women are not employed</li> <li>• Employees are locals and belong to the same ethnic group</li> </ul>		
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<ul style="list-style-type: none"> <li>• No formal training imparted but oral instructions</li> <li>• Hardly any safety equipment is provided for use</li> </ul>		

4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	<ul style="list-style-type: none"> <li>• Such accidents are rare</li> </ul>		
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	<ul style="list-style-type: none"> <li>• No industrial insurance policy undertaken</li> </ul>	Difficult for the small scale farmer to initiate on this	
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	<ul style="list-style-type: none"> <li>• Payment as per the norms of the locality</li> <li>• Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</li> <li>• The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</li> <li>• Besides they are paid incentive after harvest depending on the production</li> </ul>		
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	<ul style="list-style-type: none"> <li>• Limited</li> <li>• Ponds are managed by and large by Family members and hardly there will be employees :</li> <li>• The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</li> </ul>	Not applicable as the farm is managed by family members	
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	<ul style="list-style-type: none"> <li>• Such incidences are rare</li> <li>• Workers being family members , made to realise the mistake and instructed not to repeat the same</li> </ul>		
4.7.2 Evidence of abusive disciplinary policies and procedures	None			
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are uncommon</b></li> </ul>		

<p>4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.</p>	<p>100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers</p>	<ul style="list-style-type: none"> <li>• No paper contracts</li> <li>• Managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal contract conditions</li> </ul>	<p>Not applicable as the farm is managed by family members</p>	
<p>4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings</p>	<p>Evidence of these meetings taking place</p>	<ul style="list-style-type: none"> <li>• No such formal meetings are conducted</li> <li>• <b>The farm affairs is managed by family members</b></li> </ul>	<p>Not applicable as the farm is managed by family members</p>	
<p>Principle 5: Manage shrimp health in a responsible manner</p>				
<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:  1) Diseases from the surrounding environment entering the farm (predator and vector control),  2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),  3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>• Few Functional disease preventive tools exist in farm</li> <li>• Filtration bags and Crab fencing, bird netting done</li> <li>• Source water after filtration through mesh bags are put into the ponds .</li> <li>• By and large no disinfection / sterilization is done</li> <li>• However few farmers do the chlorination at the beginning in the grow out ponds prior to stocking and subsequently use source water after filtration without disinfection.</li> <li>• The river Godavari drains in to Bay of Bengal at Antharveedhi 5km from farmsite. A creek branching out of Godavari River forms the water source for the farmsite.</li> <li>• The tidal effect is so pronounced that during lowtide hardly there is any water in the creek and the high tide brings considerable quantity of brackish water in to the creek. This Natural phenomenon is taken taken advantage by the Farmers in a way to use the same creek as the source of water (during high tide) and a means of drainage canal (during low tide)</li> </ul>		

5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 m	<ul style="list-style-type: none"> <li>• Yes. Available</li> <li>• Mesh bags (80 and 60p ) are employed for water filtration</li> </ul>	The mesh size of filtration being around 500 micron. Keeping in volume and pressure of water flow, mesh size less than 500 would be impractical.	
5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	<ul style="list-style-type: none"> <li>• In general, dissolved oxygen is checked once in a week ( the frequency is enhanced based on need basis depending on pond water quality and biomass)</li> </ul>		
5.1.4 Daily minimum pond water pH	> 7	<ul style="list-style-type: none"> <li>• Normally it ranges from 7.5 - 8.5</li> </ul>		
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	<ul style="list-style-type: none"> <li>• These are aerated ponds and • annual average farm survival being 85% with a variation among the ponds of <b>the society &lt; 15%</b></li> </ul>		
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<ul style="list-style-type: none"> <li>• <b>No SPF/ SPR seeds are stocked</b></li> </ul>		
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	<ul style="list-style-type: none"> <li>• No intentional lethal predator control</li> <li>• Filtration bags are the tools employed for non lethal prevention of predators</li> </ul>		
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	<ul style="list-style-type: none"> <li>• Lead Shot for predator control not employed</li> </ul>		

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	<ul style="list-style-type: none"> <li>• <b>Study not done</b></li> </ul>	As the small farmers need to spend his whole time on culture operation ,documentation of details pertaining to this would be very difficult	
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	<ul style="list-style-type: none"> <li>• <b>Banned Chemicals and antibiotics are not used</b></li> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory managed by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>		
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	<ul style="list-style-type: none"> <li>• <b>No records available</b></li> </ul>	<ul style="list-style-type: none"> <li>• Record on the same to be maintained</li> </ul>	
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	<ul style="list-style-type: none"> <li>• Oral instructions given but not through placards / boards etc., etc..</li> </ul>		
5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	<ul style="list-style-type: none"> <li>• Pesticides are not used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	

5.3.5 Allowance for discharge of all chemicals without previous neutralization	None	<ul style="list-style-type: none"> <li>• Hardly any chemicals are used</li> </ul>	<ul style="list-style-type: none"> <li>• Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	<ul style="list-style-type: none"> <li>• Pesticides and Chlorine residues in pond water not being tested at present</li> <li>• However, for Shrimp ELISA test is done but not for water</li> </ul>		
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	<ul style="list-style-type: none"> <li>• Harmful strains of probiotics <b>are not used</b></li> </ul>		
Principle 6: Manage broodstock origin, stock selection and effects of stock management				
6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	<ul style="list-style-type: none"> <li>• <b>Native species</b> Penaeus monodon is the species under culture</li> </ul>	Nil	
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	<ul style="list-style-type: none"> <li>• Hatchery raised Post larvae is stocked in ponds</li> </ul>		

6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	• <b>Not applicable (as the cultured species is the Native species)</b>		
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	• <b>No SPF seed is used</b>		
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	• Shrimp PLs obtained from wild caught brood stock • <b>For P.monodon pond rearing brood stock is very difficult as it fails to mature</b>		
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	• Fishery management plan prohibits collection of wild broodstock during spawning months		
6.2.5 Allowance for wild-caught PL	None	• <b>Wild caught shrimp PL not used</b>		
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:			This may not be applicable to native species	

A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Outlet has mesh screen shutter and wooden shutters that prevent the escapes from the pond</li> </ul>		
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	<ul style="list-style-type: none"> <li>• Pond embankment has a free board of about 0.3 to 0.5 m</li> </ul>		
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	<ul style="list-style-type: none"> <li>• Inspections are done; but not recorded.</li> </ul>		
D. Evidence of timely repairs to the system are recorded	Yes	<ul style="list-style-type: none"> <li>• Periodical maintenance and timely repair are carried out; but to be recorded</li> </ul>		
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes		Not applicable for native species	
F. Traps on water outlets to catch/kill escapes	Yes	<ul style="list-style-type: none"> <li>• <b>Yes ; Traps to catch escapes</b></li> </ul>		
G. Evidence of escape recovery protocols	Yes	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> </ul>		
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Harvested Shrimps are chill killed at the site prior to trnasportation to Processing plant		
6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	<ul style="list-style-type: none"> <li>• Hardly there would be any escapes:</li> <li>• No records are maintained on escapes and the actions taken to prevent the same</li> </ul>	Not applicable for native species	
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Nil		

Principle 7: Use resources in an environmentally efficient and responsible manner				
<b>Indicator</b>	<b>Standards</b>			
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability	<ul style="list-style-type: none"> <li>This would depend on the standards imposed on Shrimp Feed Mills and the extent they comply to the same as the farmers buy formulated feeds of reputed brands from the market</li> </ul>	To be discussed with feed manufacturers	
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	<ul style="list-style-type: none"> <li>Yes.</li> <li>The farmers use formulated feeds of reputed companies.</li> <li>It is believed that the feed ingredients comply to this.</li> </ul>	To be discussed with feed manufacturers	
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	<ul style="list-style-type: none"> <li>Yes.</li> </ul>	<ul style="list-style-type: none"> <li>Feed supplier to be approached (preferably through Governmental Agencies) enabling feed manufacturer to declare the list of ingredients employed towards feed formulation</li> </ul>	
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1d Demonstrate consideration for species interaction issues		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
In the interim period, the following indicators and standards apply for compliance with 7.2.1:		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1b Chemical and Pesticide Use in agriculture		Nuvakron, Chlorophitos		
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details. Based on which the FEER can be calculated</li> <li>[Assuming that % of Fish meal in Shrimp Feed is 15% &amp; FCR = 1:2] The FFER = <math>(15 \times 2) / 22.2 = 1.35</math></li> </ul>		

7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 (Average 1: 1.6)</li> </ul>		
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	<p>&lt; 17.6 kg/tonne of shrimp for P.vannamei</p> <p>&lt; 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species</p>	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Nitrogen released = 22.2 kg / Tons of Shrimp</b> production		
7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	<p>&lt; 2.7 kg/tonne of shrimp for P.vannamei</p> <p>&lt; 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species</p>	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Phosphorous released = 4.6 kg / Tons of Shrimp</b> production		
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	<ul style="list-style-type: none"> <li>• Small scale farmers are not equipped with effluent treatment ponds.</li> <li>• Discharge water is directly released in to water source</li> </ul>	A study may taken up with WWF assistance to evaluate the quality of drainage from shrimp ponds	
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	<ul style="list-style-type: none"> <li>• Dissolved oxygen of source water around 3 to 4 ppm</li> </ul>		
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	<ul style="list-style-type: none"> <li>• Data generation to be done</li> </ul>		
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	<ul style="list-style-type: none"> <li>• Data generation to be done</li> </ul>		

7.8.1 Percentage of combustibles contained in bunds	100%	<ul style="list-style-type: none"> <li>• Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement</li> </ul>		
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	<ul style="list-style-type: none"> <li>• Chemicals (used for water application &amp; feed additives) are generally stores in the containers they were bought and are kept in the house of the respective farmers and is taken to the site daily to meet day requirement.</li> </ul>		
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Usage of lubricants is negligible		
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Generally sold to merchants for recycling / reuse		
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Usually such items are burnt		
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Sold to merchants		

**Karlapalem (NGO facilitated farmer group), Prakasam District, Andhra Pradesh**

Indicator	Standards	Status	Remarks pertaining to standards	Suggestions
Principle 1: Comply with all applicable national laws and local regulations				

1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	<ul style="list-style-type: none"> <li>• Yes. Available</li> <li>• All lands are owned by the farmers</li> <li>• License from the CAA (Coastal Aquaculture Authority) has been obtained by 20 farmers and remaining 8 were applied for license.</li> </ul>	Compliance with local and National Authorities is necessary (for being cohesive and effective).	Compliance with local and National Authorities is necessary for being cohesive and effective.
1.1.2 Documents proving compliance with all tax requirements	YES	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Land tax is being paid annually every year: No water cess</li> </ul>	Necessary	
1.1.3 Documents proving compliance with all labor laws and regulations	YES	<ul style="list-style-type: none"> <li>• <b>Not available</b></li> <li>• Ponds are solely managed by family members ,who form the workers.</li> </ul>	To be adoptive as per local conditions	These farmers are may not cover under labour establishments because they are managing farms on their own.
1.1.4 Documents proving compliance with discharge regulations or permits	YES	<ul style="list-style-type: none"> <li>• <b>Regulation exists but yet to be implemented in field</b></li> <li>• Covered under CAA Licence</li> </ul>	Probably looked in to on trail basis	Hydrographical data on water discharge to be measured and recorded for a crop and based on the discharge water quality the regulations may be imposed or waived.
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Banned Chemicals and antibiotics are not used <ul style="list-style-type: none"> <li>• Further prior to harvest pond reared shrimps have to be tested by Laboratory monitored by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>• Shrimps with free of antibiotic residues will be bought by the processor</li> </ul> </li> </ul>	Banned antibiotics and chemicals are not used.	<b>There is no list of authorised list of therapeutants and chemicals for Aquaculture use</b>
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats				
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in National Protected Areas</li> </ul>	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of	<ul style="list-style-type: none"> <li>• The society Shrimp ponds are not located in Mangrove eco systems</li> </ul>	Nil	

	100% of equivalent area.			
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in Natural wet lands</li> </ul>	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in habitats of species listed by the IUCN Red list</li> </ul>	Nil	
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	<ul style="list-style-type: none"> <li>The society Shrimp ponds are not located in critical habitats of species at risk as defined by National listing processes</li> </ul>	Nil	
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	<ul style="list-style-type: none"> <li>The mangrove vegetation of about 5 to 10 m width exists in patches between the Godavari river water and the Peripherral bund of another society (Murthy Aqua Society) <ul style="list-style-type: none"> <li>The tidal influence is felt in the River Godavari (= water source) which drains in to Bay Of Bengal at Antharveedhi 5Km (as the crow flies) from the farm site.</li> </ul> </li> <li>The shrimp culture ponds of another society (Murthy Aqua Society) lies in between the water source and Vasista Godavari Aqua Society., the buffer width being 100m</li> </ul>	The issue of buffer zone may not be applicable to this farmers as the farm is on the banks of the Buckingham canal	Probably applicable to the farms located along the coastal areas.
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	<ul style="list-style-type: none"> <li><b>100 m from Natural Water source (Godavari Creek)</b></li> </ul>	The issue of buffer zone may not be applicable to this group as the farm is on the banks of the Buckingham canal and far away from the sea and etchury	

2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions		The size of farm corridors are not as per the specified standards because all the farmers are small scale and having small land holdings. At the development farms they built like this and same as continuing till date.	As per the standards they have to redesign their pond corridors as specified standards.
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	<ul style="list-style-type: none"> <li>• <b>No BEIA / EIA has been done</b></li> <li>• Aquaculture has been practiced in the area since 15 years.</li> </ul>	BEIA for Aqua societies operated by small scale farmers may not be necessary	BEIA may be considered for the fresh farms that will be constructed in future
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation			
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language			
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	<ul style="list-style-type: none"> <li>• <b>The society Shrimp ponds are not located in High Conservation Value Areas</b></li> </ul>	Nil	
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification	<ul style="list-style-type: none"> <li>• <b>Yet to be done</b></li> </ul>		

2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<ul style="list-style-type: none"> <li>• <b>Moderate clay (clay content about 50%)</b></li> </ul>		
2.2.2 Allowable water loss in ponds	< 1 cm/day	<ul style="list-style-type: none"> <li>• <b>&gt; 1 cm / day</b></li> </ul>	The soil composition of all the ponds belonging to an Aqua group is uniform and therefore allowance of seepage up to 3 cm / day would be appropriate	Allowance of seepage up to 3 cm / day would be appropriate
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	<ul style="list-style-type: none"> <li>• <b>Nil</b></li> <li>• There is no fresh water underground Aquifer</li> </ul>	Agreed	
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• No fresh water (drinking water) well close to farm site.</li> <li>• Drinking water is supplied from Malkipuram (9 km away from the village Sakhinetipalli Lenka and 10 km from farm site) through pipe line.</li> </ul>	This clause becomes relavent only where the fresh water well exists close to farm site. Further Farmers to be provided the equipment if testing to be done.	Probably this is applicable wherein fresh water well exists within 100m from the peripheral embankment of the farm.
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	<ul style="list-style-type: none"> <li>• <b>The Agriculture drain canal ( Muriki canal ) with a width of 5m and depth of 2 m sepearates the aqua farm and Agriculture field, which prevents seepage of saline water to Agriculture fields.</b></li> <li>• <b>Coconut trees are dotted along the muriki canal followed by Agriculture (paddy ) fields.</b></li> <li>• <b>Agriculture &amp; Aqua culture is co existing here for the last 15 years.</b></li> </ul>	This is an index on intrusion of salt water in to Agriculture field: Aquaculture is being practiced on the land not suitable for agriculture; generally on banks of brackishwater creek. As long as the Aquaculture co exists with Agriculture and at Sustainable levels as seen for the last 2 decades, the issue of intrusion of salt water becomes irrelavent.	

2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	<ul style="list-style-type: none"> <li>• No sedimentation tank.</li> <li>• Agriculture is done by Gannavaram irrigation canal originating from Rajamundry (Dowleeswaram barrage) ; the flow controlled at several places viz., Razole, Pothilada, Nagulanka, etc., the nearest being at Sakhinetipalli lock at 7 km far away from farm site</li> </ul>	Very little sediment accumulation	
2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>• For most of the ponds, water from the creek is directly pumped in to the Grow out ponds employing diesel pumpsets.</li> <li>• For few ponds a small passage is made on the emankment with semi hume pipes (concrete pipes) to draw water in to the Grow out ponds.</li> </ul>	May not be relevant as water is pumped directly in to ponds	It is difficult to quantify this as the geometry and pond locations are unique and differ greatly from place to place. Further every farmer certainly will maintain the canal such that water gets in to the pond without difficulty
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			
2.3.3 Presence of a freeboard on open canals	Yes		YES	

2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes		No	These should be strengthened with lining or other. But this may increase their capital and also this could be looked after by all the farmers. So far they have not taken any decision on strengthening of canal.
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side	(Peripheral ) Pond Embankments Top width =2. to 2.5 m Height = 1.5 m Slope = 1:3 Bottom width = 10.5 to 11.5 m	The cross bunds between the ponds will have a top width about 1m as it is meant only for foot travel. Vehicle (especially 4 wheelers) do not ply on cross bunds.	For the cross bunds the following dimensions may be adequate. Top Width 1m , Height 1.3m, slope 1:2
2.3.6 Freeboard of pond banks after settlement	> 30cm	• > 30 cm	Free board of 30 cm is necessary	Free board of 30 cm is recommended
2.3.7 Top width of pond banks	> 2m	• > 2 to 2.5 m		
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	• <b>Group ponds are not located in Natural water ways</b>	Nil	
Principle 3: Develop and operate farms with consideration for surrounding communities				
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.	<ul style="list-style-type: none"> <li>• p - SIA yet to be done</li> <li>• This is family owned operations carried out by the village community in consensus.</li> <li>• Farmers belong to various communities but get along well with each other</li> <li>• The aquaculture has been carried out since fifteen years and there is hardly any social issues.</li> <li>• Therefore the need to carry out Social Impact Assessment has not been felt.</li> </ul>		Group Shrimp Farms may be exempted from the Participatory Social Impact Assessment

<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<ul style="list-style-type: none"> <li>• Issues if any will be taken up in village level community meetings and sorted out amicably.</li> </ul>	<p>The age old practice exists in Village level regarding addressing the complaints , debating on the same paving for amicable settlement</p>	
<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<ul style="list-style-type: none"> <li>• No migrant / distant workers</li> <li>• Mostly family members are engaged in the work <ul style="list-style-type: none"> <li>• In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.</li> </ul> </li> <li>• Few farmers engage labours from nearby villages (Lakesswaram, Perupalem etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}</li> </ul>		<p>Migrant / distant workers are not encouraged owing to anonymity</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<ul style="list-style-type: none"> <li>• No written contracts</li> <li>• Mostly ponds are managed by family members</li> </ul>	<p>Mostly the farmers and their family members are working in the farms</p>	
<p>3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood</p>	<p>100% compliance</p>			

3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	<ul style="list-style-type: none"> <li>• Meetings are held between the Purchaser and Contract farmers</li> <li>• The arrangement between the farmer and the Processor is by and large on faith and oral communication.</li> <li>• Harvested Material is given to Processor who offer a higher price</li> </ul>		Long term policy on price fixation is preferred over the fluctuation of price within and every crop period.
Principle 4: Operate farms with responsible labor practices				
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	<ul style="list-style-type: none"> <li>• <b>No deployment of Child labour</b></li> </ul>	Nil	
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	<ul style="list-style-type: none"> <li>• <b>No forced, bonded or compulsory labour</b></li> </ul>	Nil	
4.3.1 Evidence of proactive anti-discrimination policy	Yes	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> </ul>		
4.3.2 Number of incidences of discrimination	None	<ul style="list-style-type: none"> <li>• There is no discrimination policy on women employment.</li> </ul>		
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	<ul style="list-style-type: none"> <li>• Women are not employed</li> <li>• Employees are locals and belong to the same ethnic group</li> </ul>		

4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<ul style="list-style-type: none"> <li>• No formal training imparted but oral instructions</li> <li>• Hardly any safety equipment is provided for use</li> </ul>		
4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	<ul style="list-style-type: none"> <li>• Such accidents are rare</li> </ul>		
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	<ul style="list-style-type: none"> <li>• No industrial insurance policy undertaken</li> </ul>	Difficult for the small scale farmer to initiate on this	
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	<ul style="list-style-type: none"> <li>• Payment as per the norms of the locality</li> <li>• Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</li> <li>• The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</li> <li>• Besides they are paid incentive after harvest depending on the production</li> </ul>		
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	<ul style="list-style-type: none"> <li>• Limited</li> <li>• Ponds are managed by and large by Family members and hardly there will be employees :</li> <li>• The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</li> </ul>	Not applicable as the farm is managed by family members	

4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are rare</b></li> <li>• Workers being family members , made to realise the mistake and instructed not to repeat the same</li> </ul>		
4.7.2 Evidence of abusive disciplinary policies and procedures	None			
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	<ul style="list-style-type: none"> <li>• <b>Such incidences are uncommon</b></li> </ul>		
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	<ul style="list-style-type: none"> <li>• <b>No paper contracts</b></li> <li>• Managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal contract conditions</li> </ul>	Not applicable as the farm is managed by family members	
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	<ul style="list-style-type: none"> <li>• <b>No such formal meetings are conducted</b></li> <li>• The farm affairs is managed by family members</li> </ul>	Not applicable as the farm is managed by family members	
Principle 5: Manage shrimp health in a responsible manner				

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>• Few Functional disease preventive tools exist in farm</li> <li>• Two stage Filtration bags are installed</li> <li>• Crab fencing, bird netting not done</li> <li>• Source water after filtration through mesh bags are put into the ponds .</li> <li>• By and large no disinfection / sterilization is done</li> <li>• However few farmers do the chlorination at the beginning in the grow out ponds prior to stocking and subsequently use source water after filtration without disinfection.</li> <li>• The Buckingham canal is the water source for the famrs <ul style="list-style-type: none"> <li>• The tidal effect is so pronounced that during lowtide hardly there is any water in the creek and the high tide brings considerable quantity of brackish water in to the canal. This Natural phenomenon is taken taken advantage by the Farmers in a way to use the same creek as the source of water (during high tide) and a means of drainage canal (during low tide)</li> </ul> </li> </ul>		
<p>5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector</p> <p>Or</p> <p>Mesh size for mechanical filtration of supply water</p>	<p>Yes = 250 m</p>	<ul style="list-style-type: none"> <li>• <b>Yes. Available</b></li> <li>• Mesh bags (80 and 60p ) are employed for water filtration</li> </ul>	<p>The mesh size of filtration being around 500 micron. Keeping in volume and pressure of water flow, mesh size less than 500 would be impractical.</p>	
<p>5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise</p>	<p>&gt; 3ppm</p>	<ul style="list-style-type: none"> <li>• In general, dissolved oxygen is checked once in a week ( the frequency is enhanced based on need basis depending on pond water quality and biomass)</li> </ul>		
<p>5.1.4 Daily minimum pond water pH</p>	<p>&gt; 7</p>	<ul style="list-style-type: none"> <li>• Normally it ranges from 7.5 - 8.5</li> </ul>		

<p>5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in :</p> <p>1) Unfed and non-aerated ponds  2) Fed but non-aerated ponds  3) Fed and permanently aerated ponds</p>	<p>SR &gt; 50% and RSD &lt; 15%  SR &gt; 60% and RSD &lt; 15%  SR &gt; 80% and RSD &lt; 15%</p>	<ul style="list-style-type: none"> <li>• These are aerated ponds and • annual average farm survival being 85% with a variation among the ponds of the society &lt; 15%</li> </ul>		
<p>5.1.6 % of stocked post larvae (PL) that are SPF or SPR</p>	<p>100%</p>	<ul style="list-style-type: none"> <li>• <b>No SPF/ SPR seeds are stocked</b></li> </ul>		
<p>5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local</p>	<p>None</p>	<ul style="list-style-type: none"> <li>• <b>No intentional lethal predator control</b></li> <li>• Filtration bags are the tools employed for non lethal prevention of predators</li> </ul>		
<p>5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species</p>	<p>None</p>	<ul style="list-style-type: none"> <li>• Lead Shot for predator control not employed</li> </ul>		
<p>5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>• <b>Study not done</b></li> </ul>	<p>As the small farmers need to spend his whole time on culture operation ,documentation of details pertaining to this would be very difficult</p>	

5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	<ul style="list-style-type: none"> <li>Banned Chemicals and antibiotics are not used</li> <li>Further prior to harvest pond reared shrimps have to be tested by Laboratory managed by MPEDA through ELISA for the residue of antibiotics and Chemicals</li> <li>Shrimps with free of antibiotic residues will be bought by the processor</li> </ul>		
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	<ul style="list-style-type: none"> <li><b>No records available</b></li> </ul>	<ul style="list-style-type: none"> <li>Record on the same to be maintained</li> </ul>	
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	<ul style="list-style-type: none"> <li>Oral instructions given but not through placards / boards etc., etc..</li> </ul>		
5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	<ul style="list-style-type: none"> <li>Pesticides are not used</li> </ul>	<ul style="list-style-type: none"> <li>Analysis of the discharged water especially during harvest to be considered.</li> </ul>	
5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	<ul style="list-style-type: none"> <li>Pesticides and Chlorine residues in pond water not being tested at present</li> <li>However, for Shrimp ELISA test is done but not for water</li> </ul>		

5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	<ul style="list-style-type: none"> <li>• Harmful strains of probiotics are not used</li> </ul>		
Principle 6: Manage broodstock origin, stock selection and effects of stock management				
6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	<ul style="list-style-type: none"> <li>• <b>Native species</b> Penaeus monodon is the species under culture</li> </ul>	Nil	
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	<ul style="list-style-type: none"> <li>• Hatchery raised Post larvae is stocked in ponds</li> </ul>		
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	<ul style="list-style-type: none"> <li>• <b>Not applicable (as the cultured species is the Native species)</b></li> </ul>		

6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	<ul style="list-style-type: none"> <li>• <b>No SPF seed is used</b></li> </ul>		
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	<ul style="list-style-type: none"> <li>• Shrimp PLs obtained from wild caught brood stock</li> <li>• For P.monodon pond rearing brood stock is very difficult as it fails to mature</li> </ul>		
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	<ul style="list-style-type: none"> <li>• Fishery management plan prohibits collection of wild broodstock during spawning months</li> </ul>		
6.2.5 Allowance for wild-caught PL	None	<ul style="list-style-type: none"> <li>• <b>Wild caught shrimp PL not used</b></li> </ul>		
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:			This may not be applicable to native species	
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Outlet has mesh screen shutter and wooden shutters that prevent the escapes from the pond</li> </ul>		
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	<ul style="list-style-type: none"> <li>• Pond embankment has a free board of about 0.3 to 0.5 m</li> </ul>		

C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	• Inspections are done; but not recorded.		
D. Evidence of timely repairs to the system are recorded	Yes	• Periodical maintenance and timely repair are carried out; but to be recorded		
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes		Not applicable for native species	
F. Traps on water outlets to catch/kill escapes	Yes	• <b>Yes ; Traps to catch escapes</b>		
G. Evidence of escape recovery protocols	Yes	• <b>Not available</b>		
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Harvested Shrimps are chill killed at the site prior to trnasportation to Processing plant		
6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	<ul style="list-style-type: none"> <li>• Hardly there would be any escapes:</li> <li>• No records are maintained on escapes and the actions taken to prevent the same</li> </ul>	Not applicable for native species	
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Nil		
Principle 7: Use resources in an environmentally efficient and responsible manner				

7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability	<ul style="list-style-type: none"> <li>This would depend on the standards imposed on Shrimp Feed Mills and the extent they comply to the same as the farmers buy formulated feeds of reputed brands from the market</li> </ul>	To be discussed with feed manufacturers	
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	<ul style="list-style-type: none"> <li>Yes.</li> <li>The farmers use formulated feeds of reputed companies.</li> <li>It is believed that the feed ingredients comply to this.</li> </ul>	To be discussed with feed manufacturers	
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	<ul style="list-style-type: none"> <li>Yes.</li> </ul>	<ul style="list-style-type: none"> <li>Feed supplier to be approached (preferably through Governmental Agencies) enabling feed manufacturer to declare the list of ingredients employed towards feed formulation</li> </ul>	
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.1.1d Demonstrate consideration for species interaction issues		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
In the interim period, the following indicators and standards apply for compliance with 7.2.1:		<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

<p>7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.</p>	<p>Yes</p>	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
<p>7.2.1b Chemical and Pesticide Use in agriculture</p>		<p>Nuvakron, Chlorophitos</p>		
<p>7.3.1 % feed that is of GMO origin</p>	<p>Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other</p>	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		
<p>7.4.1 Land Animal Byproducts</p>	<p>Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other</p>	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details</li> </ul>		

7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	<ul style="list-style-type: none"> <li>Local Government Agencies to approach Feed Manufacturers to obtain the required details. Based on which the FEER can be calculated</li> <li>[Assuming that % of Fish meal in Shrimp Feed is 15% &amp; FCR = 1:2] The FFER = <math>(15 \times 2) / 22.2 = 1.35</math></li> </ul>		
7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	<ul style="list-style-type: none"> <li>Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>The eFCR generally ranges between 1.3 - 1.8 (Average 1: 1.6)</li> </ul>		
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Nitrogen released = 22.2 kg / Tons of Shrimp</b> production		
7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Phosphorous released = 4.6 kg / Tons of Shrimp</b> production		
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	<ul style="list-style-type: none"> <li>Small scale farmers are not equipped with effluent treatment ponds.</li> <li>Discharge water is directly released in to water source</li> </ul>	A study may taken up with WWF assistance to evaluate the quality of drainage from shrimp ponds	
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	<ul style="list-style-type: none"> <li>Dissolved oxygen of source water around 3 to 4 ppm</li> </ul>		
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	<ul style="list-style-type: none"> <li>Data generation to be done</li> </ul>		

7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	• Data generation to be done		
7.8.1 Percentage of combustibles contained in bunds	100%	• Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement		
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	• Chemicals (used for water application & feed additives) are generally stores in the containers they were bought and are kept in the house of the respective farmers and is taken to the site daily to meet day requirement.		
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Usage of lubricants is negligible		
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Generally sold to merchants for recycling / reuse		
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Usually such items are burnt		
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Sold to merchants		

### ***Annex 3: Cost and benefit analysis for complying with ShAD standards: Thailand***

<b>WWF - DRAFT STANDARDS FOR RESPONSIBLE SHRIMP AQUACULTURE : EFFORTS NEEDED TO COMPLY WITH THOSE STANDARDS</b>						
Principle 1: Comply with all applicable national laws and local regulations						
Indicator	Standards	Requirements towards compliance		Cost		Time Schedule
		Action	Remarks	B (Baht)	US\$ {1US	

					<b>\$ = THB 33}</b>	
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	All cluster of community enterprise member submits land title of shrimp farm to cooperative when farmers apply to be cooperative member. DoF also has required all farmer submit land title for asking GAP since 2009. If farmer does not own land or rent, farmer must ask copy of land title from land owner and submit it with lease agreement together.	Farmers of the cluster are registered with DoF provincial level and certified under Thai GAP. Need a Thai staff to prepare required document to comply standard	8,000 B/month {This is salary to be paid to staff towards liaison work plus maintenance of requisite documents in compliance to standard} (Thai staff without English qualification)	2,916 (per group per year)	1 year
1.1.2 Documents proving compliance with all tax requirements	YES	Normally land tax is being paid annually	Farms install 3 phase have paid tax annually. Need a Thai staff to prepare required document to comply standard	As 1.1.1		as 1.1.1
1.1.3 Documents proving compliance with all labor laws and regulations	YES	Among 10 farms of cluster, there are 3 farms hire worker(s). By previous interview: no document, verbal agreement	In case farms which hire worker(s) 1) Documents in support of compliance to labour laws and regulations are to be generated. 2) Farmers are needed to be trained about labor law and issue regulation. 3) Cluster needs to employ a staff to manage all need document to compliance standards.	300 B/book Guidebook and official form are needed to provide with Thai version. 5,000 B/day (This is consultation fee for training course) 3,000B/day for operation of training (and staff as 1.1.1)	576 (per group)	10 books minimum 2 days for training

1.1.4 Documents proving compliance with discharge regulations or permits	YES	1) Cluster intent to decrease water impact by promote recycling system. 2)Water monitoring of water resource around shrimp farm has been done monthly which is supported by DoF and NACA	Cluster has signed contract farming with processor with requirements that includes not allow discharge water from shrimp pond to natural water resource directly	1) Salary for cluster technician @ 8,500 per month for 12 months = 1,02,000 2) Equipment for measuring = 80,000	5,514 (per group per year)	1 year and an equipment
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	Cluster agrees with buyer that not allow to apply forbidden chemical and farmers send shrimp sample (10 days before harvest) to DoF provincial office for chemical residual test. Farmers also record what they apply to shrimp pond throughout a cycle. Internal audit is done regularly.	Guidebook is needed that includes list what is forbidden (Thai version)	300 baht/book	91 (per group)	10 books minimum

Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats

Indicator	Standards					
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	Nil	The Shrimp ponds of the cluster is not in National Protected Areas (it can be presented by satellite map)	Nil	Nil	
2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the cluster is not in Mangrove ecosystems (it can be presented by satellite map)	Nil	Nil	

2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Cluster is not in Natural Wetlands (it can be presented by satellite map)	Nil	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	1) The carrying out of BEIA may be entrusted with universities to a) Identify threatened, vulnerable, endangered species b) To recommend measures of protection of the same	As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site ( with both Aquaculture and Agriculture operations coexisting with each other). Anyway this must be study preliminary what farms or location is needed to go further.	1,000,000	30,303 (per group)	16 months i) 12 months to carry out the study and ii) 4 month towards compilation of data and preparation of Document}
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	1) Carrying out of BEIA studies by universities or National Agencies	The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly			Covered by 2.1.4

2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	Nil	Cluster farms do not show clear farm boundary but shrimp ponds are surrounded by vegetation and sub creeks are full of vegetation. The issue of buffer zone may not be applicable to cluster farms as farms are on the banks of the sub creeks and far away from main River / creek. Probably this applicable to the farms located along the coastal areas (only).	Nil	Nil	Nil
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	This may not be applicable to this cluster farms as the farm is on the banks of the sub creeks and far away from main River / creek.	Nil	Nil	Nil
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions	Each farm of cluster does not show clear boundary and shrimp ponds are surrounded by full of vegetation	No idea what to do to be complianced, should not induce EIA to small scale farm that is not resonable	Nil	Nil	Nil
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from universities in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	As of now there is no BEIA carried out			Covered under 2.1.4

2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from universities in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	Universities are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.			Covered under 2.1.4
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on concerned website besides copies made available with DoF in Thai version.				Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained					Covered under 2.1.4
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					Covered under 2.1.4
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	<ul style="list-style-type: none"> <li>An example of soil analysis from Samroi-yod: Sand = <math>29.13 \pm 4.09</math>, Silt = <math>28.0 \pm 1.85</math> and Clay = <math>45.37 \pm 2.50</math></li> </ul>	If it is needed to be analyzed for being data base, soil sample must be send to standard laboratory that need expenditure.	500 B/sample for soil texture analysis 200 B/time for sending sample by post	21 (per pond) 210 (per group)	2 weeks

2.2.2 Allowable water loss in ponds	< 1 cm/day	To reduce the seepage, the following options may be considered: To go in for plastic liners preferably along with embankment slopes which has cost implication on small scale farmers. Besides heavy capital investment in the beginning, this needs recurring expenses to maintain and for periodical repairs.	The farmers observation and experience and the field observation made during the study indicate water loss between 2 to 3 cm /day in ponds of various locations within the farm. Recommend, change standard to be higher than 1 cm/day and it must be combined to soil texture analysis.	500,000 B/4 rai pond for plastic lining	15,151 (perpond)  150,151 (per group)	2 months
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL		Nil	Nil	Nil
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	These has been measured monthly by DoF and NACA since 2009. There is a supply water well close to farm site but it shows 1 ppt salinity and freshwater bodies also show saline because its origin is saline so specific conductance must be higher than 1,500 µmhos/cm	a) This standard may not be used for this location due to origin of location is saline so standard must be adjusted to individual location b) Cluster needs technician to conduct this activity and also need equipment.	as 1.1.4		one year
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	These has been measured monthly by DoF and NACA since 2009. There is a supply water well close to farm site but it shows 1 ppt salinity and freshwater bodies also show saline because its origin is saline so specific conductance	Standard should be referred to origin of location	as 1.1.4		one year

		must be higher than 1,500 µmhos/cm				
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	Nil	<p>a) Cluster farms do not have sediment containment area. Sediment is usually removed from pond once in a year then fill at ridge of shrimp pond or keep at a space land in farm</p> <p>b) Standard should support farm which limit stock density that present of little sediment.</p> <p>c) There is limited or very less accumulation of sediments in small scale shrimp culture operations. If standard requires sediment containment area, some small scale farm cannot be certified due to no land space. So farmers must need expenditure for rent a piece of land.</p>	Approximately renting of 5 rai land for sedimentation is 20,000 baht/year	606 (per farm)  6,060 (per group)	Nil

2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.	1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out	The limited accumulated black soil			
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	<ul style="list-style-type: none"> <li>For most of the ponds, water from the small canal around pond is directly pumped in to the shrimp pond by diesel pumpsets.</li> </ul>	May not be relevant as water is pumped directly in to ponds. If open canal supplies water for shrimp pond is full of vegetation, it should be considered to be accepted. Vegetation must be considered to prevent soil erosion. Not need to measure velocity due to water is pump. Study the history of location that is better to remain natural situation of open canal. Promote to plant vegetation. <u>Heavy machine to improve or modify the dyke</u>	2,000 baht/hr (12 hr), total is 24,000B for heavy machinery work to modify the dyke	727 (per canal around farms)  7,270 (per canals in the group)	12 hrs
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			Covered under 2.3.1		

2.3.3 Presence of a freeboard on open canals	Yes					
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side	(Peripheral ) Pond Embankments Top width =2.5 to 3.5 m Height = 2.0 m Slope = 1:3 Bottom width = 7.5 to 11 m	Peripheral embankments have slope 3:1. Heavy machine to improve or modify	24,000B/12 hr	727 (per pond)  7,270 (per group)	12 hrs
2.3.6 Freeboard of pond banks after settlement	> 30cm	> 30 cm	Pond embankments has free board of 30cm			
2.3.7 Top width of pond banks	> 2m	Compliance, > 2 m				
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Cluster ponds are not located in Natural water ways				
<b>Principle 3: Develop and operate farms with consideration for surrounding communities</b>						
<b>Indicator</b>	<b>Standards</b>					
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral	This is family owned operations carried out by the village community in consensus. Farmers belong to various communities but get along well with each other. The aquaculture has been carried out since twenty years and	a) Aquaculture by the small scale farmers through cluster of community enterprise is by and large like a family owned operations carried out by the village community in consensus. b) Farmers belong to a community but get along well with each other. c) The aquaculture has been carried	100,000	3,030 (per group)	2 to 3 months { i) Formation of committee = 1 month; ii) Study - interviewing villagers = 1 month; iii)

	part of the report.	social problem was solved by making zoning	out since fifteen years and there is hardly any social issues. d) Therefore the need to carry out Social Impact Assessment has not been felt. e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limitations of Shrimp Aquaculture on the Society.			Compilation and preparation of report = 15 days}
3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.	Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).	Provision to be made to register complaints with the local authority office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.		12000 { Payment of fees to local authority office per annum }	267 (per group)	
3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers	Farm owners shall document evidence of advertising positions within local communities	Mostly family members are engaged in the work, few hires neighbor or relatives. In case of additional labours are needed	This standard does not decrease impact for hiring migrant worker. It should consider the situation of each location such as local people may carry out own business			

	before hiring migrant workers	(example while harvesting etc.,) members of the adjacent ponds assist or hires. Few farmers engage labours in village by paying salary and bonus (per crop) These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water filling}, no document present	such as rubber plantation, lacking of worker is so migrant worker is needed. Auditor gets information, interview worker and employer can be done			
3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance	Cluster has signed contract to a processor only but there is not any contract when farmers sell product to broker	Contract is done between buyer and seller under agreement of both parties so external auditor should not interfere so it may be done by interview			
3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance					
3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.					
Principle 4: Operate farms with responsible labor practices						

Indicator	Standards					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	No deployment of Child labour	These can be done by interview for small scale farm	Nil	Nil	Nil
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	No forced, bonded or compulsory labour	These can be done by interview for small scale farm	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	There is no discrimination policy on women or ethnic employment	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	Women, men and ethnic receive equal pay for equal work	Nil	Nil	Nil
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	Farms do not have workers and few farms have few workers.	This should provide list of necessary safety equipment for farms where have 5 workers up. Traing must be provided as few farmer presentatives (volunteer) per location. Training course, list of required equipments (Thai) and equipments.	33,500 {i) 6000 (Training for 2 persons for a week ) ii) Positioning of First aid kit with emergency medicines = 2500 iii) Safety equipments at least in 2 locations = 25,000}	1,015 (per group)	2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}
4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	Such accidents are rare Some children of farmer assist parent at farm for simple work	Cluster may keep this kind of record			

4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	Thai people has got social welfare about medical care from government	Difficult for the small scale farmer to initiate on this			
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	Payment as per the norms of the Thai law. Ponds are managed by and large by family members; However few farmers hire labours from neighbouring villages or relatives. The hired labours (salary) are paid monthly (agreement by oral basis & no written contracts). Besides they are paid bonus after harvest depending on the production.	Nil	Nil	Nil
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	Farmss are managed by and large by Family members and hardly there will be employees. The hired labours (for the salary basis) is based on mutual understanding (on oral terms) of remuneration.	Nil	Nil	Nil
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	<b>a) Such incidences are rare</b> b) Workers being family members , made to realise the mistake and instructed not to repeat the same	Nil	Nil	Nil
4.7.2 Evidence of abusive disciplinary policies and procedures	None			Nil	Nil	Nil

4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labours and the employer. Further at the end of the crop, labours are paid bonuse as per the production in recognition of their hard work.	Nil	Nil	Nil
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	No paper contracts. Managed by and large by family members; Few farmers hire labours from neighbouring villages on salary basis with verbal contract conditions				
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	No such formal meetings are conducted. The farm affairs is managed by family members.				
<b>Principle 5: Manage shrimp health in a responsible manner</b>						
<b>Indicator</b>	<b>Standards</b>					

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	Yes	<p>1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative. 2) Shrimp PL is another source of pathogen carrier therefore seed stocked should be free of pathogens (PCR tested for White spot virus and it is done by hatchery). 3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be prevented by crab fencing. 4) Birds pick up the infected shrimp from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>a) The cluster promote recycling system</p> <p>b) If any farm does not have own reservoir, farmer may rent an empty pond (if available) to apply recycling system</p> <p>c) Installation of crab fencing and bird net would provide additional measures towards disease control and therefore recommended.</p> <p>d) Provision of a cluster technician conducts water analysis frequently that would enable farmers to exercise greater control on culture operation and hence recommended.</p>	<p>20,000/year (land rent, 5 rai empty pond)</p> <p>5,000/5 rai pond (crab fencing)</p> <p>3,000/5 rai pond (bird net)</p>	<p>848 (per pond)</p> <p>8,480 (per group)</p>
<p>5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector</p> <p>Or Mesh size for mechanical filtration of supply water</p>	Yes = 250 µm	<p>100 µm The mesh bag to be installed (preferably at the pond inlets)</p>		<p>5,000/bag</p>	<p>152 (per pond)</p> <p>1,520 (per group)</p>

5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The cluster must be quipped with test kits for measurement of hydrographical parameters b) Cluster technician to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, pH to be checked on regular basis				Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7					
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	CoC hatchery has done SPF				
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calendar month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identification, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	192,000 1) Salary of the staff = 120,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 72,000 (@ 6,000 per month for 1 year)	5,818 (per group)	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) Cluster, cooperative, DoF and buyer prohibit the use of banned antibiotics and Chemicals. 2) Further prior to harvest pond reared shrimps have to be tested by DoF Laboratory for the residue of antibiotics 10 days before harvest.	Nil	Nil	Nil
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The cluster technician will be able to make the documents listing all chemicals stocked at farm site and the usage of the same in ponds. 2) provides list in Thai version	This requires the services of a society coordinator who need to be appointed.			Covered under 1.1.4

5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.	The preparation of sign board involves expenditure	10,000	303 (per group)	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}
5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	1) Farmers of the cluster do not use pesticides /forbidden chemicals for the shrimp culture operation.	Water discharged from Shrimp Aquaculture ponds of the cluster will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary and cluster promote recycling system.			
5.3.5 Allowance for discharge of all chemicals without previous neutralization	None	Full compliance	Forbidden chemicals are not used and water is drained to reservoir.			
5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	Full compliance	a) Pesticides and chlorine are not being used in cluster ponds of small scale farmers. c) Chlorine may be tested by testkit.	1,000/kit(chlorine)	30 (per pond per year)  300 (per group)	

5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) Provides list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture for prelim checking that will be good (Thai version).	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
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Principle 6: Manage broodstock origin, stock selection and effects of stock management

Indicator	Standards					
6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	Full compliance	This part is under responsibility of hatchery (not farm level) but CoC hatchery may compliance this	Nil	Nil	Nil
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	Full compliance	This part is under responsibility of hatchery (not farm level) but CoC hatchery may compliance this			

6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	CoC hatchery may provide Certificate of Analysis which includes result of SPF, cluater staff works on this documentation			Covered in 1.1.1
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	CoC hatchery may provide Certificate of Analysis which includes result of SPF, cluater staff works on this documentation			Covered in 1.1.1
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	CoC hatchery may be certified this.			
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	This part is related to hatchery but hatchery must follow regulation of DoF for import broodstock.	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	FMD has shown.	Nil	Nil	Nil
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	Closed shrimp ponds, mesh bag is installed at pipe when water is pumped out for harvesting	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	Pond dike has about 30 cm free board.	Nil	Nil	Nil

C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	Closed shrimp ponds, no need to inspect.			
D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	Regular repairs especially on late of every year. Pond bottom is removed to fill at dyke. Repair details could be well documented by technician of cluster.			Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	Closed shrimp ponds, mesh bag is installed at pipe when water is pumped out for harvesting			
F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	Closed shrimp ponds, mesh bag is installed at pipe when water is pumped out for harvesting	Nil { Already existing }	Nil {Already existing}	Nil
G. Evidence of escape recovery protocols	Yes	Full compliance	Closed shrimp ponds, mesh bag is installed at pipe when water is pumped out for harvesting	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil
6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	Closed shrimp ponds, mesh bag is installed at pipe when water is pumped out for harvesting. Cluster technician will record if there is any occurrence.			Covered in 1.1.4
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance				
<b>Principle 7: Use resources in an environmentally efficient and responsible manner</b>						
<b>Indicator</b>	<b>Standards</b>					

7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability	It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.	It does not fair to require farmers to pay responsibility in part of feed manufacturer, we believed that manufacturer is authorized to manufacture feed from concerned government agencies.			
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is belived that the feed ingredients comply to this.	It does not fair to require farmers to pay responsibility in part of feed manufacturer, we believed that manufacturer is authorized to manufacture feed from concerned government agencies.			
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.	The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand but not mention % content			
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.				
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.				

7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes	It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.				
7.1.1d Demonstrate consideration for species interaction issues		It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.				
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability	It is under responsibility of feed manufacturer. No idea to be complianced and it is not scope of farm level.	a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers. b) List of ingredients of non -marine source to be identified and discussed	Nil	Nil	
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	It is under responsibility of feed manufacturer.	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) This category should not be resposned by farmers.	Nil	Nil	
In the interim period, the following indicators and standards apply for compliance with 7.2.1:						

7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes		a) No idea to get this information from manufacturers because small scale farmers does not have power to access to manufacture, strongly against to include part of feed manufacture to be responded by farmers especially small scale farmers.	Nil	Nil	
7.2.1b Chemical and Pesticide Use in agriculture	Yes					
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	Full compliance	Manufacture provides non GMO feed which need minimum order, and additional cost of 4 baht/kg (41 B/kg) compare to normal feed (37 B/kg). <sup>3</sup> Average use of feed for one crop /pond is 5847 kgs of feed (shrimp size 62). There are 2 crops per year.	46,776	1,417 (additional feed cost compare to conventional feed, per pond per year for 2 crops)	14,170 (per group)

<sup>3</sup> The estimation of 4THB/kg for non-GMO is based on the data from the project proposal between the Thai shrimp cooperative and the Thai Union Feedmill in 2009. The price can be higher considering the actual implementation (e.g. separate storage for non GM ingredients).

7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other	Full compliance	According to feed information on feed bag, it shows no composition of land animal byproducts.	Nil	Nil	
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures do not clearly mention the quantity (in terms of % ) of fish meal used in the maufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then $FFER = ( 15 * 2 ) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}
7.5.2 Economic Feed Conversation Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance { Maximum of 2009 is 1.8}	• Feed accounts to about 55% of the operational costs are the farmers are judicious in feed administration.	Nil	Nil	1 or 2 days {Can be computed at the end of every

			<ul style="list-style-type: none"> <li>The average FCR is 1.7</li> </ul>			crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}. Farmers have improved to record what they apply.	% nitrogen content is not shown at feed bag	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on. i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }
7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}. Farmers have improved to record what they apply.	% phosphorus content is shown at feed bag	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on. i) Production

						ii) Quantity of Feed used during the crop ii) Content of Phosphorous in Feed is the problem}
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the discharge water to be undertaken. b) Technician to be appointed for carrying out this measurement. c) Cluster to be equipped with test kits towards testing the requisite parameters.			Covered in 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance. Some farm has done by using test kit for DO.	a) Testing of Water Quality on the Source water to be undertaken. b) Technician to be appointed for carrying out this measurement. c) Cluster needs equipment towards testing the requisite parameters ( Salinity, % DO, DO, Specific Conductivity, etc.,)			Covered in 1.1.4
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data perataining to 1) Energy consumption is referred to receipts that farmers collect when they buy fuel or pay electric. 2) Further production cost has done preliminary that includes energy expenditure for a crop.	a) Presently diesel is the fuel for generation of power used both in water pumping and in aeration. Some farm electric is used for aeration. b) Need satfff to support farmers to facility for making documentation regularly by the Cluster c) Annual Energy Consumption per tonne of Shrimp production be computed			Covered in 1.1.1
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes					

			by the staff.			
7.8.1 Percentage of combustibles contained in bunds	100%	Full compliance	Diesel and lubricants are bought and kept in small amount (for few days) at farmers houses or farm hut and is brought to site daily basis to meet the day requirement. Need specific store (simple construction).	5,000	152 (per farm)  1,520 (per group)	1 year
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%	Farmers usually store lime at farm in small quantity	Specific store is needed to be built (simple construction)	Same as 7.81	Same as 7.81	
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used , waste lubricants are sold to the specific buyers. b) care is taken not to spill and to throw the waste in farm site causing concern on pollution and contamination	Nil	Nil	Nil
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are kept in feed bags then are delivered to put at public bins. Some farm has done landfilled.	Nil	Nil	Nil

7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants. b) Few feed bags are used as bins and bags are lied under engin for provention of fuel contamination. c) Plastic bags of chemicals, probiotics and post larva to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	Per Group		
				Per Farm		

#### Annex 4: Cost and benefit analysis for complying with ShAD standards: India

Sri Vinayaka Aqua Society, Rajulenka, West Godavari District, Andhra Pradesh, India

Principle 1: Comply with all applicable national laws and local regulations						
Indicator	Standards	Requirements towards compliance		Cost		Time Schedule
		Action	Remarks	INR (Rupees)	US\$ {1US \$ = INR 45}	
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	NIL	Farmers of the Aqua Society are Registered with local and National level Authorities and have requisite permission / licence to carry out Shrimp Aquaculture	Nil	Nil	Nil
1.1.2 Documents proving compliance with all tax requirements	YES	Nil	The aquafarmers are paying tax annually	Nil	Nil	Nil
1.1.3 Documents proving compliance with all labor laws and regulations	YES	1) Documents in support of compliance to labour laws and regulations are to be generated. 2) Aqua Society to inform Department of Labour of local Government mentioning details of employment (name, position, remuneration, details of work contract etc., ) 3) Accordingly the Labour Department will acknowledge and	1) In this Aqua Society, by and large every farmer is the owner cum worker themselves; However few farmers employ workers. 2) As per the Labour Department notification hiring labours for Aquaculture by the individual farmer is akin to hiring labours for Agriculture operations and this will not come under the Labour Department perview; However, if the employment is provided by Registerd firm (in this case	15,000 { This is the annual fees to be paid to consultant towards liaison work woith Labour department plus maintenance of requisite documents in compliance to labour laws }	333 (per group)	i) one month (to identify the consultant ) and ii) Two months to fulfil the formalities with Local Labour Department

		<p>register the details in the records.  4) Providing requisite information to Labour Department can either be taken by Society President / Secretary (depending on their knowledge on these matters or could be taken up by someone on payment terms. 5) Further details on employees attendance, leave, payment of wages, incentive , disciplinary proceedings if any all to be maintained (which could be done by the Consultant on anual payment basis)</p>	<p>the Farmers Group to be a registered body and employment to be made by the Registered body and not by induvidual farmers) then this employment will come under the purview of Labour Department.</p>			
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<p>1.1.4 Documents proving compliance with discharge regulations or permits</p>	<p>YES</p>	<p>1) Aqua Societies to be equipped with requisite field test kits for the measurement of hydrographical parameters  2) For measurement of Parameters like samples have to be sent to the laboratory adjacent  3) Semi Skilled Technical person (also called as Society coordinator) has to be employed to look after the measurement of hydrographical parameters and recording the same accordingly in prescribed Pond data Register.</p>	<p>Coastal Aquaculture Authority (CAA) is the National Agency that issues permits to practice Aquaculture and has prescribed the discharge regulations covering the following :</p>	<p>Total = 1,62,000 per year  1) Salary for Society Coordinator @ 8,500 per month for 12 months = 1,02,000  2) Test Kits (lump sum) = 60,000 ( for 2 crops)  (There exists a provision by MPEDA towards partial reimbursement of Society coordinator salary, which is not considered here)</p>	<p>3600  { i) Society coordinator salary = 2267 ;  ii) Cost of Test kits = 1333 }  (per group)</p>	<p>1 month  ( to identify and appoint a society coordinator &amp; procurement of requisite test kits)</p>
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1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	1) National Authorities like MPEDA, CAA in collaboration with Research Institutes like CIBA to be requested to come with a list (and standard) of Therapeutants & Chemicals recommended for Aquaculture use 2) This calls for Registration of manufacturers of Aqua Chemicals under National Authorities and seeking licence towards manufacture and marketing of the same	a) The culture operations of the Aqua Society is Governed by the BMPs (Better Management Practices) which forms the basis for the SOP (Standard Operating Procedure). b) MPEDA (Marine Products Export Development Authority) has issued a list of chemicals and antibiotics banned for Aquaculture use. c) The Society being registered with MPEDA, do not used the banned chemicals and antibiotics. d) In India, as of now there is no authorised list of therapeutants & Chemicals for Aquaculture notified /declared by National Authorities.			6 months
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats						
<b>Indicator</b>	<b>Standards</b>					
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	Nil	The Shrimp ponds of the Aqua Society is not in National Protected Areas	Nil	Nil	

2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the Aqua Society is not in Mangrove ecosystems	Nil	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Aqua Society is not in Natural Wetlands	Nil	Nil	

2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	1) The carrying out of BEIA may be entrusted with National Research Institutes like i) CIBA (Central Institute of Brackishwater Aquaculture) ii) NEERI (National Environmental Engineering Research Institute) iii) MPEDA iv) CAA v) Pollution Control Board to a) Identify threatened, vulnerable, endangered species b) To recommend measures of protection of the same	As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site since 15 years ( with both Aquaculture and Agriculture operations coexisting with each other).	10,00,000	22,222 (per group)	16 months {i) 3 months towards formation of committee ii) 12 months to carry out the study and iii) 1 month towards compilation of data and preparation of Document}
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	1) Carrying out of BEIA studies by National Agencies (CIBA, NEERI, CAA, MPEDA, Pollution Control Board etc., )	The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly	Covered by 2.1.4	Covered by 2.1.4	Covered by 2.1.4

2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	Nil	<p>a) The farm is creek based and a creek from Godavari river which experiences tidal influence being the water source for the farm.</p> <p>b) To the Western side of the farm lies another farm of an Aqua Society (Murthy Aqua) followed by the Godavari creek after a distance of 60 m from the Western boundary of Murthy Aqua Society (Refer Lay out map).</p> <p>c) The Eastern boundary of the farm site is surrounded by the Agricultural field and a canal (width about 3 m) separating the Aqua farm and the Agriculture fields, boundary dotted by Cocunut plantation on both sides.</p> <p>d) Thus the farm is not exposed to coast .</p>	Nil	Nil	Nil
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	<p>a) The farm is creek based and a creek from Godavari river which experiences tidal influence being the water source for the farm.</p> <p>b) The distance between the farm boundary and that of the Natural Water (i.e., main Godavari River) being more than 100m</p>	Nil	Nil	Nil

2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions					
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from MPEDA, CIBA , NEERI, CAA and Pollution control board in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	As of now there is no BEIA carried out	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from MPEDA, CIBA , NEERI, CAA and Pollution control board in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	MPEDA, CIBA, CAA and NEERI are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on CAA website besides copies made available with local Fishery Officers of State Government, NaCSA Field managers preferrably in Telugu version.		Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained		The society Shrimp ponds are not located in High Conservation Value Areas			
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					

2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	1)To be precise, the soil samples drawn from various points in the farm is to be given to Soil Testing Laboratory (of Agriculture Department located at District Head Quarters Kakinada / Eluru) for determination of clay and sand content	a) The soil has requisite clay as recommended as the wet soil could be made into a ball or snake during field tests. b) However, as the farm covers an area of 26.66 Ha consisting of 32 ponds, the probability of variation of soil composition (clay and sand content in different areas) can not be ruled out.	5,000	111  (per group)	2 weeks
2.2.2 Allowable water loss in ponds	< 1 cm/day	To reduce the seepage, the following options may be considered: 1) Transporation of clay soil nearby and placing on pond bottom : However as there is no / limited clay soil available adjacent to farm area, this option is ruledout. 2) To go in for plastic liners preferrably along with embankment slopes which has cost implication on small sacle farmers. Besides heavy capital investment in the begining, this needs recurring expenses to maintain and for	The farmers observation and experience and the field observation made during the study indicate water loss between 5 to 10 cm /day in ponds of various locations within the farm.	59,98,500 {HDPE lining (Cost of the material plus fixing/ laying) on the slopes of the embankment pond sides and 4 sides @2,25,000 per Ha for 26.66 Ha }	133,300  (per group)	2 months

		periodical repairs.				
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL	<p>a) The SOP of the Aqua Society drafted based on BMP prohibit usage of underground fresh water for Aquaculture use</p> <p>b) Moreover, there is no underground fresh water available in the near vicinity of the farm site.</p> <p>The Farmers village namely Sakhinetipali lenka gets fresh water through pipe from Malkipuram which is 9 Km away from the village.</p>	Nil	Nil	Nil

2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Water / Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	a) There is neither fresh water (drinking water) well nor surface water bodies close to the farm site b) Small farmers do not have the requisite equipment to measure the specific conductance and would need specific expertise in this regard.	15,000	333	2 to 3 weeks
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	This study is yet to be carried out. a) 5-7 m width man made canal is present between the Aqua Ponds & Agriculture paddy field to prevent saline water seepage in to paddy fields. b) Agriculture & Aqua culture is co existing here for the last 20 years. c) Coconut trees are dotted along the canal followed by Agriculture (paddy ) fields.	covered under 2.2.4	covered under 2.2.4	
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	Nil	a) No sedimentation tank. b) Agriculture is done by irrigation canal originating from Dowleeswaram 75 Km from the site ; the flow controlled at Narasapur ,7 km far away from farm site c) There is limited or very less accumulation of sediments in small scale shrimp culture operations. d) After the harvest and	Nil	Nil	Nil

			subsequent drying, the black soil from pond bottom is scrapped and put on embankment for sundrying thus releasing Hydrogen Sulphide.			
2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.	1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out	The limited accumulated black soil ( from pond bottom ) is scrapped and evenly spread over on embankments as thin layer for sundrying towards effective release of obnoxious gases trapped in the soil.	2000	45	2 weeks

2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	There is no feeder canal as water is pumped directly in to pond through diesel pumpsets positioned in many places of the source water creek.				
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			Covered under 2.3.1	Covered under 2.3.1	2 to 3 weeks (This can be done just prior to pond preparation without hampering culture operation schedule)
2.3.3 Presence of a freeboard on open canals	Yes					
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					

2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side	Nil	Peripheral embankments have slope 3:1 and the cross embankments have 2:1 slope	Nil	Nil	Nil
2.3.6 Freeboard of pond banks after settlement	> 30cm	Nil	Pond embankments has free board of 30cm	Nil	Nil	Nil
2.3.7 Top width of pond banks	> 2m	Compliance	a) Presently the peripheral embankments have 2 m top width while top width of cross bunds between 2 ponds is 1 m b) Hardly there is any soil available nearby to increase the width of the bund c) Therefore soil has to be transported elsewhere (lead & Lift)	3,19,920 { 1 tractor will handle 1 Ha in a day with a cost of INR 6000: lead & lift INR 6000 is extra : Thus totalling to INR 12000 / Ha for 26.66 Ha } soil has to be transported far way as there is no native soil available in or adjacent to the farm.	7,109 (per group)	4 to 6 weeks { Work to be taken after harvest and during pond drying }
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Nil	Society ponds are not located in Natural water ways	Nil	Nil	Nil
Principle 3: Develop and operate farms with consideration for surrounding communities						

Indicator	Standards					
<p>3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.</p>	<p>Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.</p>	<p>Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare Departments and Village Panchayat leaders by interviewing the villagers.</p>	<p>a) Aquaculture by the small scale farmers through Aqua Society is by and large like a family owned operations carried out by the village community in consensus.  b) Farmers belong to various communities but get along well with each other  c) The aquaculture has been carried out since fifteen years and there is hardly any social issues.  d) Therefore the need to carry out Social Impact Assessment has not been felt.  e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limitations of Shrimp Aquaculture on the Society.</p>	<p>1,00,000</p>	<p>2222</p>	<p>2 to 3 months  {i) Formation of committee = 1 month;  ii) Study - interviewing villagers = 1 month;  iii) Compilation and preparation of report = 15 days}</p>

<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<p>Provision to be made to register complaints with the local Panchayat (Government) office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.</p>		<p>12000 { Payment of fees to local Panchayat office per annum }</p>	<p>267</p>	
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<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<p>Aqua Society may notify the labour requirement  1) in Panchayat office of the village enabling priority to local labours besides  2) inform the village as local panchayat announcement through the authorised Panchayat personnel (SAMMIDI / PILLA)</p>	<p>a) Mostly family members are engaged in the work  b) In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.  c) Few farmers engage labours from nearby villages (Lakeswaram, Perupalem etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}  d) Migrant / distant workers are not encouraged owing to anonimity</p>	<p>2,500</p>	<p>56</p>	<p>One week</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<p>1) The contract to be drafted both in English and local language  2 ) The terms of reference of contract explained in detail to the labour verbally in presence of Employer farmer, Village President and preferrably local Fishery offier</p>	<p>a) The work contract to be drafted in local language  b) Meeting to be arranged inviting Panchayat President and Local Fishery officer</p>	<p>2000</p>	<p>45</p>	<p>One week</p>

3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance	3) signed by both parties employer & Employee in presence of Village Panchayat President and preferably with local Fishery Officials enabling both (Employee and the Employer to be clear on their respective commitments )		Nil	Nil	Nil
3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	1) Meeting on "Planning of Harvest" to be organised by the Aqua Society making attendance of members of Aqua Society compulsory. 2) This meeting to be organised at least one month prior to harvest 3) Representatives of the Exporters to be invited to the meeting to discuss on the possible dates of harvests, quantity of Shrimp to be harvested, size (count) and to arrive at the price accordingly. 4) All the deliberations to be properly recorded and the minutes of the		5,000 (Meeting expenses)	111	Prior Notice needed for the meeting 15 days

		meeting to be signed by all participants.				
Principle 4: Operate farms with responsible labor practices						
<b>Indicator</b>	<b>Standards</b>					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	Nil	No deployment of Child labour in the Farm site	Nil	Nil	Nil
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	Nil	No forced, bonded or compulsory labour deployed in the farm site	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	<ul style="list-style-type: none"> <li>In this area women by Nature are not employed in Aquaculture ponds.</li> <li>There is no discrimination policy on women employment.</li> </ul>	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	<p>a) Women by virtue look after the household and Children and the male counterpart are fully devoted to Aquaculture activities.</p> <p>b) As mentioned earlier, the farm is by and large family owned activity and hardly there is any labour employed.</p> <p>c) Few labours employed are the locals and belong to</p>	Nil	Nil	Nil

			the same ethnic group and there is no scope of any ethnic differentiation on wages.			
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	1) Training on health & Safety practices (First aid related) to be imparted to farmers and workers from local primary health centres 2) First aid kit with requisite emergency medicines to be placed at the farm site. 3) Safety equipments like fire extinguisher to be positioned at the farm site.	a) No formal training imparted but oral instructions b) Hardly any safety equipment is provided for use	66,500 {i) First aid kit 500 * 25 = 12,500 ii) First aid training 2days = 2 * 6000 = 12,000 iii) Training on rescue operations = 2 days = 2 * 6000 = 12,000 } iv) Safety equipments- fire extinguishers, Mega phone, rain coats at least in 2 locations = 30,000}	1478	2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}
4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	1) Water proof Aerator cables are to used in Aquaculture pond 2) Night watchmen to be provided with gum boots together with torch light	Common accidents being : a) Snake bites b) Short circuit in aerator cables and no person under the age 18 are involved with such accidents	15,000 (for 6 pairs of Gum boots)	333	one week

4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	1) Farmers need to insure their employees against accidents at the work place 2) There are good number of Insurance companies operating in India in this regard.		45,000 { 15,000 = Insurance annual premium of INR1500 for one year per person for 25 persons = 37,500 ; Miscellaneous - Application, Registration, Medical check up, Documentation expenses = 7500}	1000	One month {to complete all formalities and documentation}
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	<p><b>a) Payment as per the norms of the locality</b></p> <p>b) Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</p> <p>c) The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</p> <p>d) Besides they are paid incentive after harvest depending on the production</p> <p>e) It is a matter of fact that the shrimp pond</p>	Nil	Nil	Nil

			workers are relatively paid higher than Agriculture labours.			
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	a) Ponds are managed by and large by Family members and hardly there will be employees : b) The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration c) Discrepancies if any in Terms of Employment are mutually discussed with the farmer (employer) and gets sorted out amicably all in oral terms.	Nil	Nil	Nil
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	a) <b>Such incidences are rare</b> b) Workers being family members , made to realise the mistake and instructed not to repeat the same	Nil	Nil	Nil
4.7.2 Evidence of abusive disciplinary policies and procedures	None			Nil	Nil	Nil
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labours and the employer. Further at the end of the crop, labours are paid incentive as per the production in recognition of	Nil	Nil	Nil

			their hard work.			
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	The terms of Reference of Employment outlining the obligations of both Employee and Employer to be drafted in detail in local language and contents to be explained to the employee in presence of village Panchayat President and local Fishery officials, signed by mutual parties endorsing the acceptance and copy of the same is retained by both employer and Employee	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal (terms and conditions) contract.	Covered in 3.4.1	Covered in 3.4.1	Covered in 3.4.1

4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	1) Members of the Aqua Society to assemble in full attendance for a review meeting at the end of every crop (irrespective of the production status) to discuss the following: a) Technical : culture related, production oriented issues, possible solutions to problems, b) Labour : Terms of reference of contract, limitations if any and suggestions to overcome limitations, Wage structures, production incentives etc., 2) All such deliberations are to be properly minuted, Signed by all the participants	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis. Discrepancies if any are discussed and sorted out amicably all in verbal terms.	5,000 { Meeting Expenses }	111	The meeting is for half a day and 15 days prior notice to be given to all participants
Principle 5: Manage shrimp health in a responsible manner						
<b>Indicator</b>	<b>Standards</b>					

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<p>1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative.</p> <p>2) Shrimp PL is another source of harbouring pathogen carrier therefore seed stocked should be free of pathogens ( PCR tested for White spot virus) 3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be prevented by crab fencing</p> <p>4) Birds pick up the infected shrimp from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>a) The land holdings of the farmers of these societies are very small ( one or two ponds with area &lt; 1 Ha) and they can not afford to have reservoirs for water treatment. Therefore group of farmers joining together to have few ponds as reservoir is the possibility.</p> <p>b) Thus the farmers can be made in to 3 groups with 4 ponds to be sacrificed for reservoir, to facilitate disinfection of source water.</p> <p>c) Further this will require altering the feeder canal enabling the water from reservoir to reach all the ponds that is intended for.</p> <p>d) This kind of arrangement has to be done for the 3 (Groups) sets ponds.</p> <p>e) The farmers who had given their 4 ponds for reservoir has to compensated every year accordingly f) This is likely reduce the crop production owing to reduction in area of operation. g) The steps c) to f) will have economic implication</p> <p><b>h) Installation of crab fencing and bird net would provide additional</b></p>	<p>Total cost = 50,49,960</p> <p>1) cost / compensation on Reservoir conversion = 48,00,000 { 30% of area ,i.e., 8 Ha ; Production 2000 Kg / year ; Rate Rs.275 /Kg; Feeder canal making = 4,00,000}</p> <p>2) Crab Fencing = 90,000 (@ Rs.15 /m for 6000m)</p> <p>3) Bird net - covering all the pond of the entire farm = 1,59,960 (@ Rs.6000 / Ha for 26.66 Ha)</p> <p>4) Coordinator &amp; Test Kits = covered in 1.1.4</p>	<p>Total cost = 1,12,222</p> <p>1) Reservoir 1,06,667</p> <p>2) Crab fencing 2,000</p> <p>3) Bird Netting 3555</p> <p>4) Coordinator &amp; Test Kits = Already covered in 1.1.4</p>	<p>Nil</p>
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			<p><b>measures towards disease control and therefore recommended.</b></p> <p>i) Farmers of these societies do not have formal education however operate the ponds on their own with traditional beliefs.</p> <p>j) <b>Provision of a Society coordinator (semi skilled Technical person) besides test kits for measurement of Hydrographical parameters would enable farmers to exercise greater control on culture operation and hence recommended.</b></p>			
5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 µm	1) 250 µm The mesh bag to be installed (preferrably at the pond inlets) 2) Bigger meshes at the sump (pumping station)		60,800 { 32 ponds ; 2 mesh bags per pond /crop ; material plus stiching - Rs.950 per bag}	1,351	2 weeks (Procurement of material + stiching of mesh bags)

5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The Society must be quipped with test kits for measurement of hydrographical parameters b) Society coordinators to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, p <sup>H</sup> to be checked on regular basis		Cost already covered in 1.1.4	Cost already covered in 1.1.4	Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7					
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	1) Presently normal seeds of P.monodon sourced from hatcheries are stocked. 2) SPF monodon seeds are available in market but for a higher price and booking to be done well in advance 3) Further there is possibility of procuring SPF P.vannamei seeds	a) SPF monodon seeds are relatively costly ( Rs.700 per 1000 PL) in relation to normal monodon seeds (Rs.250 per 1000 PL) and for the small farmer this difference in price is quite significant. b) For culturing P.vannamei a sepearate permission cum licence has to be obtained from CAA c) The SPF will be more meaningful provided the	Switching over to SPF monodon additional cost = 7,20,000 { Rs.450 /1000PL for 1.6 million of PL}	16,000	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over

		as few hatcheries in India have obtained licence for the production of P.vannamei PLs.	biosecurity system (like reservoir for treatment of source water) is in place.			there.
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calendar month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identification, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	1, 92,000 1) Salary of the staff = 1,20,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 72,000 (@ 6000 per month for 1 year)	4267	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) SOP of the Society, governed by the BMPs, prohibits the use of banned antibiotics and Chemicals. (MPEDA has notified the list of banned antibiotics & Chemicals for Aquaculture use) 2) Further prior to harvest pond reared shrimps have to be tested by MPEDA managed Laboratory through ELISA for the residue of antibiotics and Chemicals and shrimps with free of antibiotic residues only will be bought by the processor	Nil {ELISA Test for the detection of Antibiotic Residue is mandatory ; currently undertaken prior to harvest}	Nil	Nil

5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The Society coordinator will be able to make the documents listing all chemicals stocked at farm site and the usage of the same in ponds.	This requires the services of a society coordinator who need to be appointed.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.	The preparation of sign board involves expenditure	Total = 30,000 a) Training on Chemicals usgae : One day training for 21 farmers @ 6000 per day b) Sign Boards @ 500 X 48 numbers = 24,000	667	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}

<p>5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.</p>	<p>None</p>	<p>1) Farmers of the Aqua Society do not use pesticides / chemicals for the shrimp culture operation.</p>	<p>a) Water discharged from Shrimp Aquaculture ponds of the society will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary.  b) However treatment of discharge water may be beneficial considering parameters like dissolved oxygen, p<sup>H</sup>, ammonia and total suspended solids, unneuterlised chemicals etc.,  c) Establishment of discharge treatment plant will be prohibitively expensive for small scale farmers as it require thorough alteration on drainage net work besides pond lay out .</p>	<p>Total cost = 8,50,000  Provision for Chemical neuterlisation and maintenance of Hydrographical parameters necessitates establishment of a common discharge water treatment plant covering 1 Ha area. Economic Compensation / conversion involved in of 1 Ha Area in to Treatment plant = 5,50,000 plus drainage network = 3,00,000 )</p>	<p>18,889</p>	<p>2 months  { Work can be taken up after harvest and along with pond preparation work}</p>
<p>5.3.5 Allowance for discharge of all chemicals without previous neutralization</p>	<p>None</p>					

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	1) Water samples to be given to laboratory for analysis of residues of chlorine and pesticides.	a) Pesticides are not being used in Society ponds of small scale Aqua Farmers. b) Further, the farmers do not use bleaching powder for disinfection as they do not have reservoirs. c) However ELISA test is being carried out in shrimps prior to harvest to assess antibiotic residues d) Analysis of Chlorine and pesticides residues in water will be an additional expenses for the small scale farmers.	3500 (for 2 water samples)	78	One week
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) In India, the list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture is yet to be published by competent Authorities.	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
Principle 6: Manage broodstock origin, stock selection and effects of stock management						
<b>Indicator</b>	<b>Standards</b>					

6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	Full compliance	{ Presently P.monodon is the native species that is being widely used for commercial production }	Nil	Nil	Nil
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	Full compliance	a) Presently P.monodon PL is sourced from the hatcheries b) Shrimp farmers (@ 2 per society) may be given practical training on the assessment of Shrimp brood stock, seed quality, interpretation of Laboratory test reports (PCR Reports, Microscopic examination of PL etc.), Stress test on Shrimp PL, Packing and Transportation of Shrimp PL to farm site, Acclimatisation of Shrimp PL etc., c) In addition, positioning of society coordinator who would be in hatchery (for a phase of 30 days or so.) during the larval phase to	43,000 { Training expenses for 2 farmers at hatchery as recommended by MPEDA) 2) 3000 {Expenses incurred for the Society co-ordinator to stay in hatchery and to monitor hatchery phase (brood stock to PL )}	956	Training to farmers will be of one month duration

			monitor the operations and record all relevant data			
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	Farmers of this society presently stock the native species ,namely P.monodon. It is worth mentioning that for P.vannamei,SPF PL seeds are available and are produced in India by few reputed hatcheries which has obtained licence from National Authorities (CAA) in this regard.	Nil	Nil	Nil
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	SPF P.monodon seeds are available in India at a relatively higher cost (Rs.700 per 1000 PL as against the price of Rs.250 per 1000 PL for normal seeds). The farmers of Aqua Society prefer normal P.monodon seed owing to a) Higher cost of SPF PL b) Limited availability of P.monodon SPF PL c) Limited biosecurity measures available at the farm	Switching over to SPF monodon additional cost covered under 5.1.6.	Switching over to SPF monodon additional cost covered under 5.1.6.	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.

6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	a) P.monodon brood stocks are wild caught at present owing to difficulty in maturation of pond reared P.monodon b) Studies to be initiated at Research Institutes like CIBA, CMFRI on domestication of P.monodon brood stock. c) This activity can also be encouraged by private bodies under Government support and Supervision.	20,00,000 {Initial budget for obtaining farm raised brood stock for P.monodon - Study may be taken up in MPEDA owned Hatcheries at Vizag / Gopalpur }	44,445	Project period = 2 years
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	a) Fishery management plan prohibits collection of wild broodstock during spawning months (May - July)	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	Usage of wild caught PL is banned as per the SOP of the Society	Nil	Nil	Nil
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						

A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	<p>a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal.</p> <p>b) Candidate species of this society is <i>P.monodon</i> which is native species. Even if there is escape, the impact is insignificant.</p> <p>c) But for non native species (like <i>P.vannamei</i>) escape to Natural Habitat is a matter of concern.</p>	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	<p>a) Pond dike has about 30 cm free board and PVC pipes may be provided as overflow pipes in many places to drain of excess water especially during heavy rains and floods to prevent breaching</p>	Nil	Nil	Nil
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	<p>a) Regular inspection being done by farmers themselves but recording is not done</p> <p>b) Provision of Society Coordinator would be able to fulfil the requirement of documentation</p>	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4

D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	a) Regular repairs especially after every heavy rain is done b) Further every year prior to commencement of summer crop, sloping and compaction of embankments is done c) Repair details could be well documented by positioning the Society co-ordinator.	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) any escape through the mesh will be trapped inbetween mesh and wooden shutter c) Further at the collar of the humepipe on the drainage side, a mesh bag is also tied to trap the escape if any through outlet. d) Steps (a), (b) and (c) are done as routine procedures and documentation of any escape could be done by the society coordinator.	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4
F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	a) Mesh Shutter b) Wooden Shutter c) Mesh bag tied to the collar of hume pipe on the	Nil { Already existing }	Nil {Already existing}	Nil

			drain side			
G. Evidence of escape recovery protocols	Yes	Full compliance	<p>a) With all the above said arrangements like mesh, wodden shutters, mesh bags at the collar of hume pipe etc., the possibility of escape is very much limited.</p> <p>b) However escapes if any trapped in between mesh and wooden shutter may be alive for few days only unless it is noticed and taken, thoroughly examined; based on the same to be put back in to pond itself or tobe burried else where.</p> <p>c) For the escapes trapped in mesh bag, the chances of it being alive is very limitted and has to be taken and burried.</p> <p>d) The small scale farmer will certainly inspect the inlet every day on routine basis to observe such things if any and would take action as deem fit.</p>	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil

6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	a) The mesh, wooden shutters and the mesh bags tied at the outer collar of hume pipe of the outlet ate the tools employed to prevent escapes. b) Society coordinator to document the data on escaped after hearing from the farmer on daily routine inspection c) Over a period of a crop (4 to 5 months) the documentation would reveal the evidence of escape if any with quantification. d) Accordingly if any escapes, then the tools need to be checked for their efficiency, repair/ replacement to be done enabling preventing escapes.	Nil	Nil	Nil
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance		Nil	Nil	Nil
Principle 7: Use resources in an environmentally efficient and responsible manner						
<b>Indicator</b>	<b>Standards</b>					

7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability		a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	6 Months { To form a committee consisting of Feed Mill owners representatives and Government officials and to come out with plan of action}
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is believed that the feed ingredients comply to this.	a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	1 Month { For the committee to notify full compliance)
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 Month { For the committee to impose regulation on all Shrimp feed mills}

7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	Full compliance	<p>a) The local Government Agencies through the capture fisheries statics need to make a list of depleted / over fished fisheries</p> <p>b) The feed manufactures need to provide the type of fish meal used for the manufacture of feed mentioning the source of procurement</p> <p>c) The Local Government Agency need to advise the Feed Manufacturers accordingly.</p>	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	Full compliance	a) The local Government Agency need to impose the regulation on the Feed Manufacturers that fish meal or fish oil that are used for the manufacture of shrimp feed are not from fishes that are Near Threatened Vulnerable Endangered, and Critically Endangered	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}

7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes		a) Local Government Agencies to have collaboration with National Fisheries Research Institutes (CMFRI) which makes Fisheries Resources Assessment annually b) This can be reviewed by peer committee constituted with representatives from Fishery Survey of India, Government Agencies, Feed Mill Manufactures association etc.,	5,00,000	11,111	2 months for the constitution of Committee comprising of Government officials and 2 Years to study and come out with recommendation
7.1.1d Demonstrate consideration for species interaction issues						
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers b) List of ingredients of non -marine source to be identified and discussed	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 month { For the Feed manufacturers to comply this and print on the feed bag the requisite information}

In the interim period, the following indicators and standards apply for compliance with 7.2.1:						
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	Full Compliance	a) The local Government Agencies and National Authorities should have discussions with the Feed Manufacturers Association b) Accordingly this clause must be imposed on the Feed Manufacturers' Association	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.1b Chemical and Pesticide Use in agriculture						
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	Full compliance	a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other		a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures should clearly mention the quantity (in terms of % ) of fish meal used in the manufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then $FFER = ( 15 * 2 ) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}

7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance { To be below 1: 2}	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 ( Average 1: 1.6)</li> </ul>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 2000 - 2500 kg / Ha ( monodon + scampy) FCR = 1: 1.5, the <b>Nitrogen released = 18.74 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 2000 - 2500 kg / Ha ( monodon + scampy) FCR = 1: 1.5, the <b>Phosphorous released = 4.15 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Phosphorous in Feed }
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the discharge water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved oxygen.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4

			pH, ammonia etc.,)			
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data pertaining to 1) Energy consumption by the facilities installed to be documented regularly by the Society coordinator and based on which 2) Annual Energy Consumption per tonne of Shrimp production be computed by the Society coordinator.	a) Presently diesel is the fuel for generation of power used both in water pumping and in aeration. b) As Diesel generating sets are not that environmental friendly, <b>assistance is sought for electrification.</b> c) Further this exercise will contribute greatly for reduction of operational cost.	1) Cost of Society coordinator covered in 1.1.4 2) Estimation for getting Electric current to site = 12,00,000 (The subsidy / concession available from National Authorities for Electrification is not considered in the estimate)	26,667	Electrification will take 2 months
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes					
7.8.1 Percentage of combustibles contained in bunds	100%		Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement	Nil	Nil	Nil

7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%		Chemicals (used for water application & feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site as per the requirement on that day.	Nil	Nil	Nil
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used , waste lubricants are sold to the specific buyers b) care is taken not to spill and to throw the waste in farm site causing concern on pollution	Nil	Nil	Nil
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are burnt in the farm site	2000 ( Wages for burning and after clean up per crop)	45	3 days ( Arranging the waste, Burning and after clean up each one day )

7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants b) Few feed bags are used as sand bags and placed on the embankment for protection measures. c) the ploythene bags and plastic cantainers of chemicals, probiotics to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	1,84,21,830	409,374	

**Vasista Godavari Aqua Society, Sakhinetipallilanka, East Godavari District, Andhra Pradesh, India**

Principle 1: Comply with all applicable national laws and local regulations						
Indicator	Standards	Requirements towards compliance		Cost		Time Schedule
		Action	Remarks	INR (Rupees)	US\$ {1US \$ = INR 45}	
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	NIL	Farmers of the Aqua Society are Registered with local and National level Authorities and have requisite permission / licence to carry out Shrimp Aquaculture	Nil	Nil	Nil
1.1.2 Documents proving compliance with all tax requirements	YES	Nil	The aquafarmers are paying tax annually	Nil	Nil	Nil
1.1.3 Documents proving compliance with all labor laws and regulations	YES	1) Documents in support of compliance to labour laws and regulations are to be generated.	1) In this Aqua Society ,by and large every farmer is the owner cum worker themselves; However few farmers employ workers.	15,000 { This is the annual fees to be paid to consultant	333	i) one month (to identify the consultant ) and ii) Two months to fulfil the

		<p>2) Aqua Society to inform Department of Labour of local Government mentioning details of employment (name, position, remuneration, details of work contract etc., )</p> <p>3) Accordingly the Labour Department will acknowledge and register the details in the records.</p> <p>4) Providing requisite information to Labour Department can either be taken by Society President / Secretary (depending on their knowledge on these matters or could be taken up by someone on payment terms. 5) Further details on employees attendance, leave, payment of wages, incentive , disciplinary proceedings if any all to be maintained (which could be done by the Consultant on anual payment basis)</p>	<p>3) As per the Labour Department notification hiring labours for Aquaculture by the induvidual farmer is akin to hiring labours for Agriculture operations and this will not come under the Labour Department perview; However, if the employemt is provided by Registerd firm (in this case the Farmers Group to be a registered body and employment to be made by the Registered body and not by induvidual farmers) then this employment will come under the purview of Labour Department.</p>	<p>towards liaison work woith Labour department plus maintenance of requisite documents in compliance to labour laws }</p>	<p>formalities with Local Labour Department</p>
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<p>1.1.4 Documents proving compliance with discharge regulations or permits</p>	<p>YES</p>	<p>1) Aqua Societies to be equipped with requisite field test kits for the measurement of hydrographical parameters  2) For measurement of Parameters like samples have to be sent to the laboratory adjacent  3) Semi Skilled Technical person (also called as Society coordinator) has to be employed to look after the measurement of hydrographical parameters and recording the same accordingly in prescribed Pond data Register.</p>	<p>Coastal Aquaculture Authority (CAA) is the National Agency that issues permits to practice Aquaculture and has prescribed the discharge regulations covering the following :</p>	<p>Total = 1,62,000 per year  1) Salary for Society Coordinator @ 8,500 per month for 12 months = 1,02,000  2) Test Kits (lump sum) = 60,000 ( for 2 crops)  (There exists a provision by MPEDA towards partial reimbursement of Society coordinator salary, which is not considered here)</p>	<p>3600  { i) Society coordinator salary = 2266 ;  ii) Cost of Test kits = 1334 }</p>	<p>1 month  ( to identify and appoint a society coordinator &amp; procurement of requisite test kits)</p>
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1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	1) National Authorities like MPEDA, CAA in collaboration with Research Institutes like CIBA to be requested to come with a list (and standard) of Therapeutants & Chemicals recommended for Aquaculture use 2) This calls for Registration of manufacturers of Aqua Chemicals under National Authorities and seeking licence towards manufacture and marketing of the same	a) The culture operations of the Aqua Society is Governed by the BMPs (Better Management Practices) which forms the basis for the SOP (Standard Operating Procedure). b) MPEDA (Marine Products Export Development Authority) has issued a list of chemicals and antibiotics banned for Aquaculture use. c) The Society being registered with MPEDA, do not used the banned chemicals and antibiotics. d) In India, as of now there is no authorised list of therapeutants & Chemicals for Aquaculture notified /declared by National Authorities.			6 months
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats						
<b>Indicator</b>	<b>Standards</b>					
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	Nil	The Shrimp ponds of the Aqua Society is not in National Protected Areas	Nil	Nil	

2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the Aqua Society is not in Mangrove ecosystems	Nil	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Aqua Society is not in Natural Wetlands	Nil	Nil	

<p>2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.</p>	<p>BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.</p>	<p>1) The carrying out of BEIA may be entrusted with National Research Institutes like i) CIBA (Central Institute of Brackishwater Aquaculture) ii) NEERI (National Environmental Engineering Research Institute) iii) MPEDA iv) CAA v) Pollution Control Board to  a) Identify threatened, vulnerable, endangered species  b) To recommend measures of protection of the same</p>	<p>As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site since 15 years ( with both Aquaculture and Agriculture operations coexisting with each other).</p>	<p>10,00,000</p>	<p>22,222</p>	<p>16 months  {i) 3 months towards formation of committee  ii) 12 months to carry out the study and  iii) 1 month towards compilation of data and preparation of Document}</p>
<p>2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.</p>	<p>None</p>	<p>1) Carrying out of BEIA studies by National Agencies (CIBA, NEERI, CAA, MPEDA, Pollution Control Board etc., )</p>	<p>The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly</p>	<p>Covered by 2.1.4</p>	<p>Covered by 2.1.4</p>	<p>Covered by 2.1.4</p>

<p>2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line</p>	<p>&gt;/=100m, with tree density &gt;/=30 trees *100 m-2</p>	<p>Nil</p>	<p>a) The farm is creek based and a creek from Godavari river which experiences tidal influence being the water source for the farm.  b) To the Western side of the farm lies another farm of an Aqua Society (Murthy Aqua) followed by the Godavari creek after a distance of 60 m from the Western boundary of Murthy Aqua Society (Refer Lay out map).  c) The Eastern boundary of the farm site is surrounded by the Agricultural field and a canal (width about 3 m) separting the Aqua farm and the Agriculture fields, boundary dotted by Cocunut plantation on both sides. d) Thus the farm is not exposed to coast .</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
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2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	a) The farm is creek based and a creek from Godavari river which experiences tidal influence being the water source for the farm. b) The distance between the farm boundary and that of the Natural Water (i.e., main Godavari River) being more than 100m	Nil	Nil	Nil
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions					
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from MPEDA, CIBA , NEERI, CAA and Pollution control board in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	As of now there is no BEIA carried out	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from MPEDA, CIBA , NEERI, CAA and Pollution control board in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	MPEDA, CIBA, CAA and NEERI are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on CAA website besides copies made available with local Fishery Officers of State Government, NaCSA Field managers preferrably in Telugu version.		Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained		The society Shrimp ponds are not located in High Conservation Value Areas			

2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	1)To be precise, the soil samples drawn from various points in the farm is to be given to Soil Testing Laboratory (of Agriculture Department located at District Head Quarters Kakinada / Eluru) for determination of clay and sand content	a) The soil has requisite clay as recommended as the wet soil could be made into a ball or snake during field tests. b) However, as the farm covers an area of 20.33 Ha consisting of 31 ponds, the probability of variation of soil composition (clay and sand content in different areas) can not be ruled out.	5,000	111	2 weeks

2.2.2 Allowable water loss in ponds	< 1 cm/day	<p>To reduce the seepage, the following options may be considered:</p> <p>1) Transporation of clay soil nearby and placing on pond bottom : However as there is no / limitted clay soil available adjacent to farm area, this option is ruledout.</p> <p>2) To go in for plastic liners preferrably along with embankment slopes which has cost implication on small sacle farmers. Besides heavy capital investment in the begining, this needs recurring expenses to maintain and for periodical repairs.</p>	The farmers observation and experience and the field observation made during the study indicate water loss between 5 to 10 cm /day in ponds of various locations within the farm.	45,74,250 {HDPE lining (Cost of the material plus fixing/ laying) on the slopes of the embankment pond sides and 4 sides @2,25,000 per Ha for 20.33 Ha )}	1,01,650	2 months
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL	<p>a) The SOP of the Aqua Society drafted based on BMP prohibit usage of underground fresh water for Aquaculture use</p> <p>b) Moreover, there is no underground fresh water available in the near vicinity of the farm site. The Farmers village namely Sakhinetipali lenka gets fresh water through pipe from</p>	Nil	Nil	Nil

			Malkipuram which is 9 Km away from the village.			
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Water / Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	a) There is neither fresh water (drinking water) well nor surface water bodies close to the farm site b) Small farmers do not have the requisite equipment to measure the specific conductance and would need specific expertise in this regard.	15,000	333	2 to 3 weeks
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	This study is yet to be carried out. a) The Agriculture drain canal ( Muriki canal ) with a width of 5m and depth of 2 m sepearates the aqua farm and Agriculture field, which prevents seepage of saline water to Agriculture fields. b) Coconut trees are dotted along the muriki canal followed by Agriculture (paddy ) fields. c) Agriculture & Aqua culture is co - existing here for the last 15 years.	covered under 2.2.4	covered under 2.2.4	

2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	Nil	<p>a) No sedimentation tank.</p> <p>b) Agriculture is done by Gannavaram irrigation canal originating from Rajamundry (Dowleeswaram barrage) ; the flow controlled at several places viz., Razole, Pothilada, Nagulanka, etc., the nearest being at Sakhinetipalli lock at 7 km far away from farm site</p> <p>c) There is limited or very less accumulation of sediments in small scale shrimp culture operations.</p> <p>d) After the harvest and subsequent drying, the black soil from pond bottom is scrapped and put on embankment for sundrying thus releasing Hydrogen Sulphide.</p>	Nil	Nil	Nil
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2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.	1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out	The limited accumulated black soil ( from pond bottom ) is scrapped and evenly spread over on embankments as thin layer for sundrying towards effective release of obnoxious gases trapped in the soil.	2000	45	2 weeks
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	1) Strengthening of existing semi hume pipes and extension of the same to cover for more ponds are recommended to ensure smooth and quick water flow in feeder canal with free board and to prevent scouring of embankments in vulnerable places.		5,94,000 { There are about 12 puming points each with feeder canal (distance of 225 m ). The cost of semi hume pipe per running metre is Rs.220 and the total distance of feeder canal	13,200	2 to 3 weeks (This can be done just prior to pond preparation without hampering culture operation schedule)

				being about 2700 m }		
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity			Covered under 2.3.1	Covered under 2.3.1	2 to 3 weeks (This can be done just prior to pond preparation without hampering culture operation schedule)
2.3.3 Presence of a freeboard on open canals	Yes					
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well- graded soils, especially on the dry side	Nil	Peripheral embankments have slope 3:1 and the cross embankments have 2:1 slope	Nil	Nil	Nil
2.3.6 Freeboard of pond banks after settlement	> 30cm	Nil	Pond embankments has free board of 30cm	Nil	Nil	Nil

2.3.7 Top width of pond banks	> 2m	Compliance	a) Presently the peripheral embankments have 2 m top width while top width of cross bunds between 2 ponds is 1 m b) Hardly there is any soil available nearby to increase the width of the bund c) Therefore soil has to be transported elsewhere (lead & Lift)	2,43,960 { 1 tractor will handle 1 Ha in a day with a cost of INR 6000: lead & lift INR 6000 is extra : Thus totalling to INR 12000 / Ha for 20.33 Ha } soil has to be transported far way as there is no native soil available in or adjacent to the farm.	5,421	4 to 6 weeks { Work to be taken after harvest and during pond drying }
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Nil	Society ponds are not located in Natural water ways	Nil	Nil	Nil
Principle 3: Develop and operate farms with consideration for surrounding communities						
<b>Indicator</b>	<b>Standards</b>					
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element	Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments	a) Aquaculture by the small scale farmers through Aqua Society is by and large like a family owned operations carried out by the village community in consensus. b) Farmers belong to various communities but	1,00,000	2222	2 to 3 months { i) Formation of committee = 1 month; ii) Study - interviewing villagers = 1 month; iii) Compilation

<p>community shall have a copy of this document.</p>	<p>(community input) is an integral part of the report.</p>	<p>and Village Panchayat leaders by interviewing the villagers.</p>	<p>get along well with each other  c) The aquaculture has been carried out since fifteen years and there is hardly any social issues.  d) Therefore the need to carry out Social Impact Assessment has not been felt.  e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limitations of Shrimp Aquaculture on the Society.</p>			<p>and preparation of report = 15 days}</p>
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<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<p>Provision to be made to register complaints with the local Panchayat (Government) office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.</p>		<p>12000 { Payment of fees to local Panchayat office per annum }</p>	<p>267</p>	
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<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<p>Aqua Society may notify the labour requirement  1) in Panchayat office of the village enabling priority to local labours besides  2) inform the village as local panchayat announcement through the authorised Panchayat personnel (SAMMIDI / PILLA)</p>	<p>a) Mostly family members are engaged in the work  b) In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.  c) Few farmers engage labours from nearby villages (Lakesswaram, Perupalem etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.), water exchange, water filling}  d) Migrant / distant workers are not encouraged owing to anonimity</p>	<p>2,500</p>	<p>56</p>	<p>One week</p>
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3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance	1) The contract to be drafted both in English and local language 2 ) The terms of reference of contract explained in detail to the labour verbally in presence of Employer farmer, Village President and preferably local Fishery officer 3) signed by both parties employer & Employee in presence of Village	a) The work contract to be drafted in local language b) Meeting to be arranged inviting Panchayat President and Local Fishery officer	2000	45	One week
3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance	Panchayat President and preferably with local Fishery Officials enabling both (Employee and the Employer to be clear on their respective commitments )		Nil	Nil	Nil

3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	1) Meeting on "Planning of Harvest" to be organised by the Aqua Society making attendance of members of Aqua Society compulsory. 2) This meeting to be organised at least one month prior to harvest 3) Representatives of the Exporters to be invited to the meeting to discuss on the possible dates of harvests, quantity of Shrimp to be harvested, size (count) and to arrive at the price accordingly. 4) All the deliberations to be properly recorded and the minutes of the meeting to be signed by all participants.		5,000 (Meeting expenses)	111	Prior Notice needed for the meeting 15 days
Principle 4: Operate farms with responsible labor practices						
<b>Indicator</b>	<b>Standards</b>					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	Nil	No deployment of Child labour in the Farm site	Nil	Nil	Nil

4.2.1 Number of incidences of forced, bonded or compulsory labor	None	Nil	No forced, bonded or compulsory labour deployed in the farm site	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	<ul style="list-style-type: none"> <li>• In this area women by Nature are not employed in Aquaculture ponds.</li> <li>• There is no discrimination policy on women employment.</li> </ul>	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	<p>a) Women by virtue look after the household and Children and the male counterpart are fully devoted to Aquaculture activities.</p> <p>b) As mentioned earlier, the farm is by and large family owned activity and hardly there is any labour employed.</p> <p>c) Few labours employed are the locals and belong to the same ethnic group and there is no scope of any ethenic differentiation on wages.</p>	Nil	Nil	Nil

<p>4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.</p>	<p>100% in operations above five employees and safety equipment in use by workers.</p>	<p>1) Training on health &amp; Safety practices (First aid related) to be imparted to farmers and workers from local primary health centres  2) First aid kit with requisite emergency medicines to be placed at the farm site.  3) Safety equipments like fire extinguisher to be positioned at the farm site.</p>	<p>a) No formal training imparted but oral instructions  b) Hardly any safety equipment is provided for use</p>	<p>64,000  (i) First aid kit 500 * 20 = 10,000  ii) First aid training 2days = 2 * 6000 = 12,000  iii) Training on rescue operations = 2 days = 2 * 6000 = 12,000 }  iv) Safety equipments- fire extinguishers, Mega phone, rain coats at least in 2 locations = 30,000}</p>	<p>1422</p>	<p>2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}</p>
<p>4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents</p>	<p>100%</p>	<p>1) Water proof Aerator cables are to used in Aquaculture pond  2) Night watchmen to be provided with gum boots together with torch light</p>	<p>Common accidents being :  a) Snake bites  b) Short circuit in aerator cables and no person under the age 18 are involved with such accidents</p>	<p>15,000 (for 6 pairs of Gum boots)</p>	<p>333</p>	<p>one week</p>

4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	1) Farmers need to insure their employees against accidents at the work place 2) There are good number of Insurance companies operating in India in this regard.		37,500 { Insurance annual premium of INR1500 for one year per person for 20 persons = 30,000 ; Miscellaneous - Application, Registration, Medical check up, Documentation expenses = 7500}	833	One month {to complete all formalities and documentation}
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	<p><b>a) Payment as per the norms of the locality</b></p> <p>b) Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</p> <p>c) The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</p> <p>d) Besides they are paid incentive after harvest depending on the production e) It is a matter of fact that the shrimp pond workers are</p>	Nil	Nil	Nil

			relatively paid higher than Agriculture labours.			
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	a) Ponds are managed by and large by Family members and hardly there will be employees : b) The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration c) Discrepancies if any in Terms of Employment are mutually discussed with the farmer (employer) and gets sorted out amicably all in oral terms.	Nil	Nil	Nil
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	a) <b>Such incidences are rare</b> b) Workers being family members , made to realise the mistake and instructed not to repeat the same	Nil	Nil	Nil
4.7.2 Evidence of abusive disciplinary policies and procedures	None			Nil	Nil	Nil

4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labours and the employer. Further at the end of the crop, labours are paid incentive as per the production in recognition of their hard work.	Nil	Nil	Nil
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	The terms of Reference of Employment outlining the obligations of both Employee and Employer to be drafted in detail in local language and contents to be explained to the employee in presence of village Panchayat President and local Fishery officials, signed by mutual parties endorsing the acceptance and copy of the same is retained by both employer and Employee	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal (terms and conditions) contract.	Covered in 3.4.1	Covered in 3.4.1	Covered in 3.4.1

4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	1) Members of the Aqua Society to assemble in full attendance for a review meeting at the end of every crop (irrespective of the production status) to discuss the following: a) Technical : culture related, production oriented issues, possible solutions to problems, b) Labour : Terms of reference of contract, limitations if any and suggestions to overcome limitations, Wage structures, production incentives etc., 2) All such deliberations are to be properly minuted, Signed by all the participants	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis. Discrepancies if any are discussed and sorted out amicably all in verbal terms.	5,000 { Meeting Expenses }	111	The meeting is for half a day and 15 days prior notice to be given to all participants
Principle 5: Manage shrimp health in a responsible manner						
<b>Indicator</b>	<b>Standards</b>					

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<p>1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative.</p> <p>2) Shrimp PL is another source of harbouring pathogen carrier therefore seed stocked should be free of pathogens ( PCR tested for White spot virus)</p> <p>3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be preventd by crab fencing</p> <p>4) Birds pick up the infected shrimp from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>a) The land holdings of the farmers of these societies are very small ( one or two ponds with area &lt; 1 Ha) and they can not afford to have reservoirs for water treatment. Therefore group of farmers joining together to have few ponds as reservoir is the possibility.</p> <p>b) Thus the farmers can be made in to 3 groups with 4 ponds to be sacrificiced for reservoir, to facilitate disinfection of source water.</p> <p>c) Further this will require altering the feeder canal enabling the water from reservoir to reach all the ponds that is intended for.</p> <p>d) This kind of arrangement has to be done for the 3 (Groups) sets ponds.</p> <p>e) The farmers who had given their 4 ponds for reservoir has to compensated every year accordingly f) This is likely reduce the crop production owing to reduction in area of</p>	<p>Total cost = 47,17,000 1) cost / compensation on Reservoir conversion = 45,25,000 { 30% of area ,i.e., 6 Ha ; Production 2500 Kg / year ; Rate Rs.275 /Kg; Feeder canal making = 4,00,000}</p> <p>2) Crab Fencing = 66,000 (@ Rs.15 /m for 4400m)</p> <p>3) Bird net - covering all the pond of the entire farm = 1,26,000 (@ Rs.6000 / Ha for 21 Ha)</p> <p>4) Coordinator &amp; Test Kits = covered in 1.1.4</p>	<p>Total cost = 1,04,822</p> <p>1) Reservoir 1,00,555</p> <p>2) Crab fencing 1,467</p> <p>3) Bird Netting 2,800</p> <p>4) Coordinator &amp; Test Kits = Already covered in 1.1.4</p>	<p>Nil</p>
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			<p>operation. g) The steps c) to f) will have economic implication</p> <p><b>h) Installation of crab fencing and bird net would provide additional measures towards disease control and therefore recommended.</b></p> <p>i) Farmers of these societies do not have formal education however operate the ponds on their own with traditional beliefs.</p> <p><b>j) Provision of a Society coordinator (semi skilled Technical person) besides test kits for measurement of Hydrographical parameters would enable farmers to exercise greater control on culture operation and hence recommended.</b></p>			
5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 µm	1) 250 µm The mesh bag to be installed (preferably at the pond inlets) 2) Bigger meshes at the sump (pumping station)		58,900 { 31 ponds ; 2 mesh bags per pond /crop ; material plus stitching - Rs.950 per bag}	1,309	2 weeks (Procurement of material + stitching of mesh bags)

5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The Society must be quipped with test kits for measurement of hydrographical parameters b) Society coordinators to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, p <sup>H</sup> to be checked on regular basis		Cost already covered in 1.1.4	Cost already covered in 1.1.4	Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7					
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil
5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	1) Presently normal seeds of P.monodon sourced from hatcheries are stocked. 2) SPF monodon seeds are available in market but for a higher price and booking to be done well in advance 3) Further there is possibility of procuring SPF P.vannamei seeds as few hatcheries in India have obtained licence for the production of	a) SPF monodon seeds are relatively costly ( Rs.700 per 1000 PL) in relation to normal monodon seeds (Rs.250 per 1000 PL) and for the small farmer this difference in price is quite significant. b) For culturing P.vannamei a sepearate permission cum licence has to be obtained from CAA c) The SPF will be more	Switching over to SPF monodon additional cost = 9,45,000 { Rs.450 /1000PL for 2.1 million of PL}	21,000	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.

		P.vannamei PLs.	meaningful provided the biosecurity system (like reservoir for treatment of source water) is in place.			
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil
5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calender month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identificaton, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	1, 92,000 1) Salary of the staff = 1,20,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 72,000 ( @ 6000 per month for 1 year)	4267	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.

5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) SOP of the Society, governed by the BMPs, prohibits the use of banned antibiotics and Chemicals. (MPEDA has notified the list of banned antibiotics & Chemicals for Aquaculture use) 2) Further prior to harvest pond reared shrimps have to be tested by MPEDA managed Laboratory through ELISA for the residue of antibiotics and Chemicals and shrimps with free of antibiotic residues only will be bought by the processor	Nil {ELISA Test for the detection of Antibiotic Residue is mandatory ; currently undertaken prior to harvest}	Nil	Nil
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The Society coordinator will be able to make the documents listing all chemicals stocked at farm site and the usage of the same in ponds.	This requires the services of a society coordinator who need to be appointed.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.	The preparation of sign board involves expenditure	Total = 30,000 a) Training on Chemicals usgae : One day training for 21 farmers @ 6000 per day b) Sign Boards @ 500 X 48 numbers =	667	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}

				24,000		
5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.	None	1) Farmers of the Aqua Society do not use pesticides / chemicals for the shrimp culture operation.	a) Water discharged from Shrimp Aquaculture ponds of the society will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary. b) However treatment of discharge water may be beneficial considering parameters like dissolved oxygen, p <sup>H</sup> , ammonia and total suspended solids, unneuterlised chemicals etc., c) Establishment of discharge treatment plant will be prohibitively expensive for small scale farmers as it require thorough alteration on drainage net work besides pond lay out .	Total cost = 7,50,000 Provision for Chemical neuterlisation and maintenance of Hydrographical parameters necessitates establishment of a common discharge water treatment plant covering 1 Ha area. Economic Compensation / conversion involved in of 1 Ha Area in to Treatment plant = 4,50,000 ; Plus drainage net work = 3,00,000	16,667	2 months { Work can be taken up after harvest and along with pond preparation work}
5.3.5 Allowance for discharge of all chemicals without previous neutralization	None					

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	1) Water samples to be given to laboratory for analysis of residues of chlorine and pesticides.	a) Pesticides are not being used in Society ponds of small scale Aqua Farmers. b) Further, the farmers do not use bleaching powder for disinfection as they do not have reservoirs. c) However ELISA test is being carried out in shrimps prior to harvest to assess antibiotic residues d) Analysis of Chlorine and pesticides residues in water will be an additional expenses for the small scale farmers.	3500 (for 2 water samples)	78	One week
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) In India, the list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture is yet to be published by competent Authorities.	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
Principle 6: Manage broodstock origin, stock selection and effects of stock management						
<b>Indicator</b>	<b>Standards</b>					

<p>6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.</p>	<p>None</p>	<p>Full compliance</p>	<p>{ Presently P.monodon is the native species that is being widely used for commercial production }</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
<p>6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population</p>	<p>Yes</p>	<p>Full compliance</p>	<p>a) Presently P.monodon PL is sourced from the hatcheries  b) Shrimp farmers (@ 2 per society) may be given practical training on the assessment of Shrimp brood stock, seed quality, interpretation of Laboratory test reports (PCR Reports, Microscopic examination of PL etc.), Stress test on Shrimp PL, Packing and Transportation of Shrimp PL to farm site, Acclimatisation of Shrimp PL etc.,  c) In addition, positioning of society coordinator who would be in hatchery</p>	<p>43,000  { Training expenses for 2 farmers at hatchery as recommended by MPEDA)  2) 3000  {Expenses incurred for the Society co-ordinator to stay in hatchery and to monitor hatchery phase (brood stock to PL )}</p>	<p>956</p>	<p>Training to farmers will be of one month duration</p>

			(for a phase of 30 days or so,) during the larval phase to monitor the operations and record all relevant data			
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	Farmers of this society presently stock the native species ,namely P.monodon. It is worth mentioning that for P.vannamei,SPF PL seeds are available and are produced in India by few reputed hatcheries which has obtained licence from National Authorities (CAA) in this regard.	Nil	Nil	Nil
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	SPF P.monodon seeds are available in India at a relatively higher cost (Rs.700 per 1000 PL as against the price of Rs.250 per 1000 PL for normal seeds). The farmers of Aqua Society prefer normal P.monodon seed owing to a) Higher cost of SPF PL b) Limited availability of P.monodon SPF PL c) Limited biosecurity measures available at the farm	Switching over to SPF monodon additional cost covered under 5.1.6.	Switching over to SPF monodon additional cost covered under 5.1.6.	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.

6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	a) P.monodon brood stocks are wild caught at present owing to difficulty in maturation of pond reared P.monodon b) Studies to be initiated at Research Institutes like CIBA, CMFRI on domestication of P.monodon brood stock. c) This activity can also be encouraged by private bodies under Government support and Supervision.	20,00,000 {Initial budget for obtaining farm raised brood stock for P.monodon - Study may be taken up in MPEDA owned Hatcheries at Vizag / Gopalpur }	44,445	Project period = 2 years
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	a) Fishery management plan prohibits collection of wild broodstock during spawning months (May - July)	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	Usage of wild caught PL is banned as per the SOP of the Society	Nil	Nil	Nil
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						

A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	<p>a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal.</p> <p>b) Candidate species of this society is P.monodon which is native species. Even if there is escape, the impact is insignificant.</p> <p>c) But for non native species (like P.vannamei) escape to Natural Habitat is a matter of concern.</p>	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	a) Pond dike has about 30 cm free board and PVC pipes may be provided as overflow pipes in many places to drain of excess water especially during heavy rains and floods to prevent breaching	Nil	Nil	Nil
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	<p>a) Regular inspection being done by farmers themselves but recording is not done</p> <p>b) Provision of Society Coordinator would be able to fulfil the requirement of documentation</p>	Society co-ordinator salary coverd in 1.1.4	Society co-ordinator salary coverd in 1.1.4	Covered in 1.1.4

D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	<p>a) Regular repairs especially after every heavy rain is done</p> <p>b) Further every year prior to commencement of summer crop, sloping and compaction of embankments is done</p> <p>c) Repair details could be well documented by positioning the Society co-ordinator.</p>	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	<p>a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal.</p> <p>b) any escape through the mesh will be trapped inbetween mesh and wooden shutter</p> <p>c) Further at the collar of the humepipe on the drainage side, a mesh bag is also tied to trap the escape if any through outlet.</p> <p>d) Steps (a), (b) and (c) are done as routine procedures and documentation of any escape could be done by the society coordinator.</p>	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4

F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	a) Mesh Shutter b) Wooden Shutter c) Mesh bag tied to the collar of hume pipe on the drain side	Nil { Already existing }	Nil {Already existing}	Nil
G. Evidence of escape recovery protocols	Yes	Full compliance	a) With all the above said arrangements like mesh, wodden shutters, mesh bags at the collar of hume pipe etc., the possibility of escape is very much limited. b) However escapes if any trapped in between mesh and wooden shutter may be alive for few days only unless it is noticed and taken, thoroughly examined; based on the same to be put back in to pond itself or to be burried else where. c) For the escapes trapped in mesh bag, the chances of it being alive is very limited and has to be taken and burried. d) The small scale farmer will certainly inspect the inlet every day on routine basis to observe such things if any and would take action as deem fit.	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil

6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	<p>a) The mesh, wooden shutters and the mesh bags tied at the outer collar of hume pipe of the outlet ate the tools employed to prevent escapes.</p> <p>b) Society coordinator to document the data on escaped after hearing from the farmer on daily routine inspection</p> <p>c) Over a period of a crop (4 to 5 months) the documentation would reveal the evidence of escape if any with quantification.</p> <p>d) Accordingly if any escapes, then the tools need to be checked for their efficiency, repair/ replacement to be done enabling preventing escapes.</p>	Nil	Nil	Nil
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance		Nil	Nil	Nil
Principle 7: Use resources in an environmentally efficient and responsible manner						
<b>Indicator</b>	<b>Standards</b>					

7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability		a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	6 Months { To form a committee consisting of Feed Mill owners representatives and Government officials and to come out with plan of action}
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is believed that the feed ingredients comply to this.	a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	1 Month { For the committee to notify full compliance}
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 Month { For the committee to impose regulation on all Shrimp feed mills}

7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	Full compliance	<p>a) The local Government Agencies through the capture fisheries statics need to make a list of depleted / over fished fisheries</p> <p>b) The feed manufactures need to provide the type of fish meal used for the manufacture of feed mentioning the source of procurement</p> <p>c) The Local Government Agency need to advise the Feed Manufacturers accordingly.</p>	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	Full compliance	a) The local Government Agency need to impose the regulation on the Feed Manufacturers that fish meal or fish oil that are used for the manufacture of shrimp feed are not from fishes that are Near Threatened Vulnerable Endangered, and Critically Endangered	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}

7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes		a) Local Government Agencies to have collaboration with National Fisheries Research Institutes (CMFRI) which makes Fisheries Resources Assessment annually b) This can be reviewed by peer committee constituted with representatives from Fishery Survey of India, Government Agencies, Feed Mill Manufactures association etc.,	5,00,000	11,111	2 months for the constitution of Committee comprising of Government officials and 2 Years to study and come out with recommendation
7.1.1d Demonstrate consideration for species interaction issues						
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers b) List of ingredients of non -marine source to be identified and discussed	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided	Nil	Nil	1 month { For the Feed manufacturers to comply this and print on the feed bag the requisite information}

			on the feed bag is full and complete.			
In the interim period, the following indicators and standards apply for compliance with 7.2.1:						
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	Full Compliance	a) The local Government Agencies and National Authorities should have discussions with the Feed Manufacturers Association b) Accordingly this clause must be imposed on the Feed Manufacturers' Association	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.1b Chemical and Pesticide Use in agriculture						
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	Full compliance	a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

			be arrived at.			
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other		a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures should clearly mention the quantity (in terms of % ) of fish meal used in the manufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then FFER = $( 15 * 2 ) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}

7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance { To be below 1: 2 }	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 ( Average 1: 1.6)</li> </ul>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Nitrogen released = 22.2 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Phosphorous released = 4.6 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Phosphorous in Feed }
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the discharge water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4

			oxygen. pH, ammonia etc.,)			
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data pertaining to 1) Energy consumption by the facilities installed to be documented regularly by the Society coordinator and based on which 2) Annual Energy Consumption per tonne of Shrimp production be computed by the Society coordinator.	a) Presently diesel is the fuel for generation of power used both in water pumping and in aeration. b) As Diesel generating sets are not that environmental friendly, <b>assistance is sought for electrification.</b> c) Further this exercise will contribute greatly for reduction of operational cost.	1) Cost of Society coordinator covered in 1.1.4 2) Estimation for getting Electric current to site = 11,00,000 (The subsidy / concession available from National Authorities for Electrification is not considered in the estimate)	24,445	Electrification will take 2 months
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes					
7.8.1 Percentage of combustibles contained in bunds	100%		Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement	Nil	Nil	Nil
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%		Chemicals (used for water application & feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site as per the requirement on that day.	Nil	Nil	Nil

7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used , waste lubricants are sold to the specific buyers b) care is taken not to spill and to throw the waste in farm site causing concern on pollution	Nil	Nil	Nil
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are burnt in the farm site	2000 ( Wages for burning and after clean up per crop)	45	3 days ( Arranging the waste, Burning and after clean up each one day )
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants b) Few feed bags are used as sand bags and placed on the embankment for protection measures. c) the ploythene bags and plastic cantainers of chemicals, probiotics to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	1,71,95,715	382,127	

Sri Gokarneswaraswamy Aqua Society, Gokarnamatam, Guntur District, Andhra Pradesh

Principle 1: Comply with all applicable national laws and local regulations						
Indicator	Standards	Requirements towards compliance		Cost		Time Schedule
		Action	Remarks	INR (Rupees)	US\$ {1US \$ = INR 45}	
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	NIL	Farmers of the Aqua Society are Registered with local and National level Authorities and have requisite permission / licence to carry out Shrimp Aquaculture	Nil	Nil	Nil
1.1.2 Documents proving compliance with all tax requirements	YES	Nil	The aquafarmers are paying tax annually	Nil	Nil	Nil
1.1.3 Documents proving compliance with all labor laws and regulations	YES	1) Documents in support of compliance to labour laws and regulations are to be generated. 2) Aqua Society to inform Department of Labour of local Government mentioning details of employment (name, position, remuneration, details of work contract etc., ) 3) Accordingly the Labour Department will acknowledge and register the	1) In this Aqua Society, by and large every farmer is the owner cum worker themselves; However few farmers employ workers. 3) As per the Labour Department notification hiring labours for Aquaculture by the individual farmer is akin to hiring labours for Agriculture operations and this will not come under the Labour Department perview; However, if the employemt is provided by Registerd firm (in this case the Farmers Group to be a registered body	15,000 { This is the annual fees to be paid to consultant towards liaison work woith Labour department plus maintenance of requisite documents in compliance to labour laws }	333	i) one month (to identify the consultant ) and ii) Two months to fulfil the formalities with Local Labour Department

		<p>details in the records.</p> <p>4) Providing requisite information to Labour Department can either be taken by Society President / Secretary (depending on their knowledge on these matters or could be taken up by someone on payment terms. 5) Further details on employees attendance, leave, payment of wages, incentive , disciplinary proceedings if any all to be maintained (which could be done by the Consultant on anual payment basis)</p>	<p>and employment to be made by the Registered body and not by induvidual farmers) then this employment will come under the purview of Labour Department.</p>		
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<p>1.1.4 Documents proving compliance with discharge regulations or permits</p>	<p>YES</p>	<p>1) Aqua Societies to be equipped with requisite field test kits for the measurement of hydrographical parameters  2) For measurement of Parameters like samples have to be sent to the laboratory adjacent  3) Semi Skilled Technical person (also called as Society coordinator) has to be employed to look after the measurement of hydrographical parameters and recording the same accordingly in prescribed Pond data Register.</p>	<p>Coastal Aquaculture Authority (CAA) is the National Agency that issues permits to practice Aquaculture and has prescribed the discharge regulations covering the following :</p>	<p>Total cost = 1,62,000  1) Salary for Society Coordinator @ 8,500 per month for 12 months = 1,02,000  2) Test Kits (lump sump) = 60,000 ( for 2 crops)  (There exists a provision by MPEDA towards partial reimbursement of Society coordinator salary, which is not considered here)</p>	<p>3600  { i) Society coordinator salary = 2266 ;  ii) Cost of Test kits = 1334 }</p>	<p>1 month  ( to identify and appoint a society coordinator &amp; procurement of requisite test kits)</p>
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<p>1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used</p>	<p>YES</p>	<p>1) National Authorities like MPEDA, CAA in collaboration with Research Institutes like CIBA to be requested to come with a list (and standard) of Therapeutants &amp; Chemicals recommended for Aquaculture use 2) This calls for Registration of manufacturers of Aqua Chemicals under National Authorities and seeking licence towards manufacture and marketing of the same</p>	<p>a) The culture operations of the Aqua Society is Governed by the BMPs (Better Management Practices) which forms the basis for the SOP (Standard Operating Procedure). b) MPEDA (Marine Products Export Development Authority) has issued a list of chemicals and antibiotics banned for Aquaculture use. c) The Society being registered with MPEDA, do not used the banned chemicals and antibiotics. d) In India, as of now there is no authorised list of therapeutants &amp; Chemicals for Aquaculture notified /declared by National Authorities.</p>			<p>6 months</p>
<p>Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats</p>						
<p><b>Indicator</b></p>	<p><b>Standards</b></p>					
<p>2.1.1 Allowance for siting in National Protected Areas (PAs)</p>	<p>None, except for those with IUCN PA category V or VI</p>	<p>Nil</p>	<p>The Shrimp ponds of the Aqua Society is not in National Protected Areas</p>	<p>Nil</p>	<p>Nil</p>	

2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the Aqua Society is not in Mangrove ecosystems	Nil	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Aqua Society is not in Natural Wetlands	Nil	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	1) The carrying out of BEIA may be entrusted with National Research Institutes like i) CIBA (Central Institute of Brackishwater Aquaculture) ii) NEERI (National Environmental Engineering Research Institute) iii) MPEDA iv) CAA v) Pollution Control Board to a) Identify threatened, vulnerable,	As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site since 15 years ( with both Aquaculture and Agriculture operations coexisting with each other).	10,00,000	22,222	16 months {i) 3 months towards formation of committee ii) 12 months to carry out the study and iii) 1 month towards compilation of data and preparation of Document}

		endangered species b) To recommend measures of protection of the same				
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	1) Carrying out of BEIA studies by National Agencies (CIBA, NEERI, CAA, MPEDA, Pollution Control Board etc., )	The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly	Covered by 2.1.4	Covered by 2.1.4	Covered by 2.1.4
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	<b>1) The distance between the farm peripheral embankment and the water source varies from 10 m to 50 m sandwiched by sporadic mangrove vegetation</b> 2) The tidal influence is felt in the Creek (East Tungabadra Canal = water source) which drains in to Bay of Bengal about 6 Km (as the crow flies) from the farm site. 3) Further the irrigation canal from Tenali also	a) The farm is creek based and the creek namely East Tungabadra which experiences tidal influence being the water source for the farm. b) To the South Eastren side of the society farm lies private Shrimp ponds followed by Bay of Bengal. (Refer Lay out map). c) The South Western boundary of the farm site is surrounded by the Agricultural field and a canal (width about 3 m) separting the Aqua farm and the Agriculture fields d) Thus the farm is not exposed to coast .	Nil	Nil	Nil

		joins the East Tungabadra canal (the quantity of flow controlled to meet the water requirement of Agriculture fields) During monsoon months (July to November ) the canal also receives the rain water discharge and the salinity is diluted to < 10 ppt.				
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	1) The distance between the farm peripheral embankment and the water source varies from 10 m to 50 m sandwiched by sporadic mangrove vegetation	Nil	Nil	Nil
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions					

2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from MPEDA, CIBA , NEERI, CAA and Pollution control board in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document framework	As of now there is no BEIA carried out	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from MPEDA, CIBA , NEERI, CAA and Pollution control board in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document framework	MPEDA, CIBA, CAA and NEERI are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on CAA website besides copies made available with local Fishery Officers of State Government, NaCSA Field managers preferably in Telugu version.		Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained		The society Shrimp ponds are not located in High Conservation Value Areas			
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					
2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	1)To be precise, the soil samples drawn from various points in the farm is to be given to Soil Testing Laboratory (of Agriculture Department located at District Head Quarters Kakinada / Eluru)	a) The soil has requisite clay as recommended as the wet soil could be made into a ball or snake during field tests. b) However, as the farm covers an area of 15.5 Ha consisting of 36 ponds, the probability of variation of soil composition (clay and sand content in different	5,000	111	2 weeks

		for determination of clay and sand content	areas) can not be ruled out.			
2.2.2 Allowable water loss in ponds	< 1 cm/day	To reduce the seepage, the following options may be considered: 1) Transportation of clay soil nearby and placing on pond bottom : However as there is no / limited clay soil available adjacent to farm area, this option is ruled out. 2) To go in for plastic liners preferably along with embankment slopes which has cost implication on small scale farmers. Besides heavy capital investment in the beginning, this needs recurring expenses to maintain and for periodical repairs.	The farmers observation and experience and the field observation made during the study indicate water loss between 5 to 10 cm /day in ponds of various locations within the farm.	34,87,500 {HDPE lining (Cost of the material plus fixing/ laying) on the slopes of the embankment pond sides and 4 sides @2,25,000 per Ha for 15.5 Ha }}	77,500	2 months
2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL	a) The SOP of the Aqua Society drafted based on BMP prohibit usage of underground fresh water for Aquaculture use b) Moreover, there is no	Nil	Nil	Nil

			underground fresh water available in the near vicinity of the farm site. The Farmers village namely Gokarnamatam gets fresh water through pipe line from Nizampatnam which is 2 Km away from the village.			
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Water / Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	a) There is neither fresh water (drinking water) well nor surface water bodies close to the farm site b) Small farmers do not have the requisite equipment to measure the specific conductance and would need specific expertise in this regard.	15,000	333	2 to 3 weeks
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	This study is yet to be carried out. a) The Agriculture drain canal ( Muriki canal ) with a width of 5m and depth of 2 m separtes the aqua farm and Agriculture field, which prevents seepage of saline water to Agriculture fields. b) Coconut trees are dotted along the muriki canal followed by Agriculture (paddy ) fields.	covered under 2.2.4	covered under 2.2.4	

			c) Agriculture & Aqua culture is co-existing here for the last 15 years.			
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	Nil	<p>a) No sedimentation tank.</p> <p>b) Agriculture is done by irrigation Krishna canal originating from Vijayawada 90 Km from the site ; the flow controlled at several places , even at Nizampatnam 2 km far away from farm site</p> <p>c) There is limited or very less accumulation of sediments in small scale shrimp culture operations.</p> <p>d) After the harvest and subsequent drying, the black soil from pond bottom is scrapped and put on embankment for sundrying thus releasing Hydrogen Sulphide.</p>	Nil	Nil	Nil

2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <math><1,500 \mu\text{mhos/cm}</math> or chloride concentration <math><300 \text{ mg/L}</math>. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.	1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out	The limited accumulated black soil ( from pond bottom ) is scrapped and evenly spread over on embankments as thin layer for sundrying towards effective release of obnoxious gases trapped in the soil.	2000	45	2 weeks
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.		a) For most of the ponds, water from the creek is directly pumped in to the Grow out ponds employing diesel pumpsets. b) PVC Pipelines (that carries the water from the junction box) runs below the embankments			
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity					
2.3.3 Presence of a freeboard on open canals	Yes					

2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side	Nil	Peripheral embankments have slope 3:1 and the cross embankments have 2:1 slope	Nil	Nil	Nil
2.3.6 Freeboard of pond banks after settlement	> 30cm	Nil	Pond embankments has free board of 30cm b) Further, a small hume pipe is fixed just below the free board level for multipurpose	Nil	Nil	Nil
2.3.7 Top width of pond banks	> 2m	Compliance	a) Presently the peripheral embankments have 2 m top width while top width of cross bunds between 2 ponds is 1 m b) Hardly there is any soil available nearby to increase the width of the bund c) Therefore soil has to be transported elsewhere (lead & Lift)	1,86,600 { 1 tractor will handle 1 Ha in a day with a cost of INR 6000: lead & lift INR 6000 is extra : Thus totalling to INR 12000 / Ha for 15.55 Ha} soil has to be transported far way as there is no native soil available in or adjacent to the	4,147	4 to 6 weeks { Work to be taken after harvest and during pond drying }

				farm.		
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Nil	Society ponds are not located in Natural water ways	Nil	Nil	Nil
Principle 3: Develop and operate farms with consideration for surrounding communities						
<b>Indicator</b>	<b>Standards</b>					
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.	Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments and Village Panchayat leaders by interviewing the villagers.	a) Aquaculture by the small scale farmers through Aqua Society is by and large like a family owned operations carried out by the village community in consensus. b) Farmers belong to various communities but get along well with each other c) The aquaculture has been carried out since fifteen years and there is hardly any social issues. d) Therefore the need to carry out Social Impact Assessment has not been felt. e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team	1,00,000	2,222	2 to 3 months { i) Formation of committee = 1 month; ii) Study - interviewing villagers = 1 month; iii) Compilation and preparation of report = 15 days}

			comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limitations of Shrimp Aquaculture on the Society.			
3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.	Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).	Provision to be made to register complaints with the local Panchayat (Government) office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.		12000 { Payment of fees to local Panchayat office per annum }	267	

<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<p>Aqua Society may notify the labour requirement  1) in Panchayat office of the village enabling priority to local labours besides  2) inform the village as local panchayat announcement through the authorised Panchayat personnel (SAMMIDI / PILLA)</p>	<p>a) Mostly family members are engaged in the work  b) In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.  c) Few farmers engage labours from nearby villages (Lakesswaram, Perupalem etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}  d) Migrant / distant workers are not encouraged owing to anonimity</p>	<p>2,500</p>	<p>56</p>	<p>One week</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<p>1) The contract to be drafted both in English and local language  2 ) The terms of reference of contract explained in detail to the</p>	<p>a) The work contract to be drafted in local language  b) Meeting to be arranged inviting Panchayat President and Local Fishery officer</p>	<p>2000</p>	<p>45</p>	<p>One week</p>

<p>3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood</p>	<p>100% compliance</p>	<p>labour verbally in presence of Employer farmer, Village President and preferably local Fishery officer 3) signed by both parties employer &amp; Employee in presence of Village Panchayat President and preferably with local Fishery Officials enabling both (Employee and the Employer to be clear on their respective commitments )</p>		<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
<p>3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion</p>	<p>Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.</p>	<p>1) Meeting on "Planning of Harvest" to be organised by the Aqua Society making attendance of members of Aqua Society compulsory. 2) This meeting to be organised at least one month prior to harvest 3) Representatives of the Exporters to be invited to the</p>		<p>5,000 (Meeting expenses)</p>	<p>111</p>	<p>Prior Notice needed for the meeting 15 days</p>

		meeting to discuss on the possible dates of harvests, quantity of Shrimp to be harvested, size (count) and to arrive at the price accordingly. 4) All the deliberations to be properly recorded and the minutes of the meeting to be signed by all participants.				
<b>Principle 4: Operate farms with responsible labor practices</b>						
<b>Indicator</b>	<b>Standards</b>					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	Nil	No deployment of Child labour in the Farm site	Nil	Nil	Nil
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	Nil	No forced, bonded or compulsory labour deployed in the farm site	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	<ul style="list-style-type: none"> <li>In this area women by Nature are not employed in Aquaculture ponds.</li> <li>There is no discrimination policy on women employment.</li> </ul>	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil

4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	<p>a) Women by virtue look after the household and Children and the male counterpart are fully devoted to Aquaculture activities.</p> <p>b) As mentioned earlier, the farm is by and large family owned activity and hardly there is any labour employed.</p> <p>c) Few labours employed are the locals and belong to the same ethnic group and there is no scope of any ethnic differentiation on wages.</p>	Nil	Nil	Nil
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	<p>1) Training on health &amp; Safety practices (First aid related) to be imparted to farmers and workers from local primary health centres</p> <p>2) First aid kit with requisite emergency medicines to be placed at the farm site.</p> <p>3) Safety equipments like fire extinguisher to be positioned at the</p>	<p>a) No formal training imparted but oral instructions</p> <p>b) Hardly any safety equipment is provided for use</p>	<p>64,500</p> <p>{i) First aid kit 500 * 21 = 10,500</p> <p>ii) First aid training 2days = 2* 6000 = 12,000</p> <p>iii) Training on rescue operations = 2 days = 2 * 6000 = 12,000 }</p> <p>iv) Safety equipments- fire extinguishers, Mega phone, rain coats at</p>	1,433	2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}

		farm site.		least in 2 locations = 30,000}		
4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	1) Water proof Aerator cables are to used in Aquaculture pond 2) Night watchmen to be provided with gum boots together with torch light	Common accidents being : a) Snake bites b) Short circuit in aerator cables and no person under the age 18 are involved with such accidents	15,000 (for 6 pairs of Gum boots)	333	one week
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	1) Farmers need to insure their employees against accidents at the work place 2) There are good number of Insurance companies operating in India in this regard.		39,000 { 15,000 = Insurance annual premium of INR1500 for one year per person for 21 persons = 31,500 ; Miscellaneous - Application, Registration, Medical check up, Documentation expenses = 7500}	867	One month {to complete all formalities and documentation}

4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	<p><b>a) Payment as per the norms of the locality</b></p> <p>b) Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</p> <p>c) The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</p> <p>d) Besides they are paid incentive after harvest depending on the production</p> <p>e) It is a matter of fact that the shrimp pond workers are relatively paid higher than Agriculture labours.</p>	Nil	Nil	Nil
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	<p>a) Ponds are managed by and large by Family members and hardly there will be employees :</p> <p>b) The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</p> <p>c) Discrepancies if any in Terms of Employment are mutually discussed with the farmer (employer) and gets sorted out amicably all in oral terms.</p>	Nil	Nil	Nil

4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	<b>a) Such incidences are rare</b> b) Workers being family members , made to realise the mistake and instructed not to repeat the same	Nil	Nil	Nil
4.7.2 Evidence of abusive disciplinary policies and procedures	None			Nil	Nil	Nil
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labour and the employer. Further at the end of the crop, labours are paid incentive as per the production in recognition of their hard work.	Nil	Nil	Nil
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	The terms of Reference of Employment outlining the obligations of both Employee and Employer to be drafted in detail in local language and contents to be explained to the employee in presence of village Panchayat President and local Fishery officials, signed by mutual	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal (terms and conditions) contract.	Covered in 3.4.1	Covered in 3.4.1	Covered in 3.4.1

		parties endorsing the acceptance and copy of the same is retained by both employer and Employee				
4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	1) Members of the Aqua Society to assemble in full attendance for a review meeting at the end of every crop (irrespective of the production status) to discuss the following: a) Technical : culture related, production oriented issues, possible solutions to problems, b) Labour : Terms of reference of contract, limitations if any and suggestions to overcome limitations, Wage structures, production incentives etc., 2) All such deliberations are to be properly	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis. Discrepancies if any are discussed and sorted out amicably all in verbal terms.	5,000 { Meeting Expenses }	111	The meeting is for half a day and 15 days prior notice to be given to all participants

		minuted, Signed by all the participants				
Principle 5: Manage shrimp health in a responsible manner						
<b>Indicator</b>	<b>Standards</b>					
5.1.1 Demonstration of functional and documented preventive tools to prevent: 1) Diseases from the surrounding environment entering the farm (predator and vector control), 2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization), 3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]	Yes	1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative. 2) Shrimp PL is another source of harbouring pathogen carrier therefore seed stocked should be free of pathogens ( PCR tested for White spot virus) 3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be prevented by crab fencing 4) Birds pick up the infected shrimp	a) The land holdings of the farmers of these societies are very small ( one or two ponds with area < 1 Ha) and they can not afford to have reservoirs for water treatment. Therefore group of farmers joining together to have few ponds as reservoir is the possibility. b) Thus the farmers can be made in to 3 groups with 4 ponds to be sacrificed for reservoir, to facilitate disinfection of source water. c) Further this will require altering the feeder canal enabling the water from reservoir to reach all the ponds that is intended for. d) This kind of arrangement has to be done for the 3 (Groups) sets ponds. e) The farmers who had given their 4 ponds for reservoir has to compensated every year	Total cost = 30,70,156 1) cost / compensation on Reservoir conversion = 28,97,656 { 30% of area ,i.e., 4.65 Ha ; Production 1875 Kg / year ; Rate Rs.275 /Kg; Feeder canal making = 5,00,000} 2) Crab Fencing = 79500 (@ Rs.15 /m for 5300m) 3) Bird net - covering all the pond of the entire farm = 93,000 (@ Rs.6000 / Ha for 15.5 Ha) 4) Coordinator & Test Kits = covered in 1.1.4	Total cost = 68,226 1) Reservoir 64,392 2) Crab fencing 1,766 3) Bird Netting 2,067 4) Coordinator & Test Kits = Already covered in 1.1.4	Nil

		<p>from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>accordingly f) This is likely reduce the crop production owing to reduction in area of operation. g) The steps c) to f) will have economic implication  <b>h) Installation of crab fencing and bird net would provide additional measures towards disease control and therefore recommended.</b>  i) Farmers of these societies do not have formal education however operate the ponds on their own with traditional beliefs.  <b>j) Provision of a Society coordinator (semi skilled Technical person) besides test kits for measurement of Hydrographical parameters would enable farmers to exercise greater control on culture operation and hence recommended.</b></p>			
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5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 $\mu$ m	1) 250 $\mu$ m The mesh bag to be installed (preferably at the pond inlets) 2) Bigger meshes at the sump (pumping station)		68,400 { 36 ponds ; 2 mesh bags per pond /crop ; material plus stitching - Rs.950 per bag}	1,520	2 weeks (Procurement of material + stitching of mesh bags)
5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The Society must be quipped with test kits for measurement of hydrographical parameters b) Society coordinators to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, p <sup>H</sup> to be checked on regular basis		Cost already covered in 1.1.4	Cost already covered in 1.1.4	Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7					
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil

5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<p>1) Presently normal seeds of P.monodon sourced from hatcheries are stocked.</p> <p>2) SPF monodon seeds are available in market but for a higher price and booking to be done well in advance</p> <p>3) Further there is possibility of procuring SPF P.vannamei seeds as few hatcheries in India have obtained licence for the production of P.vannamei PLS.</p>	<p>a) SPF monodon seeds are relatively costly ( Rs.700 per 1000 PL) in relation to normal monodon seeds (Rs.250 per 1000 PL) and for the small farmer this difference in price is quite significant.</p> <p>b) For culturing P.vannamei a sepearate permission cum licence has to be obtained from CAA</p> <p>c) The SPF will be more meaningful provided the biosecurity system (like reservoir for treatment of source water) is in place.</p>	Switching over to SPF monodon additional cost = 4,18,500 { Rs.450 /1000PL for 0.93 million of PL}	9,300	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calendar month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identification, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	1, 92,000 1) Salary of the staff = 1,20,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 72,000 (@ 6000 per month for 1 year)	4,267	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) SOP of the Society, governed by the BMPs, prohibits the use of banned antibiotics and Chemicals. (MPEDA has notified the list of banned antibiotics & Chemicals for Aquaculture use) 2) Further prior to harvest pond reared shrimps have to be tested by MPEDA managed Laboratory through ELISA for the residue of antibiotics and Chemicals and shrimps with free of antibiotic residues only will be bought by the processor	Nil {ELISA Test for the detection of Antibiotic Residue is mandatory ; currently undertaken prior to harvest}	Nil	Nil

5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The Society coordinator will be able to make the documents listing all chemicals stocked at farm site and the usage of the same in ponds.	This requires the services of a society coordinator who need to be appointed.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.	The preparation of sign board involves expenditure	Total = 30,000 a) Training on Chemicals usgae : One day training for 21 farmers @ 6000 per day b) Sign Boards @ 500 X 48 numbers = 24,000	667	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}

<p>5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned,restricted or identified as extremely to moderately hazardous by theRotterdam Convention on Prior Informed Consent (PIC), the StockholmConvention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.</p>	<p>None</p>	<p>1) Farmers of the Aqua Society do not use pesticides / chemicals for the shrimp culture operation.</p>	<p>a) Water discharged from Shrimp Aquaculture ponds of the society will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary.  b) However treatment of discharge water may be beneficial considering parameters like dissolved oxygen, p<sup>H</sup>, ammonia and total suspended solids, un neuterlised chemicals etc.,  c) Establishment of discharge treatment plant will be prohibitively expensive for small scale farmers as it require thorough alteration on drainage net work besides pond lay out .</p>	<p>Total cost = 9,15,625  Provision for Chemical neuterlisation and maintenance of Hydrographical parameters necessitates establishment of a common discharge water treatment plant covering 1 Ha area. Economic Compensation / conversion involved in of 1 Ha Area in to Treatment plant  1 HA = 5,15,625  + Drainage works = 4,00,000 = 9,15,625)</p>	<p>20,347</p>	<p>2 months  { Work can be taken up after harvest and along with pond preparation work}</p>
<p>5.3.5 Allowance for discharge of all chemicals without previous neutralization</p>	<p>None</p>					

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	1) Water samples to be given to laboratory for analysis of residues of chlorine and pesticides.	a) Pesticides are not being used in Society ponds of small scale Aqua Farmers. b) Further, the farmers do not use bleaching powder for disinfection as they do not have reservoirs. c) However ELISA test is being carried out in shrimps prior to harvest to assess antibiotic residues d) Analysis of Chlorine and pesticides residues in water will be an additional expenses for the small scale farmers.	3500 (for 2 water samples)	78	One week
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) In India, the list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture is yet to be published by competent Authorities.	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
Principle 6: Manage broodstock origin, stock selection and effects of stock management						
<b>Indicator</b>	<b>Standards</b>					

6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.	None	Full compliance	{ Presently P.monodon is the native species that is being widely used for commercial production }	Nil	Nil	Nil
6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population	Yes	Full compliance	a) Presently P.monodon PL is sourced from the hatcheries b) Shrimp farmers (@ 2 per society) may be given practical training on the assessment of Shrimp brood stock, seed quality, interpretation of Laboratory test reports (PCR Reports, Microscopic examination of PL etc.), Stress test on Shrimp PL, Packing and Transportation of Shrimp PL to farm site, Acclimatisation of Shrimp PL etc., c) In addition, positioning of society coordinator who would be in hatchery	43,000 1)40,000 { Training expenses for 2 farmers at hatchery as recommended by MPEDA) 2) 3000 {Expenses incurred for the Society co-ordinator to stay in hatchery and to monitor hatchery phase (brood stock to PL )}	956	Training to farmers will be of one month duration

			(for a phase of 30 days or so,) during the larval phase to monitor the operations and record all relevant data			
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	Farmers of this society presently stock the native species ,namely P.monodon. It is worth mentioning that for P.vannamei,SPF PL seeds are available and are produced in India by few reputed hatcheries which has obtained licence from National Authorities (CAA) in this regard.	Nil	Nil	Nil
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	SPF P.monodon seeds are available in India at a relatively higher cost (Rs.700 per 1000 PL as against the price of Rs.250 per 1000 PL for normal seeds). The farmers of Aqua Society prefer normal P.monodon seed owing to a) Higher cost of SPF PL b) Limited availability of P.monodon SPF PL c) Limited biosecurity measures available at the farm	Switching over to SPF monodon additional cost covered under 5.1.6.	Switching over to SPF monodon additional cost covered under 5.1.6.	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.

6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	a) P.monodon brood stocks are wild caught at present owing to difficulty in maturation of pond reared P.monodon b) Studies to be initiated at Research Institutes like CIBA, CMFRI on domestication of P.monodon brood stock. c) This activity can also be encouraged by private bodies under Government support and Supervision.	20,00,000 {Initial budget for obtaining farm raised brood stock for P.monodon - Study may be taken up in MPEDA owned Hatcheries at Vizag / Gopalpur }	44,445	Project period = 2 years
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	a) Fishery management plan prohibits collection of wild broodstock during spawning months (May - July)	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	Usage of wild caught PL is banned as per the SOP of the Society	Nil	Nil	Nil
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						

A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	<p>a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal.</p> <p>b) Candidate species of this society is P.monodon which is native species. Even if there is escape, the impact is insignificant.</p> <p>c) But for non native species (like P.vannamei) escape to Natural Habitat is a matter of concern.</p>	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	a) Pond dike has about 30 cm free board and PVC pipes may be provided as overflow pipes in many places to drain of excess water especially during heavy rains and floods to prevent breaching	Nil	Nil	Nil
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	<p>a) Regular inspection being done by farmers themselves but recording is not done</p> <p>b) Provision of Society Coordinator would be able to fulfil the requirement of documentation</p>	Society co-ordinator salary coverd in 1.1.4	Society co-ordinator salary coverd in 1.1.4	Covered in 1.1.4

D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	<p>a) Regular repairs especially after every heavy rain is done</p> <p>b) Further every year prior to commencement of summer crop, sloping and compaction of embankments is done</p> <p>c) Repair details could be well documented by positioning the Society co-ordinator.</p>	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	<p>a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal.</p> <p>b) any escape through the mesh will be trapped inbetween mesh and wooden shutter</p> <p>c) Further at the collar of the humepipe on the drainage side, a mesh bag is also tied to trap the escape if any through outlet.</p> <p>d) Steps (a), (b) and (c) are done as routine procedures and documentation of any escape could be done by the society coordinator.</p>	Society co-ordinator salary covered in 1.1.4	Society co-ordinator salary covered in 1.1.4	Covered in 1.1.4

F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	a) Mesh Shutter b) Wooden Shutter c) Mesh bag tied to the collar of hume pipe on the drain side	Nil { Already existing }	Nil {Already existing}	Nil
G. Evidence of escape recovery protocols	Yes	Full compliance	a) With all the above said arrangements like mesh, wodden shutters, mesh bags at the collar of hume pipe etc., the possibility of escape is very much limited. b) However escapes if any trapped in between mesh and wooden shutter may be alive for few days only unless it is noticed and taken, thoroughly examined; based on the same to be put back in to pond itself or to be burried else where. c) For the escapes trapped in mesh bag, the chances of it being alive is very limitted and has to be taken and burried. d) The small scale farmer will certainly inspect the inlet every day on routine basis to observe such things if any and would take action as deem fit.	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil

6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	<p>a) The mesh, wooden shutters and the mesh bags tied at the outer collar of hume pipe of the outlet ate the tools employed to prevent escapes.</p> <p>b) Society coordinator to document the data on escaped after hearing from the farmer on daily routine inspection</p> <p>c) Over a period of a crop (4 to 5 months) the documentation would reveal the evidence of escape if any with quantification.</p> <p>d) Accordingly if any escapes, then the tools need to be checked for their efficiency, repair/ replacement to be done enabling preventing escapes.</p>	Nil	Nil	Nil
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance		Nil	Nil	Nil
Principle 7: Use resources in an environmentally efficient and responsible manner						
<b>Indicator</b>	<b>Standards</b>					

7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability		a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	6 Months { To form a committee consisting of Feed Mill owners representatives and Government officials and to come out with plan of action}
7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is believed that the feed ingredients comply to this.	a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	1 Month { For the committee to notify full compliance)
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 Month { For the committee to impose regulation on all Shrimp feed mills}

7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	Full compliance	<p>a) The local Government Agencies through the capture fisheries statics need to make a list of depleted / over fished fisheries</p> <p>b) The feed manufactures need to provide the type of fish meal used for the manufacture of feed mentioning the source of procurement</p> <p>c) The Local Government Agency need to advise the Feed Manufacturers accordingly.</p>	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}
7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	Full compliance	a) The local Government Agency need to impose the regulation on the Feed Manufacturers that fish meal or fish oil that are used for the manufacture of shrimp feed are not from fishes that are Near Threatened Vulnerable Endangered, and Critically Endangered	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}

7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes		a) Local Government Agencies to have collaboration with National Fisheries Research Institutes (CMFRI) which makes Fisheries Resources Assessment annually b) This can be reviewed by peer committee constituted with representatives from Fishery Survey of India, Government Agencies, Feed Mill Manufactures association etc.,	5,00,000	11,111	2 months for the constitution of Committee comprising of Government officials and 2 Years to study and come out with recommendation
7.1.1d Demonstrate consideration for species interaction issues						
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers b) List of ingredients of non -marine source to be identified and discussed	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided	Nil	Nil	1 month { For the Feed manufacturers to comply this and print on the feed bag the requisite information}

			on the feed bag is full and complete.			
In the interim period, the following indicators and standards apply for compliance with 7.2.1:						
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	Full Compliance	a) The local Government Agencies and National Authorities should have discussions with the Feed Manufacturers Association b) Accordingly this clause must be imposed on the Feed Manufacturers' Association	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.1b Chemical and Pesticide Use in agriculture						
7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	Full compliance	a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other		a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannamei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures should clearly mention the quantity (in terms of % ) of fish meal used in the manufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then FFER = $( 15 * 2 ) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}

7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance { To be below 1: 2}	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 ( Average 1: 1.6)</li> </ul>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 1875 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.5, the <b>Nitrogen released = 18 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 1875 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.5, the <b>Phosphorous released = 4.1 kg / Tons of Shrimp production</b>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Phosphorous in Feed }
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the discharge water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4

			oxygen. pH, ammonia etc.,)			
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data perataining to 1) Energy consumption by the facilities installed to be documented regularly by the Society coordinator and based on which 2) Annual Energy Consumption per tonne of Shrimp production be computed by the Society coordinator.	a) Presently diesel is the fuel for generation of power used both in water pumping and in aeration. b) As Diesel geretating sets are not that environmental friendly, <b>assistance is sought for electrification.</b> c)Further this exercise will contribute greatly for reduction of operational cost.	1) Cost of Society coordinator covered in 1.1.4 2) Estimation for getting Electric current to site = 12,00,000 (The subsidy / concession available from National Authorities for Electrification is not considered in the estimate)	26,667	Electrification will take 2 months
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes					
7.8.1 Percentage of combustibles contained in bunds	100%		Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement	Nil	Nil	Nil
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%		Chemicals (used for water application & feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site as per the requirement on that day.	Nil	Nil	Nil

7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used , waste lubricants are sold to the specific buyers b) care is taken not to spill and to throw the waste in farm site causing concern on pollution	Nil	Nil	Nil
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are burnt in the farm site	2000 ( Wages for burning and after clean up per crop)	45	3 days ( Arranging the waste, Burning and after clean up each one day )
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants b) Few feed bags are used as sand bags and placed on the embankment for protection measures. c) the ploythene bags and plastic cantainers of chemicals, probiotics to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	1,35,61,425	301,365	

### Peda Puluguvvari palem Farmer group

Indicator	Standards	Requirements towards compliance	Cost	Time Schedule
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		Action	Remarks	INR (Rupees)	US\$ \$ = INR 45}	{1US
Principle 1: Comply with all applicable national laws and local regulations						
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	NIL	Farmers of the Aqua Group are Registered with local and National level Authorities and have requisite permission / licence to carry out Shrimp Aquaculture	Nil	Nil	Nil
1.1.2 Documents proving compliance with all tax requirements	YES	Nil	The aquafarmers are paying tax annually	Nil	Nil	Nil
1.1.3 Documents proving compliance with all labor laws and regulations	YES	1) In this Farmers' Group by and large every farmer is the owner cum worker themselves; However few farmers employ workers. 3) As per the Labour Department notification hiring labours for Aquaculture by the individual farmer is akin to hiring labours for Agriculture operations and this will not come under the Labour Department perview; However, if the employemt is provided by Registerd firm (in this case the	a) In this Farmers' Group every farmer is the owner cum worker themselves. b) There is no employees c) Documents in support of compliance to labour laws and regulations are to be generated.			

		Farmers Group to be a registered body and employment to be made by the Registered body and not by individual farmers) then this employment will come under the purview of Labour Department.				
1.1.4 Documents proving compliance with discharge regulations or permits	YES	1) Aqua Societies to be equipped with requisite field test kits for the measurement of hydrographical parameters (Salinity, Dissolved oxygen, pH, Ammonia, Aklalinity etc., 2) For measurement of Parameters like Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) samples have to be sent to the laboratory adjacent 3) Semi Skilled Technical person (also called as Field Supervisor) has to be employed to	a) Coastal Aquaculture Authority (CAA) is the National Agency that issues permits to practice Aquaculture b) The effluent discharge regulations is under the perview of State Pollution control board. c) The parameters to be considered in effluent discharge being Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS)	Total = 1,62,000 per year 1) Salary for Field Supervisor @ 8,500 per month for 12 months = 1,02,000 2) Test Kits (lump sump) = 60,000 ( for 2 crops)	3,600 { i) Field Supervisor salary = 2267 ; ii) Cost of Test kits = 1333 }	1 month ( to identify and appoint a Field Supervisor & procurement of requisite test kits)

		look after the measurement of hydrographical parameters and recording the same accordingly in prescribed Pond data Register.				
1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	1) National Authorities like MPEDA, CAA in collaboration with Research Institutes like CIBA to be requested to come with a list (and standard) of Therapeutants & Chemicals recommended for Aquaculture use 2) This calls for Registration of manufacturers of Aqua Chemicals under National Authorities and seeking licence towards manufacture and marketing of the same	a) MPEDA (Marine Products Export Development Authority) has issued a list of chemicals and antibiotics banned for Aquaculture use. b) This Farmers Group do not use any banned Chemicals / Antibiotics for Aquaculture c) In India, as of now there is no authorised list of therapeutants & Chemicals for Aquaculture notified /declared by National Authorities.			6 months
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats						
<b>Indicator</b>	<b>Standards</b>					
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	Nil	The Shrimp ponds of the Farmers' Group is not in National Protected Areas	Nil	Nil	

2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the Farmers' Group is not in Mangrove ecosystems b) Mangroove vegetation is present on the South and South Eastern side of the drain (water source canal) , which joins at sea (Bay of Bengal ) at Nizampatnam (2 Km from the farm site.)	Nil	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Farmers' Group is not in Natural Wetlands	Nil	Nil	
2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	1) The carrying out of BEIA may be entrusted with a committee consisting of expertise drawn from National Research Institutes like i) CIBA (Central Institute of Brackishwater Aquaculture) ii) NEERI (National Environmental Engineering Research Institute) ;	As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site since 15 years ( with both Aquaculture and Agriculture operations coexisting with each other).	10,00,000	22,222	16 months {i} 3 months towards formation of committee ii) 12 months to carry out the study and iii) 1 month towards compilation of data and preparation of Document}

		National Agencies like iii) CAA iv) MPEDA and v) State Pollution Control board to a) Identify threatened, vulnerable, endangered species b) To recommend measures of protection of the same				
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	1) Carrying out of BEIA studies by National Agencies (CIBA, NEERI, MPEDA, CAA, Pollution Control Board etc., )	The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly	Covered by 2.1.4	Covered by 2.1.4	Covered by 2.1.4
2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	Nil	a) The farm is creek based {Palarevu (also called as muriki kalava) canal which experiences tidal influence and forms the water source for the farm}. b) The Farm site is not exposed to the coast directly: The southern ponds are about are 2 KM away from the Bay of Bengal	Nil	Nil	Nil

2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	a) Both the creeks and sub canals experiences tidal influence and run adjacent to the boundary of the farm site.	Nil	Nil	Nil
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions					
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from MPEDA, CIBA and NEERI in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	As of now there is no BEIA carried out	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from MPEDA, CIBA, Pollution Control Board, Central Ground water Board and NEERI in the fields of Aquaculture, Engineering, Social and Economics to	MPEDA, CIBA, CAA and NEERI are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

		carry out the BEIA study in accordance with guidance document frame work				
2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on CAA website besides copies made available with local Fishery Officers of State Government, preferably in Telugu version.		Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	The farm is not located in High Conservation Value Areas	Nil	Nil	Nil	Nil
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					

2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	1)To be precise, the soil samples drawn from various points in the farm is to be given to Soil Testing Laboratory (of Agriculture Department located at Bapatla ) for determination of clay and sand content	a) The soil is of black cotton type ( more of clay ) as the wet soil could be made into a ball or snake during field tests. b) However, as the farm covers an area of 18.45 Ha consisting of 44 ponds, the probability of variation of soil composition (clay and sand content in different areas) can not be ruled out.	5,000	111	2 weeks
2.2.2 Allowable water loss in ponds	< 1 cm/day	To reduce the seepage, the following options may be considered: 1) Transporation of clay soil nearby and placing on pond bottom : However as there is no / limitted clay soil available adjacent to farm area, this option is ruledout. 2) To go in for plastic liners preferrably along with embankment slopes which has cost implication on small sacle farmers. Besides heavy capital investment in the begining, this needs recurring expenses to maintain and for periodical repairs.	The farmers observation and experience and the field observation made during the study indicate water loss is around 5 cm /day in ponds of various locations within the farm.	41,62,500 {HDPE lining (Cost of the material plus fixing/ laying) on the slopes of the embankment pond sides and 4 sides @2,25,000 per Ha for 18.5Ha }}	92,500	3 months

2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL	<p>a) The Farmers Group by principle, prohibit usage of underground fresh water for Aquaculture use</p> <p>b) Drain &amp; creeks and sub canls also carry Agriculture drain water from the Western &amp; Eastern paddy fields that dilutes the salinity considerably (20 ppt)</p> <p>c) Moreover, there is no underground fresh water available in the near vicinity of the farm site.</p> <p>The Farmers village namely Pedapuluguvvari palem gets fresh water through pipe line from Pedagollapalem which is 9 Km away from the village.</p>	Nil	Nil	Nil
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Water / Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	<p>a) There is neither fresh water (drinking water) well nor surface water bodies close to the farm site</p> <p>b) Small farmers do not have the requisite equipment to measure the specific conductance and would need specific expertise in this regard.</p>	15,000	333	2 to 3 weeks

<p>2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields</p>	<p>Specific conductance &lt;1,500 µmhos/cm or chloride concentration &lt;300 mg/L</p>	<p>1) Soil testing Laboratory attached to Agriculture Department to be contacted to carry out this test.</p>	<p>This study is yet to be carried out. a) There is Agriculture activity practiced both in Eastern &amp; Western sides of the farmsite. The Eastern Agricultural fields is adjacent to the Palarevu creek to which the agriculture drain is let out. Besides there is a road sandwiched between Eastern Agriculture field and Palarevu creek. ; Therefore possibility of saline intrusion is very much limited. c) Agriculture &amp; Aqua culture is co - existing here for the last 18 years.</p>	<p>covered under 2.2.4</p>	<p>covered under 2.2.4</p>	
<p>2.2.6 Dimensions of sediment containment area</p>	<p>0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall</p>	<p>Nil</p>	<p>a) No sedimentation tank. b) The Agriculture activity practiced on the Eastern side of the farm site ; far away from the farm site about 60 m intercepted by road and another Aquaculture farm. c) There is limited or very less accumulation of sediments in small scale shrimp culture operations. d) After the harvest and subsequent drying, the black soil from pond bottom is scrapped and put on embankment for sundrying thus releasing Hydrogen Sulphide.</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>

2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer	If sediment is to be disposed of in a freshwater zone, specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.	1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out	The limited accumulated black soil ( from pond bottom ) is scrapped and evenly spread over on embankments as thin layer for sundrying towards effective release of obnoxious gases trapped in the soil.	2000	45	2 weeks
2.3.1 Side slope of open canals	> 3:1 for a loose clay or sandy loam, > 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.	1) There is no feeder canal. Water from Palarevu Creek is taken either through PVC / rubber pipes straight to ponds	a) There exists number of pumping stations all along the Palarevu creek , and water is pumped , sent to far off ponds through PVC pipes.	Nil	Nil	Nil
2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity					
2.3.3 Presence of a freeboard on open canals	Yes					

2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side	Nil	Peripheral embankments have slope 3:1 and the cross embankments have 2:1 slope	Nil	Nil	Nil
2.3.6 Freeboard of pond banks after settlement	> 30cm	Nil	Pond embankments has free board of 30cm	Nil	Nil	Nil
2.3.7 Top width of pond banks	> 2m	Compliance	<p>a) Presently the peripheral embankments and the cross bunds of most of the ponds are by and large 2 m. However few ponds have slightly reduced top width (about 1 m) which need to be enhanced to 2m</p> <p>b) Hardly there is any soil available nearby to increase the width of the bund</p> <p>c) Therefore soil has to be transported elsewhere (lead &amp; Lift)</p>	<p>2,22,200 { 1 tractor will handle 1 Ha in a day with a cost of INR 6000: lead &amp; lift INR 6000 is extra : Thus totalling to INR 12000 / Ha for 18.5 Ha }</p> <p>soil has to be transported far way as there is no native soil available in or adjacent to the farm.</p>	4,933	4 to 6 weeks { Work to be taken after harvest and during pond drying }

2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Nil	Farmers' Group ponds are not located in Natural water ways	Nil	Nil	Nil
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Principle 3: Develop and operate farms with consideration for surrounding communities

Indicator	Standards					
3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.	Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.	Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments and Village Panchayat leaders, Traditional leaders, Community Based Organisation (CBO) by interviewing the villagers.	a) Aquaculture by the Farmers Group is a small scale operation and by and large like a family owned operations carried out by the village community in consensus. b) Farmers belong to various communities but get along well with each other c) The aquaculture has been carried out since fifteen years and there is hardly any social issues. d) Therefore the need to carry out Social Impact Assessment has not been felt. e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limittations of Shrimp Aquaculture on the Society.	1,00,000	2222	2 to 3 months { i) Formation of committee = 1 month; ii) Study - interviweing villagers = 1 month; iii) Compilation and preparation of report = 15 days}

<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<p>Provision to be made to register complaints with the local Panchayat (Government) office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.</p>		<p>12000 { Payment of fees to local Panchayat office per annum }</p>	<p>267</p>	
<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<p>Farmers'Group may notify the labour requirement 1) in Panchayat office of the village enabling priority to local labours besides 2) inform the village as local panchayat announcement through the authorised Panchayat personnel (SAMMIDI / PILLA)</p>	<p>a) Mostly family members are engaged in the work b) In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist. c) Few farmers engage labours from nearby villages (Thummalapalli &amp; Ganapavaram etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}</p>	<p>2,500</p>	<p>56</p>	<p>One week</p>

			d) Migrant / distant workers are not encouraged owing to anonymity			
3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties	100% compliance	1) The contract to be drafted both in English and local language 2) The terms of reference of contract explained in detail to the labour verbally in presence of Employer farmer, Village President and preferably local Fishery officer 3) Signed by both parties employer & Employee in presence of Village Panchayat President and preferably with	a) The work contract to be drafted in local language b) Meeting to be arranged inviting Panchayat President and Local Fishery officer	2000	45	One week
3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood	100% compliance			Nil	Nil	Nil

		local Fishery Officials enabling both (Employee and the Employer to be clear on their respective commitments )				
3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion	Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.	<ol style="list-style-type: none"> <li>1) Meeting on "Planning of Harvest" to be organised by the Farmers'Group making attendance of members of Aqua Society compulsory.</li> <li>2) This meeting to be organised at least one month prior to harvest</li> <li>3) Representatives of the Exporters to be invited to the meeting to discuss on the possible dates of harvests, quantity of Shrimp to be harvested, size (count) and to arrive at the price accordingly.</li> <li>4) All the deliberations to be</li> </ol>		7,000 (Meeting expenses)	156	Prior Notice needed for the meeting 15 days

		properly recorded and the minutes of the meeting to be signed by all participants.				
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Principle 4: Operate farms with responsible labor practices						
Indicator	Standards					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	Nil	No deployment of Child labour in the Farm site	Nil	Nil	Nil
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	Nil	No forced, bonded or compulsory labour deployed in the farm site	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	<ul style="list-style-type: none"> <li>In this area women by Nature are not employed in Aquaculture ponds.</li> <li>There is no discrimination policy on women</li> </ul>	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil

			employment.			
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	<p>a) Women by virtue look after the household and Children and the male counterpart are fully devoted to Aquaculture activities.</p> <p>b) As mentioned earlier, the farm is by and large family owned activity and hardly there is any labour employed.</p> <p>c) Few labours employed are the locals and belong to the same ethnic group and there is no scope of any ethenic differentiation on wages.</p>	Nil	Nil	Nil

<p>4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.</p>	<p>100% in operations above five employees and safety equipment in use by workers.</p>	<p>1) Training on health &amp; Safety practices (First aid related) to be imparted to farmers and workers from local primary health centres 2) First aid kit with requisite emergency medicines to be placed at the farm site. 3) Safety equipments like fire extinguisher to be positioned at the farm site.</p>	<p>a) No formal training imparted but oral instructions b) Hardly any safety equipment is provided for use</p>	<p>79000 {i) First aid kit 500 * 30 (Farmers) = 15,000 ii) First aid training 2days = 2* 6000 = 12000 iii) Training on rescue operations = 2 days = 2 * 6000 = 12,000 } iv) Safety equipments- fire extinguishers, Mega phone, rain coats at least in 2 locations = 40,000}</p>	<p>1,756</p>	<p>2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}</p>
<p>4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents</p>	<p>100%</p>	<p>1) Water proof Aerator cables are to used in Aquaculture pond 2) Night watchmen to be provided with gum boots together with torch light 3) a pair of life jacket</p>	<p>Common accidents being : a) Snake bites b) Short circuit in aerator cables and no person under the age 18 are involved with such accidents</p>	<p>30000 (for 10 pairs of Gum boots + life jackets 2 numbers)</p>	<p>667</p>	<p>one week</p>

4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	1) Farmers being the owner & worker and Employees of few farmers need insurance cover against accidents at the work place 2) There are good number of Insurance companies operating in India in this regard.		55,000 {45,000 = Insurance annual premium of @ INR 1500 per worker per year for 30 workers ; Miscellaneous - Application, Registration, Medical check up, Documentation expenses = 10,000}	1222	One month {to complete all formalities and documentation}
4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	<p><b>a) Payment as per the norms of the locality</b></p> <p>b) Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</p> <p>c) The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</p> <p>d) Besides they are paid incentive after harvest depending on the production</p> <p>e) It is a matter of fact that the shrimp pond workers are relatively paid higher than Agriculture labours.</p>	Nil	Nil	Nil

4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	a) Ponds are managed by and large by Family members and hardly there will be employees : b) The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration c) Discrepancies if any in Terms of Employment are mutually discussed with the farmer (employer) and gets sorted out amicably all in oral terms.	Nil	Nil	Nil
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	a) <b>Such incidences are rare</b> b) Workers being family members , made to realise the mistake and instructed not to repeat the same	Nil	Nil	Nil
4.7.2 Evidence of abusive disciplinary policies and procedures	None			Nil	Nil	Nil
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labours and the employer. Further at the end of the crop, labours are paid incentive as per the production in recognition of their hard work.	Nil	Nil	Nil

<p>4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.</p>	<p>100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers</p>	<p>The terms of Reference of Employment outlining the obligations of both Employee and Employer to be drafted in detail in local language and contents to be explained to the employee in presence of village Panchayat President and local Fishery officials, signed by mutual parties endorsing the acceptance and copy of the same is retained by both employer and Employee</p>	<p>Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal (terms and conditions) contract.</p>	<p>Covered in 3.4.1</p>	<p>Covered in 3.4.1</p>	<p>Covered in 3.4.1</p>
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4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	1) Members of the Aqua Society to assemble in full attendance for a review meeting at the end of every crop (irrespective of the production status) to discuss the following: a) Technical : culture related, production oriented issues, possible solutions to problems, b) Labour : Terms of reference of contract, limitations if any and suggestions to overcome limitations, Wage structures, production incentives etc., 2) All such deliberations are to be properly minuted, Signed by all the participants	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis. Discrepancies if any are discussed and sorted out amicably all in verbal terms.	7500	167	The meeting is for half a day and 15 days prior notice to be given to all participants
Principle 5: Manage shrimp health in a responsible manner						
<b>Indicator</b>	<b>Standards</b>					

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<p>1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative.</p> <p>2) Shrimp PL is another source of harbouring pathogen carrier therefore seed stocked should be free of pathogens ( PCR tested for White spot virus)</p> <p>3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be prevented by crab fencing</p> <p>4) Birds pick up the infected shrimp from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>a) The land holdings of the farmers of these societies are very small ( one or two ponds with area &lt; 1 Ha) and they can not afford to have reservoirs for water treatment. Therefore group of farmers joining together to have few ponds as reservoir is the possibility.</p> <p>b) Thus the farmers can be made in to 3 groups with 4 ponds to be sacrificed for reservoir, to facilitate disinfection of source water.</p> <p>c) Further this will require altering the feeder canal enabling the water from reservoir to reach all the ponds that is intended for.</p> <p>d) This kind of arrangement has to be done for the 3 (Groups) sets ponds.</p> <p>e) The farmers who had given their 4 ponds for reservoir has to compensated every year accordingly f) This is likely reduce the crop production owing to reduction in area of operation. g) The steps c) to f) will have economic implication</p> <p>h) <b>Installation of crab fencing and bird net would provide additional measures towards disease control and therefore recommended.</b></p> <p>i) Farmers of these societies do not have formal education however operate the ponds on their own with traditional</p>	<p>Total cost = 30,44,500</p> <p>1) cost / compensation on Reservoir conversion = 25,71,250 { 30% of area ,i.e., 5.5 Ha ; Production 1700 Kg / year ; Rate Rs.300 /Kg; Feeder canal modification ( lumpsum) = 3,00,000} Total= 2871250</p> <p>2) Crab Fencing = 62,250 (@ Rs.15 /m for 4150m)</p> <p>3) Bird net -covering all the pond of the entire farm = 1,11,000 (@ Rs.6000 / Ha for 18.5Ha)</p> <p>4) Coordinator &amp; Test Kits = covered in 1.1.4</p>	<p>Total cost = 67,656</p> <p>1) Reservoir 63,801</p> <p>2) Crab fencing 1383</p> <p>3) Bird Netting 2467</p> <p>4) Coordinator &amp; Test Kits = Already covered in 1.1.4</p>	<p>Nil</p>
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			<p>beliefs.</p> <p><b>j) Provision of a Society coordinator (semi skilled Technical person) besides test kits for measurement of Hydrographical parameters would enable farmers to exercise greater control on culture operation and hence recommended.</b></p>		
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5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 $\mu$ m	1) 250 $\mu$ m The mesh bag to be installed (preferably at the pond inlets) 2) Bigger meshes at the sump (pumping station)		83,600 { 44 ponds ; 2 mesh bags per pond /crop ; material plus stitching - Rs.950 per bag}	1,858	2 weeks (Procurement of material + stitching of mesh bags)
5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The Society must be quipped with test kits for measurement of hydrographical parameters		Cost already covered in 1.1.4	Cost already covered in 1.1.4	Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7	b) Society coordinators to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, p <sup>H</sup> to be checked on regular basis				
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil

5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	1) Presently normal seeds of P.monodon sourced from hatcheries are stocked. 2) SPF monodon seeds are available in market but for a higher price and booking to be done well in advance 3) Further there is possibility of procuring SPF P.vannamei seeds as few hatcheries in India have obtained licence for the production of P.vannamei PLs.	a) SPF monodon seeds are relatively costly ( Rs.700 per 1000 PL) in relation to normal monodon seeds (Rs.250 per 1000 PL) and for the small farmer this difference in price is quite significant. b) For culturing P.vannamei a sepearate permission cum licence has to be obtained from CAA c) The SPF will be more meaningful provided the biosecurity system (like reservoir for treatment of source water) is in place.	Switching over to SPF monodon additional cost = 5,79,600 { Rs.450 /1000PL for 1.3 million of PL}	12,880	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calendar month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identification, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	1,92,000 1) Salary of the staff = 1,20,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 72,000 (@ 6000 per month for 1 year, 1 person)	4267	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) SOP of the Society, governed by the BMPs, prohibits the use of banned antibiotics and Chemicals. (MPEDA has notified the list of banned antibiotics & Chemicals for Aquaculture use) 2) Further prior to harvest pond reared shrimps have to be tested by MPEDA managed Laboratory through ELISA for the residue of antibiotics and Chemicals and shrimps with free of antibiotic residues only will be bought by the processor	Nil {ELISA Test for the detection of Antibiotic Residue is mandatory ; currently undertaken prior to harvest}	Nil	Nil
5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The Society coordinator will be able to make the documents listing all chemicals stocked at farm site	This requires the services of a society coordinator who need to be appointed.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4

		and the usage of the same in ponds.				
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.		Total = 38000 a) Training on Chemicals usgae : One day training for 30 farmers @ 8000 per day b) Sign Boards @ 500 X 60 boards = 30,000	845	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}

<p>5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.</p>	<p>None</p>	<p>1) Farmers of the Aqua Society do not use pesticides / chemicals for the shrimp culture operation.</p>	<p>a) Water discharged from Shrimp Aquaculture ponds of the society will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary.  b) However treatment of discharge water may be beneficial considering parameters like dissolved oxygen, p<sup>H</sup>, ammonia and total suspended solids, un neuterlised chemicals etc.,  c) Establishment of discharge treatment plant will be prohibitively expensive for small scale farmers as it require thorough alteration on drainage net work besides pond lay out .</p>	<p>Total 7,17,500 Provision for Chemical neuterlisation and maintenance of Hydrographical parameters necessitates establishment of a common discharge water treatment plant covering 1Ha area. Economic Compensation / conversion involved in of 1Ha Area in to Treatment plant = 4,67,500 : Lump sum for drainage 2,50,000 ii) Drainage net work instead of feder canal</p>	<p>15,944</p>	<p>2 months { Work can be taken up after harvest and along with pond prepartion work}</p>
<p>5.3.5 Allowance for discharge of all chemicals without previous neutralization</p>	<p>None</p>					

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	1) Water samples to be given to laboratory for analysis of residues of chlorine and pesticides.	a) Pesticides are not being used in Society ponds of small scale Aqua Farmers. b) Further, the farmers do not use bleaching powder for disinfection as they do not have reservoirs. c) However ELISA test is being carried out in shrimps prior to harvest to assess antibiotic residues d) Analysis of Chlorine and pesticides residues in water will be an additional expenses for the small scale farmers.	3500 (for 2 water samples)	78	One week
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) In India, the list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture is yet to be published by competent Authorities.	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
Principle 6: Manage broodstock origin, stock selection and effects of stock management						
<b>Indicator</b>	<b>Standards</b>					

<p>6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.</p>	<p>None</p>	<p>Full compliance</p>	<p>{ Presently P.monodon is the native species that is being widely used for commercial production }</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
<p>6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population</p>	<p>Yes</p>	<p>Full compliance</p>	<p>a) Presently P.monodon PL is sourced from the hatcheries  b) Shrimp farmers (@ 2 per society) may be given practical training on the assessment of Shrimp brood stock, seed quality, interpretation of Laboratory test reports (PCR Reports, Microscopic examination of PL etc.), Stress test on Shrimp PL, Packing and Transportation of Shrimp PL to farm site, Acclimatisation of Shrimp PL etc.,  c) In addition, positioning of society coordinator who would be in hatchery (for a phase of 30 days or so.) during the larval phase to monitor the operations and record all relevant data</p>	<p>43,000  { Training expenses for 2 farmers at hatchery as recommended by MPEDA = 40,000)  2) 3000  {Expenses incurred for the Field Supervisor to stay in hatchery and to monitor hatchery phase (brood stock to PL )}</p>	<p>956</p>	<p>Training to farmers will be of one month duration</p>

6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	Farmers of this society presently stock the native species ,namely P.monodon. It is worth mentioning that for P.vannamei,SPF PL seeds are available and are produced in India by few reputed hatcheries which has obtained licence from National Authorities (CAA) in this regard.	Nil	Nil	Nil
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	SPF P.monodon seeds are available in India at a relatively higher cost (Rs.700 per 1000 PL as against the price of Rs.250 per 1000 PL for normal seeds). The farmers of Aqua Society prefer normal P.monodon seed owing to a) Higher cost of SPF PL b) Limited availability of P.monodon SPF PL c) Limited biosecurity measures available at the farm	Switching over to SPF monodon additional cost covered under 5.1.6.	Switching over to SPF monodon additional cost covered under 5.1.6.	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	a) P.monodon brood stocks are wild caught at present owing to difficulty in maturation of pond reared P.monodon b) Studies to be initiated at Reseach Institutes like CIBA, CMFRI on domestication of P.monodon brood stock. c) This activity can also be encouraged by private bodies under Government support and Supervision.	20,00,000 {Initial budget for obtaining farm raised brood stock for P.monodon - Study may be taken up in MPEDA owned Hatcheries at Vizag / Gopalpur }	44,445	Project period = 2 years

6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	a) Fishery management plan prohibits collection of wild broodstock during spawning months (May - July)	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	Usage of wild caught PL is banned as per the SOP of the Society	Nil	Nil	Nil
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) Candidate species of this society is P.monodon which is native species. Even if there is escape, the impact is insignificant. c) But for non native species (like P.vannamei) escape to Natural Habitat is a matter of concern.	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	a) Pond dike has about 30 cm free board and PVC pipes may be provided as overflow pipes in many places to drain of excess water especially during heavy rains and floods to prevent breaching	Nil	Nil	Nil

C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	a) Regular inspection being done by farmers themselves but recording is not done b) Provision of Society Coordinator would be able to fulfil the requirement of documentation	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	a) Regular repairs especially after every heavy rain is done b) Further every year prior to commencement of summer crop, sloping and compaction of embankments is done c) Repair details could be well documented by positioning the Society co-ordinator.	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) any escape through the mesh will be trapped inbetween mesh and wooden shutter c) Further at the collar of the humepipe on the drainage side, a mesh bag is also tied to trap the escape if any through outlet. d) Steps (a), (b) and (c) are done as routine procedures and documentation of any escape could be done by the society coordinator.	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	a) Mesh Shutter b) Wooden Shutter c) Mesh bag tied to the collar of hume pipe on the drain side	Nil { Already existing }	Nil {Already existing}	Nil

G. Evidence of escape recovery protocols	Yes	Full compliance	<p>a) With all the above said arrangements like mesh, woden shutters, mesh bags at the collar of hume pipe etc., the possibility of escape is very much limited.</p> <p>b) However escapes if any trapped in between mesh and wooden shutter may be alive for few days only unless it is noticed and taken, thoroughly examined; based on the same to be put back in to pond itself or to be burried else where.</p> <p>c) For the escapes trapped in mesh bag, the chances of it being alive is very limitted and has to be taken and burried.</p> <p>d) The small scale farmer will certainly inspect the inlet every day on routine basis to observe such things if any and would take action as deem fit.</p>	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil

6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	a) The mesh, wooden shutters and the mesh bags tied at the outer collar of hume pipe of the outlet ate the tools employed to prevent escapes. b) Society coordinator to document the data on escaped after hearing from the farmer on daily routine inspection c) Over a period of a crop (4 to 5 months) the documentation would reveal the evidence of escape if any with quantification. d) Accordingly if any escapes, then the tools need to be checked for their efficiency, repair/ replacement to be done enabling preventing escapes.	Nil	Nil	Nil
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance		Nil	Nil	Nil
Principle 7: Use resources in an environmentally efficient and responsible manner						
<b>Indicator</b>	<b>Standards</b>					
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability		a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	6 Months { To form a committee consisting og Feed Mill owners representatives and Government officials and to come out with plan of action}

7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is believed that the feed ingredients comply to this.	a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	1 Month { For the committee to notify full compliance)
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 Month { For the committee to impose regulation on all Shrimp feed mills}
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	Full compliance	a) The local Government Agencies through the capture fisheries statics need to make a list of depleted / over fished fisheries b) The feed manufactures need to provide the type of fish meal used for the manufacture of feed mentioning the source of procurement c) The Local Government Agency need to advise the Feed Manufacturers accordingly.	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}

7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	Full compliance	a) The local Government Agency need to impose the regulation on the Feed Manufacturers that fish meal or fish oil that are used for the manufacture of shrimp feed are not from fishes that are Near Threatened Vulnerable Endangered, and Critically Endangered	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes		a) Local Government Agencies to have colloboration with National Fisheries Research Institutes (CMFRI) which makes Fisheries Resources Assessment annually b) This can be reviewd by peer committee constituted with representatives from Fishery Survey of India, Government Agencies, Feed Mill Manufactures association etc.,	5,00,000	11,111	2 months for the constitution of Committee comprising of Government officials and 2 Years to study and come out with recommendation
7.1.1d Demonstrate consideration for species interaction issues						
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers b) List of ingredients of non - marine source to be identified and discussed	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 month { For the Feed manufacturers to comply this and print on the feed bag the requisite information}
In the interim period, the following indicators and standards apply for compliance with 7.2.1:						
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	Full Compliance	a) The local Government Agencies and National Authorities should have discussions with the Feed Manufacturers Association b) Accordingly this clause must be imposed on the Feed Manufacturers' Association	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.1b Chemical and Pesticide Use in agriculture						

7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with label e) other	Full compliance	a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other		a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannemei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures should clearly mention the quantity (in terms of %) of fish meal used in the manufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then $FFER = (15 * 2) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}
7.5.2 Economic Feed Conversation Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance { To be below 1: 2}	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 ( Average 1: 1.6)</li> </ul>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 1700 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.7, the <b>Nitrogen released = 25.2 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 1700 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.7, the <b>Phosphorous released = 5.05kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Phosphorous in Feed }
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the discharge water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Field Supervisor to be appointed for carrying out this measurement c) Farmers' Group to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved oxygen. pH, ammonia etc.,)	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data perataining to 1) Energy consumption by	a) Presently pumpsets (water pumping) are run by electric power and aerators using	1) Cost of Field Supervisor covered in 1.1.4	13,333	Electrification will take 2 months

7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	the facilities installed to be documented regularly by the Society coordinator and based on which 2) Annual Energy Consumption per tonne of Shrimp production be computed by the Society coordinator.	diesel generators. b) As Diesel generating sets are not that environmental friendly, <b>assistance is sought for electrification.</b> c) Further this exercise will contribute greatly for reduction of operational cost.	2) Estimation for getting Electric current to site = 6,00,000 (The subsidy / concession available from National Authorities for Electrification is not considered in the estimate)		
7.8.1 Percentage of combustibles contained in bunds	100%		Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement	Nil	Nil	Nil
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%		Chemicals (used for water application & feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site as per the requirement on that day.	Nil	Nil	Nil
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used , waste lubricants are sold to the specific buyers b) care is taken not to spill and to throw the waste in farm site causing concern on pollution	Nil	Nil	Nil
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil

7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are burnt in the farm site	2000 ( Wages for burning and after clean up per crop)	45	3 days ( Arranging the waste, Burning and after clean up each one day )
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants b) Few feed bags are used as sand bags and placed on the embankment for protection measures. c) the ploythene bags and plastic cantainers of chemicals, probiotics to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	1,36,70,100	303,780	

### Thumnapalli Farmer group

Indicator	Standards	Requirements towards compliance		Cost		Time Schedule
		Action	Remarks	INR (Rupees)	US\$ {1US \$ = INR 45}	
Principle 1: Comply with all applicable national laws and local regulations						
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	NIL	Farmers of the Aqua Group are Registered with local and National level Authorities and have requisite permission / licence to carry out Shrimp Aquaculture	Nil	Nil	Nil
1.1.2 Documents proving compliance with all tax requirements	YES	Nil	The aquafarmers are paying tax annually	Nil	Nil	Nil

<p>1.1.3 Documents proving compliance with all labor laws and regulations</p>	<p>YES</p>	<p>1) In this Farmers' Group by and large every farmer is the owner cum worker themselves; However few farmers employ workers. 3) As per the Labour Department notification hiring labours for Aquaculture by the individual farmer is akin to hiring labours for Agriculture operations and this will not come under the Labour Department perview; However, if the employemt is provided by Registerd firm (in this case the Farmers Group to be a registered body and employment to be made by the Registered body and not by individual farmers) then this employment will come under the purview of Labour Department.</p>	<p>a) In this Farmers' Group every farmer is the owner cum worker themselves. c) Documents in support of compliance to labour laws and regulations are to be generated.</p>			
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<p>1.1.4 Documents proving compliance with discharge regulations or permits</p>	<p>YES</p>	<p>1) Aqua Societies to be equipped with requisite field test kits for the measurement of hydrographical parameters (Salinity, Dissolved oxygen, pH, Ammonia, Alkalinity etc.,  2) For measurement of Parameters like Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) samples have to be sent to the laboratory adjacent  3) Semi Skilled Technical person (also called as Field Supervisor) has to be employed to look after the measurement of hydrographical parameters and recording the same accordingly in prescribed Pond data Register.</p>	<p>a) Coastal Aquaculture Authority (CAA) is the National Agency that issues permits to practice Aquaculture  b) The effluent discharge regulations is under the purview of State Pollution control board.  c) The parameters to be considered in effluent discharge being Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS)</p>	<p>Total = 2,37,000 per year  1) Salary for Field Supervisor @ 8,500 per month for 12 months = 1,02,000  2) Salary for Field assistant @ 6250 per month for 12 months = 75,000  3) Test Kits (lump sum) = 60,000 ( for 2 crops)</p>	<p>5267 { i)  Field Supervisor salary = 2267  ii) Field assistant Salary = 1667 ;  iii) Cost of Test kits = 1333 }</p>	<p>1 month ( to identify and appoint a Field Supervisor &amp; procurement of requisite test kits)</p>
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1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	1) National Authorities like MPEDA, CAA in collaboration with Research Institutes like CIBA to be requested to come with a list (and standard) of Therapeutants & Chemicals recommended for Aquaculture use 2) This calls for Registration of manufacturers of Aqua Chemicals under National Authorities and seeking licence towards manufacture and marketing of the same	a) MPEDA (Marine Products Export Development Authority) has issued a list of chemicals and antibiotics banned for Aquaculture use. b) This Farmers Group do not use any banned Chemicals / Antibiotics for Aquaculture c) In India, as of now there is no authorised list of therapeutants & Chemicals for Aquaculture notified /declared by National Authorities.			6 months
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats						
<b>Indicator</b>	<b>Standards</b>					
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	Nil	The Shrimp ponds of the Farmers' Group is not in National Protected Areas	Nil	Nil	

2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the Farmers' Group is not in Mangrove ecosystems b) Mangroove vegetation is present on the South and South Eastern side of the Ponnala canal(water source canal) , which joins at sea (Bay of Bengal ) at Nizampatnam (4 Km from the farm site.)	Nil	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Farmers' Group is not in Natural Wetlands	Nil	Nil	

2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	1) The carrying out of BEIA may be entrusted with a committee consisting of expertise drawn from National Research Institutes like i) CIBA (Central Institute of Brackishwater Aquaculture) ii) NEERI (National Environmental Engineering Research Institute) ; National Agencies like iii) CAA iv) MPEDA and v) State Pollution Control board to a) Identify threatened, vulnerable, endangered species b) To recommend measures of protection of the same	As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site since 15 years ( with both Aquaculture and Agriculture operations coexisting with each other).	10,00,000	22,222	16 months {i) 3 months towards formation of committee ii) 12 months to carry out the study and iii) 1 month towards compilation of data and preparation of Document}
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	1) Carrying out of BEIA studies by National Agencies (CIBA, NEERI, MPEDA, CAA, Pollution Control Board etc., )	The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly	Covered by 2.1.4	Covered by 2.1.4	Covered by 2.1.4

2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	Nil	a) The farm is creek based (Ponnala canal and Bhusaiah drain which experiences tidal influence and forms the water source for the farm). b) The Southern ponds of the Farm site are 2 KM away from the Bay of Bengal and is not exposed to the coast directly.	Nil	Nil	Nil
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	a) Both the creeks experiences tidal influence and run adjacent to the boundary of the farm site.	Nil	Nil	Nil
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions					
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from MPEDA, CIBA and NEERI in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame	As of now there is no BEIA carried out	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

		work				
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from MPEDA, CIBA, Pollution Control Board, Central Ground water Board and NEERI in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	MPEDA, CIBA, CAA and NEERI are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on CAA website besides copies made available with local Fishery Officers of State Government, preferably in Telugu version.		Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	The farm is not located in High Conservation Value Areas	Nil	Nil	Nil	Nil
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					

2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	1)To be precise, the soil samples drawn from various points in the farm is to be given to Soil Testing Laboratory (of Agriculture Department located at Bapatla ) for determination of clay and sand content	a) The soil is of black cotton type ( more of clay ) as the wet soil could be made into a ball or snake during field tests. b) However, as the farm covers an area of 33.5 Ha consisting of 72 ponds, the probability of variation of soil composition (clay and sand content in different areas) can not be ruled out.	5,000	111	2 weeks
2.2.2 Allowable water loss in ponds	< 1 cm/day	To reduce the seepage, the following options may be considered: 1) Transporation of clay soil nearby and placing on pond bottom : However as there is no / limitted clay soil available adjacent to farm area, this option is ruledout. 2) To go in for plastic liners preferrably along with embankment slopes which has cost implication on small sacle farmers. Besides heavy capital investment in the begining, this needs recurring expenses to maintain and for periodical repairs.	The farmers observation and experience and the field observation made during the study indicate water loss is around 5 cm /day in ponds of various locations within the farm.	75,37,500 {HDPE lining (Cost of the material plus fixing/ laying) on the slopes of the embankment pond sides and 4 sides @2,25,000 per Ha for 33.5 Ha }	1,67,500	3 months

2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL	<p>a) The Farmers Group by principle, prohibit usage of underground fresh water for Aquaculture use</p> <p>b) Ponnala &amp; Bhusaiah creeks also carry Agriculture drain water from the Western paddy fields that dilutes the salinity considerably (20 ppt)</p> <p>b) Moreover, there is no underground fresh water available in the near vicinity of the farm site.</p> <p>The Farmers village namely Thummalapalli gets fresh water through pipe from Pedagollapalem which is 5 Km away from the village.</p>	Nil	Nil	Nil
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Water / Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	<p>a) There is neither fresh water (drinking water) well nor surface water bodies close to the farm site</p> <p>b) Small farmers do not have the requisite equipment to measure the specific conductance and would need specific expertise in this regard.</p>	15,000	333	2 to 3 weeks

2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	This study is yet to be carried out. a) There is very limited Agriculture activity There is very little Agriculture activity practiced and the Agriculture fields are 1.0 Km away from the Eastern boundary of the farm site(sandy area) ; Therefore possibily of saline intrusion in very much limited. c) Agriculture & Aqua culture is co - existing here for the last 15 years.	covered under 2.2.4	covered under 2.2.4	
2.2.6 Dimensions of sediment containment area	0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall	Nil	a) No sedimentation tank. b) The Agriculture activity practiced on the Western side of the farm site ; far away from the farm site about 600 m intercepted by road and another Aquaculture farm. c) There is limited or very less accumulation of sediments in small scale shrimp culture operations. d) After the harvest and subsequent drying, the black soil from pond bottom is scrapped and put on embankment for sundrying thus releasing Hydrogen Sulphide.	Nil	Nil	Nil

<p>2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer</p>	<p>If sediment is to be disposed of in a freshwater zone, specific conductance &lt;1,500 µmhos/cm or chloride concentration &lt;300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.</p>	<p>1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out</p>	<p>The limited accumulated black soil ( from pond bottom ) is scrapped and evenly spread over on embankments as thin layer for sundrying towards effective release of obnoxious gases trapped in the soil.</p>	<p>2000</p>	<p>45</p>	<p>2 weeks</p>
<p>2.3.1 Side slope of open canals</p>	<p>&gt; 3:1 for a loose clay or sandy loam, &gt; 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.</p>	<p>1) Water from Ponnala canal / Busiahah Canal is taken either by Stone lined canal or through PVC / rubber pipes straight to ponds</p>	<p>a) From Ponnala main creek, there are about 6 sub creeks that take the water almost all the areas of the farm site. B) The ponds that are adjacent to sub creek pump the water directly in to the pond while the ponds located away use earthen canal (Stone lined )</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>

2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity		or PVC Pipes.			
2.3.3 Presence of a freeboard on open canals	Yes					
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side	Nil	Peripheral embankments have slope 3:1 and the cross embankments have 2:1 slope	Nil	Nil	Nil
2.3.6 Freeboard of pond banks after settlement	> 30cm	Nil	Pond embankments has free board of 30cm	Nil	Nil	Nil

2.3.7 Top width of pond banks	> 2m	Compliance	a) Presently the peripheral embankments and the cross bunds of most of the ponds are by and large 2 m. However few ponds have slightly reduced top width (about 1 m) which need to be enhanced to 2m b) Hardly there is any soil available nearby to increase the width of the bund c) Therefore soil has to be transported elsewhere (lead & Lift)	4,02,000 { 1 tractor will handle 1 Ha in a day with a cost of INR 6000: lead & lift INR 6000 is extra : Thus totalling to INR 12000 / Ha for 33.5 Ha } soil has to be transported far way as there is no native soil available in or adjacent to the farm.	8,933	4 to 6 weeks { Work to be taken after harvest and during pond drying }
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Nil	Farmers' Group ponds are not located in Natural water ways	Nil	Nil	Nil
Principle 3: Develop and operate farms with consideration for surrounding communities						
<b>Indicator</b>	<b>Standards</b>					

<p>3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.</p>	<p>Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.</p>	<p>Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments and Village Panchayat leaders, Traditional leaders, Community Based Organisation (CBO) by interviewing the villagers.</p>	<p>a) Aquaculture by the Farmers Group is a small scale operation and by and large like a family owned operations carried out by the village community in consensus.  b) Farmers belong to various communities but get along well with each other  c) The aquaculture has been carried out since fifteen years and there is hardly any social issues.  d) Therefore the need to carry out Social Impact Assessment has not been felt.  e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limitations of Shrimp Aquaculture on the Society.</p>	<p>1,00,000</p>	<p>2222</p>	<p>2 to 3 months  { i) Formation of committee = 1 month;  ii) Study - interviewing villagers = 1 month;  iii) Compilation and preparation of report = 15 days}</p>
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<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<p>Provision to be made to register complaints with the local Panchayat (Government) office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.</p>		<p>12000 { Payment of fees to local Panchayat office per annum }</p>	<p>267</p>	
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<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<p>Farmers'Group may notify the labour requirement 1) in Panchayat office of the village enabling priority to local labours besides 2) inform the village as local panchayat announcement through the authorised Panchayat personnel (SAMMIDI / PILLA)</p>	<p>a) Mostly family members are engaged in the work b) In case of additional labours are needed (example while stocking or harvesting etc.), members of the adjacent ponds assist. c) Few farmers engage labours from nearby villages (Tummalapalli, Ganapavaram etc.) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.), water exchange, water filling} d) Migrant / distant workers are not encouraged owing to anonimity</p>	<p>2,500</p>	<p>56</p>	<p>One week</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<p>1) The contract to be drafted both in English and local language 2 ) The terms of reference of contract explained in detail to the labour verbally in presence of Employer farmer, Village President and preferrably local Fishery offier 3) Signed by both</p>	<p>a) The work contract to be drafted in local language b) Meeting to be arranged inviting Panchayat President and Local Fishery officer</p>	<p>2000</p>	<p>45</p>	<p>One week</p>

<p>3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood</p>	<p>100% compliance</p>	<p>parties employer &amp; Employee in presence of Village Panchayat President and preferably with local Fishery Officials enabling both (Employee and the Employer to be clear on their respective commitments )</p>		<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
<p>3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion</p>	<p>Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.</p>	<p>1) Meeting on "Planning of Harvest" to be organised by the Farmers'Group making attendance of members of Aqua Society compulsory.  2) This meeting to be organised at least one month prior to harvest  3) Representatives of the Exporters to be invited to the meeting to discuss on the possible dates of harvests, quantity of Shrimp to be harvested, size (count) and to arrive at the price accordingly.  4) All the deliberations to be properly recorded and the minutes of the meeting to be signed by all</p>		<p>12,000 (Meeting expenses)</p>	<p>267</p>	<p>Prior Notice needed for the meeting 15 days</p>

		participants.				
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Principle 4: Operate farms with responsible labor practices						
Indicator	Standards					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	Nil	No deployment of Child labour in the Farm site	Nil	Nil	Nil
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	Nil	No forced, bonded or compulsory labour deployed in the farm site	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	<ul style="list-style-type: none"> <li>In this area women by Nature are not employed in Aquaculture ponds.</li> <li>There is no discrimination</li> </ul>	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil

			policy on women employment.			
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	a) Women by virtue look after the household and Children and the male counterpart are fully devoted to Aquaculture activities. b) As mentioned earlier, the farm is by and large family owned activity and hardly there is any labour employed. c) Few labours employed are the locals and belong to the same ethnic group and there is no scope of any ethnic differentiation on wages.	Nil	Nil	Nil
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	1) Training on health & Safety practices (First aid related) to be imparted to farmers and workers from local primary health centres 2) First aid kit with requisite emergency medicines to be placed at the farm site. 3) Safety equipments like fire extinguisher to be positioned at the farm site.	a) No formal training imparted but oral instructions b) Hardly any safety equipment is provided for use	1,23,000 {i) First aid kit 500 * 38 (farmers) = 19,000 ii) First aid training 2days = 2* 6000 = 12000 iii) Training on rescue operations = 2 days = 2 * 6000 = 12,000 } iv) Safety equipments- fire extinguishers, Mega phone, rain coats at least in 4 locations = 80,000}	2,733	2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}

4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	1) Water proof Aerator cables are to used in Aquaculture pond 2) Night watchmen to be provided with gum boots together with torch light 3) a pair of life jacket	Common accidents being : a) Snake bites b) Short circuit in aerator cables and no person under the age 18 are involved with such accidents	50,000 (for 12 pairs of Gum boots+ 4 life jackets)	1111	one week
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	1) Farmers being the owner & worker and Employees of few farmers need insurance cover against accidents at the work place 2) There are good number of Insurance companies operating in India in this regard.		67,000 {57,000 = Insurance annual premium of INR 1500 for one year per worker for 38 persons; Miscellaneous - Application, Registration, Medical check up, Documentation expenses = 10,000}	1489	One month {to complete all formalities and documentation}

4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	<p><b>a) Payment as per the norms of the locality</b>  b) Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.  c) The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)  d) Besides they are paid incentive after harvest depending on the production  e) It is a matter of fact that the shrimp pond workers are relatively paid higher than Agriculture labours.</p>	Nil	Nil	Nil
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	<p>a) Ponds are managed by and large by Family members and hardly there will be employees :  b) The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration  c) Discrepancies if any in Terms of Employment are mutually discussed with the farmer (employer) and gets sorted out amicably all in oral terms.</p>	Nil	Nil	Nil
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	<p><b>a) Such incidences are rare</b>  b) Workers being family members , made to realise the mistake and instructed</p>	Nil	Nil	Nil

4.7.2 Evidence of abusive disciplinary policies and procedures	None		not to repeat the same	Nil	Nil	Nil
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labours and the employer. Further at the end of the crop, labours are paid incentive as per the production in recognition of their hard work.	Nil	Nil	Nil
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	The terms of Reference of Employment outlining the obligations of both Employee and Employer to be drafted in detail in local language and contents to be explained to the employee in presence of village Panchayat President and local Fishery officials, signed by mutual parties endorsing the acceptance and copy of the same is retained by both employer and Employee	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal (terms and conditions) contract.	Covered in 3.4.1	Covered in 3.4.1	Covered in 3.4.1

4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	1) Members of the Aqua Society to assemble in full attendance for a review meeting at the end of every crop (irrespective of the production status) to discuss the following: a) Technical : culture related, production oriented issues, possible solutions to problems, b) Labour : Terms of reference of contract, limitations if any and suggestions to overcome limitations, Wage structures, production incentives etc., 2) All such deliberations are to be properly minuted, Signed by all the participants	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis. Discrepancies if any are discussed and sorted out amicably all in verbal terms.	15,000 { Meeting Expenses }	333	The meeting is for half a day and 15 days prior notice to be given to all participants
Principle 5: Manage shrimp health in a responsible manner						
<b>Indicator</b>	<b>Standards</b>					

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<p>1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative.</p> <p>2) Shrimp PL is another source of harbouring pathogen carrier therefore seed stocked should be free of pathogens ( PCR tested for White spot virus)</p> <p>3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be prevented by crab fencing</p> <p>4) Birds pick up the infected shrimp from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>a) The land holdings of the farmers of these societies are very small ( one or two ponds with area &lt; 1 Ha) and they can not afford to have reservoirs for water treatment. Therefore group of farmers joining together to have few ponds as reservoir is the possibility.</p> <p>b) Thus the farmers can be made in to 3 groups with 4 ponds to be sacrificed for reservoir, to facilitate disinfection of source water.</p> <p>c) Further this will require altering the feeder canal enabling the water from reservoir to reach all the ponds that is intended for.</p> <p>d) This kind of arrangement has to be done for the 3 (Groups) sets ponds.</p> <p>e) The farmers who had given their 4 ponds for reservoir has to compensated every year accordingly</p> <p>f) This is likely reduce the crop production owing to reduction in area of operation.</p> <p>g) The steps c) to f) will have economic implication</p> <p><b>h) Installation of crab fencing and bird net would provide additional measures towards disease control and therefore recommended.</b></p> <p>i) Farmers of these societies do not have formal</p>	<p>Total cost = 53,04,000</p> <p>1) cost / compensation on Reservoir conversion = 44,00,000 { 30% of area ,i.e., 10 Ha ; Production 1600 Kg / year ; Rate Rs.275 /Kg; Feeder canal modification ( lumpsum) = 6,00,000} Total= 50,00,000</p> <p>2) Crab Fencing = 1,00,000 (@ Rs.15 /m for 6667m)</p> <p>3) Bird net -covering all the pond of the entire farm = 2,04,000 (@ Rs.6000 / Ha for 34 Ha)</p> <p>4) Coordinator &amp; Test Kits = covered in 1.1.4</p>	<p>Total cost = 1,17,867</p> <p>1) Reservoir 1,11,111</p> <p>2) Crab fencing 2222</p> <p>3) Bird Netting 4533</p> <p>4) Coordinator &amp; Test Kits = Already covered in 1.1.4</p>	<p>Nil</p>
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			<p>education however operate the ponds on their own with traditional beliefs.</p> <p>j) <b>Provision of a Society coordinator (semi skilled Technical person) besides test kits for measurement of Hydrographical parameters would enable farmers to exercise greater control on culture operation and hence recommended.</b></p>		
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5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 $\mu$ m	1) 250 $\mu$ m The mesh bag to be installed (preferably at the pond inlets) 2) Bigger meshes at the sump (pumping station)		1,36,800 { 72 ponds ; 2 mesh bags per pond /crop ; material plus stitching - Rs.950 per bag}	3,040	2 weeks (Procurement of material + stitching of mesh bags)
5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The Society must be quipped with test kits for measurement of hydrographical parameters b) Society coordinators to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, p <sup>H</sup> to be checked on regular basis		Cost already covered in 1.1.4	Cost already covered in 1.1.4	Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7					Nil
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil

5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<p>1) Presently normal seeds of P.monodon sourced from hatcheries are stocked.</p> <p>2) SPF monodon seeds are available in market but for a higher price and booking to be done well in advance</p> <p>3) Further there is possibility of procuring SPF P.vannamei seeds as few hatcheries in India have obtained licence for the production of P.vannamei PLs.</p>	<p>a) SPF monodon seeds are relatively costly ( Rs.700 per 1000 PL) in relation to normal monodon seeds (Rs.250 per 1000 PL) and for the small farmer this difference in price is quite significant.</p> <p>b) For culturing P.vannamei a separate permission cum licence has to be obtained from CAA</p> <p>c) The SPF will be more meaningful provided the biosecurity system (like reservoir for treatment of source water) is in place.</p>	Switching over to SPF monodon additional cost = 10,55,250 { Rs.450 /1000PL for 2.34 million of PL}	23,450	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calendar month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identification, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	2,64,000 1) Salary of the staff = 1,20,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 1,44,000 (@ 6000 per month for 1 year, 2 persons)	5867	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) SOP of the Society, governed by the BMPs, prohibits the use of banned antibiotics and Chemicals. (MPEDA has notified the list of banned antibiotics & Chemicals for Aquaculture use) 2) Further prior to harvest pond reared shrimps have to be tested by MPEDA managed Laboratory through ELISA for the residue of antibiotics and Chemicals and shrimps with free of antibiotic residues only will be bought by the processor	Nil {ELISA Test for the detection of Antibiotic Residue is mandatory ; currently undertaken prior to harvest}	Nil	Nil

5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The Society coordinator will be able to make the documents listing all chemicals stocked at farm site and the usage of the same in ponds.	This requires the services of a society coordinator who need to be appointed.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.		Total = 49,000 a) Training on Chemicals usgae : One day training for 38 farmers @ 9000 per day b) Sign Boards @ 500 X 80 boards = 40,000	1,089	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}

<p>5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.</p>	<p>None</p>	<p>1) Farmers of the Aqua Society do not use pesticides / chemicals for the shrimp culture operation.</p>	<p>a) Water discharged from Shrimp Aquaculture ponds of the society will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary.  b) However treatment of discharge water may be beneficial considering parameters like dissolved oxygen, p<sup>H</sup>, ammonia and total suspended solids, unneuterlised chemicals etc.,  c) Establishment of discharge treatment plant will be prohibitively expensive for small scale farmers as it require thorough alteration on drainage net work besides pond lay out .</p>	<p>Total 13,80,000 Provision for Chemical neuterlisation and maintenance of Hydrographical parameters necessitates establishment of a common discharge water treatment plant covering 2 Ha area. Economic Compensation / conversion involved in of 2 Ha Area in to Treatment plant = 8,80,000 ii) Drainage net work - lumpsum = 5,00,000</p>	<p>30,667</p>	<p>2 months { Work can be taken up after harvest and along with pond preparation work}</p>
<p>5.3.5 Allowance for discharge of all chemicals without previous neutralization</p>	<p>None</p>					

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	1) Water samples to be given to laboratory for analysis of residues of chlorine and pesticides.	a) Pesticides are not being used in Society ponds of small scale Aqua Farmers. b) Further, the farmers do not use bleaching powder for disinfection as they do not have reservoirs. c) However ELISA test is being carried out in shrimps prior to harvest to assess antibiotic residues d) Analysis of Chlorine and pesticides residues in water will be an additional expenses for the small scale farmers.	7000 (for 4 water samples)	156	One week
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) In India, the list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture is yet to be published by competent Authorities.	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
Principle 6: Manage broodstock origin, stock selection and effects of stock management						
<b>Indicator</b>	<b>Standards</b>					

<p>6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.</p>	None	Full compliance	{ Presently P.monodon is the native species that is being widely used for commercial production }	Nil	Nil	Nil
<p>6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population</p>	Yes	Full compliance	<p>a) Presently P.monodon PL is sourced from the hatcheries                      b) Shrimp farmers (@ 2 per society) may be given practical training on the assessment of Shrimp brood stock, seed quality, interpretation of Laboratory test reports (PCR Reports, Microscopic examination of PL etc.), Stress test on Shrimp PL, Packing and Transportation of Shrimp PL to farm site, Acclimatisation of Shrimp PL etc.,</p> <p>c) In addition, positioning of society coordinator who would be in hatchery (for a phase of 30 days or so.) during the larval phase to monitor the operations and</p>	<p>83,000 { Training expenses for 4 farmers at hatchery as recommended by MPEDA) 2) 3000 {Expenses incurred for the Field Supervisor to stay in hatchery and to monitor hatchery phase (brood stock to PL )}</p>	1844	Training to farmers will be of one month duration

			record all relevant data			
6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	Farmers of this society presently stock the native species ,namely P.monodon. It is worth mentioning that for P.vannamei,SPF PL seeds are available and are produced in India by few reputed hatcheries which has obtained licence from National Authorities (CAA) in this regard.	Nil	Nil	Nil

6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	SPF P.monodon seeds are available in India at a relatively higher cost (Rs.700 per 1000 PL as against the price of Rs.250 per 1000 PL for normal seeds). The farmers of Aqua Society prefer normal P.monodon seed owing to a) Higher cost of SPF PL b) Limited availability of P.monodon SPF PL c) Limited biosecurity measures available at the farm	Switching over to SPF monodon additional cost covered under 5.1.6.	Switching over to SPF monodon additional cost covered under 5.1.6.	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	a) P.monodon brood stocks are wild caught at present owing to difficulty in maturation of pond reared P.monodon b) Studies to be initiated at Research Institutes like CIBA, CMFRI on domestication of P.monodon brood stock. c) This activity can also be encouraged by private bodies under Government support and Supervision.	20,00,000 {Initial budget for obtaining farm raised brood stock for P.monodon - Study may be taken up in MPEDA owned Hatcheries at Vizag / Gopalpur }	44,445	Project period = 2 years
6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	a) Fishery management plan prohibits collection of wild broodstock during spawning months (May - July)	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	Usage of wild caught PL is banned as per the SOP of the Society	Nil	Nil	Nil

6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) Candidate species of this society is P.monodon which is native species. Even if there is escape, the impact is insignificant. c) But for non native species (like P.vannamei) escape to Natural Habitat is a matter of concern.	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	a) Pond dike has about 30 cm free board and PVC pipes may be provided as overflow pipes in many places to drain of excess water especially during heavy rains and floods to prevent breaching	Nil	Nil	Nil
C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	a) Regular inspection being done by farmers themselves but recording is not done b) Provision of Society Coordinator would be able to fulfil the requirement of documentation	Field Supervisor salary coverd in 1.1.4	Field Supervisor salary coverd in 1.1.4	Covered in 1.1.4

D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	a) Regular repairs especially after every heavy rain is done b) Further every year prior to commencement of summer crop, sloping and compaction of embankments is done c) Repair details could be well documented by positioning the Society co-ordinator.	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) any escape through the mesh will be trapped inbetween mesh and wooden shutter c) Further at the collar of the humepipe on the drainage side, a mesh bag is also tied to trap the escape if any through outlet. d) Steps (a), (b) and (c) are done as routine procedures and documentation of any escape could be done by the society coordinator.	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	a) Mesh Shutter b) Wooden Shutter c) Mesh bag tied to the collar of hume pipe on the drain side	Nil { Already existing }	Nil {Already existing}	Nil

G. Evidence of escape recovery protocols	Yes	Full compliance	<p>a) With all the above said arrangements like mesh, wodden shutters, mesh bags at the collar of hume pipe etc., the possibility of escape is very much limited.</p> <p>b) However escapes if any trapped in between mesh and wooden shutter may be alive for few days only unless it is noticed and taken, thoroughly examined; based on the same to be put back in to pond itself or to be burried else where.</p> <p>c) For the escapes trapped in mesh bag, the chances of it being alive is very limited and has to be taken and burried.</p> <p>d) The small scale farmer will certainly inspect the inlet every day on routine basis to observe such things if any and would take action as deem fit.</p>	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil

6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	a) The mesh, wooden shutters and the mesh bags tied at the outer collar of hume pipe of the outlet ate the tools employed to prevent escapes. b) Society coordinator to document the data on escaped after hearing from the farmer on daily routine inspection c) Over a period of a crop (4 to 5 months) the documentation would reveal the evidence of escape if any with quantification. d) Accordingly if any escapes, then the tools need to be checked for their efficiency, repair/ replacement to be done enabling preventing escapes.	Nil	Nil	Nil
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance		Nil	Nil	Nil
Principle 7: Use resources in an environmentally efficient and responsible manner						
<b>Indicator</b>	<b>Standards</b>					
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability		a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	6 Months { To form a committee consisting og Feed Mill owners representatives and Government officials and to come out with plan of action}

7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is believed that the feed ingredients comply to this.	a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	1 Month { For the committee to notify full compliance)
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 Month { For the committee to impose regulation on all Shrimp feed mills}
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	Full compliance	a) The local Government Agencies through the capture fisheries statics need to make a list of depleted / over fished fisheries b) The feed manufactures need to provide the type of fish meal used for the manufacture of feed mentioning the source of procurement c) The Local Government Agency need to advise the Feed Manufacturers accordingly.	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}

7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	Full compliance	a) The local Government Agency need to impose the regulation on the Feed Manufacturers that fish meal or fish oil that are used for the manufacture of shrimp feed are not from fishes that are Near Threatened Vulnerable Endangered, and Critically Endangered	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes		a) Local Government Agencies to have colloboration with National Fisheries Research Institutes (CMFRI) which makes Fisheries Resources Assessment annually b) This can be reviewd by peer committee constituted with representatives from Fishery Survey of India, Government Agencies, Feed Mill Manufactures association etc.,	5,00,000	11,111	2 months for the constitution of Committee comprising of Government officials and 2 Years to study and come out with recommendation
7.1.1d Demonstrate consideration for species interaction issues						
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers b) List of ingredients of non - marine source to be identified and discussed	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 month { For the Feed manufacturers to comply this and print on the feed bag the requisite information}
In the interim period, the following indicators and standards apply for compliance with 7.2.1:						
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	Full Compliance	a) The local Government Agencies and National Authorities should have discussions with the Feed Manufacturers Association b) Accordingly this clause must be imposed on the Feed Manufacturers' Association	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.1b Chemical and Pesticide Use in agriculture						

7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	Full compliance	a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other		a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannamei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures should clearly mention the quantity (in terms of % ) of fish meal used in the manufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then $FFER = ( 15 * 2 ) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}
7.5.2 Economic Feed Conversion Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance {To be below 1: 2}	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 ( Average 1: 1.6)</li> </ul>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 1600 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.5, the <b>Nitrogen released = 15.51 kg / Tons of Shrimp production</b>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 1600 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.5, the <b>Phosphorous released = 3.73 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Phosphorous in Feed }
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the discharge water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Field Supervisor to be appointed for carrying out this measurement c) Farmers' Group to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved oxygen. pH, ammonia etc.,)	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data perataining to 1) Energy consumption by the facilities installed to	a) Presently 70% of the farmers have elctricity connection and 30% of farmers depend on diesel as	1) Cost of Field Supervisor covered in 1.1.4 2) Estimation for	15,556	Electrification will take 2 months

7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes	be documented regularly by the Society coordinator and based on which 2) Annual Energy Consumption per tonne of Shrimp production be computed by the Society coordinator.	the fuel for generation of power used both in water pumping and in aeration. b) As Diesel geretating sets are not that environmental friendly, <b>assistance is sought for electrification.</b> c)Further this exercise will contribute greatly for reduction of operational cost.	getting Electric current to site = 7,00,000 (The subsidy / concession available from National Authorities for Electrification is not considered in the estimate)		
7.8.1 Percentage of combustibles contained in bunds	100%		Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement	Nil	Nil	Nil
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%		Chemicals (used for water application & feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site as per the requirement on that day.	Nil	Nil	Nil
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used , waste lubricants are sold to the specific buyers b) care is taken not to spill and to throw the waste in farm site causing concern on pollution	Nil	Nil	Nil
7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil

7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are burnt in the farm site	2000 ( Wages for burning and after clean up per crop)	45	3 days ( Arranging the waste, Burning and after clean up each one day )
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants b) Few feed bags are used as sand bags and placed on the embankment for protection measures. c) the ploythene bags and plastic cantainers of chemicals, probiotics to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	21,063,195	468,071	

### Karlapalem Farmer group

Indicator	Standards	Requirements towards compliance		Cost		Time Schedule
		Action	Remarks	INR (Rupees)	US\$ {1US \$ = INR 45}	
Principle 1: Comply with all applicable national laws and local regulations						
1.1.1 Documents proving compliance with local and national authorities are available (e.g., permits, evidence of lease, concessions and rights to land and/or water use)	YES	NIL	Farmers of the Aqua Group are Registered with local and National level Authorities and have requisite permission / licence to carry out Shrimp Aquaculture	Nil	Nil	Nil

1.1.2 Documents proving compliance with all tax requirements	YES	Nil	The aquafarmers are paying tax annually	Nil	Nil	Nil
1.1.3 Documents proving compliance with all labor laws and regulations	YES	<p>1) In this Farmers' Group every farmer is the owner cum worker themselves.</p> <p>2) There is no labour employed.</p> <p>3) As per the Labour Department notification hiring labours for Aquaculture by the individual farmer is akin to hiring labours for Agriculture operations and this will not come under the Labour Department purview; However, if the employment is provided by Registered firm (in this case the Farmers Group to be a registered body and employment to be made by the Registered body and not by individual farmers) then this employment will come under the purview of Labour Department.</p>	<p>a) In this Farmers' Group every farmer is the owner cum worker themselves.</p> <p>b) There is no worker employed by the farmers.</p> <p>c) Documents in support of compliance to labour laws and regulations are to be generated.</p>			

<p>1.1.4 Documents proving compliance with discharge regulations or permits</p>	<p>YES</p>	<p>1) Aqua Societies to be equipped with requisite field test kits for the measurement of hydrographical parameters (Salinity, Dissolved oxygen, pH, Ammonia, Aklalinity etc.,  2) For measurement of Parameters like Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) samples have to be sent to the laboratory adjacent  3) Semi Skilled Technical person (also called as Field Supervisor) has to be employed to look after the measurement of hydrographical parameters and recording the same accordingly in prescribed Pond data Register.</p>	<p>a) Coastal Aquaculture Authority (CAA) is the National Agency that issues permits to practice Aquaculture  b) The effluent discharge regulations is under the perview of State Pollution control board.  c) The parameters to be considered in effluent discharge being Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS)</p>	<p>Total = 1,62,000 per year  1) Salary for Field Supervisor @ 8,500 per month for 12 months = 1,02,000  2) Test Kits (lump sump) = 60,000 ( for 2 crops)</p>	<p>3,600 { i)  Field Supervisor salary = 2267 ;  ii) Cost of Test kits = 1333 }</p>	<p>1 month ( to identify and appoint a Field Supervisor &amp; procument of requisite test kits)</p>
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1.1.5 Only therapeutants and chemical (e.g. chemicals, drugs, pesticides and probiotics etc.) authorized by national authorities and used in accordance to this standard are used	YES	1) National Authorities like MPEDA, CAA in collaboration with Research Institutes like CIBA to be requested to come with a list (and standard) of Therapeutants & Chemicals recommended for Aquaculture use 2) This calls for Registration of manufacturers of Aqua Chemicals under National Authorities and seeking licence towards manufacture and marketing of the same	a) MPEDA (Marine Products Export Development Authority) has issued a list of chemicals and antibiotics banned for Aquaculture use. b) This Farmers Group do not use any banned Chemicals / Antibiotics for Aquaculture c) In India, as of now there is no authorised list of therapeutants & Chemicals for Aquaculture notified /declared by National Authorities.			6 months
Principle :2 Site farms in environmentally suitable locations while conserving biodiversity and important Natural habitats						
<b>Indicator</b>	<b>Standards</b>					
2.1.1 Allowance for siting in National Protected Areas (PAs)	None, except for those with IUCN PA category V or VI	Nil	The Shrimp ponds of the Farmers' Group is not in National Protected Areas	Nil	Nil	

2.1.2 Allowance for siting in mangrove ecosystems	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent area.	Nil	The Shrimp ponds of the Farmers' Group is not in Mangrove ecosystems	Nil	Nil	
2.1.3 Allowance for siting in natural wetlands.	None, except in areas needed for pumping stations and canals with appropriate offsetting via restoration of 100% of equivalent wetlands area and characteristics.	Nil	The Shrimp ponds of the Farmers' Group is not in Natural Wetlands	Nil	Nil	

2.1.4 Allowance for siting in habitats of species listed by the IUCN Red List.	BEIA (2.1.9-2.1.11) must identify critical habitat for all species present on farms listed as threatened, vulnerable, endangered or critically endangered. Farms protect areas of species.	1) The carrying out of BEIA may be entrusted with a committee consisting of expertise drawn from National Research Institutes like i) CIBA (Central Institute of Brackishwater Aquaculture) ii) NEERI (National Environmental Engineering Research Institute) ; National Agencies like iii) CAA iv) MPEDA and v) State Pollution Control board to a) Identify threatened, vulnerable, endangered species b) To recommend measures of protection of the same	As of now there is no BEIA carried out despite of Aquaculture being practiced at the farm site since 15 years ( with both Aquaculture and Agriculture operations coexisting with each other).	10,00,000	22,222	16 months {i) 3 months towards formation of committee ii) 12 months to carry out the study and iii) 1 month towards compilation of data and preparation of Document}
2.1.5 Allowance for siting in critical habitats of species at risk as defined by national listing processes.	None	1) Carrying out of BEIA studies by National Agencies (CIBA, NEERI, MPEDA, CAA, Pollution Control Board etc., )	The above mentioned BEIA studies to also cover to mention the species at risk with respect to farm siting and measures to be taken accordingly	Covered by 2.1.4	Covered by 2.1.4	Covered by 2.1.4

2.1.6 Minimum width and density of buffer zone between farm boundary and closest (exposed coast) maximum high tide line	>/=100m, with tree density >/=30 trees *100 m-2	Nil	a) The farm is creek based (Buchingham canal ; which experiences tidal influence being the water source for the farm). b) The ponds are 1 KM away from the Bay of Bengal and is not exposed to the coast directly.	Nil	Nil	Nil
2.1.7 Minimum width and characteristics of riparian buffers between farms and natural waterways	100 m each side for adjacent natural water bodies, 25 m each side for confined watercourses.	Nil	a) The farm is creek based Buchingham canal which has tidal influence which experiences tidal influence being the water source for the farm. b) The distance between the farm boundary and that of the Natural Water Source (i.e., Buchingham canal ) being more than 100m	Nil	Nil	Nil
2.1.8 Size of corridors on farms	Size determined by EIA and must traverse the farm in a minimum of 2 perpendicular directions					
2.1.9 Presence and content of a BEIA statement.	BEIA statement in accordance with guidance document framework	A team to be constituted comprising of experts from MPEDA, CIBA and NEERI in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with	As of now there is no BEIA carried out	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

		guidance document frame work				
2.1.10 Accreditation of the BEIA assessment team	BEIA carried out by accredited national body in accordance with national legislation	A team to be constituted comprising of experts from MPEDA, CIBA, Pollution Control Board, Central Ground water Board and NEERI in the fields of Aquaculture, Engineering, Social and Economics to carry out the BEIA study in accordance with guidance document frame work	MPEDA, CIBA, CAA and NEERI are the recognised organisations at National level and constituting a committee by drawing faculties from each of the above organization will certainly enable covering all the areas besides getting accreditation by the National Authorities.	Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4

2.1.11 Public availability and transparency of BEIA	BEIA statement and associated management plan published and accessible on company website, local government offices, and with local community representatives in appropriate language	1) BEIA statement to be published on CAA website besides copies made available with local Fishery Officers of State Government, preferably in Telugu version.		Covered under 2.1.4	Covered under 2.1.4	Covered under 2.1.4
2.1.12 Allowance for siting in High Conservation Value	HCVAs maintained	The farm is not located in High Conservation Value Areas	Nil	Nil	Nil	Nil
2.1.13 Scientific conservation planning	Farms provide relevant information (see guidance), at the scale of 10 km to the ASC over 3 years following certification					

2.2.1 Soil texture required for ponds and canals not covered with a plastic liner or other waterproof material	Clay content > 10% and sand content < 70%.	1)To be precise, the soil samples drawn from various points in the farm is to be given to Soil Testing Laboratory (of Agriculture Department located at Ongole ) for determination of clay and sand content	a) The soil has requisite clay as recommended as the wet soil could be made into a ball or snake during field tests. b) However, as the farm covers an area of 19.64 Ha consisting of 45 ponds, the probability of variation of soil composition (clay and sand content in different areas) can not be ruled out.	5,000	111	2 weeks
2.2.2 Allowable water loss in ponds	< 1 cm/day	To reduce the seepage, the following options may be considered: 1) Transporation of clay soil nearby and placing on pond bottom : However as there is no / limitted clay soil available adjacent to farm area, this option is ruledout. 2) To go in for plastic liners preferrably along with embankment slopes which has cost implication on small sacle farmers. Besides heavy capital investment in the begining, this needs recurring expenses to maintain and for periodical repairs.	The farmers observation and experience and the field observation made during the study indicate water loss between 5 to 10 cm /day in ponds of various locations within the farm.	43,65,000 {HDPE lining (Cost of the material plus fixing/ laying) on the slopes of the embankment pond sides and 4 sides @2,25,000 per Ha for 19.4Ha }	97,000	2 months

2.2.3 Allowance for the use of fresh groundwater for diluting salinity in pond	None	NIL	a) The Farmers Group by principle, prohibit usage of underground fresh water for Aquaculture use b) Moreover, there is no underground fresh water available in the near vicinity of the farm site. The Farmers village namely Karlapallem gets fresh water through pipe from Chevur which is 2 Km away from the village.	Nil	Nil	Nil
2.2.4 Water-specific conductance or chloride concentration in adjacent freshwater wells and surface freshwater bodies	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Water / Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	a) There is neither fresh water (drinking water) well nor surface water bodies close to the farm site b) Small farmers do not have the requisite equipment to measure the specific conductance and would need specific expertise in this regard.	15,000	333	2 to 3 weeks
2.2.5 Soil-specific conductance or chloride concentration in adjacent land ecosystems and agricultural fields	Specific conductance <1,500 µmhos/cm or chloride concentration <300 mg/L	1) Soil testing Labarotary attached to Agriculture Department to be contacted to carry out this test.	This study is yet to be carried out. a) There is very limited Agriculture activity There is very little Agriculture activity practiced and the Agriculture fields are 1.0 Km away from the Eastern boundary of the farm site(sandy area) ; Therefore possibily of saline intrusion in very much limited. c) Agriculture & Aqua culture is co - existing here for the last 15 years.	covered under 2.2.4	covered under 2.2.4	

<p>2.2.6 Dimensions of sediment containment area</p>	<p>0.75m-high embankments and at least 0.375m-high of storage volume available for rainfall</p>	<p>Nil</p>	<p>a) No sedimentation tank.  b) There is very little Agriculture activity practiced and the Agriculture fields are 1.0 Km away from the Eastern boundary of the farm site.  c) There is limited or very less accumulation of sediments in small scale shrimp culture operations.  d) After the harvest and subsequent drying, the black soil from pond bottom is scrapped and put on embankment for sundrying thus releasing Hydrogen Sulphide.</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
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<p>2.2.7 Specific conductance or chloride concentration of sediment used as fertilizer</p>	<p>If sediment is to be disposed of in a freshwater zone, specific conductance &lt;1,500 µmhos/cm or chloride concentration &lt;300 mg/L. If sediment is to be disposed of in a saline soil area, the specific conductance or chloride concentration values could equal those of the soil in the disposal area.</p>	<p>1) Soil testing of the a) sediment as well as b) sediment disposal area to be carried out</p>	<p>The limited accumulated black soil (from pond bottom) is scrapped and evenly spread over on embankments as thin layer for sundrying towards effective release of obnoxious gases trapped in the soil.</p>	<p>2000</p>	<p>45</p>	<p>2 weeks</p>
<p>2.3.1 Side slope of open canals</p>	<p>&gt; 3:1 for a loose clay or sandy loam, &gt; 1.5:1 for stiff clay. 0.5:1 to 1:1 is acceptable with lining.</p>	<p>1) There is no feeder canal. Water from Buchigham Canal is taken either through PVC / rubber pipes straight to ponds</p>		<p>Nil</p>	<p>Nil</p>	<p>Nil</p>

2.3.2 Bottom slope, total depth, width at the bottom, width of the water surface and top width of open canals	Calculated such as the flow velocity in the canal is not higher than maximum permissible velocity					
2.3.3 Presence of a freeboard on open canals	Yes					
2.3.4 Presence of lining in vulnerable reaches, such as bends, steep slopes, changes in width, reaches with unstable soil, and junctions to control erosion and scouring in open canals	Yes					
2.3.5 Side slope of pond banks	>3:1 for clayey soils, 2:1 or even 1:1 is acceptable for well-graded soils, especially on the dry side	Nil	Peripheral embankments have slope 3:1 and the cross embankments have 2:1 slope	Nil	Nil	Nil
2.3.6 Freeboard of pond banks after settlement	> 30cm	Nil	Pond embankments has free board of 30cm	Nil	Nil	Nil

2.3.7 Top width of pond banks	> 2m	Compliance	<p>a) Presently the peripheral embankments have 2 m top width while top width of cross bunds between 2 ponds is 1 m</p> <p>b) Hardly there is any soil available nearby to increase the width of the bund</p> <p>c) Therefore soil has to be transported elsewhere (lead &amp; Lift)</p>	2,32,800 { 1 tractor will handle 1 Ha in a day with a cost of INR 6000: lead & lift INR 6000 is extra : Thus totalling to INR 12000 / Ha for 19.4 Ha} soil has to be transported far way as there is no native soil available in or adjacent to the farm.	5,173	4 to 6 weeks { Work to be taken after harvest and during pond drying }
2.3.8 Siting of farms in relation to natural waterways in the immediate farm area.	Construction of shrimp farm must not alter hydrological conditions of the area.	Nil	Farmers' Group ponds are not located in Natural water ways	Nil	Nil	Nil
Principle 3: Develop and operate farms with consideration for surrounding communities						
<b>Indicator</b>	<b>Standards</b>					

<p>3.1.1 Farm owners shall commission or undertake a participatory Social Impact Assessment (p-SIA) and disseminate results and outcome openly in locally appropriate language. Local government and at least one civil society organization chosen by community shall have a copy of this document.</p>	<p>Full compliance. The p-SIA process and document comply to guidelines given below. The participatory element (community input) is an integral part of the report.</p>	<p>Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments and Village Panchayat leaders, Traditional leaders, Community Based Organisation (CBO) by interviewing the villagers.</p>	<p>a) Aquaculture by the Farmers Group is a small scale operation and by and large like a family owned operations carried out by the village community in consensus.  b) Farmers belong to various communities but get along well with each other  c) The aquaculture has been carried out since fifteen years and there is hardly any social issues.  d) Therefore the need to carry out Social Impact Assessment has not been felt.  e) Participatory Social Impact Assessment (p-SIA) has to be carried out through the local Authorities by constituting a team comprising of officials from Social Welfare and Fisheries Departments by interviewing the villagers on the benefits and limitations of Shrimp Aquaculture on the Society.</p>	<p>1,00,000</p>	<p>2222</p>	<p>2 to 3 months  {i) Formation of committee = 1 month;  ii) Study - interviewing villagers = 1 month;  iii) Compilation and preparation of report = 15 days}</p>
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<p>3.2.1 Farm owners shall draft and apply a verifiable conflict resolution policy for local communities. The policy shall state how conflicts and complaints will be tracked transparently and explain how to respond to all received complaints. Complaint boxes, complaint registers, and complaint acknowledgement receipts (in local language(s)) are used.</p>	<p>Areas of conflict or dispute are listed on paper and shared among farm, local government, and surrounding community representatives. At least 50 percent of the conflicts shall be resolved within six months from the date of being filed, and an additional 50% six months later (75% total within one year).</p>	<p>Provision to be made to register complaints with the local Panchayat (Government) office. The p-SIA committee to meet periodically (once in 3 months) to address the complaints in consultation with the surrounding community representatives.</p>		<p>12000 { Payment of fees to local Panchayat office per annum }</p>	<p>267</p>	
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<p>3.3.1 Farms shall purposely seek to employ people from surrounding villages before turning to migrant and/or distant workers</p>	<p>Farm owners shall document evidence of advertising positions within local communities before hiring migrant workers</p>	<p>Farmers'Group may notify the labour requirement  1) in Panchayat office of the village enabling priority to local labours besides  2) inform the village as local panchayat announcement through the authorised Panchayat personnel (SAMMIDI / PILLA)</p>	<p>a) Mostly family members are engaged in the work  b) In case of additional labours are needed (example while stocking or harvesting etc.,) members of the adjacent ponds assist.  c) Few farmers engage labours from nearby villages (Karlalalem, Salipeta etc.,) for the entire duration of crop (4-5 months ); These labours stay at the farm site itself throughout to carry out day to day activities of the farm {feeding, check tray observation, application (lime, probiotics etc.,), water exchange, water filling}  d) Migrant / distant workers are not encouraged owing to anonymity</p>	<p>2,500</p>	<p>56</p>	<p>One week</p>
<p>3.4.1 The contracts are on paper in appropriate language and co-signed copies are in the hands of both parties</p>	<p>100% compliance</p>	<p>1) The contract to be drafted both in English and local language  2 ) The terms of reference of contract explained in detail to the labour verbally in presence of Employer farmer, Village President and preferably local Fishery officer  3) Signed by both</p>	<p>a) The work contract to be drafted in local language  b) Meeting to be arranged inviting Panchayat President and Local Fishery officer</p>	<p>2000</p>	<p>45</p>	<p>One week</p>

<p>3.4.2 The contracts include basic provisions (see guidance section for information about basic provisions) that ensure the full implication of the agreement is mutually understood</p>	<p>100% compliance</p>	<p>parties employer &amp; Employee in presence of Village Panchayat President and preferably with local Fishery Officials enabling both (Employee and the Employer to be clear on their respective commitments )</p>		<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
<p>3.4.3 There are recorded meetings between the purchaser and the contract farmers to discuss and/or negotiate in open and transparent fashion</p>	<p>Meetings are held at least twice/year Meetings with farm-groups or cooperatives have been attended by at least 50% of the membership.</p>	<p>1) Meeting on "Planning of Harvest" to be organised by the Farmers'Group making attendance of members of Aqua Society compulsory.  2) This meeting to be organised at least one month prior to harvest  3) Representatives of the Exporters to be invited to the meeting to discuss on the possible dates of harvests, quantity of Shrimp to be harvested, size (count) and to arrive at the price accordingly.  4) All the deliberations to be properly recorded and the minutes of</p>		<p>7,000 (Meeting expenses)</p>	<p>156</p>	<p>Prior Notice needed for the meeting 15 days</p>

		the meeting to be signed by all participants.				
Principle 4: Operate farms with responsible labor practices						
Indicator	Standards					
4.1.1 Number of incidences of child labor in violation of ILO Convention 138 and/or ILO Convention 182, with the additional exception that any child working on the farm must be 15 years of age or older	None	Nil	No deployment of Child labour in the Farm site	Nil	Nil	Nil
4.2.1 Number of incidences of forced, bonded or compulsory labor	None	Nil	No forced, bonded or compulsory labour deployed in the farm site	Nil	Nil	Nil
4.3.1 Evidence of proactive anti-discrimination policy	Yes	Compliance	<ul style="list-style-type: none"> <li>In this area women by Nature are not employed in Aquaculture ponds.</li> <li>There is no discrimination policy on women</li> </ul>	Nil	Nil	Nil
4.3.2 Number of incidences of discrimination	None			Nil	Nil	Nil

			employment.			
4.3.3 Women and men receive equal pay for equal work. Different ethnic groups receive equal pay for equal work	100% compliance	100 % compliance	a) Women by virtue look after the household and Children and the male counterpart are fully devoted to Aquaculture activities. b) As mentioned earlier, the farm is by and large family owned activity and hardly there is any labour employed. c) Few labours employed are the locals and belong to the same ethnic group and there is no scope of any ethenic differentiation on wages.	Nil	Nil	Nil
4.4.1 Percentage of workers trained in health and safety practices, procedures and policies. Safety equipment provided and in use. Evidence that all farm employees have been trained and fully understand the training.	100% in operations above five employees and safety equipment in use by workers.	1) Training on health & Safety practices (First aid related) to be imparted to farmers and workers from local primary health centres 2) First aid kit with requisite emergency medicines to be placed at the farm site. 3) Safety equipments like fire extinguisher to be positioned at the farm site.	a) No formal training imparted but oral instructions b) Hardly any safety equipment is provided for use	78000 {i) First aid kit 500 * 28 (Farmers) = 14,000 ii) First aid training 2days = 2* 6000 = 12000 iii) Training on rescue operations = 2 days = 2 * 6000 = 12,000 } iv) Safety equipments- fire extinguishers, Mega phone, rain coats at least in 2 locations = 40,000}	1733	2 to 3 Weeks { 2 weeks for the training and 1 week for positioning requisite equipments}

4.4.2 Occurrences of health- and safety- related accidents and violations recorded and corrective actions taken. No persons under 18 involved in accidents	100%	1) Water proof Aerator cables are to used in Aquaculture pond 2) Night watchmen to be provided with gum boots together with torch light	Common accidents being : a) Snake bites b) Short circuit in aerator cables and no person under the age 18 are involved with such accidents	30000 (for 10 pairs of Gum boots + life jackets 2 numbers)	667	one week
4.4.3 Employer responsibility and proof of insurance (accident/ injury) for employee costs in a job-related accident or injury when not covered under national law	100%	1) Farmers need to insure their employees against accidents at the work place 2) There are good number of Insurance companies operating in India in this regard.		50,000 { 42,000 = Insurance annual premium of INR1500 for one year per worker for 28 persons ; Miscellaneous - Application, Registration, Medical check up, Documentation expenses = 8000}	1111	One month {to complete all formalities and documentation}

4.5.1 The percentage of employees who are paid basic needs / living wages or legal minimum wage (whichever is highest)	100%	100% compliance	<p><b>a) Payment as per the norms of the locality</b></p> <p>b) Ponds are managed by and large by Family members; However few farmers hire labours from neighbouring villages.</p> <p>c) The hired labours (for the crop basis) are paid at par with the industry terms on mutual agreement (oral basis &amp; no written contracts)</p> <p>d) Besides they are paid incentive after harvest depending on the production</p> <p>e) It is a matter of fact that the shrimp pond workers are relatively paid higher than Agriculture labours.</p>	Nil	Nil	Nil
4.6.1 The percentage of employees with access to trade unions, self organization, and ability to bargain collectively or worker access to representative(s) chosen by workers without management interference	100%	100% compliance	<p>a) Ponds are managed by and large by Family members and hardly there will be employees :</p> <p>b) The hired labours (for the crop basis) is based on mutual understanding (on oral terms) of remuneration</p> <p>c) Discrepancies if any in Terms of Employment are mutually discussed with the farmer (employer) and gets sorted out amicably all in oral terms.</p>	Nil	Nil	Nil
4.7.1 Incidences of physically or mentally abusive disciplinary actions	None	None	<p><b>a) Such incidences are rare</b></p> <p>b) Workers being family members , made to realise the mistake and instructed</p>	Nil	Nil	Nil

4.7.2 Evidence of abusive disciplinary policies and procedures	None		not to repeat the same	Nil	Nil	Nil
4.8.1 Incidences, violations, abuse of working hours, and overtime laws/ expectations	None	None	Aquaculture activities centred on the need of Shrimp and the working hours are fixed accordingly with the mutual understanding of labours and the employer. Further at the end of the crop, labours are paid incentive as per the production in recognition of their hard work.	Nil	Nil	Nil
4.9.1 Paper contracts: A complete set of contracts is filed in office, mutually signed, and copies are available with employee. Verbal contracts: Employer and employee cite consistent contract conditions in independent interviews.	100% compliance. Based on paper evidence for farms with five workers or more. Workers cite verbal contract conditions in independent interviews for farms below five workers	The terms of Reference of Employment outlining the obligations of both Employee and Employer to be drafted in detail in local language and contents to be explained to the employee in presence of village Panchayat President and local Fishery officials, signed by mutual parties endorsing the acceptance and copy of the same is retained by both employer and Employee	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis with verbal (terms and conditions) contract.	Covered in 3.4.1	Covered in 3.4.1	Covered in 3.4.1

4.10.1 Management and the full workforce meet at least twice per year on the basis of written agendas and written minutes of the meetings	Evidence of these meetings taking place	1) Members of the Aqua Society to assemble in full attendance for a review meeting at the end of every crop (irrespective of the production status) to discuss the following: a) Technical : culture related, production oriented issues, possible solutions to problems, b) Labour : Terms of reference of contract, limitations if any and suggestions to overcome limitations, Wage structures, production incentives etc., 2) All such deliberations are to be properly minuted, Signed by all the participants	Small scale Aquaculture ponds are managed by and large by family members; Few farmers hire labours from neighbouring villages on crop basis. Discrepancies if any are discussed and sorted out amicably all in verbal terms.	7500 { Meeting Expenses }	167	The meeting is for half a day and 15 days prior notice to be given to all participants
Principle 5: Manage shrimp health in a responsible manner						
<b>Indicator</b>	<b>Standards</b>					

<p>5.1.1 Demonstration of functional and documented preventive tools to prevent:</p> <p>1) Diseases from the surrounding environment entering the farm (predator and vector control),</p> <p>2) Diseases from the farm spreading to the surrounding environment (water filtration/sterilization),</p> <p>3) the spreading of disease within the farm [avoid cross contamination, detect and prevent emerging pathogen (s), and monitor external signs of pathologies and moribund animal]</p>	<p>Yes</p>	<p>1) The main source of entry of pathogen is from source water hence filtration (using mesh bags) and treatment of source water (through disinfection in reservoir) becomes imperative.</p> <p>2) Shrimp PL is another source of harbouring pathogen carrier therefore seed stocked should be free of pathogens ( PCR tested for White spot virus)</p> <p>3) Crab is found to be a carrier of White spot Virus and the entry of the same in to the farm site and ponds to be preventd by crab fencing</p> <p>4) Birds pick up the infected shrimp from one pond and drop into another ponds and thus bird netting is to be installed to avoid cross contamination from one pond to another.</p>	<p>a) The land holdings of the farmers of these societies are very small ( one or two ponds with area &lt; 1 Ha) and they can not afford to have reservoirs for water treatment. Therefore group of farmers joining together to have few ponds as reservoir is the possibility.</p> <p>b) Thus the farmers can be made in to 3 groups with 4 ponds to be sacrificed for reservoir, to facilitate disinfection of source water.</p> <p>c) Further this will require altering the feeder canal enabling the water from reservoir to reach all the ponds that is intended for.</p> <p>d) This kind of arrangement has to be done for the 3 (Groups) sets ponds.</p> <p>e) The farmers who had given their 4 ponds for reservoir has to compensated every year accordingly</p> <p>f) This is likely reduce the crop production owing to reduction in area of operation.</p> <p>g) The steps c) to f) will have economic implication</p> <p><b>h) Installation of crab fencing and bird net would provide additional measures towards disease control and therefore recommended.</b></p> <p>i) Farmers of these societies do not have formal education however operate the ponds on their own with traditional</p>	<p>Total cost = 47,23,090</p> <p>1) cost / compensation on Reservoir conversion = 45,25,000 { 30% of area ,i.e., 6 Ha ; Production 2500 Kg / year ; Rate Rs.275 /Kg; Feeder canal making = 4,00,000}</p> <p>2) Crab Fencing = 80,250 (@ Rs.15 /m for 5350m)</p> <p>3) Bird net -covering all the pond of the entire farm = 1,17,840 (@ Rs.6000 / Ha for 19.64 Ha)</p> <p>4) Coordinator &amp; Test Kits = covered in 1.1.4</p>	<p>Total cost = 1,04,958</p> <p>1) Reservoir 1,00,555</p> <p>2) Crab fencing 1,783</p> <p>3) Bird Netting 2,619</p> <p>4) Coordinator &amp; Test Kits = Already covered in 1.1.4</p>	<p>Nil</p>
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			<p>beliefs.</p> <p>j) <b>Provision of a Society coordinator (semi skilled Technical person) besides test kits for measurement of Hydrographical parameters would enable farmers to exercise greater control on culture operation and hence recommended.</b></p>		
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5.1.2 Presence of net mesh, grills, screens, or barriers on inlets of farm that are appropriately sized to minimize entry of disease vector Or Mesh size for mechanical filtration of supply water	Yes = 250 $\mu$ m	1) 250 $\mu$ m The mesh bag to be installed (preferably at the pond inlets) 2) Bigger meshes at the sump (pumping station)		85,500 { 45 ponds ; 2 mesh bags per pond /crop ; material plus stitching - Rs.950 per bag}	1,900	2 weeks (Procurement of material + stitching of mesh bags)
5.1.3 Three-day average minimum daily dissolved oxygen concentration in pond bottom with measurement recorded one hour before sunrise	> 3ppm	a) The Society must be quipped with test kits for measurement of hydrographical parameters b) Society coordinators to be appointed for measurement of hydrographical parameters c) Parameters like dissolved oxygen, p <sup>H</sup> to be checked on regular basis		Cost already covered in 1.1.4	Cost already covered in 1.1.4	Already covered in 1.1.4
5.1.4 Daily minimum pond water pH	> 7					Nil
5.1.5 Annual average farm survival rate (SR) and relative standard deviation (RSD) in : 1) Unfed and non-aerated ponds 2) Fed but non-aerated ponds 3) Fed and permanently aerated ponds	SR > 50% and RSD < 15% SR > 60% and RSD < 15% SR > 80% and RSD < 15%	Compliance	The ponds are fed and aerated ponds with and the average survival > 80%	Nil	Nil	Nil

5.1.6 % of stocked post larvae (PL) that are SPF or SPR	100%	<p>1) Presently normal seeds of P.monodon sourced from hatcheries are stocked.</p> <p>2) SPF monodon seeds are available in market but for a higher price and booking to be done well in advance</p> <p>3) Further there is possibility of procuring SPF P.vannamei seeds as few hatcheries in India have obtained licence for the production of P.vannamei PLs.</p>	<p>a) SPF monodon seeds are relatively costly ( Rs.700 per 1000 PL) in relation to normal monodon seeds (Rs.250 per 1000 PL) and for the small farmer this difference in price is quite significant.</p> <p>b) For culturing P.vannamei a sepearate permission cum licence has to be obtained from CAA</p> <p>c) The SPF will be more meaningful provided the biosecurity system (like reservoir for treatment of source water) is in place.</p>	Switching over to SPF monodon additional cost = 5,31,000 { Rs.450 /1000PL for 1.18 million of PL}	11,800	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
5.2.1 Allowance for intentional lethal predator control of any protected, threatened or endangered species as defined by the International Union for Conservation of Nature (IUCN) Red List, or national governments or state, local	None	compliance	Measures on lethal control of predators are not practiced.	Nil	Nil	Nil
5.2.2 Allowance for use of lead shot for predator control of non-protected, threatened or endangered species	None	compliance	Lead shot predator control not employed	Nil	Nil	Nil

5.2.3 Establishment of a scientifically substantiated predator monitoring program that documents the frequency of visits, species, and number of animals interacting with the farm	Yes	1) Study to be undertaken for (qualitative & quantitative evaluation) the occurrence of predatory species in the water source in various calendar month of the year for thorough understanding on the subject and to provide grill mesh accordingly at the water intake to avoid the same.	1) This will be a project by itself with a staff to monitor the same, identification, enumeration and data compilation 2) A cast netter and a staff to be appointed for the job for a period of 1 year.	1, 92,000 1) Salary of the staff = 1,20,000 (@ 10,000 per month for 1 year) 2) Fees for the cast netter = 72,000 (@ 6000 per month for 1 year)	4267	1 month towards sourcing and recruitment of staff and engaging cast netter. The Project duration one year covering 2 crops.
5.3.1 Allowance for use of antibiotic and medicated feed on labeled products	None	Full compliance	1) SOP of the Society, governed by the BMPs, prohibits the use of banned antibiotics and Chemicals. (MPEDA has notified the list of banned antibiotics & Chemicals for Aquaculture use) 2) Further prior to harvest pond reared shrimps have to be tested by MPEDA managed Laboratory through ELISA for the residue of antibiotics and Chemicals and shrimps with free of antibiotic residues only will be bought by the processor	Nil {ELISA Test for the detection of Antibiotic Residue is mandatory ; currently undertaken prior to harvest}	Nil	Nil

5.3.2 Presence of records listing all product stocked and used on the farm	Yes	1) The Society coordinator will be able to make the documents listing all chemicals stocked at farm site and the usage of the same in ponds.	This requires the services of a society coordinator who need to be appointed.	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
5.3.3 Evidence proving all chemical product instructions are on the farm and are available to farm workers	Yes	1) Sign boards (written in local language with pictures) on the chemical product instructions ( for example handling of bleaching powder with hand gloves) should be displayed in important places in farm enabling as reminders to workers.	The preparation of sign board involves expenditure	Total = 38000 a) Training on Chemicals usgae : One day training for 28 farmers @ 8000 per day b) Sign Boards @ 500 X 60 boards = 30,000	845	Two weeks { a) Designing of various kinds of sign board = 1 week ; b) Preparation and fixing of the same = 1 week}

<p>5.3.4 Allowance for treating water with pesticides, with the exception of Tea- seed-cake and Rotenone in the absence of shrimp or Allowance for the use and storage on site of pesticides that are banned, restricted or identified as extremely to moderately hazardous by the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs), the World Health Organization (WHO) or the European Commission.</p>	<p>None</p>	<p>1) Farmers of the Aqua Society do not use pesticides / chemicals for the shrimp culture operation.</p>	<p>a) Water discharged from Shrimp Aquaculture ponds of the society will be free of pesticides (as pesticides are not used in culture operation) hence treatment of discharged water towards pesticides may not be necessary.  b) However treatment of discharge water may be beneficial considering parameters like dissolved oxygen, p<sup>H</sup>, ammonia and total suspended solids, unneuterlised chemicals etc.,  c) Establishment of discharge treatment plant will be prohibitively expensive for small scale farmers as it require thorough alteration on drainage net work besides pond lay out .</p>	<p>Total = 9,37,500  Provision for Chemical neuterlisation and maintenance of Hydrographical parameters necessitates establishment of a common discharge water treatment plant covering 1 Ha area. Economic Compensation / conversion involved in of 1 Ha Area in to Treatment plant = 6,87,500 ; Drainage net work lump sum = 2,50,000 )</p>	<p>20,833</p>	<p>2 months  { Work can be taken up after harvest and along with pond prepartion work}</p>
<p>5.3.5 Allowance for discharge of all chemicals without previous neutralization</p>	<p>None</p>					

5.3.6 Pesticide and chlorine residues in pond water when shrimp are present	Not Detectable	1) Water samples to be given to laboratory for analysis of residues of chlorine and pesticides.	a) Pesticides are not being used in Society ponds of small scale Aqua Farmers. b) Further, the farmers do not use bleaching powder for disinfection as they do not have reservoirs. c) However ELISA test is being carried out in shrimps prior to harvest to assess antibiotic residues d) Analysis of Chlorine and pesticides residues in water will be an additional expenses for the small scale farmers.	3500 (for 2 water samples)	78	One week
5.3.7 Allowance of probiotic bacterial strains deemed not harmful by the appropriate competent authorities	Yes	1) Usage of Probiotics (unless declared harmful)	a) Variety of Probiotics marketed by several brand names by various companies are available in the market and farmers use them as per their choice. b) In India, the list of authorised chemicals and probiotics that can be used in Shrimp Aquaculture is yet to be published by competent Authorities.	Nil	Nil	Nine months { Representation by Aqua Societies to Government and Constitution of Committee to notify list of Authorised chemicals recommended for Aquaculture use}
Principle 6: Manage broodstock origin, stock selection and effects of stock management						
<b>Indicator</b>	<b>Standards</b>					

<p>6.1.1 Allowance for non-indigenous shrimp species unless those species are already widely used in commercial production locally by the date of the publication of the ShAD standards; there is no evidence of establishment or impact on adjacent ecosystems; and the species have been approved for aquaculture use by a process based on ICES code of practice on the introductions and transfers of marine organisms or comparable protocol.</p>	<p>None</p>	<p>Full compliance</p>	<p>{ Presently P.monodon is the native species that is being widely used for commercial production }</p>	<p>Nil</p>	<p>Nil</p>	<p>Nil</p>
<p>6.1.2 For native species, post-larvae must be sourced in order to prevent genetic contamination of their population</p>	<p>Yes</p>	<p>Full compliance</p>	<p>a) Presently P.monodon PL is sourced from the hatcheries  b) Shrimp farmers (@ 2 per society) may be given practical training on the assessment of Shrimp brood stock, seed quality, interpretation of Laboratory test reports (PCR Reports, Microscopic examination of PL etc.), Stress test on Shrimp PL, Packing and Transportation of Shrimp PL to farm site, Acclimatisation of Shrimp PL etc.,  c) In addition, positioning of society coordinator who would be in hatchery (for a phase of 30 days or so,) during the larval phase to monitor the operations and record all relevant data</p>	<p>43,000  { Training expenses for 2 farmers at hatchery as recommended by MPEDA = 40,000)  2) 3000  {Expenses incurred for the Field Supervisor to stay in hatchery and to monitor hatchery phase (brood stock to PL )}</p>	<p>956</p>	<p>Training to farmers will be of one month duration</p>

6.2.1 Documentation provided demonstrating compliance with regional, national and international importation guidelines (e.g. OIE and ICES) for the prevention of disease introduction and the introduction of invasive species	Yes	Full compliance	Farmers of this society presently stock the native species ,namely P.monodon. It is worth mentioning that for P.vannamei,SPF PL seeds are available and are produced in India by few reputed hatcheries which has obtained licence from National Authorities (CAA) in this regard.	Nil	Nil	Nil
6.2.2 Shrimp PL certified SPF against OIE disease official list and country specific disease not specifically listed under OIE	Yes	Full compliance	SPF P.monodon seeds are available in India at a relatively higher cost (Rs.700 per 1000 PL as against the price of Rs.250 per 1000 PL for normal seeds). The farmers of Aqua Society prefer normal P.monodon seed owing to a) Higher cost of SPF PL b) Limited availability of P.monodon SPF PL c) Limited biosecurity measures available at the farm	Switching over to SPF monodon additional cost covered under 5.1.6.	Switching over to SPF monodon additional cost covered under 5.1.6.	Prior Notice ( probably 2 months in advance) need to be given to the SPF monodon producing hatcheries mentioning the requirement (Quantity & Schedule) as the production is limited over there.
6.2.3 % of total post-larvae from closed loop hatchery (i.e. farm-raised broodstock)	P. Vannamei 100% P. Monodon must be improved over time (100% within 6 years after the publication of the standards)	Full compliance for P. vannamei For P.monodon time needed for compliance	a) P.monodon brood stocks are wild caught at present owing to difficulty in maturation of pond reared P.monodon b) Studies to be initiated at Reseach Institutes like CIBA, CMFRI on domestication of P.monodon brood stock. c) This activity can also be encouraged by private bodies under Government support and Supervision.	20,00,000 {Initial budget for obtaining farm raised brood stock for P.monodon - Study may be taken up in MPEDA owned Hatcheries at Vizag / Gopalpur }	44,445	Project period = 2 years

6.2.4 Wild-caught broodstock must be sourced from fisheries with an established fishery management plan or certified fisheries	Yes	Full compliance	a) Fishery management plan prohibits collection of wild broodstock during spawning months (May - July)	Nil	Nil	Nil
6.2.5 Allowance for wild-caught PL	None	None	Usage of wild caught PL is banned as per the SOP of the Society	Nil	Nil	Nil
6.3.1 Evidence of a well-designed and well-maintained culture system to prevent escapes at harvest and during grow-out demonstrated through the following requirements:						
A. Presence of effective screens or barriers of appropriate mesh size for the smallest animals present	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) Candidate species of this society is P.monodon which is native species. Even if there is escape, the impact is insignificant. c) But for non native species (like P.vannamei) escape to Natural Habitat is a matter of concern.	Nil	Nil	Nil
B. Evidence that pond banks or dykes are of adequate height and construction to prevent breaching in exceptional flood events	Yes	Full compliance	a) Pond dike has about 30 cm free board and PVC pipes may be provided as overflow pipes in many places to drain of excess water especially during heavy rains and floods to prevent breaching	Nil	Nil	Nil

C. Regular, timely inspections are performed, and recorded in a permanent register	Yes	Full compliance	a) Regular inspection being done by farmers themselves but recording is not done b) Provision of Society Coordinator would be able to fulfil the requirement of documentation	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
D. Evidence of timely repairs to the system are recorded	Yes	Full compliance	a) Regular repairs especially after every heavy rain is done b) Further every year prior to commencement of summer crop, sloping and compaction of embankments is done c) Repair details could be well documented by positioning the Society co-ordinator.	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4
E. Installation and management of trapping devices to sample for the existence of escapes; data is recorded.	Yes	Full compliance	a) In the outlet, mesh and wooden shutters are provided preventing escape of cultured species to the Natural Waters through drainage canal. b) any escape through the mesh will be trapped inbetween mesh and wooden shutter c) Further at the collar of the humepipe on the drainage side, a mesh bag is also tied to trap the escape if any through outlet. d) Steps (a), (b) and (c) are done as routine procedures and documentation of any escape could be done by the society coordinator.	Field Supervisor salary covered in 1.1.4	Field Supervisor salary covered in 1.1.4	Covered in 1.1.4

F. Traps on water outlets to catch/kill escapes	Yes	Full compliance	a) Mesh Shutter b) Wooden Shutter c) Mesh bag tied to the collar of hume pipe on the drain side	Nil { Already existing }	Nil {Already existing}	Nil
G. Evidence of escape recovery protocols	Yes	Full compliance	a) With all the above said arrangements like mesh, wodden shutters, mesh bags at the collar of hume pipe etc., the possibility of escape is very much limited. b) However escapes if any trapped in between mesh and wooden shutter may be alive for few days only unless it is noticed and taken, thoroughly examined; based on the same to be put back in to pond itself or tobe burried else where. c) For the escapes trapped in mesh bag, the chances of it being alive is very limitted and has to be taken and burried. d) The small scale farmer will certainly inspect the inlet every day on routine basis to observe such things if any and would take action as deem fit.	Nil	Nil	Nil
H. Harvested shrimp shall be killed or slaughtered on site	Yes	Full compliance	Harvested shrimps are chill killed at the farm	Nil	Nil	Nil

6.3.2 Evidence of records on escapes and actions taken to prevent reoccurrence	Yes	Full compliance	a) The mesh, wooden shutters and the mesh bags tied at the outer collar of hume pipe of the outlet ate the tools employed to prevent escapes. b) Society coordinator to document the data on escaped after hearing from the farmer on daily routine inspection c) Over a period of a crop (4 to 5 months) the documentation would reveal the evidence of escape if any with quantification. d) Accordingly if any escapes, then the tools need to be checked for their efficiency, repair/ replacement to be done enabling preventing escapes.	Nil	Nil	Nil
6.4.1 Allowance for the culture of transgenic shrimp (including the offspring of genetically engineered shrimp)	None	Full compliance		Nil	Nil	Nil
Principle 7: Use resources in an environmentally efficient and responsible manner						
<b>Indicator</b>	<b>Standards</b>					
7.1.1 Timeframe for producers to source feed containing fishmeal or fish oil originating from fisheries certified by an ISE L member's certification scheme that addresses environmental and social sustainability	100% within five years of commercial availability		a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	6 Months { To form a committee consisting og Feed Mill owners representatives and Government officials and to come out with plan of action}

7.1.2 By-product feed ingredients used are unsuitable for human consumption, not from Penaeid shrimp, and acquired from a sustainable source	Yes	1) The farmers use formulated feeds of reputed companies. 2) It is believed that the feed ingredients comply to this.	a) This needs the involvement of Government Authorities to interact with Feed Manufacturers and impose on them to comply to the standard.	Nil	Nil	1 Month { For the committee to notify full compliance)
7.1.3 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 Month { For the committee to impose regulation on all Shrimp feed mills}
7.1.1a Allowance for fisheries that are classified as depleted or overfished by regional, national or local fisheries management authorities	None	Full compliance	a) The local Government Agencies through the capture fisheries statics need to make a list of depleted / over fished fisheries b) The feed manufactures need to provide the type of fish meal used for the manufacture of feed mentioning the source of procurement c) The Local Government Agency need to advise the Feed Manufacturers accordingly.	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}

7.1.1b Allowance for the use of fishmeal and fish oil in shrimp feed (including those made from fisheries by-products) containing products from fisheries that are listed on CITES Appendix I, on the IUCN's Red List (in categories Near Threatened Vulnerable Endangered, and Critically Endangered)	None	Full compliance	a) The local Government Agency need to impose the regulation on the Feed Manufacturers that fish meal or fish oil that are used for the manufacture of shrimp feed are not from fishes that are Near Threatened Vulnerable Endangered, and Critically Endangered	Nil	Nil	2 Months { For the Feed mill to furnish requisite information and the committee to go in to details and act accordingly}
7.1.1c Stock status or assessment of fisheries used for feed sourcing must have been assessed within three (exact number of years to be determined) years and must be peer reviewed by individuals outside the organization that created the assessment	Yes		a) Local Government Agencies to have colloboration with National Fisheries Research Institutes (CMFRI) which makes Fisheries Resources Assessment annually b) This can be reviewd by peer committee constituted with representatives from Fishery Survey of India, Government Agencies, Feed Mill Manufactures association etc.,	5,00,000	11,111	2 months for the constitution of Committee comprising of Government officials and 2 Years to study and come out with recommendation
7.1.1d Demonstrate consideration for species interaction issues						
7.2.1 Timeframe for producers to source non -marine ingredients from sources certified by an ISE L member's certification scheme that addresses environmental and social sustainability	Within five years of commercial availability		a) Keeping in view of the time frame an agenda to be formulated for the interaction with Local Government Agencies with Feed manufacturers b) List of ingredients of non - marine source to be identified and discussed	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.2.2 The certified farm, via its feed supplier, must provide a feed formulation showing all major (> 5%) non-marine ingredients	Yes	Yes	a) The ingredients used by and large for the manufacture of shrimp feed is printed on the feed bag by manufactures of reputed brand. b) the Government Agency should impose that the details provided on the feed bag is full and complete.	Nil	Nil	1 month { For the Feed manufacturers to comply this and print on the feed bag the requisite information}
In the interim period, the following indicators and standards apply for compliance with 7.2.1:						
7.2.1a Presence and evidence of a responsible sourcing policy from the feed manufacturer for feed ingredients which comply with internationally recognized moratoriums and local laws, including vegetable ingredients or products derived from vegetable ingredients. The ingredients must not come from the Amazon Biome, as geographically defined by the Brazilian Soya Moratorium.	Yes	Full Compliance	a) The local Government Agencies and National Authorities should have discussions with the Feed Manufacturers Association b) Accordingly this clause must be imposed on the Feed Manufacturers' Association	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.2.1b Chemical and Pesticide Use in agriculture						

7.3.1 % feed that is of GMO origin	Options: a) 0% GMO b) GMO allowed with label c) GMO allowed, but no labeling d) GMO allowed with GMO free label on product that don't use GMO's e) other	Full compliance	a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients
7.4.1 Land Animal Byproducts	Options: a) 0% Land Animal Byproducts b) Land Animal Byproducts allowed with label c) Land Animal Byproducts allowed, but no labeling d) Land Animal Byproducts allowed with Land Animal Byproducts free label on product that don't use them e) other		a) The local Government Agencies and National Authorities need to meet with the officials of the Feed Manufacturers Association b) Discussions should be made on the various options mentioned and accordingly the possible cum practical options to be arrived at.	Nil	Nil	4 months to come out with clear cut plan on sourcing of feed ingredients

7.5.1 Feed Fish Equivalence Ratio (FFER)	L. Vannamei : 1: 1 P. monodon : 1.5: 1	1) The Feed Manufactures should clearly mention the quantity (in terms of % ) of fish meal used in the manufacture of feed facilitating the computation of FFER. 2) Full compliance	For example if the Fishmeal content of the Feed is 15%, and the FCR achieved during the crop period is 1: 2, then $FFER = ( 15 * 2 ) / 22.2 = 1.35$	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on I) Production ii) Quantity of Feed used during the crop iii) Content of fish meal in shrimp feed that was used}
7.5.2 Economic Feed Conversation Ratio (eFCR)	MAXIMUM 2.5 or Standard deviation	Full compliance {To be below 1: 2}	<ul style="list-style-type: none"> <li>• Feed accounts to about 50% of the operational costs are the farmers are judicious in feed administration.</li> <li>• The eFCR generally ranges between 1.3 - 1.8 ( Average 1: 1.6)</li> </ul>	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop }
7.6.1 Amount of nitrogen released from the culture system per ton of shrimp produced: see formula below	< 17.6 kg/tonne of shrimp for P.vannamei < 28.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 2500 kg / Ha (P. monodon : Only summer crop) FCR = 1: 1.6, the <b>Nitrogen released = 22.2 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Nitrogen in Feed }

7.6.2 Amount of phosphorus released from the culture system per ton of shrimp produced: see formula below	< 2.7 kg/tonne of shrimp for P.vannamei < 5.5 kg/tonne of shrimp for P.monodon and other Penaeid shrimp species	Full compliance {to be well within limits}	Based on the following: Annual production 2500 kg / Ha (P. monodon ) FCR = 1: 1.7, the <b>Phosphorous released = 5.05 kg / Tons of Shrimp</b> production	Nil	Nil	1 or 2 days {Can be computed at the end of every crop based on information obtained from farmer on i) Production ii) Quantity of Feed used during the crop iii) Content of Phosphorous in Feed }
7.6.3 Concentration of settleable solids in effluent water from aerated ponds	< 3.3 mL/L	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Field Supervisor to be appointed for carrying out this measurement c) Farmers' Group to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved oxygen. pH, ammonia etc.,)	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4
7.6.4 Average, daily, minimum dissolved oxygen concentration in receiving water body	> 35% of saturation	Full compliance {to be well within limits}	a) Testing of Water Quality on the Source water to be undertaken b) Society co-ordinator to be appointed for carrying out this measurement c) Aqua Society to be equipped with test kits towards testing the requisite parameters ( Salinity, Dissolved oxygen. pH, ammonia etc.,)	Cost covered under 1.1.4	Cost covered under 1.1.4	Covered under 1.1.4

7.7.1 Presence of records summarizing the facilities' energy consumption by sources	Yes	Data pertaining to 1) Energy consumption by the facilities installed to be documented regularly by the Society coordinator and based on which 2) Annual Energy Consumption per tonne of Shrimp production be computed by the Society coordinator.	a) Presently 85% of the farmers have electricity connection and 15% of farmers depend on diesel as the fuel for generation of power used both in water pumping and in aeration. b) As Diesel generating sets are not that environmental friendly, <b>assistance is sought for electrification.</b> c) Further this exercise will contribute greatly for reduction of operational cost.	1) Cost of Field Supervisor covered in 1.1.4 2) Estimation for getting Electric current to site = 5,00,000 (The subsidy / concession available from National Authorities for Electrification is not considered in the estimate)	11,111	Electrification will take 2 months
7.7.2 Presence of records verifying the Annual Cumulative Energy Demand (MJ or kWh/ tonne of shrimp)	Yes					
7.8.1 Percentage of combustibles contained in bunds	100%		Diesel and lubricants are kept in farmers houses in the village and is brought to site daily basis to meet the day requirement	Nil	Nil	Nil
7.8.2 Percentage of chemicals stored in impermeable containers or buildings	100%		Chemicals (used for water application & feed additives) are generally stored in the containers they were bought and are kept in the house of the respective farmers and is taken to the site as per the requirement on that day.	Nil	Nil	Nil
7.8.3 Percentage of used lubricants recycled or turned over to an accredited waste management company	100%	Full compliance	a) Usage of lubricants are limited and the used, waste lubricants are sold to the specific buyers b) care is taken not to spill and to throw the waste in farm site causing concern on pollution	Nil	Nil	Nil

7.8.4 Percentage of chemical containers reused or turned over to an accredited waste management company	100%	Full compliance	Sold to merchants for reuse / recycling	Nil	Nil	Nil
7.8.5 Percentage of non-hazardous, non-recyclable wastes turned over to an accredited waste management company or landfilled	100%	Full compliance	Non saleable non hazardous wastes are burnt in the farm site	2000 ( Wages for burning and after clean up per crop)	45	3 days ( Arranging the waste, Burning and after clean up each one day )
7.8.6 Percentage of non-hazardous recyclable wastes reused or turned over to a recycling company	> 50%	Full compliance	a) Feed bags are stored and sold in bulk to merchants b) Few feed bags are used as sand bags and placed on the embankment for protection measures. c) the ploythene bags and plastic cantainers of chemicals, probiotics to be put in one place in dust bin and to be sold to merchants.	Nil	Nil	Nil
			Total Estimate	1,56,26,565	3,47,257	

## ***Annex 5: Background information about group in Thailand***

### **1. Location & Characteristics of Samroi yod group**

Samroi yod is a coastal village located in the Gulf of Thailand, some 270 Km South of Bangkok. Fishing and rice farming are the main traditional activities and shrimp farming was developed since the 1990s. Most villagers conduct at least 2 economical activities. Shrimp farms are mostly family-owned, small-scale operations.



**Figure 4:** Detailed map of Samroi yod shrimp farming area. The community has zoning agreement; East side of the main channel is Conservation area, and another line to separate Shrimp farming area and Rice farming area. Project participating cooperative farmer's ponds are indicated with red dot (•), and water sampling stations with green dot (•) and its code name (W-wells, C-channel and I-irrigation). Map Source: Point Asia.com

## 2. Characteristics of Samroi yod farmer group

<i>Name of the Society</i>	Cluster of Samroi yod Fairtrade Shrimp Farmers Community Enterprise
<i>Location</i>	Samroi yod, Prachuap Khiri Khan Province
<i>Number of Farmers</i>	10 farmer
<i>Area (Ha)</i>	17 Ha
<i>Number of ponds</i>	27 pond (Average size 4rai = 0.64ha)
<i>When (in which year) were the Ponds constructed / built?</i>	1991
<i>Nearest village (habitat)</i>	Samroi yod
<i>Population</i>	Data in 2008, Samroi yod District, male number is 23,903/female number is 24,215/total is 48,124/ house number is 14,443
<i>Nearest Town</i>	Pranburi and Kuiburi
<i>Candidate species</i>	P.vannamei
<i>Number of crops / year</i>	2
<i>Cropping pattern (Months of culture)</i>	All year round (3 months culture periods)
<i>Stocking Density ( # /m<sup>2</sup>)</i>	48/m <sup>2</sup>
<i>Annual production (Kg/ Ha)</i>	7035 kg/Ha in 2009 (Annual production is 190 tonnes)
<i>Feed Conversion Ratio (FCR)</i>	1: 1.15 to 1: 3.06 (* some mortality in 2009)
<i>Water Source</i>	Khao Daeng Rive flowing cross at the farm site forms the water source. In addition an irrigation canal (fresh water) flows also in the farm site which is also pumped in to ponds to dilute / maintain the salinity. Underground saline water is also used to adjust the salinity.
<i>Energy / Power (Electricity / Diesel)</i>	Diesel & LPG & electricity
<i>Aeration (Yes /No)</i>	Yes
<i>Since How long Shrimp Aquaculture is practiced</i>	20 Years

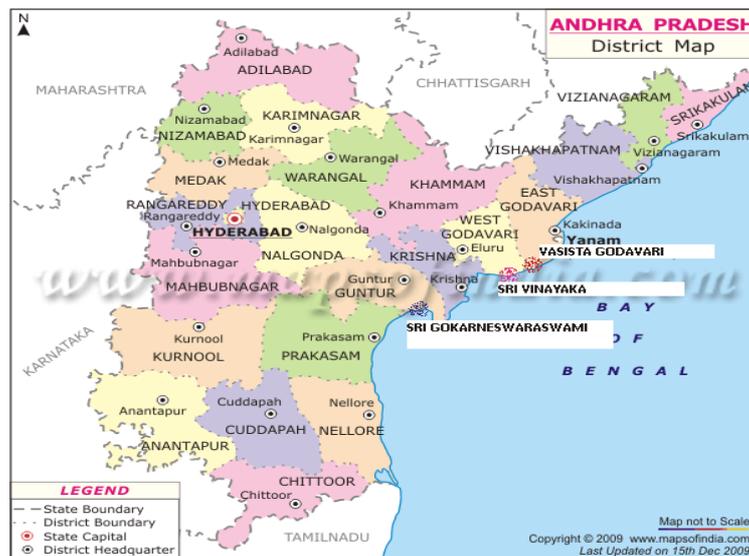
## Annex 6: Background information about groups in India

### 1. Location & Characteristics of the identified Societies:

Andhra Pradesh contributes more than half of country's shrimp production in India, where most of the small scale shrimp farmers Aqua Societies exist. The following aqua Societies affiliated to NaCSA (i, ii, and iii) and Shrimp Farmers' Group affiliated to NGO (SEARCH) (iv, v, and vi) has been identified;

- i) Sri Vinayaka Aqua Farmers Welfare Rajulanka, Narasapur Mandal, West Godavari District
- ii) Vasista Godavari Aqua Farmers Welfare Society, Sakhinetipalli lanka, Malkipuram Mandal, East Godavari District
- iii) Sri Gokarneeswaraswami Aqua Farmers Welfare Society, Gokarnamatam, Nizampatnam Mandal, Guntur District
- iv) Pedapulugivaripalem, Guntur District, Andhra Pradesh.
- v) Tummalapalem, Guntur District, Andhra Pradesh
- vi) Karlapalem, Prakasam District, Andhra Pradesh

Location of the Aqua societies is given below:



2. Characteristics of identified aqua societies:

	Group #	NaCSA Facilitated cluster			NGO facilitated group		
		i	ii	iii	iv	v	vi
<b>GENERAL</b>	<i>Name of the Aqua Society</i>	Sri Vinayaka Aqua Farmers Welfare Society	Vasista Godavari Aqua Farmers Welfare Society	Sri Gokarneswara swami Aqua Farmers Welfare Society	Group 1 (Thummalapalli)	Group 2 (Peda Puluguvari Palem)	Group 3 (Karlapalem )
	<i>Location</i>	Rajulenka, Narasapur Mandal, West Godavari District, Andhra Pradesh	Sakhinetipallilenka, Sakhinetipalli Mandal, East Godavari District, Andhra Pradesh	Gokarnamatam, Nizampatnam Mandal, Guntur District, Andhra Pradesh	Thummalapalli, Karlapalem Mandal , Guntur District, Andhra Pradesh	Peda Puluguvari Palem, Karlapalem Mandal , Guntur District, Andhra Pradesh	Karlapalem , Guddalur Mandal , Prakasam District, Andhra Pradesh
	<i>Number of Farmers</i>	25	20	21	38	30	28
	<i>Area (Ha)</i>	26.66	20.33	15.5	33.5	18.5	19.4
	<i>Number of ponds</i>	32	31	36	72	44	45
	<i>When (in which year) were the Ponds constructed / built?</i>	1990	1996	1993	One farmer started culture in 1990 on lease based in 50 acres. After three years in 1993 mostly majority of farmers started culture in the village	1992	1993
	<i>Nearest village (habitat)</i>	Rajulenka	Sakhinetipallilenka	Gokarnamatam	Thummalapalli	Pedapuluguvaripalem	Karlapalem
	<i>Population</i>	1340	9,000	3000	1870	2350	980
	<i>Nearest Town</i>	Narasapur ( 6 KM North off farm site)	Malkipuram ( 7 km South off farm site)	Rapalle (26 Km North East off farm site) Bapatla (28 Km West off farm site)	Karlapalem (10 Km North West off farm site)	Karlapalem (15 Km North West off farm site)	Kavali (20 Km South West off farm site)

	<i>Approach road</i>	From Narasapur all weather Road (about 3km) is present up to Lakshmaneswaram and thereafter gravel road (2 Km) up to Rajulanka village. From Rajulanka village Mud road for a km leads to farm site.	From Malkipuram all weather road (about 5 km) is present and thereafter gravel road (for about 1.5 km) followed by murrum road (for about 2 km) up to farm site.	All weather road is there up to Nizampatnam: Murrum road (for about 1.5 Km) connects Gokarnamatam with Nizampatnam. From Gokarnamatam to farm site (for about 1 Km) cart tract exists.	All weather road (10 Km) is present from Karlapalem to Thummalapalli ; From Thummalapalli the farm site is 1 Km and has mud road	All weather road (15 Km) is present from Karlapalem to Pedapuluguvaripalem ; From Pedapuluguvaripalem the farm site is 1 Km and has mud road	All weather road (18Km) is present from Kavali to Salipeta. From Salipeta the farm site is 2Km and has mud road
<b>CULTURE OPERATIONS</b>	<i>Candidate species</i>	(Summer crop) P. monodon  (winter crop) Macrobrachium rosenbergii -scampi	P.monodon	P.monodon	P.monodon	P.monodon	P.monodon
	<i>Number of crops / year</i>	2 (Summer -Black Tiger & Winter - Scampi)	1 crop (Black Tiger)	1 crop (Black Tiger)	1 crops /year Only 30% of the farmers' opt for 2 <sup>nd</sup> crop)	1 crops /year	2 crops/year
	<i>Cropping pattern (Months of culture)</i>	P.monodon = February - June  Scampi = July - December	P.monodon = February - June	P.monodon = February - June	Summer crop = January to June Winter crop = August to December	Summer crop = February to July	Summer crop = February to June Winter crop = August to December
	<i>Stocking Density ( # /m<sup>2</sup>)</i>	P.monodon = 5 - 6 pieces Scampi = 1	P.monodon = 10	P.monodon = 5 to 6 pieces	Aerated ponds 7 / m <sup>2</sup>	Aerated ponds 7 / m <sup>2</sup>	Aerated ponds 6 / m <sup>2</sup>
	<i>Annual production (Kg/ Ha)</i>	2000	2500	1875	1500 to 1800	1600 to 1800	2100 to 2500 (two crops)
	<i>Feed Conversion Ratio (FCR)</i>	1: 1.3 to 1: 1.5	1: 1.3 to 1:1.8	1: 1.3 to 1: 1.5	01:01.5	01:01.5 to 1: 1.8	01:01.6 and 1: 8(as per crop duration)

<i>Water Source</i>	A creek of Godavari river flowing criss cross at the farm site forms the water source. In addition an irrigation canal (fresh water) flows also in the farm site which is also pumped in to ponds to dilute / maintain the salinity.	A creek from Godavari river forms the water source.	A canal formed by Rivulet of Krishna (referred to as Tungabhadra East canal) which joins the sea about 5 Km from farm site.	Ponnala canal coming from Perali and joined south east with sea at Nizampatnam harbor	A canal formed by Rivulet of Krishna (referred to as Tungabhadra west canal) which joins the sea about 2 Km from farm site.	Buckingham canal
<i>Salinity (ppt)</i>	Summer crop (February -June = 15 - 25ppt ); Winter crop (July -December = < 10ppt)	15- 30ppt Last year due to less rains, salinity has gone up to 40 ppt	February - June : 15 to 40 ppt	20 - 35 ppt	20 – 35 ppt	20 to 40 ppt
<i>Energy / Power (Electricity / Diesel)</i>	Diesel	Diesel	Diesel	70 % of the farmers have electric power and 30% run with Diesel	All farmers have power for Pumping of water. All are using diesel for aerators.	85 % of the farmers have electric power and 15% run with Diesel
<i>Aeration (Yes /No)</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Since How long Shrimp Aquaculture is practiced</i>	20 Years	15 years	17 years	17 years	18 years	17 years
<i>Challenges faced</i>	Major problems - Nil	No major problems	For the last 5 years no major problems	For the last 5 years no major problems only problems with White spot, loose shell and Vibrio. Lack of infrastructure and	Power problem for Aeration, White spot, Vibrio, white cut, fungus and shell loose. Lack of infrastructure and lab facilities.	Crop input costs are high because of power cuts ( diesel expenses) Seed quality is not good. It is increasing crop duration.

					lab facilities (Nearest Lab Bapatla). Coordination among the farmers is lacking. This year 50 % farmers are lost their crops because of mono seed. Electricity is also problem for some ponds.	(Nearest Lab Bapatla). Approach road is a big problem in rainy days.	Coordination among the farmers is lacking and without any notice they are discharging water in to canals at the time of crop failures. Lack of lab facilities (Nearest lab Kavali)
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### 3. Pond Layout of identified aqua societies



Google satellite map of Group (i) and (ii)



Google satellite map of Group (iii)



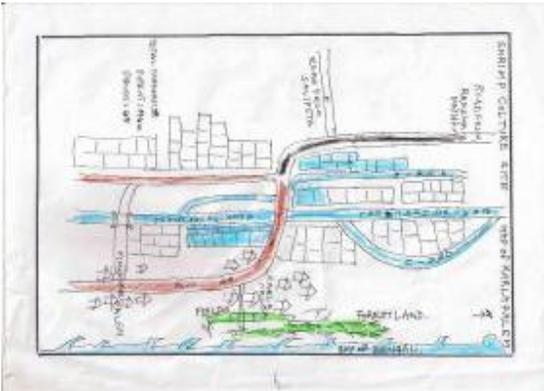
Google satellite map of Group (iv)



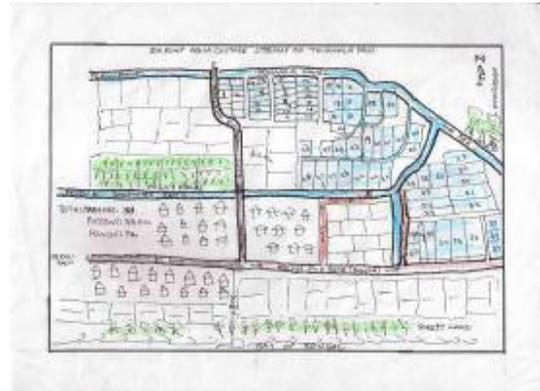
Google satellite map of Group (v)



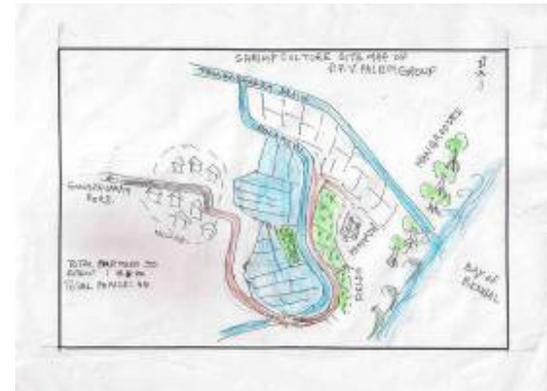
Google satellite map of Group (vi)



Drawing of pond layouts for the Group (iv)



Drawing of pond layouts for the Group (v)



Drawing of pond layouts for the Group (vi)