Ornamental gastropod shell trade in India : A macroeconomic assessment

Shyam. S. Salim[1], I. Jagadis[2], V. Venkatesan [1], M. Kavitha [2] and K. S. Mohamed[1]
[1]*ICAR-Central Marine Fisheries Research Institute, Kochi*
[2]*Tuticorin Research Centre of ICAR-Central Marine Fisheries Research Institute, Thoothukudi*
e-mail: shyam.icar@gmail.com

The capture fisheries results in landing of sizeable amount of by-catch which includes molluscs, crustaceans (certain varieties of crabs, and Squilla spp.), finfishes (non-edible varieties), sea snakes and echinoderms. The (shellfish and fin fish) by-catch is utilized to an extent but a major

share is dumped back to the sea as it has no commercial value. The molluscan by-catch mainly consists of gastropods and bivalves, which are used in production of handicrafts and curios. It forms a niche industry restricted mainly to the coastal regions and supports a huge number of the coastal population. The ornaments and handicrafts made out of molluscan shells are becoming highly priced objects in Indian and foreign markets. Gastropods are exploited on a regular basis and sustain the ornamental/shell craft industry and a study to assess the magnitude and economic value of the industry was carried out. The study probes species wise and destination wise export- import of gastropods and socio-economics status of the people involved in the industry based on collection of data by schedules, personal interview and focused discussion with traders, labourers, boat owners, Shell pickers across selected centres of the south east coast namely Thirunelveli, Keelakarai and Ramanathapuram. The results are discussed under the following heads

(i) Species traded

The shell craft industries collect 40-45 major species of gastropods from the landing centres such as *Architectonica laevigata*, *Chicoreus virgeneus, C.ramosus, Murex tribulus, Lambis lambis, Tibia curta, Melo melo, Septa rubecula, Cymbium* sp., *Conus amadis, Conus litteratus, Telescopium telescopium, Vexillum* sp., *Harpa major, Natica* sp., *Umbonium vestiarium, Babylonia spirata, B. zeylanica, Bursa spinosa, B. margariticula, Turritella duplicata, Cypraea tigris, Haustellium* sp., *Monoplex pilearis, Ficus gracilis, Fusinus colus, Phalium glaucum, Neverita didyma, Tonna dolium, Turbinella pyrum, Xenophora corrugata, Terebellum terebellum, Purpura bufo, Volegalea cochlidium, Melo melo, Rapana rapiformis, Olive shells* etc. for their shell craft works.

(ii) Export and Import - destinations/ species

The major destinations of export are United States of America, Australia, Japan, Philippines, Vietnam, Africa, Malaysia, Belgium, Croatia, England, Haiti Island, Sri Lanka, France,Netherlands, Germany and South Africa. The major species exported are *Conus* sp., *Umbonium* sp., *Chicoreus ramosus, Lambis lambis,Babylonia spirata, B. zeylanica, Telescopium* sp., *Terebralia* sp., *Tonna* spp. and *Cerithium* sp.

The major importing countries includes USA, Mexico, New Zealand, South Africa, Australia, Phillipines, Spain and other African countries. Around 20-25 species are imported and the major species imported included *Busycon* sp., *Haliotis* sp., *Cypraea tigris, Mitrella* sp.

(iii) Resource collection and operation of the shell craft industry

These shells are mostly landed as live shells. Larger to medium sized gastropods such as Sacred Chank *Turbinella pyrum*, *Chicoreus* sp., *Hemifusus* sp., Beggar's bowl (*Cymbium melo*), *Strombus sp, etc.* are given to local merchants by fishermen themselves at the landing centres. These merchants transport all the collected shell resources to nearby shell craft industry on a daily basis. For smaller sized gastropods, fisherwomen are engaged for segregating them from the trash fish in the fish drying yards. Such segregated shells are heaped in a place adjacent to the yard till it reaches a sizable quantity, when these are packed in plastic/gunny bags and transporting by trucks to the shell craft industries.

The shell craft industries are dependent on the seashells of different shapes and size and no varieties of shells are discarded. The shell craft industry operates in four stages viz., raw material production unit, processing unit, finished whole shells and shell products unit and marketing unit .The operational cost of the selected industry indicated that Around 79% of the cost is spent for labour, 15% for raw materials, 2% for acids and chemicals, 4% for other expenses (rent/lease/ electricity/depreciation/maintenance). It is found out that for processing one ton of the finished output, 5 man days are required. Hence, for the current operation in the industry, exporting 10,000 tonnes(t), will demand 50000 employment opportunities, with an average monthly wage of ₹

9,000. The benefit-cost ratio worked out to be 3:1, which indicates that for every one rupee spent by the manufacturer he realises a return of ₹ 3.

(iv) Assessing the shell craft Industry

The magnitude of the shell craft industry in term of procurement of shells, shell collection, processing and trade was assessed through operating cost and revenue. The total estimated quantum of trade of gastropods is 11,000 tonnes (10% is contributed by imports) and the revenue around ₹ 100 crores. According to the Federation of Sea Shell Handicrafts Merchants Association (FOSSHMA), there are around 90 active sea shell handicrafts traders in India, of which 20 are very active, 30 with minimal functioning and 40 dormant units. Around 350 containers each having a capacity of 20 t are exported annually. The traders stock around 20-25,000 t annually which are sourced either locally (30%), from other parts of India (60%) and through import (10%). Among the different gastropod species procured as raw materials 75% of them are small sized. The average cost per tonne of procurement ranged from ₹ 6,000 -10000 (locally) , 10,000-15,000(within India) and ₹18,000- 35,000 (import). The economic analysis of the trade indicated the total operating cost estimated for the shell craft industry is ₹ 25 crores. The cost of the raw material ranged from ₹ 6 - 36 weighed in kilogramme or per piece and the price of the product ranged from ₹ 30-150 weighed in kilogramme or per piece. Among the total products traded to the tune of 11000 t, more than 75% of the finished products is exported, 24% is sold within the country and less than 1% of the finished products is sold in the local markets.

(v) Legal issues in gastropod trade

The Wildlife (Protection) Act, 1972 was enacted with the objective of effectively controlling poaching and illegal trade in wildlife and its derivatives. The 2002 Amendment Act which came into force in January, 2003 has made punishment and penalty for offences under the Act more stringent and also brought 24 species of molluscs in its purview. This has brought restrictions in the collection of ornamental gastropods for the trade.

The interaction with the traders revealed that the shell products were being seized by law enforcing authority even though they were abiding by the law. This problem could be linked to misidentification of gastropods by concerned authority due to lack of information. The other major threats to the resources are from tourism related activities on the beach, dumping of untreated industrial and domestic wastes into the sea, dredging operations depositing large quantities of silt which increases the turbidity of the water that result in damage to the nursing and feeding grounds of larvae and juveniles of gastropods.