

7. REORIENTING FISHERIES ECONOMICS EDUCATION IN INDIA

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Introduction

Social sciences act as catalysts for Biological sciences. The implications of social sciences whether it be extension, economics, statistics or any other discipline had taken a long stride in its development and applicability from its general nature to the specificity in the biological sciences especially in the Agricultural and allied sectors. There is no second thought in the dictum "Man is a social animal". Social sciences personifies human behaviour. There are no activities or issues which remain untouched by these sciences.

Social sciences and in particular economics is a day to day business. It is practised and prevalent in all walks of life rather unknowingly than intention. No individual business is away from its economics phenomenon operating in the concerned scenario. Fisheries sector with a lot of input-output relations, entrepreneurships, export- import activities, trade and management has got an intimate liaison with economics.

Fisheries sector had a horizontal integration with utilization of resource areas using extensive system of farming in its toddling stage. It further developed with various inputs. Supplementary stocking, fertilizers, feed etc. processed a vertically dimensioned expansion of the sector. The zenith of the sector reached with total factor productivity mechanisms. Total factor productivity considering the time factor and various aspects of total quality management (TQM) like demand feeding, niche utilization, transgenic varieties, monoculture etc sought adoption of technologies from research. TQM also provided a mechanisms of feed back for scientists bludgeoning aquaculture production with motivated capital venturists revolutionized the scenario. They went against odds for profit at social costs. It created a concern over the socio-economic problems in fisheries sector.

Socio-economic concerns of fisher folk; maximum sustainable yield; optimum economic yield ; environmental resource economics; export concerns and international trade and the like opened new vistas of thoughts under fisheries managerial economics. Managerial economics in fisheries sector opened up new dimensions and discussions in perception with whole world. After the inception of Dunkel draft and Agreement on Agriculture (AOA) VIIIth round Uruguay conference, the concept of world as a free trade zone or a single market enhanced the relevance of economics in fisheries. Now fish and fishery products are kept in the market like other commodities with lesser tariff restrictions

world over.

Removal of quantity restrictions (QR) is aimed at easing out global trade and fair distribution of resources for the entire human population. The policy matters pertaining to these have raised mind-boggling questions in fisheries sector. Fishery products being placed in the free trade market without tariff barriers and QR also poses arguments regarding product patents and process patents – the current hot topics for discussions among the intellectuals. The course works devised at graduate, post-graduate and doctoral level in fisheries science is not in par with these emerging trends. The need for re-orienting fisheries economics curricula in India is in its alarming mode.

Fisheries Economics – An Ontogeny

Fisheries is as old as any civilization. Fisheries economics originated from the time people thought of bartering fish as an alternative for fulfilling their other needs. With the increased consumption of fish, tastes were recognized for particular species. For the first time a certain palatable fish gained a good market appreciation. Excess fishes were kept in small pools for future consumption (food security) and bartering (economics).

Fisheries evolved with the mankind. Applied economics rather unknowingly than with an intention developed on its own. It could be rightly termed as common sense economics. Adam Smith and Welfare economists gave a thrust for the development of the economics as a science caused repercussions in every field and also in the fisheries sector.

Fisheries sector started applying economic tools for management, planning and sustaining fishery. Some economists started full time research and study on various aspects of fisheries. Soon all over the world fisheries economics got established as an important discipline in the academic curriculum. India also witnessed a similar developmental history. A full fledged fisheries economics discipline is a distant but needed one with several lacunae to be filled in.

Fisheries Economics Application for the Different Stake Holders

Fisheries Professional : A graduate in fisheries is required to serve in prioritized areas like aquaculture, sea food processing, feed plants, conservation and management of common property resources where he is to be a manager. Management definitely requires an economic skill for analysing feasibility of things, profit of the organization, devising new projects in research and development, marketing and purchasing.

Researchers :

A post graduate or a person pursuing academic or research career in fisheries

also requires economic tools for pursuing the research. Economic viability of a research finding is very important research prioritization also can be done by an economist. Economist is a must for project formulations and appraisal. India with its major contribution from marine fish production ranks third in the world. Stock assessment and management studies gained momentum in the last 2 decades as the CPUE decreased with increased efforts.

Post mechanization era revolutionized the marine capture fisheries sector in full fledge. The problems in marine fisheries sector are challenging. Prediction of marine fish landings based on available data, regulation measures for a sustained fishery, responsible fisheries etc emerged as priority research areas. Economic tools analysing input output relations pivoted the anchor role in such studies.

Fisheries economics, though it has got a greater role in resource management studies is still only a supporting course to the curriculum of resource management studies (P.G. programme) with only 2 credits assigned to the whole curriculum of 32 credits. Though syllabus revision has been done in this regard the academic genius' has not given the due for economics in fisheries resource management.

The proportion of diverted fund, manpower and infrastructure for economics in every fisheries research institute is not at all in relevance with the just the subject really appreciates. There is an emerging professional demand for fisheries economics, fisheries business management as a post-graduate discipline.

Policy Planners

Intellectual property rights has become a priority area of research in fisheries economics as implications of Agreement on Agriculture (AoA) is ruling the market situations now. With a variety of processed or value added fishery products in the sea food market and indigenous value – addition methods intellectual property rights is going to have an edge or even final word in the marketing of a particular fishery product. Fish sauce can be cited as an example in the world scenario. It developed as a traditional method for producing liquid fish proteins and is having a market world wide. Smoked tuna of Laccadives and bechedemer are some of the traditional Indian products of international importance which may pose a similar problem.

The above said problems are not addressed in the curricula of fisheries economics now. There is definitely a boost occurred in every sector of science and technology and related tools. It also molded a prejudiced mind of public on the impact, these tools may have on environment and health. Impact assessment studies of genetically modified organisms (GMO) is a major concern. The assessment studies or socio-economic concerns are to be addressed to an economist in the concerned scientific background and the capability of a research scholar in fisheries in this aspect to find a solution is

dubious with the negligible background economic information he possesses. Impact assessment studies are to be processed in the ambit of fisheries economics for solving GMO and related problems.

Schools of thoughts connoted from the cases of Turmeric, Azadiractin, Basmath rice issues for patents in Agriculture created wrinkles on the forehead of policy makers in other allied sectors. India with 2200 fin fish species (11% of total world fauna) with a diversified ecological distribution represents the richness of a gene pool in fisheries of Indian scenario. Conservation of biodiversity and establishment of gene banks are topics of urgent need in the foresaid school of thoughts. It is imperative that policy makers should bring a consortium of fish geneticists and economists in conserving to the question of gene pool and related concerns.

Indian fisheries sector ranks third in the world and definitely there is a need for boosting our fishery exports. A fishery graduate should be given quintessential facts on international trade, export management, shipping and the like.

Though we have discussed modern economic concepts in length and breadth there is definitely a background information to be collected from our traditional fisher-folk. Indigenous technical know how (ITK) is a topic of major concern.

Entrepreneurship

Fisheries developed from farming for sustenance to a business. The concept of a fish farmer striving for livelihood transformed to that of an entrepreneur. Graduates in fisheries should be given an orientation in entrepreneurship development. Apart from imparting knowledge, a professional course is intended for job assurance. In the revised economic curricula definitely entrepreneurship development should be given due importance.

Recommendations for Improving Fisheries Economics

Curricula

Skills are to be developed to cope up with the emerging needs of professional requirements. The curricula should be pedantic enough to make the professional fit for the demanding environment. A comparative study on the needs of a professional and his present needs reveals a lacuna on acquiring economic skills. Syllabi should be modified to suit the needs of the time.

The Uruguay VIIIth round on Agreement of Agriculture necessitates a professional from fisheries background to have fundamental concepts on WTO agreements, quantitative restrictions, non-tariff barriers, reduced subsidies, abated trade restrictions and a resulting

free trade zone. The effect of these on fisheries and policy implications on the sector should be provided as a matter of interest in the curriculum from graduate level.

Trade related intellectual property rights (TRIPS) are to be incorporated in the curriculum. As many Agricultural accommodations have gained relevance on product and process patent issues, expertise on fisheries process research and development should think of implications on the WTO Researchers and academicians should period vividly the requirements on this aspect.

The changing world scenario after the leap we had on human genome project teaches us the importance of internet gene pool and its conservation. Proper assessment of our fisheries resources and their management measures should be given priority while re-orienting the syllabus.

Advent of any technology is by modification of what is existing at present. There is a room for improvement everywhere. The traditional extensive farming systems like prawn filtration fields in Kerala (Pokkali) to the Bheries of Assam has got its own indigenous technology which could be modified and devised for a leap in the productivity concerns of fish farmer. Documentation of Indigenous Technological Know-how (ITK) is a suggested topic to be included for stinting the needs of researchers.

The public and private domains gaining in significance in the new IPR regime where the concept of globalization rendering the whole world as a free trade zone should be part and parcel of a new curricula.

The public is concerned with health and environmental hazards. Modifications of fishes genetically for increasing production through transgenic measures and their impact either as a health hazard or environmental hazard should be given an over view in the academic curricula. The suggested recommendations in the basis of need can be inducted as new subjects like environmental resource economics, prediction modelling, production and marketing relations, socio-economic problems, WTO agreements, sustainability studies, responsible aquaculture, welfare economics, labour economics and others.

Conclusion

Fisheries economics even after decades of fisheries development remained a *virgin subject*. *Applied econometric tools should be included in fisheries economics* so as to make it fruitful enough for research and professions. Thrust areas are to be included in the curricula for improving the fisheries economics research and education in India.

Policy makers should give what is due for fisheries in education. A proper re-orientation in the existing curricula with the inclusion of some emerging areas will focus fisheries economics as a major discipline among other specialized subjects.