

REPORT

Roundtable Discussion



28
July
2014

Developing an Advanced Marine Craft for Deep Sea Fishing

**Coordinating Secretariat for Science
Technology & Innovation**



ORGANIZING TEAM

Prof. Sirimali Fernando, Chief Executive Officer, COSTI

Prof. Ajith de Alwis, Project Director, COSTI

**Eng. Mangala Yapa, Co-chair National Council on Advance Design and
Manufacturing**

**Prof. S D Pathirana, Co-chair National Council on Advance Design and
Manufacturing**

Ms Maheeni Samarakoon Singappuli, Deputy Manager, COSTI

Mr Tharmendra Pullendran, Deputy Manager, COSTI

Ms Amali Ranasinghe, Project Scientist, COSTI

Ms Vajira Perera, Project Secretary

REPORT PREPARED BY

Coordinating Secretariat for Science Technology and Innovation

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EXECUTIVE SUMMARY

This report presents a summary of presentations made by Prof. Ajith de Alwis, Project Director, COSTI and Eng. Mangala Yapa, Co-chair, National Council on Advanced Designing and Manufacturing/ Ex. Managing Director, Colombo Dockyard PLC and suggestions being made by the stakeholders during the panel discussion. The workshop was organized by the Coordinating Secretariat for Science, Technology & Innovation (COSTI) with the objectives of;

- (1) Recognizing the factors that impede efficient and sustainable harvest of deep sea fish resources.
- (2) Identify specific needs and priorities for deep sea fishing industry in Sri Lanka
- (3) Identify advanced technologies for designing and developing an advance marine craft for deep sea fishing
- (4) Identify potential private sector collaborators to establish partnerships

Participants representing both public and private sectors participated at the discussion. Participants represented the private sector fishing community on boat building, processing & fish exporting industry and scientists and academia representing the public sector. The workshop was graced by Prof. Tissa Vitarana, Hon. Senior Minister for Scientific Affairs as the chief guest.

The report underlines the key suggestions extracted during the discussions to seek possibilities of alternative energy sources during vessel designing and to improve post-harvest handling practices to maximize the usage of harvest.

MEETING AGENDA

Roundtable Discussion on Developing Advanced Marine Craft for Deep Sea Fishing

28 July 2014

The Conference Room, Senior Minister's Secretariat, Colombo 03

| | |
|---------------|--|
| 09.00 – 09.30 | Registration |
| 09.30 – 09.50 | Introduction to the roundtable discussion <i>Prof. Ajith de Alwis, Project Director, COSTI</i> |
| 9.50 – 10.15 | Address by the Hon Senior Minister <i>Prof. Tissa Vitarana</i> |
| 10.15 – 10.30 |  |
| 10.30 - 10.50 | Development of innovative, sustainable marine craft for exploiting ocean resources <i>Eng. Mangala Yapa, Co-chair National Council on Advance Design and Manufacturing</i> |
| 10.50 – 12.15 | Discussion Panelist: <i>Prof. Ajith de Alwis, Project Director, COSTI</i> <i>Eng. Mangala Yapa, Co-chair National Council on Advance Design and Manufacturing</i> <i>Prof. S.D. Pathirana, Co-chair National Council on Advance Design and Manufacturing</i> |
| 12.15 – 12.30 | Conclusions, Way Forward and Vote of Thanks <i>Prof. Sirimali Fernando, CEO - COSTI</i> |
| 12.30 |  |

OBJECTIVES OF THE DISCUSSION

The discussion was organized with the objectives of:

- Recognizing the factors that impede efficient and sustainable harvest of deep sea fish resources.
- Identify specific needs and priorities for deep sea fishing industry in Sri Lanka
- Identify advanced technologies for designing and developing an advance marine craft for deep sea fishing
- Identify potential private sector collaborators to establish partnerships

PRESENTATION AT – A – GLANCE

Prof. Ajith de Alwis, Project Director - COSTI

Prof. Alwis stated that Sri Lanka had already taken efforts to promote science, technology and innovation by drafting the National Science and Technology Policy and the National Science, Technology and Innovation strategy.

He comprehensively explained about the vast opportunities and potentials of the ocean that belongs to the Sri Lankan territory which remains underutilized. Particularly he mentioned about the current status of deep sea fishing industry and its contribution towards the national economy.

As mentioned by the Prof. Alwis, a national target had set of 725,000 metric tons of fish production from deep sea to be reached by 2020 which is 354 % boost from the actuals of 2012 deep sea production. He explained necessary interventions and technologies to be incorporated for achieving the fishing targets setup by the Sri Lankan Government as mentioned in the “Unstoppable Sri Lanka 2020”.

He pointed out that utilizing of our ocean resources in a sustainable way would be a key driver of economic performance of the country. It was envisaged by Prof. Alwis that, advanced technologies to be incorporated to our deep sea fishing industry in a meaningful way.

Prof. Alwis made the stakeholders aware on the Basecamp, the interactive virtual platform which will take discussions forward through sharing, communicating, collaborating and initiating dialogues for the improvement of the proposed proposal in a virtual manner.

Prof. Tissa Vitarana, Hon. Senior Minister for Scientific Affairs

The honorable senior minister explained the importance of sustainable harvesting of deep ocean resources for socio-economic benefits of the country. Prof. Vitarana further expressed his views on the proposed marine craft to contribute in a sustainable way for deep sea fishing industry of the country and as such timely initiative and interventions are essential to be in the competitive edge among the industrialized global fishing nations who are harvesting our own deep sea resource for the moment using their innovative technologies.

Eng. Mangala Yapa, Co-chair National Council on Advance Design and Manufacturing

Eng. Yapa commenced his presentation focusing on the fisheries sector of Sri Lanka and its contribution towards the social and economic aspects of the country. He explained about the

statistics of existing fishing crafts and productivity of such crafts. His presentation further focused on the proposed marine craft which is identified on Unstoppable Sri Lanka, 2020 the public investment strategy as a potential requirement for the country. Eng. Yapa emphasized the need for effective transformation of technologies to reduce fossil fuel consumption by present marine fishing crafts of Sri Lanka via optimal utilization of renewable energy specifically the hybrid technology. Further it was stated in order to achieve technical know-how different modes of industry collaboration and technology transfer to be introduced.

Further, he mentioned about the mother vessel concept of fishing. Sri Lanka introduced the concept to Maldives, and Sri Lanka built such vessels for Maldives fisheries sector. But still Sri Lanka is not practicing the concept though; it is more sustainable economically and environmentally than deploying many numbers of smaller vessels.

Prof Sirimalee Fernando, CEO - COSTI

Prof. Fernando highlighted the need for a stronger organizational and management structure for the successful functioning of the project and importance of investment from the private sector to make the project a success. Any contribution/investment towards the project will be evaluated for triple tax benefit imposed by the Sri Lankan government to encourage research investments by the private sector.

DISCUSSION

The session was chaired by Prof. Ajith de Alwis, Project Director, COSTI together with the panelist Eng. Mangala Yapa, Co- Chair, National Council on Advanced Designing and Manufacturing.

The participants expressed their views on significance of the project while contributing towards technological and economic considerations for improving the proposed craft during planning and designing phase with the following valuable contributions:

1. Cost-benefit analysis on the proposed boat to be carried-out to ensure the affordability of marketing the proposed craft among the Sri Lankan fishermen/fishing companies.
2. The hulls of current fishing boats of Sri Lanka are not suitably designed. Thus considerable attention to be paid for designing of hulls appropriately. Designs are available internationally to access via paying a royalty and it would be most appropriate to purchase a design through this mode. However any vessel must be financially affordable for Sri Lankan fishing community.
3. Proposed vessel to be designed with a higher area capacity to be economically feasible rather than operating many smaller boats with improved fishing methods and gears. Additionally appropriate fishing gear technology, regulatory measures [not only local, but also international such as Indian Ocean Tuna Commission (IOTC)] and discipline of the industry stakeholders especially fishing crews to be considered for the better performance of the industry.
4. When developing a new design for a marine craft, oceanographical conditions of the Indian Ocean and behavioral patterns of Tuna species to be considered comprehensively since our deep sea fishery is still targeting on tuna schools.
5. Advanced technologies such as satellite data/remote sensing and GIS to be integrated into our deep sea fishery industry as other industrial fishing nations practice. Especially for searching fishing grounds.
6. Instead of artisanal fleets every year, a fleet development plan introducing industrial fishing vessels that operate purse seines and longlines to be considered. One larger vessel can introduce by replacing number of expired small non-economical artisanal fleets. Licensing small vessels can be minimized, limit or stop issuing new license as we need to change our fishing strategy.
7. We need to go for FADs (Fish Aggregating Devices) which deployed in greater depths (>1500 m) to attract free swimming schools to become associated schools. So that we can

trap free-schools in to our waters as other countries (eg: Japan) do. Sri Lanka may have 40-50 anchored FADs (aFADs) by deploying 4-5 FADs per year. After 10 years we will have sufficient numbers of FADs for purse seine fishery. Cost for a FAD will be around 15,000 US\$.

8. Post-harvesting practices to be considered seriously to meet the international standards. Necessary facilities for post harvesting practices also to be included in the proposed design.
9. Conducting stock assessment or any other research on tuna only by ourselves is not much precise as tuna is highly migratory species and therefore collective partnerships with other fishing nations of Indian Ocean is required.
10. We need to have a master plan to strengthen our fishing capacity in line with the economic perspectives of the country.
11. Reporting reliable catch statistics to IOTC and fishing in compliance with IOTC management measures are very important.
12. Boat builders of Sri Lanka produce fishing boats based on the feedback given by the fishermen. Therefore minimal focus remains for improving the vessels with advanced high-end technologies. A national level intervention to develop and manufacture marine crafts for deep sea fishing for increasing the harvest and reducing the cost of production would be a productive investment. Most importantly we must understand appropriately the current limitations of available fishing crafts while consulting fishermen as well.
13. The boat builders of Sri Lanka should target the global market also and therefore need to compete with the products manufactured by the international boat builders as Sri Lankan boat building industry has the capacity of manufacturing crafts with advanced and novel technologies.

The video clip which was displayed by North-West Marine Lanka (Pvt) Ltd clearly demonstrated the capacity of boat builders of Sri Lanka.

14. Improve inland fishing sector to address per capita fish consumption and food security of the country, while attempting more on deep sea fishing for commercial fishery to cater the export market.

KEY SUGGESTIONS

1. The project to move as a public private partnership (PPP)
2. The design of the craft should include
 - Strategies for reducing fuel/energy consumption
 - Strategies to apply renewable energy sources (e.g.: Solar, wind or hybrid system with appropriate switching and integration)
 - Advance facilities for post-harvest handling (space for fish handling/pre-processing during postharvest practices, refrigerated sea water (RSW) facility and -20 ° C to -60 ° C deep freezing facility)
 - Technologies for searching fishing grounds
 - Safety measures for the fishing crew
3. Identification of fishermen's point of views, concerns and suggestions and consideration to incorporate into the future technology development activities
4. Fishing technology/fishing gears for the boat to be included while considering the regulations of IOTC, sustainability of fishing, target fishing etc.
5. Size of the vessel, improved gears and gear operating instruments, onboard technology and fishing skills are some of the areas to be improved.
6. Incorporating of advanced technologies such as remote sensing, GIS into our fisheries sector to be considered in parallel to this marine craft project proposal.
7. Private sector partners such as Global Seafoods Pvt Ltd. expressed willingness for investing on the project. Further Neil Marine Pvt Ltd agreed to see possibilities for partnering the project.
8. All participants were expressing their willingness for an organizational structure in-line with the SLINTEC model.

Annex 1: LIST OF PARTICIPANTS

| No | Name | Institute |
|----|------------------------------|----------------------------------|
| 1 | Mr Pesala S. Jayawardana | Universal power Satar Pvt Ltd |
| 2 | Prof. Ajith de Alwis | COSTI |
| 3 | Prof. S. Fernando | COSTI |
| 4 | Mr Akalanka Kumara | Nikini Automation (Pvt) Ltd |
| 5 | Col Channa Weerathunga | Global Seafood (Pvt) Ltd |
| 6 | Cdr R. B. K. Pathirana | Kothelawala Defense University |
| 7 | Eng S. B. S. Jayathilake | Colombo Dockyard PLC |
| 8 | Cdr T. B. Daniel | Sri Lanka NAVY |
| 9 | Eng Mangala P.B. Yapa | COSTI |
| 10 | Dr W.K. Wimalasiri | University of Moratuwa |
| 11 | Dr S. G. Aberathne | University of Peradeniya |
| 12 | Dr Jayathu Samarawickrama | University of Moratuwa |
| 13 | Mr Ajith Gunarathne | NARA |
| 14 | Mr Manjula Perera | Windforce (Pvt) Ltd |
| 15 | Mr Jagath Rajapaksha | NARA |
| 16 | Dr K. Arulanandan | NARA |
| 17 | Mr N. B. P. Punyadeva | NARA |
| 18 | Ms M.A.G. Hiranya Nandasena | Soil Tech (pvt)Ltd |
| 19 | Mr Asnaga Thanthirige | Soil Tech (pvt)Ltd |
| 20 | Ms Maheeni Samarakoon | COSTI |
| 21 | Ms Amali Ranasinghe | COSTI |
| 22 | Ms Sachi Panawala | COSTI |
| 23 | Dr. Nobel Jayasuriya | COSTI |
| 24 | Mr Ariyaseela Wickramanayake | Master Divers |
| 25 | Mr Sanath Edirisinghe | Northwest Marine Lanka (Pvt) Ltd |
| 26 | Mr Jagath Chammika | Northwest Marine Lanka (Pvt) Ltd |
| 27 | Mr Neil Fernando | Neil Marine Penthouse Group |

