

AQUACULTURE IN SRI LANKA

History, current status and future potential



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1. INTRODUCTION

The World Food and Agriculture Organisation (FAO) predict that the world's population will reach over 9 billion within 2050, which is approximately 34% higher than today. Nearly all of this population increase is expected to occur in developing countries. Urbanization will also continue at an accelerated pace, and about 70% of the world's population will become urban over next 3 decades (compared to 49% today). In addition, income levels in 2050 will be many multiples of what they are now. Hence, the biggest challenge in the future will be to find ways to feed this larger, more urban and richer population. FAO has forecasted sea catches to stop growing at 85 – 90 million tonnes a year and all incremental demands would have to be met by culturing. By 2030 aquaculture production is estimated to reach more than 90 – 95 million tonnes, a prognosis based on 3% annual growth. Moreover, to support projected food demands in 2050, production must rise an estimated 70% above current values to allow the global population to continue to consume seafood products at the current rate. Thus, the expected deficits in food supply the next decades are currently being targeted by several stakeholders, NGOs and Governments around the world.

Compared to other industries, aquaculture has proven to be an efficient catalyst for production of seafood world-wide. Moreover, aquaculture has arisen as the major mode of food production in order to maintain the current *per capita* consumption with an average annual growth rate of 11% since 1984. Thus, aquaculture is expected to increase rapidly in volumes and diversity of cultured species, and thereby become the main source to food and protein supply in the future. However, the success rate will, among others, be influenced by development of adequate technical innovations, availability on feed ingredients, cooperation between Governments, and sharing of technology and know-how between aquaculturists.

Sri Lanka is now in the process of embarking on a very ambitious aquaculture development plan, targeting doubling of aquaculture production to 95,000 metric tonnes (MT). This goal will be met through sustainable aquaculture development, addressing technology transfer, training programmes, food safety and quality, and environmental integrity.

2. SRILANKAN AQUACULTURE - HISTORY

Sri Lanka is more or less designed for aquaculture with a total coastline of approximately 1,700 km. The total extent of lagoons and estuaries has been estimated to be 121,000 hectare (ha). Adjoining these estuaries and lagoons are extensive area of low-laying delta lands estimated at 70,000 hectare.

The aquaculture industry in Sri Lanka started in the early 1980's with few large multinational companies and few medium scale entrepreneurs embarked on shrimp farming. Due to political unrest, the pioneer period developed slowly up to early 1990's. However, during the period 1992 – 1996 there was a rapid, and uncontrolled, development in the shrimp farming industry due to attractive public investment incentives and high economic return. In this period, they produced 8,000 – 9,000 kg/ha/year (stocked at 30 – 40 shrimps m⁻²) in classical earthen ponds. Small-scale farm

of around 0.5 – 1.0 ha were developed in clusters mainly encroaching lagoons, reservations and in ecologically sensitive areas (mangroves, salt marshes, inter tidal mud flats, coconut plantations). The total number of farms amounted close to 1,400 with over 70 hatcheries, and a total area of 4,500 ha was allocated for shrimp farming including areas used for reservoir purposes. However, due to a lack of proper law enforcement and poor environmental planning, the rapid development culminated in close to 47% of all farms being illegal establishments operating without proper licences. Moreover, the lack of coastal zone management and infrastructure development lead the industry into the so-called “self-pollution effect”. Thus, from 1996 the industry started to suffer due to disease outbreaks and environmental problems, and almost all the farming activities became restricted to a narrow coastal belt of approximately 120 km by 10 km in the North Western Province.

Between 1998 and 2004, the industry was characterised by volatile boom-and-boosts, with unsure conditions caused by multiple disease outbreaks. The number of farmers was dramatically reduced and the vast coastal belt area undertaken to aquaculture became unsuitable for farming. After 2004, Sri Lanka has slowly been developing the aquaculture industry in a positive direction, learned from the lessons done. The industry started in 2005 to develop closed and semi-closed production systems as well as fully recirculated systems for shrimp and finfish aquaculture.

3. SRILANKAN AQUACULTURE – CURRENT STATUS

Nowadays Sri Lanka has a limited, but stable, shrimp production and a growing aquaculture production of finfish. So far, the main focus has been to start in small scale where fish farming is aiming to support smaller local communities with income and food supply. During the last few years, numerous trial projects have been established in different regions of the country with over 1,000 smaller cages installed. Based on the current experience with cage farming, there is a growing interest to install bigger sea cages with circumference up to 60 meters in the northeast areas of the island.

The land-based farming sector in Sri Lanka is also receiving increased attention. Traditional earthen pond farming of shrimp and finfish is slowly increasing, and farmers are now following a strict coastal zone management plan regulating the time for stocking and harvest in different farming regions. Stocking densities are steadily increasing with good environmental monitoring and control. In addition, several international technology suppliers, including companies from Norway, have in the recent years initiated and established larger commercial production units for Barramundi or Asian sea bass (locally referred to as Modha in Sri Lanka) and Tilapia in recirculating aquaculture systems (RAS).

The commonly applied technology level is also subject to major improvements at the moment. Mitigating measures like real-time environmental alerts have been tried out in 2012. Shrimp farmers in Chilaw, the main shrimp-farming centre in the North-Western Province, successfully tried a new remote alarm solution to avoid or minimise negative effects on production from adjacent areas/farmers.

Investigations done by the National Aquaculture Development Authority (NAQDA) revealed that over 8,500 ha in Sri Lanka can be developed into aquaculture. At present only 25% of these areas are used for aquaculture of various species, and feasibility

studies have documented that aquaculture can be undertaken in these areas with reduced biological risks. NAQDA also evaluated the water quality at several new locations in the Northern Province showing acceptable levels of dissolved oxygen, pH, salinity and alkalinity. Sri Lanka has developed a good infrastructure in the fishery sector which is suitable for large quantity export to markets willing to pay a surplus price for high quality seafood products.

At present, Sri Lanka is emerging as a target country for foreign investment in aquaculture. During the last 2 – 3 years investments have been made from countries like Norway, Scotland, Vietnam, Japan, USA and Canada. Investments are directed into hatcheries, land-based on-growing systems, sea cages, and development of infrastructure facilities such as roads, common inlet/outlet canals for water intake and release, sedimentation canals, ponds, electricity, etc. This reflects the strong beliefs from the Government of Sri Lanka, investors and aquaculturists that aquaculture in Sri Lanka has the potential to generate substantial foreign exchange earnings and profits. Moreover, with the support of the Sri Lankan government, linkages have been established between government, breeders, farm-zone managers and academic experts. This allows for effective sharing of information between farmers where feedback from farmers is providing the Ministry of Fisheries with relevant and practical information utilised to transform generic Best-Management-Practices into local policies, plans and actions.

4. SRILANKAN AQUACULTURE – FUTURE POTENTIAL

Sri Lanka wants to strengthen their value-chain in aquaculture including brood-stock/domestication, juvenile production, feed development/production, on-growing and marketing. With the unique geographical location in South-East Asia, Sri Lanka aims to become a major player within the growing aquaculture industry in the region. The current development going on in the northern areas of the island, generates new opportunities by enabling access to many virgin areas well suited for aquaculture of brackish as well as marine species.

According to FAO, about 50% of seafood now comes from aquaculture, yet 90% of Sri Lanka's seafood is still wild-caught. This represents a good business opportunity for Norwegian aquaculture technology suppliers. Aquaculture is now changing from a subsector into a concentrated commodity production, aiming for advanced technology level with development towards a sustainable industry in all water bodies (freshwater, brackish water and at sea). The future potential for aquaculture in Sri Lanka is of course unique in Asia.

Norway has been successful in terms of developing the salmon farming industry, and is today the second biggest seafood exporter in the world. The Norwegian salmon farming industry has been successful in developing vaccines, environmentally sustainable production technologies and efficient feed to support a fast industrial growth. In addition, Norway has led a long-term cutting edge R&D on developing new aquaculture species and many radical innovations in fish/shellfish farming technology. Thus, the timing has never been better to start commercial business ventures on a bilateral level between Sri Lanka and Norway. Sri Lanka has the ability to learn from the

Norwegian success history on several layers, and implement relevant know-how, vaccines, technology and framework into local conditions.

5. FINAL REMARKS

The Sri Lanka-Norway Industrial Cooperation Program funded by the Norwegian Agency for Development Cooperation (NORAD), also known as the Business Match-Making Program (BMMP) has been active for almost 20 years. The objective of the program is to transfer Norwegian competence to Sri Lanka through a match-making process. Several Norwegian companies within the aquaculture sector have participated over the years, and valuable experiences are available. In the coming years it is especially interesting for the BMMP to establish contact with relevant companies that cover the value chain in industrial aquaculture.

As part of the BMMP initiative on aquaculture, a delegation from Sri Lanka will attend the AquaNor exhibition in 2013. The delegates come from the different segments of the aquaculture industry, represented by:

Prema	Cooray	CCC Solutions	CEO
Gerry	Suraweera	CCC Solutions	Director
Channa	Weeratunga	Global Sea Foods (Pvt) Ltd	Col.
Irfan	Thassim	Oceanpick (Pvt) Ltd	Director
Roshan	Fernando	Tropic Fishery (Pvt) Ltd	MD
Anura	Paranagama	Aqua'n' Green (Pvt) Ltd	Chairman/CEO
Harsha Kumara	Navaratne	Sewalanka Foundation	Dr./Chairman

For more information on the delegates, please see Appendix below.

The seminar at AquaNor will be held on the August 15 at meeting room **M1bc**. Mr. Inge Reithaug from Advance Business Partner AS is the Norwegian coordinator in the BMMP and can be contacted at:

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APPENDIX

Brief presentation of the delegates from Sri Lanka attending the AquaNor exhibition and seminar:

Global Sea Foods (Pvt) Ltd www.amaseuro.com
Col. Channa Weeratunga channa@amaseuo.com

Global Sea Foods (Pvt) Ltd is a BOI approved sea food processing and exporting company registered in Sri Lanka, member of NCE and also a subsidiary of AMASEURO Holdings, a group of companies which owns, few more export oriented industries. Global Sea Foods (GSF) has been in operation in 15 years and is the second biggest sea-food exporter in the country. It specializes in exporting of Tuna, Mahi Mahi, Sword fish, Wahoo and other pelagic fish processed products to Europe, Japan and USA sourced from sustainable fisheries. The company is seriously considering entering into the aquaculture industry due to the decrease in the wild catch. We are currently exporting to the European Union niche markets and supplying to Marks & Spencer, Carrefour, Tesco to name a few and our products are also found in supermarkets across the US.

GSF is examining the possibilities of exportable species, especially to the EU markets, and Sea Bass and Abalone are identified as the most potential species. We are also looking at the opportunities for possible joint ventures in Sri Lanka along with potential investors who may be interested in exploring the vast virgin water bodies and coastal land areas now available after thirty long years of war in the north and east of Sri Lanka. Reasonable amount of investigations have been carried out and the outcome is promising.

Oceanpick (Pvt) Ltd.
Irfan Thassim, Founder/Director irfant@oceanpick.com

The Company was incorporated in late 2011 by a professional with two decades of business experience in leadership roles with a flagship corporate in Sri Lanka. He, however, envisioned using Sri Lanka's oceanic resources more fully and left his corporate career to venture into oceanic farming. His exploration tour of Europe to gain in depth knowledge of the salmon farming technology proved the deciding factor in wanting to bring the same technology to Sri Lankan waters, of course for warm water species. It was then that he met with a Scottish salmon farming company who later became his JV partner.

Objective/Vision : OPL's primary objective remains to pioneer sea cage farming in Sri Lanka oceans and is intent on becoming the benchmark for the industry that may follow. It proposes the setting up and growing the business into a large scale operation that will focus on the production and supply of quality marine fish, both locally and internationally.

Tropic Fishery (Pvt) Ltd, MD
Roshan Fernando/CEO

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roshan@tropicfish.lk

Tropic Fishery is the leading sea-food exporter from Sri Lanka to European, Japanese and US markets and has a state of the art processing factory in Negombo and a canning factory in Peliyagoda. Tropic Frozen Food and Tropic Fishery Pvt Ltd. (Fishing Subsidiary) has maintained status as the largest tuna exporter from Sri Lanka to date. Tropic Frozen Foods pioneered Sri Lanka's renowned Tuna Industry and holds the approval # DFAR/FPE/01.

Our company is now venturing out to look for JV partnerships and technical assistance to harness the potential that is now availed for coastal fisheries resources in the North and East of Sri Lanka. We are looking for business collaboration partners that can access our company's strengths and available facilities to develop joint ventures in the following areas:

1. Marine Aquaculture: Setting up of sea cages and related facilities as a joint venture to culture high valued fin fish for European and South East Asian chilled "Sashimi, Sushi Markets". We also hope to make contacts to access technology transfer and equipment supply to enable our company to pioneer in setting up such ventures in Sri Lanka. Our company has the backing of high standards of processing and marketing mainly in South East Asian markets where the demand of such high valued Mari -cultured species is growing and such a venture will be supported with technical know-how from more experienced entities.
2. Processing and sale of Norwegian Frozen Fish for processing and distribution to our company current market demands.

Our company has the backing of high standards of processing and marketing mainly in South East Asian markets where the demand of such high valued Mari-cultured species is growing and such a venture will be supported with technical know-how from more experienced entities.

Aqua n' Green (Pvt) Ltd,
Anura Paranagama, MD

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anura@aquangreen.com

The promoters of the company have 20 years of experience in aquaculture and have recently started sea food processing. Shrimp (*P.monodon*) and marine fin fish (*Lates calcarifer*) are the current culture species. The company owns a marine fin fish hatchery with capacity of 1,000,000 (day 14) fish fry per production cycle, nursery and fish cage farms installed in lagoons close to sea mouths in the east coast of Sri Lanka, where good quality Sea water is in abundance. The company is in the process of setting up a state of the art sea food processing plant in the east coast of Sri Lanka close to the farming sites.

Currently, the company is involved in a big project in the Trincomalee area which has been supported by the USAID and the Sri Lankan government. Project involves fish cage farming and already 100 outgrower families have been trained. New processing factory is almost complete and machinery for processing fish feed has been imported. They

possess technology to produce their own fish fingerlings and require operating capital to move to the next stage. They also require technology to improve their fish feed.

Aqua n' Green hope to meet potential partners for development of their plans to produce and process 4000 MT fish annually and to outsource and process similar amounts of sea food (Shrimps, crab, squids, tuna) in the plant.

Sewalanka Foundation

Dr. Harsha Kumara Navaratne, Chairman

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headquarters@sewalanka.org

Sewalanka is a foundation to venture into commercial activities. For the last 20 years it has been a service organization funded by Germany, USAID and Norad has a deep involvement and the capacity to promote aquaculture in Sri Lanka.

Today, Sevalanka implements several agricultural, fisheries and microenterprise development projects in 20 districts, east and north of the island. It is running several pilot projects farming tilapia and is faced with a number of environmental challenges, e.g. water supply and treatment. They look for technology partners that can find solutions to reduce the use of water as well as to recycle and make further use as it.

Sewalanka is planning to set up:

- Fresh water fish hatchery/nursery in Kilinochchi for farming of GMF tilapia and carps, with a capacity of 2 million fingerlings per annum
- Tilapia farming and processing facility (in planning stage)

The land and basic facilities are already available for a planned hatchery. We are seeking an international partner with aquaculture experience to provide technical inputs, invest in the hatching and processing facility, and assist with international market links.