

An Exploratory Analysis of Patents in Fishing Technology

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With growing importance of patents, its relevance and scope in fisheries sector, though not prominently felt so far, is an issue which needs to be addressed with urgency. Accordingly, a study was designed to document patents in fishing technology. First, data was examined with respect to trends in growth of patenting activity in India. Since year wise number of patents during period from 1913-2000 was very small, they were classified under four periods i.e., patenting activities before and after independence (1913-1947, 1947-1970), before and after Indian Patent Act 1970 (1971-1995) and before and after WTO era (1996-2000) so as to facilitate comparison. Patents maintained by Indian patent office and indexed under section 82 XIV (4): Fish and Fishing as per Indian classification key were grouped under the discipline 'fishing technology'. Total of 15 patents were granted during 1947-1970, 10 patents during 1971-2000 and 1 in post TRIPS period (1996-2000) suggesting a decline. From 1995-2002, 13 patent applications exist. Patents were under category fishhooks, fishing rods, fishing reels, baits, power block, short gun, tapes etc. used for fishing gear. Foreign applicants account for 78.38% of patents while 21.62% of patents are by Indians. Among domestic applicants, individuals account for 13.51% patents. Majority of applicants are foreign individuals accounting for 54.05% of patents granted.

Key words : Patents, Fishing Technology, Intellectual Property Rights

Technological change has been the key to expanding world agricultural production during much of the twentieth century, especially so during the last few decades. The linkages between intellectual property, technology and conservation of biological diversity rose to prominence in the late 1980s and early 1990s. The international negotiation processes and debates that led to three treaties namely the Convention on Biological Diversity, Trade Related Intellectual Property Rights (TRIPS) and the negotiations for Plant Genetic Resources in Food

and Agriculture Organization and International Union for the Protection of Plant Varieties (UPOV), have brought these issues to the public domain (Ruiz, 2004). The major issues of patenting in fisheries, particularly in India, are nature of intellectual property relevant to fisheries, forms of Intellectual Property Rights (IPR) that could be permitted, the need to prevent exploitation of indigenous fisher folk and criteria for benefit sharing, the need to maintain ecological sustainability, ethical concerns of society including animal rights

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(Ninan & Sharma, 2005). Scope for patenting in fisheries sector arises from the fact that though any living form that has existed in nature does not qualify for a patent, anything created by human ingenuity and application of human intellect, if 'new' and 'non obvious', is in principle patentable. The patenting of aqua products in different forms may increase in future, given the vast and largely unexplored potential of utilization of such resources. It is within this context that the present study has been undertaken with the objective of documenting the inventions in fishing technology that have been patented in India.

Materials and Methods

The present study was conducted in year 2003. Various sources from where the data has been collected are as follows.

- Indian Classification Key which has information on patents granted from year 1913-1985. Indian classification key is a compilation of 208 abridgement groups. Out of these 208 abridgement groups, section 82 XIV (4): Fish and Fishing was found relevant for fishing technology. Patent data from year 1913 to 1985 has been extracted from the above groups.
- As information after year 1985 is not available in Indian Classification Key further information on patents granted and patents applications filed i.e., till year 2000 was collected from Gazette of India Part III, Section 2.
- In addition, relevant websites which had information on patents granted from year 1970-2000 and patents applications from year 1998-2002 were also referred.

From above mentioned sources, 259 patents were isolated which are relevant to fisheries sector. Out of this, 151 relate exclusively to patents relevant for fisheries sector. The

remaining relate to 'water', 'seawater', 'waste water' and their purification / treatment methods. Patenting activity was analysed year wise, discipline wise and based on applicant profile.

Year wise: First, data was examined with respect to the trends in growth of patenting activity in India. Since the year wise output of patents during period from 1913-2000 was very small, it was divided into four year blocks i.e., 1913-1947, 1947-1970, 1971-1995 and 1996-2000. This division was to facilitate comparison between the patenting activities before and after independence, before and after Indian Patent Act 1970 and before and after WTO era.

Discipline wise: Patents maintained by Indian patent office and indexed under section 82 XIV (4): Fish and Fishing as per Indian classification key were grouped under the discipline fishing technology. A thorough study of the patent specifications was done for grouping.

Applicant profile: This includes classification of patents whether they are filed by domestic or foreign and further by individuals or corporations.

Results and Discussion

During period from 1913-2000, a total of 151 patents have been recorded in the fisheries sector. A maximum of 55% of patents have been granted in the field of processing technology followed by 24.5% in fishing technology and 20.53% in aquaculture (Ninan *et. al.*, 2005). In fields of processing technology and aquaculture there has been a steady increase in patenting

Table 1. Patenting activity in fishing technology in India (1913-2000)

Time period	Fishing Technology
1913-1947	12
1947-1970	15
1971-1995	9
1996-2000	1
Total	37

activity (Ninan *et. al.*, 2005). However, as described in Table 1 patenting activity in fishing technology has steadily declined. A maximum of 15 patents were granted in the period 1947-1970, while from 1971-2000, only 10 patents were granted. It was also found that in post TRIPS period (1996-2000) only a single patent was granted. Patents granted in fishing technology have been further categorized in Table 2 so as to identify the technologies that have been patented. Maximum number (54%) of patents were under the category fishhooks, fishing rods, fishing reels, baits, power block, short gun, tapes used for fishing gear. In fishing technology the propensity to patent exists, as innovations are easy to duplicate due to their simple construction and design [Ragavan 2004, William 2001]. However, majority of innovations that have been responsible for the progress in fishing technology fall under the non-patented group.

Table 2. Innovations patented in fishing technology in India

Patents in fishing technology	Number	Percentage
Fishing hooks/rods/reels, baits, power block, short gun, tapes	20	54.05
Types of nets, their improvements, trawl otter boards for fishing	12	32.44
Machines for manufacture of net	1	2.70
Boat improvements, marine craft, fish transferring apparatus	4	10.81
Total	37	

It can be inferred from Table 3 that 78.38% of patents in fishing technology are by foreign applicants while only 21.62% of patents are by Indians. Majority of applicants are foreign individuals accounting for 54.05% of total patents granted in India. Three individuals namely Carl Hansen, Denmark, Kolbjorn Bjorshol, Norway have two patents, Sir Charles Dennistonn Burney has 3 patents. Similarly among domestic applicants individuals account for 13.51% of patents granted in India. French company Ateliers et Chantiers de La Manche and Indian company Garware wall ropes have

two patents and are major players among corporations that have patented technologies in fishing technology.

In field of fishing technology, individual citizens (foreign and Indian) dominate the

Table 3. Profile of patentees in fishing technology

Profile of patentees		Fishing Technology	
		Pre 1970	Post 1970
Foreign applicant	Individuals	16	4
	Corporations	5	4
Domestic applicant	Individuals	5	*ND
	Corporations	1	2
Total		27	10

*ND-Not Detected

patenting activity. The smaller role played by corporations could either be due to preference for trade secrets or due to lack of sufficient gains as a result of patenting their innovations (Bagachi *et. al.*, 1995). Significant participation of individuals has been explained to be a sign of under development, or the individuals as small entrepreneurs or the individual patenting of public funded research [Albuquerque, 2000]. This may be applicable in present study as well.

Table 4 describes distribution of patent applications in India 1995-2002 in fishing technology. It was seen that maximum patenting activity in fisheries sector occurred in processing technology i.e., 45.9 % (Ninan *et. al.*, 2005). Out of 111 patent applications recorded from 1995-2002 in fields of processing technology, fishing technology and aquaculture only 13 patent applications relate to fishing technology.

Table 4. Patent applications in India 1995-2002 in fishing technology

Year	Fishing technology
1995	2
1996	1
1997	1
1998	3
1999	4
2000	1
2001	*ND
2002	1
Total	13

*ND-Not Detected

In fishing technology Indians have dominated in filing 9 patent applications when compared to 4 foreign applicants as shown in Table 5. The dominance of Indians was also observed in fields of processing technology and aquaculture respectively (Ninan *et. al.*, 2005).

The results of the study indicate relatively less number of patents in fishing technology and relatively larger share of individuals in patenting activity. The Indian firms account for lesser number of patents for their innovations when compared to their foreign counterparts. The reason is because the investment in R&D activity

Table 5. Profile of applicants for patent applications (1995-2002)

	Fishing Technology
Foreign applicant	4
Indian applicant	9
Total	13

is small due to lack of capital for trials in innovating products and establishing product in market. Also, firms prefer other forms of intellectual property rights like trade secrets and trademarks. The lower propensity to patent innovations in fisheries in India may be primarily due to the weak enforcement of patent rights and hindrances like procedural complexities. Thus the results of the study indicate an aspect of less innovation in fishing technology as reflected by patent statistics.

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