

Self-Use Manual on Group Formation and Group Certification of Small Scale Aqua-Farmers



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Preface

Aquaculture has shown a phenomenal growth in the recent years and this trend is projected to continue in forthcoming decades, contributing substantially to global efforts of eliminating hunger and malnutrition, while improving rural economy and taking some pressure off dwindling wild populations. However, responding to the emergent stakeholder concerns such as environmental sustainability, social equity, animal health and welfare, food quality and safety has become an immense challenge to the aqua-farmers. Certification acts as a tool of communication between the primary producer and the interest groups that assures them of a quality and safe market produce originated in an environmentally and socially accountable production system. Aquaculture mostly being an enterprise of small and marginal farmers, obtaining certification as individuals is financially prohibitive and impractical. An innovative solution for this is 'group certification', which divides the cost and responsibility among the partners, enabling them to attain accreditation for their production process and remain in the industry.

This manual is based on the outcomes of a pilot project "Development and pilot testing of cluster certification guidelines and methodology" implemented by NACA between June 2009 and October 2010 in India in collaboration with MPEDA / NaCSA. The idea of turning the lessons learned into a simple farmer friendly training manual for wider dissemination in Asia Pacific was taken up under the EU-ASEM Aquaculture Platform Project. NACA is implementing Work Package 2 "Development and validation of commodity-specific Better Management Practices (BMPs) for smallholder farmers in the Asia-Pacific region" under the EU-ASEM project. The focus is on promoting wider adoption of BMPs for key aquaculture commodities in NACA member countries, thereby ensuring sustainability of this important food production sector and improving the livelihoods of the stakeholders.

The experiences and lessons learned have been distilled to produce this draft version of the self-use manual. This self-use manual is expected to provide the necessary guidance for the small scale aqua-farmers to set up and operate

farmer groups and enter group certification schemes of their choice. The manual is hoped to assist small farmers in the region to implement BMPs through a cluster/group management approach and access markets through participating in group certification programs of their choice.

NACA hopes to revise this manual on a regular basis to suit the evolving needs of the small scale farmers and the public and private certification schemes. Therefore we welcome comments and suggestions from readers so that this manual can be made more useful to the target users. Your comments and suggestions can be sent to info@enaca.org

Acknowledgement

NACA is grateful to MPEDA and NaCSA for providing financial and technical support for the project on “Development and pilot testing of cluster certification guidelines and methodology” which was implemented by NACA between June 2009 and October 2010. The farmers and cluster leaders of India, who participated in this project are also greatly acknowledged, without whose help the project would not have been a success. Hard work carried out by the NACA project staff, Mr Mahakalyanaraman is gratefully acknowledged.

The idea of turning the lessons learned into a simple farmer friendly training manual for wider dissemination in Asia Pacific was taken up under the EU-ASEM Aquaculture Platform Project. NACA wishes to acknowledge the financial support of EU-ASEM project for this initiative.

Scope, Target Audience and Objectives

The manual is based on the outcomes of a pilot project carried out in India, under the auspices of NACA and MPEDA / NaCSA, for the development of a methodology for group certification of small scale aquaculture farms (http://www.enaca.org/modules/news/article.php?article_id=1900). However, the information in the manual has been generalized to benefit a larger audience in the Asia Pacific region.

This is intended for the use by the current and prospective small-scale aqua farmer groups who are interested in obtaining accreditation for their production process. The objective is to provide them an easy-to-follow, stepwise guide that can be used as a practical tool in their venture of attaining group certification. However, this can be used by the field extension officers and certifiers who are directly involved in the process and any other party who is interested in being informed about the concepts and practice of aqua-farmer group formation, group functioning and certification.

Main focus of this manual is to provide assistance in the process of group formation, group functioning and group certification, hence, does not provide any technical information on other aquaculture practices.

Format of the manual

The manual consists of 2 stand-alone parts. Part one comprises 4 chapters and is of introductory nature that provides answers to some important 'what and why' questions on aquaculture and certification, with a special emphasis on small scale aquaculture. Part two which comprises of 2 chapters (Chapter 5 and 6), provides practical guidance for the farmers to form functional groups and to implement group certification programs in a step-by-step mode.

A word to the farmer...

You, the small scale aqua-farmers, play an important role in this rising industry of aquaculture, or in simpler terms, farming in water, accounting for 90 % of the global aqua-farming community and more than 70 % of the total global aquaculture produce. However, 'aquaculture' is not a standalone industry. It is driven and constantly challenged by the pressure of ever-changing requirements of different stakeholders. Knowing how to meet these requirements of the stakeholders is indispensable in order to remain in the industry as not keeping to market standards will slowly push you out of the system. As you might have heard already, certification is a recognized way of confirming the stakeholders that the producer is gratifying their requirements. However, certification is a relatively costly procedure that requires certain amount of expertise which might prevent you from entering certification schemes. Group Certification is a practical idea put forward to ensure participation of small scale farmers in modern markets so that you are not marginalized.

This manual is tailor-made to take you through the journey of formation and operation of successful farmer groups and obtaining certification as a group. This provides you with the basic information about your trade and tries to unfold the concepts and the process of group certification in a simple manner so that you can initiate the process and proceed with it under minimal assistance. Some sections of the booklet may include technical jargon that you are not very familiar with however trying to understand such technical information before getting started can be useful to you.

We hope this booklet will be of some help for you during your journey of attaining group certification, and we wish you the very best for your future success!

Abbreviations

ASEM	The Asia Europe Meeting
BMPs	Better Management Practices
EU	The European Union
FAO	Food and Agriculture Organization of the United Nations
ICS	Internal Control System
MPEDA	Marine Products Exports Development Authority of India
NACA	Network of Aquaculture Centres in Asia-Pacific
NaCSA	National Centre for Sustainable Aquaculture, India
SOP	Standard Operations Procedure
SSA	Small Scale Aquaculture

Part 1

The 4 chapters of this section will give you the necessary background information on aquaculture industry and aquaculture certification: The current state and trends; the place of small scale aqua-farmer in this vast discipline; the challenges and the prospects; concept of aquaculture certification, global guidelines on aquaculture certification and concept of group certification

Chapter 1: Where We Are and Where We Go?

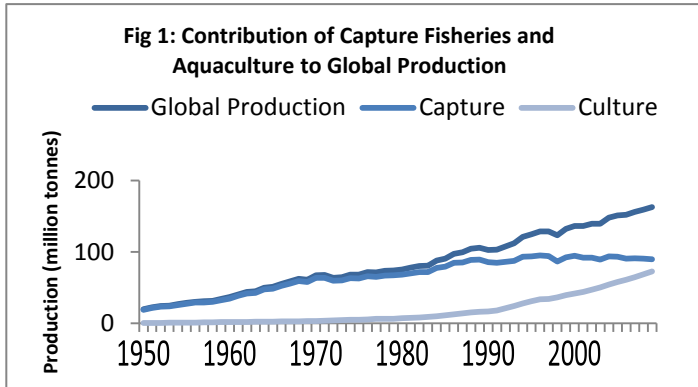
World human population is growing rapidly and so is the demand for food. Given the projected population growth over the next two decades, it is estimated that at least an additional 40 million tonnes of aquatic food will be required by 2030 to maintain the current per capita consumption. Most of the natural systems are maximally exploited for food and the supply from them are already leveled off or declining. Thus the gap between the demand for food and food production is widening. The food prices are soaring limiting the accessibility of the poor to nutritious food.

The promise of aquaculture

Over the past few decades, aquaculture has developed to become one of the fastest growing food production sectors in the world (+6.6 percent p.a.); it has expanded, diversified, intensified and technologically advanced, and the trend is continuing.

What is aquaculture?

Aquaculture refers to the raising of cultivable aquatic species of economic importance under controlled conditions.



(Based on FAO Statistics)

Some important facts....

- Current global aquatic food consumption - > 115 million tonnes per annum
- Fish accounts for more than 15 % of the average animal protein intake of the world population
- 45 million people directly involved in fishery and aquaculture industry and supports the livelihood of about 540 million people (8% of the world population)
- Women represent more than 50% of the secondary sectors like handling and processing
- Asia Pacific region accounts for nearly 90% of the aquaculture production

(The state of World Fisheries and Aquaculture, 2010)

The envisaged potential of aquaculture to provide the required bulks of nutritious food to feed the growing population at affordable prices seems achievable. In addition to its contribution to food security in local and global levels, aquaculture also contributes to rural economic development by providing job opportunities to the rural poor as aquaculture is mostly an industry of the poor and marginal communities.

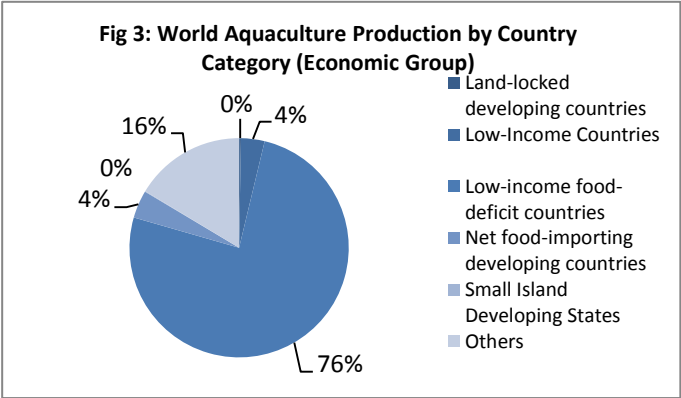
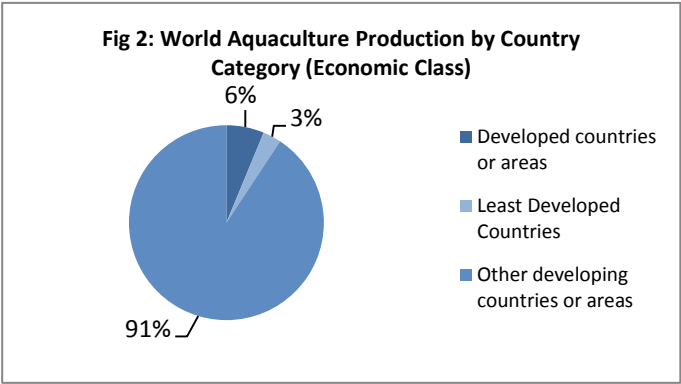
The challenge

Aquaculture is a multi-faceted industry that is driven and affected by a mosaic of forces and thriving amidst all these forces is truly a challenge. The prominent matters to be addressed are the stakeholder concerns on food safety and quality, desirable taste, affordable prices, environmental sustainability, animal health and welfare and social equity as there are instances where such aspects are overlooked trying to focus only on the increase in production. Not being able to keep with these requirements leads to collapse of the business in the long run.

Therefore to attain the full potential to contribute to social and economic development, aquaculture sector may require new approaches that are realistic, sustainable and achievable in the context of current social, economic, environmental and political circumstances.

Chapter 2: Small-scale Aquaculture: Challenges and Prospect

The contribution of different producers to the total global aquaculture market is different in the type of species, the amount, the end product and the quality of products.



(Based on FAO Statistics)

As with the contribution, there are differences in the types and scale of difficulties they face. Despite the important contributions to the industry as a whole, the most challenged group is the small scale aqua-farmers. Keeping up to the market demands and mitigating the social and environmental impacts of the aquaculture practices has tensed the small-scale farmer mainly due to lack of technical and/or financial competence to conduct their business in the required manner.

Small-scale Aquaculture Operations

Small-scale aquaculture (SSA) operations are those that are family owned, rather vulnerable, principal form of livelihood in which the family/ operator has invested significant livelihood assets (as in time, labor, infrastructure, finance) not formalized into business operations. Such farms are operated in a relatively small surface area and are of small production volume and economic turn-over.

Know your Challenges !

Nothing comes easily and so does the success of your business. However, if you know your obstacles and if you can foresee them, you can tackle them effectively. Summarized below are the challenges that you may come across while carrying on with your enterprise.

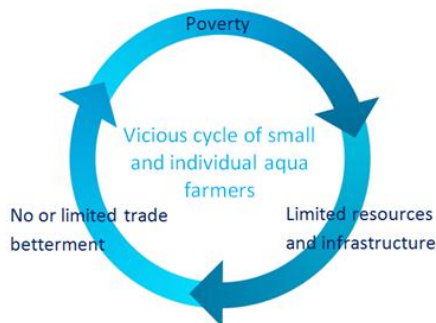
- Poverty (=Limited economic resources); Poverty is multifaceted with attributes such as low purchasing power, illiteracy, meager coverage of

information & communication, low levels of production, and lack of social organization leading to exploitation by middlemen and money lenders

- Small (cum uneconomical) land holdings and inadequate farm infrastructure (approach road, electricity and communication facilities)
- Lack of appropriate technical guidance at the right time
- Limited or inequitable access to financial services to fund change
- By and large un-organized (lack of co-ordination among themselves on crop planning, choice of candidate species, stocking density, culture methodology, harvest, discharge of pond water in to creek etc.,)
- Lack of Insurance
- Alienation by the large traders & buyers (Risk management strategies of larger traders and buyers are driving against small-scale farmers; in other words... easier for big buyers to deal with big farms with larger volume output)
- Fear of failure owing to risky venture with multiple potential vulnerabilities

In other words most are entangled in limited finance, infrastructure and limited trade betterment - a vicious cycle, which denies them economic freedom and progress.

Fig 4: Vicious cycle of Small scale Aqua Farmers

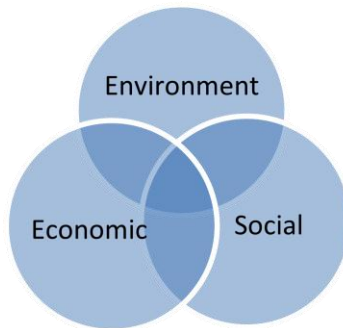


How can you break the cycle?

Sustainability is the key to prevail over these enemies that keep you from succeeding.

“Sustainability is a dynamic condition in which the combined economic and environmental sub-systems meet the needs and wants of the current human population (by producing current output) while maintaining or increasing the resources and productive capacities (or the endowments) that are passed along to future generations”

Fig 5: The Pillars of Sustainable Development



Aspects like participatory techniques, group mobilization, participatory resources management etc., assume importance towards promotion of successful / sustainable Aquaculture.

What is meant by Sustainable Aquaculture?

By sustainable aquaculture we refer an aquatic food production system that works in harmony with Nature and living systems, maintains and encourage aquaculture and natural biodiversity uses, as far as possible, renewable resources and avoids pollution, provides living conditions for animals as close to that of natural habitat without forgetting the human and social aspects. Sustainability can be achieved by complying with better management practices (BMPs).

What are BMPs?

BMPs in the aquaculture context outline norms for responsible farming- environmentally and socially- of aquatic animals. BMP's are management practices, and implementation of which is voluntary. BMPs are not a standard for certification. Implementation of BMPs improves the quantity, safety and quality of products taking into consideration animal health and welfare, food safety, environmental and socio-economical sustainability. Implementation of BMPs will help to achieve compliance with quantifiable standards and indicators set by international agencies and public and private certification bodies.

Better Management Practice or Best Management Practices?

The term "better" is preferred rather than "best" because aquaculture practices are continuously improving (today's 'best' is tomorrow's norm').

Chapter 3: Certification: What and Why?

With the growing demand for aquatic products and rapid expansion of aquaculture industry concerns have emerged regarding possible negative impacts on the environment, communities and consumers. This signaled the necessity of sustainable management of aquatic resources and sound regulation of production processes in order to sustain the benefits in the long run. This gave rise to many national and international level standards and aqua-farmers were expected to comply with such standards.

However, the producers needed a way to communicate to the consumers of their commitment for the compliance or conformity to these standards. Certification acts as a tool of communication between the producer and the consumer that ultimately takes the message of the production standards to the consumer.

Certification is a third party attestation for products, processes, systems and persons.

What is Aquaculture Certification?

Aquaculture Certification is a mechanism of verifying through an independent and credible way that the aquaculture operation is managed in accordance with the agreed standards. It outlines the *expectations* based on consumer preference, affordability, marketing demand, food safety and traceability supported by documentation with social and environmental responsibility.

What are the components of a certification scheme?

A Certification System is made up of 4 domains; standard setting, certification body, accreditation body and governance (*Technical Guidelines on Aquaculture Certification, FAO, 2011*)

Standard setting

Standards provide the necessary requirements, the quantitative and qualitative criteria and the indicators for certification of aquaculture. Standards should reflect the objectives, results and outcomes that are being pursued through the certification scheme to address animal health and welfare, food safety and quality, environmental integrity and/or social responsibility in aquaculture. The example below elaborates on the rationale behind standard setting process and the relationship between principle, impact, criteria, indicator and standards.

One of the most highlighted environmental impacts caused by aquaculture practices is pollution of receiving waters due to discharge of aquaculture effluents. This factor is taken in to consideration into a greater depth when adopting sustainable aquaculture guidelines and has become an integral part of all the aquaculture certification schemes. Therefore maintaining the expected standards of effluents is important.

Such problems to be addressed are called 'impacts' and the high level goals for addressing the impacts are called the 'principles'. In this example 'water pollution' is the impact and 'conserving water resources' is the principle.

Water pollution (Impact) is a consequence of malpractices. To manage such situations, causes should be identified and addressed. Here, the potential source of pollutants is the pond effluents that contain higher levels of nutrients and other

compounds than the acceptable limits. So the area of focus to address the impact is the effluents. These areas are called 'criteria'.

In order to assess the level of impact each criterion should have a measurable entity that is proportionately reflects to the extent of impact. Such measurable entities are called 'indicators'. In this instance, concentration of nitrogen is a possible indicator.

The 'standards' are the recommended/norm levels of indicators. For example the upper limit of total nitrogen that can be present in the effluents is 4 mg/l.

BMPs help to achieve compliance with standards. For example, feeding the fish only with necessary amounts of food through proper feed management (e.g. check trays in shrimp culture), water quality management, and effluent management before releasing the water are better management practices that help maintaining low levels of nitrogen in waste water.

The above example clearly shows the relationship between principles (conserve water), impact (pollution), criteria (effluents), indicators (nitrogen) and standard (4mg/l) and also shows why BMPs are not standards but only management practices that can help to achieve compliance with standards.

The standards are set by a 'standard setting body', which is a legal entity with sufficient resources to support the standard setting function. There are standards for almost all the activities carried out in an aquaculture system; from pond preparation to packaging and transportation of the final product.

Certification

Certification is the procedure by which a body gives written or equivalent assurance that the aquaculture operation or activity under consideration conforms to the relevant aquaculture certification standards. Certification provides assurance to buyers and consumers that a certified aquaculture product comes from an aquaculture operation that conforms to the certification standards.

Certification requires two types of assessment.

- Conformity assessment: Assures that an aquaculture activity conforms to the standards and related certification criteria.
- Chain of custody assessment: To assure whether adequate measures are in place to identify and differentiate products from a certified aquaculture operation including production and subsequent stages of processing, distribution and marketing (traceability).

Certification bodies must have the systems, procedures and personnel to ensure credible, replicable certification of aquaculture organizations against the standard.

Accreditation

Accreditation is a procedure by which a competent authority gives formal recognition that a certification body or person is competent to carry out specific tasks.

Accreditation is granted by an 'Accreditation body', an organisation that conducts and administers an accreditation system. Accreditation adds another layer of assurance to the certification scheme by monitoring and certifying the certifier.

Accreditation system

System that has its own rules of procedure and management for carrying out accreditation. Accreditation of certification bodies is normally awarded following successful assessment and is followed by appropriate surveillance.

Governance

Procedures used and institutions involved in certification systems should be transparent, credible and robust with good governance. The initiative for establishing a certification scheme could be taken by a government, an Inter-governmental organization, a non-governmental organization, a private industry association or a partnership of one or more of these. There are also various options for the geographical range of a scheme. It could be national, regional or international in scope.

The standard setting bodies, certifiers and accreditation bodies should be separate independent entities that have no conflicts of interest.

The problem of mushrooming certification systems

As a response to the growing market demand for certified aquaculture products, certification schemes started to emerge, and this mushrooming of certification systems started creating confusions among the producers and the consumers. Therefore, a need arose for improved harmonization of standards. FAO took the lead to resolve this confusion by setting up technical guidelines on aquaculture certification to standardize the certification schemes. These guidelines provide guidance for the development, organization and implementation of credible aquaculture certification schemes.

FAO Guidelines on Aquaculture Certification

The guidelines cover:

Standard setting processes required to develop and review certification standards;

Accreditation systems needed to provide formal recognition to a qualified body to carry out certification;

Certification bodies required to verify compliance with certification standards

According to FAO guidelines, the minimal substantive criteria for development of aquaculture certification standards are

- Animal Health and Welfare
- Food Safety and Quality
- Environmental Integrity and
- Social Responsibility

(Technical Guidelines on Aquaculture Certification, FAO)

Certification – SWOT Analysis

The following table provides a perspective on certification from different angles. Being aware of both pros and cons will pave the way to maximize the benefits while tackling the problems effectively.

Table 1: Certification SWOT Analysis

STRENGTHS	WEAKNESSES
<p>Compliance with food safety standards Promote meaningful Corporate social responsibility Increases the accountability for producer to other stakeholders Brings social & environmental issues to the forefront of production issues Ensures good conscience for consumption choices Transparency / availability of information on production process and source of inputs for the same: chain of traceability Enhances market access; Provide niche market access Offers scope on premium for producers Promotes ingenuity within producers</p>	<p>Credibility of Certifying Programme and Standards (too many Certifying Programme with varying standards ; often local conditions are overlooked) Lack of community engagement Lack of enforcement and monitoring Difficulty in implementing absolute Traceability owing to importers are not producers Complacency of NGOs, consumers Marginalization of poor (small / medium scale) farmers / producers Relatively higher cost of Certification Producer doesn't feel ownership over standards/criteria Large potential for conflict of interest and corruption for certifiers</p>
OPPORTUNITIES	THREATS
<p>A clearer yardstick to measure performance and identify violations. Enhance better management practices and lead to more sustainable production Can mitigate conflict and foster cooperation between stakeholders</p>	<p>Producers can't comply with many different standards Consumers confused with different labels Certification by industry alone results in false acceptance/advertising and green washing Acceptance of standards without really carrying about issues</p>

Stumbling Blocks

The hindrance that the small scale farmers face during the certification process can be broadly categorized as follows.

Physical

- ▶ Small farm size and large numbers of farmers. Small volumes and value of product from individual

Legal

- ▶ Some / Many farms are not formally registered and do not have any legal identity

Operations / Procedural

- ▶ Efficiency in adopting BMPs (especially bio security)
- ▶ Traceability
- ▶ Food safety
- ▶ Recording keeping

Financial

- ▶ Cost of Compliance:
 - Changes needed to the physical facilities to comply with the standards (e.g. effluent treatment, sedimentation tanks)
 - Changes needed in management practices for compliance (e.g. crab fencing)
 - Additional services required for compliance (e.g. health management service)
- ▶ Cost of certification: being small, farms may not cover the costs of certification (registration fee, audit fee, logo use fee, etc)
- ▶ Low or no market incentives

Marketing

- ▶ Complex marketing channels make traceability difficult
- ▶ Middlemen or direct to a local market
- ▶ Trader credit relations

Certification Programme

- ▶ No certification Programme targeted for small scale farmers

Current initiatives

There has been an awareness of the potential problems faced by small scale farmers for some time, and a number of initiatives have already been developed (in Agriculture / Forestry) to try to address these problems.

These include:

- ▶ Subsidies
- ▶ Group certification

Subsidies

Many small and community enterprises have had their certification costs subsidized by external parties such as donor organizations or customers. However dependence on external parties put the farmers in potential risk due to the uncertainty of funding in long term. Therefore if the farmers choose to get subsidies from external organizations, they should be cautious about the potential ill consequences and must have proper recovery strategies to draw on in an occasion of reduced or permanent withdrawal of funding.

Group certification

Group certification is probably the most promising initiative. By forming a group which seeks certification as a single entity, small farmers gain some of the economies of scale enjoyed by their larger competitors. The main advantage of this over subsidies is the groups or clusters are self-sufficing.



Chapter 4: Group Certification – A Win-Win Strategy

Group certification is a methodology that allows a group of small scale aquaculture farmers to join together towards effective management and functioning besides sharing certification costs among the group members, enabling them to become competitive in the market with the little resources they have.

Group Certification refers to “Certification of a group comprising of small scale farmers of a given locality sharing the common resources and employ common technology to promote sustainable aquaculture under an legal entity (e.g. Aqua Society in India) that manages and documents a clear and transparent Internal Quality Assurance System”.

Are you a potential candidate?

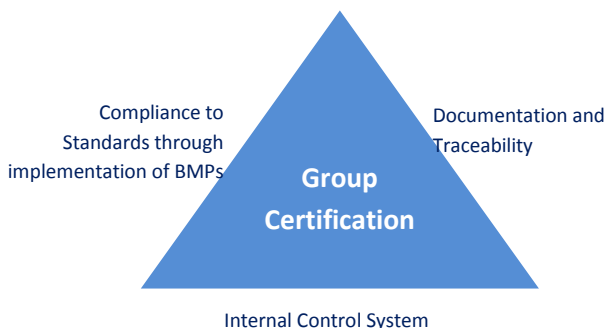
If you are affiliated to and operated under a legalized entity (Aqua-society/Cluster) of which the members are homogenous in terms of location, production system, candidate species & products, size of holding and share a common marketing strategy as a group and regulated by an Internal Control System (ICS) to ensure compliance with the Certification standards by all members of the group, you are entitled to get involved in the group certification process.

What is expected of you?

There are certain requirements that you should be aware of and fulfilling as a group in order to attain certification.

The primary requirements of Group Certification may be represented schematically as the three sides of a triangle in an attempt to emphasize that each one is an essential part of the whole.

Fig 6: Primary Requirements of Group Certification



Compliance to standards through implementation of BMPs and SOP

Compliance to the set standards both by i) each of you and ii) collectively (Aqua Society/Cluster) is mandatory for Group Certification. Non-compliance by any one of you leads to exclusion of that farmer from Certification programme and in extreme cases, denial of certification to the Aqua Society itself. Responsibility (both individual & collective level), unity & compatibility of members of your society are the essence of Group certification which calls for an efficient co-ordination among the farmers.

Internal control system

ICS is the (part of a) documented quality assurance and food safety system that guides the operation in a prescribed manner as agreed mutually by the society and the certification programme. This means that the certification body only has to inspect the well-functioning of the system, as well as to perform a few spot-check inspections of individual smallholders as required by the certification programme. The rationale of ICS for the group certification being to facilitate smallholder certification i.e. simplify certification and reduce its cost for smallholders through coordinated documentation and to implement and maintain a high quality assurance and food safety system in smallholder production maintaining traceability.

Documentation and traceability

Creation of documents and maintenance of records is a pre-requisite for traceability, which in turn is essential for the functioning of the ICS. The documents should be genuine, legible, accurate and to be verified by the Secretary.

An aqua-society that fulfills these 3 major requirements (which will be discussed in detail in later chapters) is eligible for group certification.

Part 2

Chapter 5 and 6 outline the two phases involved in group certification. Phase one is formation of a functional entity or a cluster of prospective farmers (farmer groups) and phase 2 is selecting a suitable certification program and complying to its standards for the purpose of getting certified.

Chapter 5: Culture Unity – Harvest Success !

Having gone through the previous chapters, you should now have a clear idea of the role of aquaculture in sustainable development, necessity of certification and the requirements to be fulfilled in a group certification scheme. This section helps you to accomplish pre-requisites of group certification. By following the instructions given you can be fully equipped to move on to the process of certification.

How to Form an Aqua Society (farmer group)?

If you want to get a group certification for your enterprise, it is obvious that you should have a functional group. Therefore the first step of the process of group certification is the formation of a group (known by various names like aqua-society, club, and cluster). As mentioned in the previous chapter, aqua society is the legal functional unit of the group certification. For a society to form and function there should be a suitable aquaculture area with interested and committed aqua-farmers who are willing to work as a group.

Given below are the salient steps you may have to follow in order to form an aqua-society and register it with relevant authorities.

Find a suitable area

You must have a suitable area to operate. Trained Field Officers appointed by relevant local authorities will employ their expertise to identify a potential area for the future operations.

Be informed and get motivated

The officers from the local authorities will meet you to explain about the concept of the aqua-society. This is the time for you to get your doubts clarified. You may ask them whatever questions you have about this new venture.

Participate in discussions and contribute to decision making

Subsequent to the briefing by Field Officers, the lead farmers of the locality will call you, the small scale farmers for a meeting sharing common Natural sources to discuss and debate the merits of formation of an aqua society and agree by consensus to form an Aqua Society.

Be initiative

Then you should approach Field Officers through lead farmers requesting the formalities of formation & registration of aqua society.

Be a part of the movement

You then have to sign the declaration that you will adopt BMPs and abide by the Society by laws. You will have to fill-in and submit an entry form at this stage. A sample entry form is annexed for your perusal (Annex 1).

Submit your details to lead farmers

The lead farmer will ask you for basic details such as name, area and the number of ponds you own to compile the list of farmers. Submit the correct details promptly and support the lead farmer to carry out his task. Annex 2 is a sample list of farmers which you may refer to.

Register yourselves

You have to register your business with a relevant authority and apply for a license to operate. For this you have to fill-in the application form issued by the authorized organization. You may also have to submit documents such as proof of ownership of land or in case of leased land, the lease agreement together with the application form. You will have to pay a registration fee as stipulated by the authority. See Annex 3 for a sample application form. Upon receipt of your application the above authority will scrutinizes the details that you have submitted. On fulfilling the formalities they will issue a written document to you. This document is a proof of formal recognition that you are a part of the Aqua Society.

Elect your leaders

Having obtained the formal membership of the society, you are now entitled to participate in the process of electing your own leaders. Elect the office bearers from among yourselves (President, Vice President, Secretary, Treasurer etc..) through democratic election process preferably in presence of Field Officers. Be impartial and try to elect the best suited person for that task. That will help proper functioning of your society.

Prepare your Organizational Chart and Pond Layout Map

The office bearers under the guidance of the Field Officers can now prepare an Organizational Chart and Pond Layout Map for the society. Please refer to Annex 4 for a sample project layout map.

Prepare the Standard Operating Procedure (SOP)

Your next task after preparation of the Organizational Chart and Pond Layout Map is to formulate the SOP with adoption of BMPs keeping in mind the site characteristics. The field Officers will assist you in this. See annex 5 for a sample SOP.

Register your society

By now you have completed pre requisites to register your society. The President the society with the assistance with the Field Officer can now submit necessary documents with the registration fee to the relevant authority applying for registration. The documents required can be different depending on your country and the local authority; however, the commonly required documents are as follows.

- Letter of request for Registration of Society signed by President of the Society
- Bylaw (Memorandum of association)

Depending on the legal context you are operating in you may have to register with more than one organization. For example you may have to register with local level, provincial level and national level organizations. In such case the Field Officers will help you with the necessary information and procedures.

The local authority will issue written approval to your Aqua Society upon examination of the accuracy and the validity of the documents you submitted. If you have registered with more than one authorized body, then make sure that you collect written approval from all the organizations.

Open a bank account

Your society should have an account in a recognized bank. The office bearers of the Society should endorse a resolution towards opening a bank account in the name of the Society mentioning names of joint operators.

Pay your subscriptions

The president of your society will collect the subscription (as prescribed) from each of you and deposit them in the society's bank account. Make sure that you receive a receipt for your payment. This receipt confirms your membership of the society.

Get inspected

Before releasing any grants to your society to function, the authorities will scrutinize your SOP. A selection committee panel that consists of representatives from relevant authorized bodies will examine the documents such as your society's bank account pass book, cash book and the minutes of the meetings held. Getting through the SOP audit is crucial as it is based on this report the financing body makes the decision to release the initial grant (subsidy) for your future operations. When this is done, your farm will be visited by an external aquaculture expert. This external person may also interact with you to collect information regarding the implementation of SOP. Based on his report the relevant authorized body will issue your society a permanent registration. This registration is usually valid for 5 years from the date of issue.

Now that the operation system is worked out and approved and your society has got legal approval to operate, the time has come to get the group to function by implementing the SOPs agreed by all the members including the crop calendar and Better Management Practices (BMPs). Implementation of BMPs and SOPs through a collective approach reduces the risks significantly and maximizes returns. A properly functioning aqua-society is a sustainable entity that brings more economic benefits to the farmer in the long run.

Following is an example of SOPs and BMPs followed by shrimp clusters/groups in India (details can be found in www.enaca.org).

SOPs

- Regular weekly meetings for information sharing
- Crop planning meetings
- Development of crop calendar
- Development a system for record keeping and traceability

BMPs

- Good pond preparation
- Good quality seed selection
- Water quality management
- Feed management
- Health monitoring/Bio security
- Pond bottom monitoring
- Disease management
- Addressing food safety concerns
- Better Harvest and post-harvest Practices
- Record maintenance/Traceability
- Environmental awareness

Chapter 06: Stepping Ahead

If your Aqua-Society is functioning smoothly and if you are interested in going one step forward towards better market accessibility and better profit making, then you can think of entering a certification programme. Certification is not at all a must for an Aqua-society. It is only an option for assured market. The decision you make should be a group decision and everybody should be aware of and agree to comply with the certification standards as the certificate will be issued for the aqua-society as a whole and not for individual farmers.

So if you decided to proceed with certification, the following steps will help you through the process of attaining certification.

Step 1: Look before you leap !

All of you should be aware of what is ahead of you. The concept of certification, its costs and benefits, the complete process and your role in the process should be clearly understood by each of you before you proceed. The awareness can be brought about through awareness programmes or interactive sessions conducted by experts. The leaders of your aqua-society should communicate with the field officers and the relevant authorities and organize a suitable programme in this regard.

Step 2: Select the right certification programme

This is one of the most important steps in the process, because, after all it is your decision that will make you cherish or perish. The certification programme you select may depend on many factors, your end product, your country, country that

you export your products to, the processor and your strength to achieve the expected standards are to name but a few. Make an informed choice. First you must thoroughly go through the features of the programmes. Compare and contrast among them. Communicate with all the relevant parties – local authorities, processor, importers, certifiers, etc. to know their views. It might be difficult for you to select one programme at once but try to bring it down to at least 3-4 programmes at this stage. Field officers will facilitate you to accomplish this task.

Step 3: Understand the standards, indicators and criteria of the chosen certification program

After selecting the best certification program or short listing the potential programme/s, you have to understand the standards, indicators and criteria stipulated by it/them. Every program has developed its own approach to ensure responsible aquaculture operations. In most cases the aspects taken into consideration when formulating such criteria are environment, society, food safety and animal health and welfare. Take time to read and understand them. If you have any uncertainties you may consult your field officers.

Step 4: Do a gap analysis

Carefully compare the requirements of the certification programme with the current operation procedure of your society and identify the gaps between the current operation procedures (where you are) and the required standards (Where you want to be).

Step 5: Identify the adjustments you have to make and assess your capacity to achieve them

After identifying the gaps you have to identify the modifications you have to do to your existing system to fill those gaps and your capacity to make the necessary changes. You will have to revise your SOP, BMPs and your traceability system in order to conform to the standards of the chosen certification programme. This is the stage that you fully understand the suitability of the programme you selected, because certain standards expected, might not be achievable by you. In such case you have to discard that programme and look for another. If you had several programmes in your mind, now you can select the most suitable one according to your ability to make necessary improvements. You may have to iterate several times among steps 2, 3, 4 and 5 until you find the best fitting programme. You must seek professional assistance at this stage.

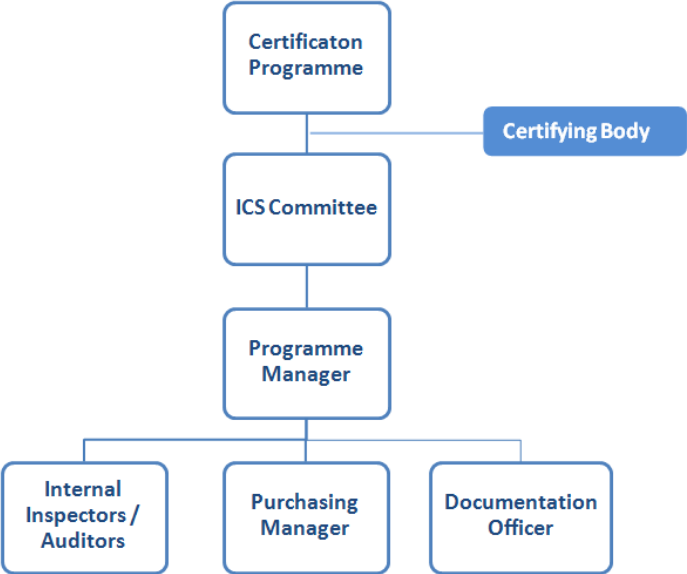
Step 6: Organise yourselves

There are two major things that you should do before implementing your altered SOP.

1. Prepare an organizational chart for the implementation of the chosen certification programme. Description of duties and responsibilities for each entity can also be done this stage.
The organizational chart is expected to be displayed in the office premises with contact details of the individuals.
2. Constitute an Internal Control System Committee. The ICS committee is basically an internal arrangement constituted by elected members from the aqua society to manage the procedures of group certification (i.e., compliance to the standards as outlined / agreed with the certification

programme). The ICS committee usually has overlaps with the office bearers of the Aqua-society, which is acceptable; however, electing capable persons as committee members is your responsibility. The team members involved in the ICS need to have specific qualifications, competence and experience required to make technical judgments, carry out internal inspections and implement quality management policies. Every committee member should keep abreast of developments, legislative changes and other issues relevant in the certification process through media and communication. Therefore training of the society members and the representatives of the umbrella organization on ICS is imperative.

Fig 7: Structure of the ICS



Step 7: Get your knowledge and skills upgraded via active participation in training programmes

Each and every individual should be aware of the entire system, and should work towards one common goal. All of you are equally responsible for the successful operation of the system as one mistake done by one of you can lead to collapse the entire system. Therefore knowing what is expected of you and being skillful to implement them is imperative. The only way to achieve this is proper training. Technical assistance and training will minimize risks that may arise from ignorance, misunderstandings etc. The training may be imparted either by third party agency identified by Umbrella Organization as required.

The training will focus on the following areas:

- ▶ Imparting technical information on certification by the certifying agency and with the interactions of you, the farmers, on the site conditions / characteristics; and drafting of monitoring plan outlining the Standards.
- ▶ Reviewing of crop pattern and the society's SOP in compliance with the Standards outlined by the certification programme
- ▶ Monitoring the requisite data, inputs and documenting the same in a prescribed format
- ▶ Continual improvement of each of you on certification programme
- ▶ Laying emphasis on self-discipline / control referred to as 'Internal Control System' (ICS), to govern the Culture operations, compliance to SOP/Certification requirements.

The members of the ICS committee and their potential responsibilities are given in annex 6.

Step 8: Make sure everything is under control

Group certification is probably the best means of covering small scale farmers under certification as individual certification is prohibitively expensive. ICS plays a major role in cutting down the cost of certification to an affordable level by guaranteeing for all the members of the group regarding compliance to standards. In other words, under group certification, the Certification programme evaluates the efficiency of ICS functioning to decide the issuance of group certification.

Regular scrutiny of your operations is essential to make sure that you are maintaining the requisite standards. This can be achieved by setting up and operating an efficient and effective ICS.

ICS committee should identify the ways in which the improvements can be done to the existing system. There are no hard and fast rules. The requirements are unique to your system and so are the strategies of improvement. Be innovative. Think of different ways in which you can achieve the target and settle for the most economical solution. For example, if the committee feels that the farmers need more technical knowledge and skills in order to meet the required standards, then they have to make arrangements to train the farmers appropriately. Organizing a training programme conducted by experts is always an option but, if there are farmers with required knowledge within your society, you can get them to help others, which is more economical and also strengthens the bond between you.

The ICS committee can be made up of several sub-committees according to your requirement. Whatever the structural and functional arrangement is, what is finally expected of it is to make sure that the standards of the internal operations are maintained as required by the certifier. The committee must meet periodically (at least once in 15 days) to assess the situation (both on field and documentary

evidence) and advise the individual farmer accordingly. It also takes in to consideration the views expressed by the Programme Manager during his monthly visit.

Internal Auditing is an integral part of the ICS. Internal auditors have to carry out systematic review of step by step documented history of the production process. A sample check list prepared to carry out this task is given in Annex: 7 The ICS Committee should be well informed about the internal audit and should ensure all documentary evidences are properly filed and made available to internal audit. The internal audit will be done at the farm, where the office of the society is located. The periodical report of the Programme Manager on the functioning of aqua society, recommendations suggested and the follow up action by the ICS committee will also be reviewed during internal auditing. The internal auditors after their auditing, will forward their report to ICS committee to take corrective measures accordingly. Any serious violation done by any of you viz., on the change of candidate species, stocking density will enable the exclusion of that person from the certification list. The ICS committee must make note of the corrective measures undertaken enabling the compliance both by individual farmers and collectively the aqua society.

Internal audit should be efficient, transparent and rational, so that the external audit can repose faith on the functioning of the aqua society (in relation to compliance to the standard arrived by the certification programme) and on the efficiency of internal auditing. This is very important as it influences the frequency of external auditing that need to be carried out by the certifying body, which involves considerable expenses on travel and allowances that have to be borne by your aqua society that will reflect on the cost of certification.

Documentation increases the transparency of your system and facilitates efficient and effective decision making. You have to design, prepare, review and distribute the documents with care, and make sure that they are approved, signed and dated by appropriate and authorized persons. You should review the document regularly and keep them up-to-date. The records should be archived at least for a period of 3 years before discarding.

Step 9: External Auditing

External auditing is one of the requisites on the issuance of the Group certification to the aqua society by the certification programme. The Certification Programme identifies the certifying body to carry out the external auditing. Few certification programmes have local representatives that facilitate better understanding of local conditions and site characteristics, besides considerable reduction on the (overseas) travel expenses that reflect on the certification cost.

ICS coordinator of the aqua society must maintain communication with the Certifying body on certification. The aqua society need to be prepared to have the external auditing announced / unannounced audits as per the Certification Programme requirements. The ICS Committee should do a thorough preparation – put forth all the documentary evidence on compliance in order besides making all the records up to date (legible, genuine, accurate and readily accessible) to facilitate smooth and effective external audit. In this regard, cooperation of all the farmers is very essential.

The external auditing will be done at the registered office of the society, which is usually located at the farm itself. All documentary evidence in support of compliance should be made available at the registered office for the external auditing team. The external audit basically examines the efficiency of ICS

functioning to evaluate objectively the extent of compliance as per the standards outlined. It may also interview few farmers /employees of aqua society. The periodical report of the Programme Manager and the internal auditing on the functioning of aqua society, recommendations suggested and the follow up action by the ICS committee are reviewed during external audit.

After completion of the external audit, a detailed report (on the observation mentioning the extent of compliance, non-conformity if any and the time granted to carry out corrective measures) is prepared and forwarded to the Certification Programme.

Step 10: Issuance of certificate:

The certification Programme based on the external auditing report decides on the certification to the aqua society after the non-conformity or suggestions of the audit carried out within the specified period and accordingly issue the certificate with or without conditions as per the situation.

The certificate is normally valid for one year and the annual renewal should be taken during the 9th month to be in certification throughout the year. In order to get the certificate renewed you should convince the certifiers that you are maintaining your standards. This is a continuous cyclic process that you have to stick to however you may have to upgrade your system according to the changing standards of the certification programme.

Concluding remarks

In this manual we have tried to familiarize the small scale aqua farmers to the concepts and the system of aqua-farmer group formation, operations and certification. We have tried to keep all the explanations as simple as possible for the farmers to use it without much difficulty. However, further inquiries about this process can be directed straight to the local field aquaculture officers, relevant local authorities or NACA using our official website <http://www.enaca.org/modules/contact/message.php> .

Some Useful Web Links

Aquaculture Certification Council:

<http://www.aquaculturecertification.org/>

The Global Aquaculture Alliance:

<http://www.gaalliance.org/bap/>

Aquaculture Stewardship Council:

<http://www.ascworldwide.org/>

Thai Quality Shrimp

<http://www.thaiqualityshrimp.com/eng/home.asp>

SSOQ - Bangladesh

<http://emdapcasebook.iie.org/pdfs/4.10%20Shrimp%20Quality%20Certification-Bangladesh.pdf>

Accredited Fish Farm Scheme – Hong Kong SAR

<http://www.hkaffs.org/en/location.html>

Global Gap

http://www.globalgap.org/cms/front_content.php?idcat=9

Aquaculture Dialogues

<http://www.ascworldwide.org/index.cfm?act=tekst.item&iid=5&lng=1>

World Wildlife Fund – Aquaculture Dialogues

<http://www.worldwildlife.org/what/globalmarkets/aquaculture/aquaculturedialogues.html>

Euro Leaf

<http://www.euroleaf.org/>

Naturland (Germany)

<http://www.naturland.de/standards.html#c1855>

Soil Association (UK)

<http://www.soilassociation.org/>

Organic Aquaculture Farm & Product Certification Center (OAPC)

http://www.organicstandard.com/directory/by-country/asia?page=shop.product_details&flypage=flypage.tpl&product_id=484&category_id=49

Bio-Suisse

<http://www.bio-suisse.ch/>

NASAA

<http://www.nasaa.com.au/>

The Organic Standard Certification Directory

http://www.organicstandard.com/directory/by-country/asia?page=shop.product_details&flypage=flypage.tpl&product_id=484&category_id=49

NACA webpage devoted to Aquaculture Certification:

<http://www.worldwildlife.org/what/globalmarkets/aquaculture/aquaculturedialogues.html>

Technical Guidelines of Aquaculture Certification:

<http://library.enaca.org/certification/publications/aquaculture-certification-guidelines-final.pdf>

Annexes

Annex 1: Sample Entry Form

AQUA SOCIETY - ENTRY FORM						
Sl. No	Description	Particulars				
1	Name of the Farmer					
2	CAA Registration Number					
3	Father's / Husband's Name					
4	Location & address of Ponds / Farm					
5	Contact address (with Telephone / cell number)					
6	Pond / Farm details					
	S.No	Pond Identification Number	Area (Ha)	Revenue Number	Own / Lease	Candidate species
	1					
	2					
	3					
	4					
	Total					
7	Declaration by the farmer:					
	I (Name of the farmer) am interested to join in the Aqua Society and will abide by the rules and regulations laid by the Aqua Society in adopting BMPs towards sustainable aquaculture production. My farming area is..... Hectares covered by..... (Number) ponds. Information provided in this format is true and correct to the best of my knowledge.					
	Signature of the farmer:					
	Place					
	Date :					
8	For Office Use :					
	Decision			Approved / Rejected		
	Farm code / identity number					
	Remarks					
9	Signature of the officer					
10	Place					
	Date					

Annex 2: Sample List of Farmers

LIST OF FARMERS								
Name of the Aqua Society								
Society Identification Number								
Location and address of the Aqua Society								
Sl.No	Name of the Farmer	Father's / Husband's name	Number of ponds	Pond Identification Number	Revenue Number	Area (Ha)	Own / lease	CAA Registration number
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Annex 3: Sample Application Form for registration of Aqua-farms

Application for Registration of an Aquaculture Farm

1. Name of the applicant(s)/ registered company/ establishment (in BLOCK LETTERS with permanent address:

2. Address for Communication (in BLOCK LETTERS):

3. Whether the application is for:

(a) Registration of aquaculture farm already operating in coastal area: Yes/ No

(b) Registration of new aquaculture farm to be constructed: Yes/ No

4. Details of land for which registration is applied for:

(a) State:

(b) District:

(c) Taluk/ Mandala:

(d) Revenue village:

(e) Survey Number:

(f) Ownership right (whether freehold or lease holds):

(g) Total Farm Area (in hectare):

(h) Water Spread Area (in hectare):

5. If the whole or a part of the above land falls under any one of the following categories, please furnish details :

Category Village Survey Numbers Extent (in ha)

(a) Agricultural Land

(b) Forest land

(c) Lands for village (common purpose)

(d) Land meant for Public purpose

(e) Wetlands

(f) Mangroves

(g) Salt pan

6. Indicate the distance of unit site from

(a) High tide line:

(b) Nearest drinking water source:

(c) Agricultural land:

(d) Mangrove:

(e) Marine protected area:

(f) Adjacent aquaculture farm:

(g) Human settlements (Indicate the population of the settlement)

(h) National parks:

(i) Sanctuaries:

(j) Reserve forests:

(k) Breeding spawning grounds and other aquatic life:

(l) Beaches:

(m) Coral reefs:

(n) Heritage area:

7. Water source for the Aquaculture Unit

(a) Sea : Yes/ No

(b) Creek/estuary/ canal/ back water : Yes/ No

(c) Other (mention):

8. Date of commencement of operations of existing aquaculture farm:

9. *Furnish Project Report giving details with sketch (to scale) of design and layout of the aquaculture farm in operation/ proposed along with operational details, water intake and wastewater treatment facility :

10. * Whether Environment Impact Assessment (EIA)/ Environment Management Plan (EMP) were carried out on the environment of the aquaculture farm with reference to other land uses in its neighborhood and based on operational details of the unit as furnished in the Project Report, please state specifically, whether
(a) the aquaculture activity has the effect of causing water logging of adjacent

areas or polluting the drinking water sources. :

- (b) by use of supplementary feeds/medicines/ drugs, etc. will consequently increase sedimentation which will be harmful to the environment. :
- (c) such activity would cause siltation, turbidity with detrimental implication on local fauna and flora :

11. *If, Environment Impact Assessment (EIA) has been done, please attach the report :

12. * If Environment Management Plan (EMP) has been drawn up, please furnish details :

13. *If effluent treatment system (ETS) has been in operation/ proposed, please furnish layout, design and technical details :

14. Details of remittance of processing fee :

15. Declaration

I/We _____ son(s)/daughter(s)
/ wife of _____ residing at
_____ hereby declare
that the information furnished above is true to the best of my/our knowledge and belief. I am/ we are fully aware that if it is found that the information furnished by me/us is false or there is any kind of deviation/ violation of the conditions on which certificate of registration may be issued by the Authority, the Certificate of Registration issued may be either suspended or cancelled.

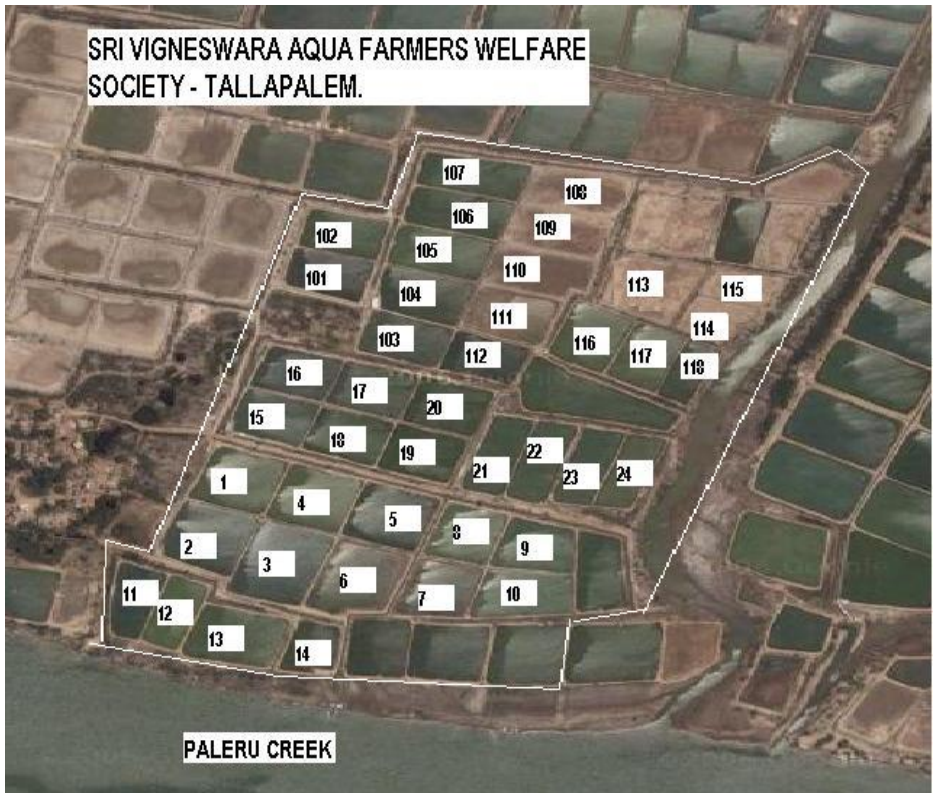
Signature of the applicant(s)

Date:

Place:

* Applicable for farms with water spread area of more than 2 (two) hectares.

Annex 4: Pond Layout Map



Annex 5: Sample SOP

Registered Number ...

AQUA FARMERS WELFARE SOCIETY

Standard Operating Procedures (SOP)

The following Standard Operating Procedures have been agreed by society farmers.

1. General Information of the Society:

- Total number of farmers
- Total area (Ha)
- Water Spread Area (Ha)
- Total number of ponds
- Agreed maximum stocking density (Number/ m2)
 - a) Summer crop:
 - b) Monsoon crop:
- Crop stocking date
 - c) Summer Crop:
 - d) Monsoon crop:

2. Farm sitting:

- The society farms are not located in the legally prohibited areas, mangrove forest and forest land or other sensitive wetland habitats.
- The Society farm is registered with Coastal Aquaculture Authority (statutory)
- Our society farms do not depend exclusively on ground water for aquaculture.

3. Farm Design and Construction

- The society ponds to have separate intake and drainage system as Biosecurity measure.
- All of society ponds to have proper slope towards drainage so that all the water can be drained completely during the harvest

- All of society ponds to have strong, compacted bunds. Wherever they are weak they would be strengthened.
- Minimum one meter water depth in the pond is maintained

4. Water use:

- No use of fresh ground water for salinity control.

5. Pond preparation:

- During the crop planning meeting Pond drying date, Stocking date, contract hatchery date and harvest dates would be agreed.
- All the society farmers to empty ponds at least one month before stocking to allow Sun drying of ponds.
- Ponds would be dried for 15 to 30 days (till the bottom cracks) before starting pond preparation.
- Depending up on soil pH adequate quantities of lime is used during pond preparation.
- Ponds will be ploughed
- Water screened using at least 2 (60 mesh per inch) screens in the inlet to avoid entry of predators and pests.
- Crab fencing along creek side and neighboring non-society farms would be done to prevent entry of crabs and predators which are also carriers of disease.
- Fertilization is resorted (the type, dosage and frequency depending on the pond conditions) towards propagation of plankton.

6. Brood stock and seed:

- Seed requirement for the crop, total and farmer wise to be arrived during crop planning meeting.
- Wild / natural seed would not be used. Ponds would be stocked only with hatchery reared, disease free, healthy seeds after conducting necessary tests.

- Seed would be purchased only from MPEDA registered hatcheries through Contract hatchery system enabling supply of disease free, healthy seed by envisaging the following:

6.1. Contract Hatchery System:

- Contract Hatchery System is basically an understanding arrived between the Aqua Society and the Hatchery towards supply of quality seed: the hatchery permitting the representatives of Aqua Society to monitor the seed production process to ensure transparency.
- A team led by 2 to 3 representatives of the Aqua Society camp in the identified hatchery towards monitoring the hatchery operation right from brood stock selection till Packing of seeds.
- Society insists hatcheries to produce seed from disease free (screened) brood stock.
- Single spawner is preferred; in hatcheries where tank capacity is large (>10 tons) two broods per tank is acceptable provided both the broods are screened for WSSV by PCR in recognized lab after spawning.
- Copy of the PCR test reports on Brood stock, Nauplius, PL5 and PL15 will be collected by the Society representatives camping in the hatchery.
- Besides, the team will monitor the daily feeding of larvae (ration & frequency) including that of Artemia.
- Usage of Chemicals at the hatchery will be monitored.
- The Hydrographical parameters of both LRT & PLRT will also be monitored.
- This is especially so in PLRT tanks to ensure that PLs are well acclimated to the pond salinity conditions prior to seed packing.
- All the observations are to be meticulously documented.

6.2. Seed stocking:

- Seeds packed in the hatchery will be transported to farm site in polythene bags with water besides filled with oxygen

- Number of seeds per bag would depend on the mode and duration of transport.
- Stocking is done either early morning (6-8 Hrs) or late in the evening (17-19 Hrs)
- Stocking would be done with the pond having adequate Planktonic bloom (Secchi disc transparency 30 - 45 cm)
- Seeds would be stocked after acclimatization.
- Stocking density would be in accordance to what has been agreed upon. No farmer will stock more than agreed density.

7. Monitoring and maintenance of water quality parameters:

- The society will employ a co-coordinator, who will measure the hydrographical parameters and record the same in Pond data Register
- The Society will establish basic water quality lab for water analysis.
- Water quality parameters would be maintained at optimum range (pH 7.5-8.5, alkalinity 80-120, ammonia <0.1 ppm, Dissolved oxygen >3 ppm, salinity around 30 -40 ppt) through regular monitoring.
- By and large, minimum water exchange is recommended during first 60 days (however water pumping in to the pond will be done for topping to maintain water level)
- After 60 days water exchange is suggested keeping in view of water quality of pond and source water.
- Good plankton bloom is maintained in all the ponds.

8. Feeds and Feeding:

8.1. Feed quality:

- Good quality feeds, fresh from factory ,manufactured from reputed feed mills with ISO certification will be used
- Feed without manufacturing date, proximate composition and ingredient details on bags would not be used.
- Feeds will be analyzed for a) banned antibiotic residues and b) Proximate composition by reputed laboratories with the help of NaCSA.

8.2. Feed storage:

- Good feed storage practices will be followed (use of pallets, good ventilation, gap provided from walls, prevention of roof leaks, deployment of rat traps, avoiding direct sunlight, maintenance of hygiene conditions in feed stores etc.,)
- Feeds will be purchased as in when required, at periodical intervals so that it is not stocked at the farm for longer period.

8.3. Feeding:

- Feeding would be practiced from day one in grow out ponds
- Various grades of feeds (crumbles and pellets) will be administered as per shrimp size in accordance with the growth / Days of Culture
- The daily ration is distributed into 4-6 meals throughout the day and night and broadcasting of feed in the pond is ensured so as to achieve greater efficiency of supplemental feeding.
- Feed ration is adjusted according to crop biomass and feeding trays are used for monitoring feed consumption.
- Feed monitoring starts from 30 days onwards using at least two feed trays per pond.
- If there is size variation in shrimps to reduce size variations, feed size would be changed according to the actual size of the shrimp. A mix of two feed pellet sizes would be used for at least 7-10 days if there is any size variation during the regular check-up and increase daily feeding frequency
- Good feed management practices such as using check trays, middle feeding and training of workers in better feed management are followed in our farms.
- Wet or fresh feeds like snail meat, clam meat, trash fish are not used.
- Data on Total Daily Feed (TDF) meal wise, check tray monitoring on extent of left over etc., would be documented regularly.

9. **Animal health & welfare:**

- Health management practices would be implemented to reduce stress (of the cultured species) and to focus disease prevention rather than treatment
- Biosecurity measures would be adopted to minimize the transmission between brood stocks, hatcheries and grow out systems.
- Efforts will be made to avoid spreading of shrimp diseases within and between the ponds.
- Animal health would be checked regularly with the help of check trays and cast netting with close examination for stress, disease etc.,
- Sick and dead animals would be removed immediately and disposed off properly
- Whenever any disease symptoms are noticed following procedure would be adopted.
- Any problem during the crop like animals coming to the side, mortality would be immediately reported to all farmers, farmers would be called to address the issue immediately.
- If the disease is found to be mild and non-infectious–corrective measures to improve general pond condition would be carried out.
- If any serious infectious disease is detected which has the potential to spread widely the pond is isolated, animals harvested by adopting good sanitary practices and water disinfected prior to discharge.
- Dead and affected animals would be buried under soil.
- Necessary precautions would be taken to avoid transfer of animals or equipments/ implements used in the disease-affected pond to other ponds.
- Cooperation and communication with neighboring aqua farmers with regular meetings regarding disease problem would be practiced so as to minimize the spread of disease and to take pre cautionary measures well in time.

10. **Pond bottom monitoring:**

- Pond bottom soil would be checked regularly after 60 days... If the soil is black or with an offensive odor, corrective measures would be taken.
- Accumulated black soil at the pond corners would be taken out regularly.

- Whenever aerators are used, they would be positioned to assist in accumulation of pond sediments at the centre of the ponds.

11. Food safety:

- Quality Control Systems will be adopted to produce quality aquaculture farm products
- Application of chemical would be done according to the recommended practices. No product would be used whose composition is not known.
- No use of banned veterinary drugs and chemicals (Annexure: 2)
- Measures on sanitary harvest, handling and transport would be implemented (Refer 12. Harvest & Post harvest handling)
- Antibiotic analysis of seed or juveniles, feed, common chemicals used in our society would be done.
- Samples from each pond will be tested for Antibiotic residues through ELISA test by MPEDA Laboratory prior to harvest.

12. Harvest and Post-harvest handling:

- Shrimp harvest and transportation would be planned in advance and would be coordinated with Processing plant on date of harvesting, time, estimated material, estimated count, required ice quantity etc.,
- Harvesting will commence in night and animals would be collected through mesh bags at outlet drain (using additional pumps where water cannot be drained) and will be completed by latest by morning 08 00 Hrs : No harvesting is recommended during day time (08 00 Hrs to 20 00 Hrs)
- Collected live animals will be chill killed, washed with clean water and packed with adequate ice and transported to the Processing Plant at the earliest.
- The following records are prepared and well documented
 - Quantity harvested,
 - Average body weight (g)
 - Count
 - Movement document for the harvested materials from the farm to processing plant

- Goods receipt note from the Processing plant acknowledging the receipt of harvested materials

13. Discharge of wastes and effluents:

- Effluents would be allowed to pass through a mangrove plantation. If there are no mangroves, efforts would be made for planting mangroves which will protect our ponds during natural calamities.
- Secondary aquaculture would be taken up in the effluent treatment ponds in order to utilize the system fully.

14. Bio security measures:

- Use of unhygienic crates for seed transportation would be avoided
- Crab fencing - by using empty feed bags or old fish nets
- Old cassette tapes for bird net or other scary devices
- Washing of cast nets, equipments, hands, legs thoroughly with disinfectants like liquid Potassium permanganate (KMnO₄)/ Chlorine / dettol etc., to be practiced as measure of disinfection.
- Cross contamination during water quality analysis would be prevented by rinsing with equipments and hands disinfectants.
- Entry of cattle and other animals in to farm premises will be avoided.
- Red flag to be hoisted in the pond / farm to inform farmers in case of disease outbreak
- Disinfection of disease harvested pond with chlorination (mandatory)
- These measures would be translated to local language besides with pictorial representation, printed in a flexi and displayed in front of Society office where it is visible to all farmers.

15. Social Responsibility:

- Ensuring fair working conditions (Employment contracts, equal treatments, wages in kind & payment, working hours, gender equality, provision of safe & healthy working conditions) and welfare of farm workers (Insurance, worker organization)
- Child labor avoided.

- Farm workers would be given training in all aspects of Aquaculture operations especially on diseases, symptoms and means of prevention and treatment.
- Farm workers to be appraised on SOP and to be taught in varying levels of details in accordance to their education level in vernacular language and to ensure their understanding and practice.

16. Miscellaneous:

- Fuels and other products would be stored in a responsible manner to avoid accidental spills that could contaminate water and also may affect the animals adversely.
- Maintenance of hygienic conditions in the farm (cleanliness of materials in use, proper disposal of waste- feed bags, plastic containers etc..)
- Regular meetings will be conducted to discuss on farm affairs and to focus issues as per the situation.

17. List of antibiotics and other pharmacologically active substances banned for use in aquaculture

Sl. No	Name of the antibiotic/chemical
1	Chloramphenicol
2	Nitrofurans including : Furaltadone, Furazolidone, Furfurylformamide, Nifuratel, Nifuroxime, Nifurprazine, Nitrofurantoin, Nitrofurazone
3	Neomycin
4	Nalidixic acid
5	Sulphamethoxazole
6	Aristolochia spp. and preparations thereof

7	Chloroform
8	Chlorpromazine
9	Colchicine
10	Dapsone
11	Dimetridazole
12	Metronidazole
13	Ronidazole
14	Ipronidazole
15	Other nitroimidazoles
16	Clenbuterol
17	Diethylstilbestrol
18	Sulphonamide drugs (except approved Sulphadimethoxine, sulphabromomethazine and sulfaethoxypyridazine)
19	Fluoroquinolones
20	Glycopeptides

Annex 6: Responsibilities of ICS Committee Members

DUTIES & RESPONSIBILITIES OF ICS TEAM		
Designation	Person	Duties and Responsibilities
INTERNAL CONTROL SYSTEM COMMITTEE	President of the Society as ICS Coordinator and 2 to 3 members chosen by Society Members	<ul style="list-style-type: none"> • Overall responsibility of the certification • Meets every month at a convenient location • Identification of requisite certifying programme / Agency in consultation with President and members of Aqua Society • Internal Auditing to verify the compliance of culture operation of the aqua society in relation to agreed norms / terms & conditions (Standards) • Coordinates with Internal Inspectors / Auditors on the culture operations and issues out sanction letters regarding anomalies as reported by Internal Auditors • Carry out certifying agency audit recommendations and report compliance within specified time. • Forwards certificate received to the respective aqua society • Meets at the end of end of every crop regarding crop review and recommends modification in the certification programme accordingly
ICS COORDINATOR	President of the Society	<p>President is the key personnel who exert control on the members of the Aqua Society to ensure the following:</p> <ul style="list-style-type: none"> • The culture operations are carried out as per the agreed norms and conditions as outlined by the SOP (Pond preparation, seed selection, stocking density, Bio security, Cleanliness & hygiene etc.,) • All the inputs to respective ponds are duly documented on a daily basis • The Hydrographical parameters and effluent quality are monitored regularly and duly documented • The Culture operation co exists with the village

		<p>interests without brooding any social issues</p> <ul style="list-style-type: none"> • Employers / labors are compensated adequately as per the prevailing norms and no deployment of Child labor. • Co-operation is maintained among and between the members of the Aqua Societies
PROGRAMME MANAGER	Field Manager of the area	<ul style="list-style-type: none"> • Visit the Society once in every month • Inspects ongoing culture operations • Verify the Pond Data Register to ensure all requisite data are recorded on a daily basis • Countersign as proof of verification • The anomalies (as reported by Internal Inspectors / Auditors) are discussed and seek compliance of such recommended actions within specified time in records.
INTERNAL INSPECTORS / AUDITORS	<ol style="list-style-type: none"> 1. President of the Society 2. A farmer of the Society 3. Internal inspector of another Society 4. A farmer from another society 	<p>Verifies the following :</p> <ul style="list-style-type: none"> • List of the farmer mentioning Name, Area(Ha) and Number of ponds • Seed Stocking details (Source Hatchery, Test reports brood stock, Nauplius, PL; Number stocked & Stocking density) • Monitoring of Hydrographical parameters (Salinity, Temperature, pH, Dissolved oxygen , Ammonia etc.,) and documentation of the same • Feed & Feeding (ration, frequency, type) and documentation of the same • Inputs (Usage of Chemicals, Probiotics : Usage of any banned chemical need to be reported) and documentation of the same • Periodical sampling of the population - Growth - Survival and Biomass estimation • Assessment of the extent of Compliance of Culture operation to that of Agreed Standards and reports to ICS committee
PURCHASER	Secretary cum Treasurer	<ul style="list-style-type: none"> • Reports to the President • Coordinates all the receipts / purchases of inputs for

		<p>the society and appraises President and ICS Committee accordingly towards up keep of accounts.</p> <ul style="list-style-type: none"> Ensures that all the harvested material are handed over to the agreed processor and collects good receipt note from the processing plant
DOCUMENTATION OFFICER	Society Coordinator	<ul style="list-style-type: none"> Reports to the President of the Aqua Society Routine measurement of Hydrographical parameters of pond water of all the ponds of the Society and documenting the same on daily basis Measurement of water quality of source and discharge water periodically as per requirement Monitoring of all pond inputs (feed, fertilizer, probiotics etc.) and documenting the same on daily basis Documentation of all details pertaining to culture operation (hours of operation of pumping, aerators, usage of fuel etc., Maintains SOP document, work instructions, data entry formats duly updated and copy of Standards of Certification programme Maintains traceability records Present all the documentation to ICS committee, Programme Manager, Inspection team and the External Auditing as per requirement. Minimum retention period of record is 3 years

Annex 7: Sample Checklist for Internal Auditing

GROUP CERTIFICATION OF AQUA SOCIETY - CHECKLIST FOR INTERNAL AUDITING				
S.No	Requirements	Existing	Needed	Remarks
A.	Legal (Society Formation; Registrations & Approvals)			
1	State Registration			
2	CAA Registration			
3	MPEDA Registration			
4	Farm identification number			
5	List of farmers (Name, Address, Area, Number of ponds, date of entry etc.,)			
6	Contract between member & the Society			
7	Photo and Specimen signatures of the members			
8	Farm map			
9	Registration certificates (State, CAA & MPEDA in India)			
10	Copy of the registered memorandum along with up-to-date bye-laws with amendments made from time to time			
11	The minutes book			
B.	Accounts			

12	Accounts of all assets and liabilities of the society			
13	Accounts of all sums of money received and disbursement by the society and their respective purposes			
14	Ledger cum cash book			
15	Bank account Passbook			
16	Accounts of all purchases and sales of goods by the society			
17	Copies of the audit reports and if any , and compliance reports thereon			
18	Receipt Book			
19	Voucher Book			
20	Letter Pad of Society			
C.	Farm Sitting			
21	Location			
22	Farm infrastructure			
23	Water Intake			
24	Water drainage			
D	Adoption of BMPs / Operations			
25	SOP (Standard Operating Procedure) based on BMP (Better Management Practices)			
26	Crop planning details			

27	Pond preparation			
28	Candidate species			
29	Seed Sourcing (Is it through contract hatchery system)			
30	Seed (Laboratory test reports, Packing & Transportation details, Acclimatization details)			
31	Stocking density (Is it within the limits as mentioned in CAA Certificate)			
32	Measurement & recording of Hydrographical data (Whether data entry done in Pond Data Register?)			
33	Feed and feeding (Quality, type, ration, frequency and mode of feeding) (Whether data entry done in Pond Data Register?)			
34	Pond inputs (Lime, Chemicals , Probiotics etc.,) (Whether data entry done in Pond Data Register?)			
35	Growth Monitoring (Is periodical sampling is done?) (Whether data entry done in Pond Data Register?)			

36	Health Check - How is health check done periodically? Whether data entry done in Pond Data Register?			
37	Crop Harvest details (Date of harvest, ABW (g) at Harvest, Harvested Quantity (Kg) - count wise)			
E	ICS			
38	a) How often meetings are held? b) Attendance of the meeting.. c) Is the discussions are recorded? d) Whether farmers have undergone ICS training?			
F	Bio security			
39	Water treatment (filtration / disinfection or both?)			
40	Crab Fencing			
41	Bird net			
42	Others a) Disinfection of tools b) Foot dips c) Provision for washing hands & legs for workers before and after the work			
G	Food Safety			
43	Usage of Anti biotic and Banned Chemicals			

44	Whether sample of shrimp is subjected to ELISA Test for detecting the residues of antibiotics & banned chemicals prior to harvest			
H	Traceability			
45	Certificate from the feed manufacturer that the shrimp feed is free of banned chemicals and antibiotics and GMO raw materials.			
46	Certificate from the hatchery that the shrimp seed was raised free of banned chemicals and antibiotics at the hatchery			
47	Certificate from the Chemical / Probiotics / feed manufacturer that their products is free of banned chemicals and antibiotics			
I	Documentation			
48	Whether data pertaining to culture operation is being entered regularly in the requisite format in Pond Data Register?			
J	Environmental			

49	Are there agricultural fields nearby to the farm? What is the distance? Is there any buffer zone between aqua ponds and agriculture fields? Is the pond outlet water getting discharged closer to Agriculture fields?			
50	Usage of underground water (fresh / saline)			
51	Energy (current / Diesel)			
K	Social			
52	Are aquaculture ponds blocking the way of access of traditional fishing grounds?			
53	Is aquaculture activity causing salinization of fresh water wells of nearby village?			
54	Deployment of child labour			
55	Preference to local villagers for employment			
56	Payment of wages to employees (at par with industry?)			
57	Working conditions for the workers at the farm			