

Cost and resolution of the fishing dispute between Sri Lanka and India

■ The fish catch in Mannar also declined by 17 per cent between 2012 (13,450) and 2013 (11,110) and by another 12 per cent between 2014 (22,130) and 2015 (19,390).

The plausible cause of this non-linear change in fish catch in Jaffna, Kilinochchi, and Mannar districts could be the increase in poaching by Indian trawlers. Such considerable fluctuations are an indication of the extra-territorial restrictions imposed on the fisherpersons and the fishing industry in the post-civil war Northern Province.

The fishing sub-sector contributed only 1.7 per cent to the national economy of Sri Lanka in 2010 which decreased to 1.4 per cent in 2015. In contrast, the fishing sub-sector contributed 3.7 per cent to the northern provincial economy in 2010, which significantly increased to 5.6 per cent in 2015 (the latest year for which provincial GDP data is available). If not for poaching, the fishing sub-sector's contribution to the northern provincial economy might have been even greater.

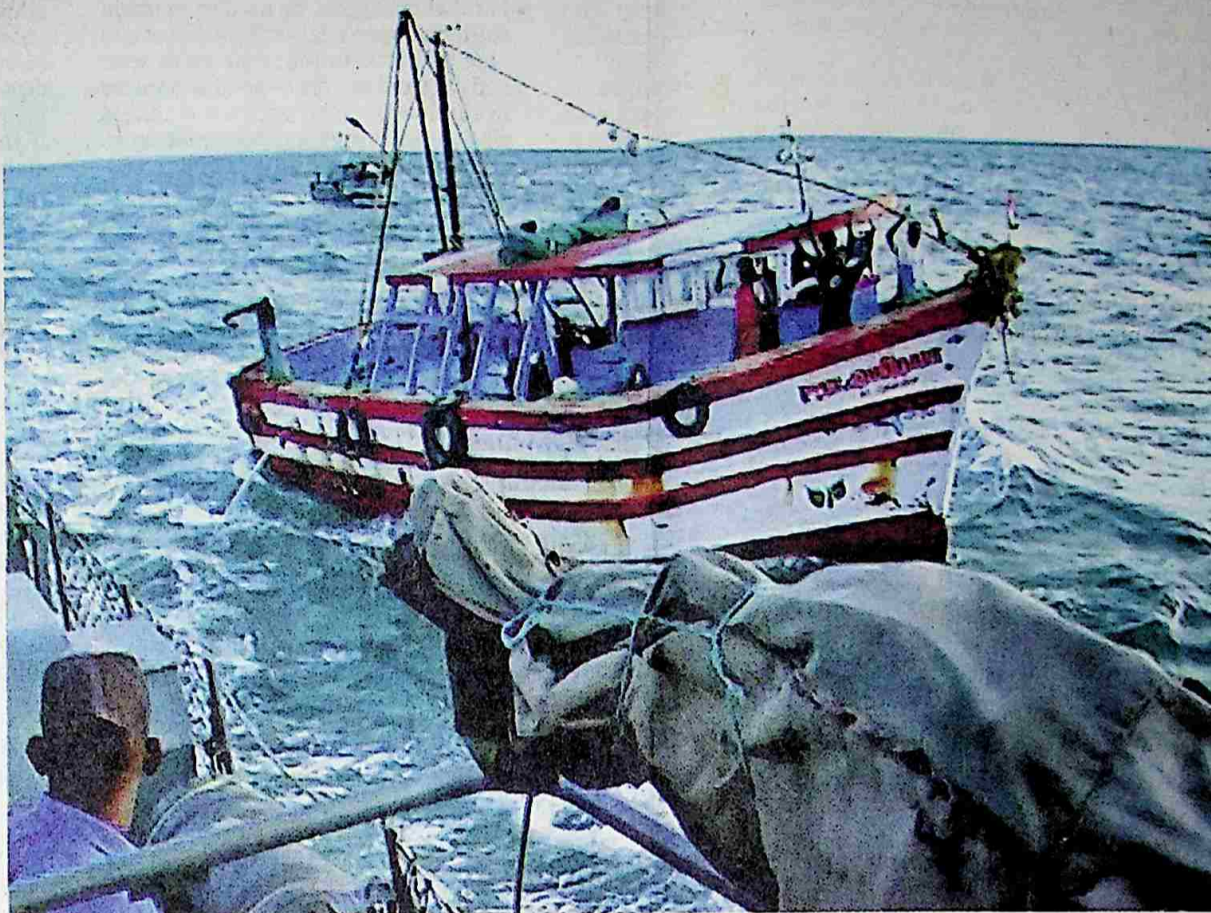
De-development of fishing in northern Sri Lanka

The estimation of the economic and livelihood losses caused by poaching by Indian trawlers is difficult to calculate. The fish are not bound in any way by the maritime boundaries between different countries. Further, it is very difficult to physically count the number of trawlers crossing over into the territorial waters of Sri Lanka as these tend to vary from day to day, and information on the types of fish caught by the poachers is impossible to verify. Moreover, the retail and wholesale prices of different varieties of fish change constantly, thus making it impossible to impute values for different varieties of fish affected by poaching.

In addition to today's losses incurred due to poaching, the fishing by bottom trawling kills future streams of income due to mass killings of under-grown fish ("by-catch") as trawlers shovel the bottom of the seabed indiscriminately. It is claimed that about 75 per cent of fish and residues ("by-catch") caught by trawl nets are non-marketable. The trawlers also irreparably damage or destroy fishing nets used by fisherpersons in Sri Lanka, thereby causing the latter to avoid fishing on the days that Indian trawlers are expected to poach in Sri Lankan waters, consequently incurring a livelihood opportunity cost.

In addition to the direct monetary losses incurred by the fishing communities in the Northern Province, there are indirect losses incurred by the entire supply chain of the fisheries sub-sector, ranging from processors of fresh fish (drying, canning, etc) to wholesalers, retailers, and the exporters of fresh and value-added fish.

There have been a few estimates of the economic value of poaching made by Dutch, Indian, and Sri Lankan fisheries experts/research-



File picture of an Indian fishing trawler poaching in Sri Lankan waters

ers in the last decade. These estimates are conjectural and indicative at best.

Some of these guesstimates are relatively better than the others. According to this author, Oscar Amarasinghe has undertaken the most systematic loss estimation to-date using 'scenario analyses', and 'sensitivity analyses', over a three year period (2006-2008). The estimates made by five different experts/researchers range from US\$16 million (lowest) to \$56 million (highest) per annum. Interestingly, the foregoing two extreme guesstimates are by persons from Tamil Nadu. The in-between guesstimates are by Dutch and Sri Lankan researchers. The average of these five different estimates is \$41 million or Rs. 5,293 million per annum.

Accordingly, the annual direct monetary loss to each member of the fishing households in the Northern Province is Rs. 28,848. This amount is derived by dividing the annual total direct losses due to poaching (Rs. 5,293 million) by the population of the total number of fishing household population (183,480). Furthermore, the annual direct monetary loss due to poaching (Rs. 5,293 million) was equivalent to 1.4 per cent of the Northern Provincial Gross Domestic Product in 2015, which was Rs. 390,689 million.

The indirect losses in terms of value addition (processing, canning, drying, etc), wholesale and retail mark-ups, and losses in seafood exports due to poaching by Indian trawlers are estimated by this author to be 50 per cent of the direct losses. Hence, the indirect losses amount to \$20.5 million or Rs. 2,646.5 million. The annual direct and indirect losses incurred due to poaching by Indian trawlers

(Rs. 7,939.5 million or \$61.5 million) amounts to 2.0 per cent of the provincial GDP of the Northern Province in 2015 (Rs. 390,689 million).

Summary of losses as follows:

- The annual direct losses incurred by Sri Lanka due to poaching are Rs. 5,293 million (\$40.5 million).
- The annual direct loss is equivalent to 1.4 per cent of the Northern Provincial GDP in 2015.
- The annual indirect loss is estimated to be Rs. 2,647 million (\$20.3 million)
- The annual direct as well as indirect loss is equivalent to 2 per cent of the Northern Provincial GDP in 2015.

A micro level study in selected coastal areas in the Mannar district has been undertaken during 2014-2015 towards an undergraduate dissertation in Sri Lanka, which reveals valuable insights on the impact of illegal fishing on local fishing communities.

Envisioning a smart dispute resolution

The chances of stopping poaching by way of intensive and effective law enforcement and/or through bipartite (between the Indian Government and Sri Lanka Government or between the leaders of the fishing communities in Tamil Nadu and Northern Sri Lanka), tripartite (between India, Sri Lanka, and Tamil Nadu), or quadripartite (India, Northern Province, Sri Lanka, and Tamil Nadu) political negotiations seem to be very remote for a variety of reasons, many of which have already been outlined above.

It is also important that Sri Lanka Navy personnel refrain from firing at Indian poachers in

Sri Lankan waters, as has happened several times during the course of Sri Lanka's long civil war, hence severely injuring, (if not killing,) such fisherpersons from Tamil Nadu. There have also been instances of fisherpersons from Northern Sri Lanka and Tamil Nadu having violently clashed with each other closer to the coastlines of the Northern Province, resulting in at least one Sri Lankan Tamil fisherperson being killed.

Given these circumstances, it is high time to explore scientific or technical dispute resolution mechanisms to resolve this long festering 'soft-conflict'. According to media reports, some time ago, there was a proposal to erect electric fences along the maritime borders between India and Sri Lanka. However, this proposal was understandably rejected by India because such an electric fence could be fatal to fisherpersons of both the countries who may trespass into each other's maritime territory inadvertently, or in an emergency under distress.

A former Principal Scientist and Scientist-in-Charge at the Madras Research Centre of the Central Marine Fisheries Research Institute of India, Dr. Mohamad Kasim, proposed the construction and deployment of artificial reefs for the restoration of the coastal ecosystems, improvement of biodiversity, and for increasing the biological resources, which in turn would increase the marine fish stock and thereby improve the livelihood of coastal fishing communities. The artificial reefs should complement the natural coral reefs and have already been successfully deployed along the coasts of Kerala state (Calicut, Kannur, and Trivandrum) and Tamil Nadu state

(Chennai, Cuddalore, Gulf of Mannar, Kalpakkam, Nagapattinam, Neelankarai, Palk Bay, Pulicat, and various other places) in India.

It is claimed that the biodiversity of the bottom living biofoulers could be greatly increased by increasing the sea bottom substratum. Shinya Otake, a Marine Biologist at Fukui Prefectural University in Japan, claims that some of the artificial reefs built in Japanese waters support a biomass of fish that is 20 times greater than similarly-sized natural reefs. A study undertaken at the Occidental College in Los Angeles confirmed the foregoing claim by revealing that the weight of fish supported by each square metre of sea floor by oil and gas rigs off the Californian coast was 27 times more than that supported by each square metre of sea floor by the natural rocky reefs.

The deployment of a three-dimensional artificial reef with dimensions 10 feet by 10 feet by 1 foot in the sea bottom will increase the surface area by 23 times as the bottom substratum increases to 230 square feet. An artificial reef of the size of these foregoing dimensions will cost about Indian Rs. 2.5 million (\$38,610 or around Sri Lankan Rs 5.4 million) and will last for a minimum period of 25 years. Such artificial reefs are most suited for deployment in shallow waters as is the case of Gulf of Mannar, Palk Bay, and Palk Strait.

In addition to increasing the marine fishery resources, artificial reefs are an effective deterrent against bottom trawling by trawler boats. The trawlers would not operate in areas with artificial reefs as it would result in severe damage to the trawl nets, and possibly the trawler boats itself. Therefore, the fishing communities in northern Sri Lanka as well as the fisheries authorities should seriously and expeditiously consider the construction and deployment of artificial reefs in the Gulf of Mannar, Palk Bay, and Palk Strait, first in order to deter the trawlers from Tamil Nadu illegally poaching in Sri Lankan waters, and second, to increase the stock of fish.

These artificial reefs could save the fishing community from dithering law enforcement agencies, inordinate delays of the legal processes, and parochial political haranguing. This scientific and technological approach could potentially result in a win-win outcome (non-zero sum game as per the game theory), for the fishing communities of northern Sri Lanka and indeed the entire supply chain of the fishing sub-sector in Sri Lanka.

(The writer is Founder and Principal Researcher of the Point Pedro Institute of Development, Thambasetty, Point Pedro, Northern Province. This is an abridged version of the article published in *Maritime Affairs: Journal of the National Maritime Foundation of India*, Volume.14, No.2, Winter 2018. He can be reached at sarvi@pointpedro.org)