Adoption of CIFT Fishing Boat Designs

A. K. KESAVAN NAIR, P. N. KAUL and M. K. KANDORAN
Central Institute of Fisheries Technology, Cochin - 682 029

Information about the adoption of CIFT fishing boat designs was collected from 54 boat building yards of the country. The majority of the boats were built as per CIFT designs. The types of wood used and the designs were dependent upon each other. Other variables studied did not show significant effects upon the type of adoption. The CIFT designs were modified at some yards and these details are discussed.

Twelve standard designs for mechanized fishing boats have been made by the Central Institute of Fisheries Technology (CIFT, 1961; 1964a; 1964b; 1964c). These were meant for adoption by the fishing industry in India. Upto November 1979, there were 14,282 mechanized boats operating in India (CBF, 1979). The present study was conducted to find out various factors associated with the adoption of CIFT fishing boat designs.

Materials and Methods

Fifty four boat building yards dealing with mechanized fishing boats form the sample for this study. This represents approximately 65% of the total number of such yards in the country. An interview schedule was developed for the study and was pretested on ten boat yards. After pre test it was modified and used in getting information by personal interviews.

Results and Discussion

Upto 1983–84, 4539 boats were built in these 54 boat yards. Out of these, 3332 were based on CIFT designs, 677 on modified CIFT designs, and 530 on other designs. Thus, the proportion of boats built on CIFT designs (with or without modification) was 0.88 and those built on other designs was 0.12; these two proportions are significantly different ($z = 78.8$).

Table 1 shows that the duration of operation of the boat yards does not differ significantly with respect to the type of design adopted. It may be mentioned here that some boat yards were constructing fishing boats according to more than one design and therefore, some yards are common for two or all the three categories presented here. Table2 presents the means of the total number of boats built for the three categories due to adoption type. The analysis of variance for Tables 1 and 2 reveals that F-value is not significant at 5% level, showing that there is a difference in the average number of boats built in the three categories due to adoption type.

Table 1. *Duration (years) of operation of boat-building yards with three types of adoption*

Adoption type*	No. of yards	Duration of operation Mean per yard	S.D.
CIFT designs	39	12.10	8.05
Modified CIFT designs	16	14.06	10.56
Other designs	17	13.35	6.89

*In this and the following Tables a yard is included in a particular 'adoption type' if at least one boat of the particular adoption type has been built in the yard. Thus a yard may fall into one, two or all the three categories of adoption type.

Table 3 shows the means of the average number of boats built per year, per yard as classified with regard to the type of design

Table 2. *Number of boats built on various categories of adoption type*

Adoption type	No. of yards	Mean No. of boats built per yard	S.D.
CIFT designs	39	105.41	214.85
Modified CIFT designs	16	87.56	172.51
Other designs	17	170.71	311.25

Table 3. *Average number of boats per year per yard for the three categories of adoption type*

Adoption	No. of yards	Average no. of boats per yard per year	
		Mean	S.D.
CIFT designs	39	7.64	14.70
Modified CIFT designs	16	5.44	5.60
Other designs	17	11.41	21.27

adopted. The analysis of variance revealed no significant difference among the means.

Table 4 presents the frequencies of boat yards classified with regard to types of wood used (costly or cheaper) and the type of design adopted. The chi-square value is significant at 1% level. This shows that the two variables are dependent, and those who adopt CIFT designs are more likely to use the recommended cheaper types of wood, thus making a sizeable cost reduction. Teak, jungle jackwood, venteak, gum kino tree or a combination of two types of these woods were found to be used for building boats. Teak and jungle jackwood constitute the costly types.

The data presented in Tables 5 and 6 show that the adoption of recommended engine horse power and the types of hull sheathing are not associated with the adoption of fishing boat designs. This means

Table 4. *Number of boat yards classified with regard to types of wood used with different categories of adoption type*

Type of adoption	Type of wood	
	Costly	Cheaper
CIFT designs	19	25
Modified CIFT designs	13	4
Other designs	13	2

Chi-square = 11.44, significant at 1% level

Table 5. *No. of boat yards classified with regard to engine horse power with different categories of adoption type*

Adoption type	Recommended H.P.	H.P. more or less than recommended
CIFT designs	13	31
Modified CIFT designs	5	8
Other designs	7	7

Chi-square = 2.06 (not significant)

Table 6. *Number of boat yards classified with regard to types of hull sheathing and adoption type*

Types of adoption	Types of hull sheathing			
	No sheathing	Copper	Aluminium	Fibre glass
CIFT designs	16	22	19	7
Modified CIFT designs	5	5	9	2
Other designs	10	4	6	2

Chi-square = 5.4 (not significant)

that the adoption of fishing boat designs of any type does not necessarily imply the adoption of an engine with a particular

recommended horse power, nor with a particular hull sheathing. Similarly, the sources of various designs (Table 7) and the areas of operation of the finished boats (Table 8) are not associated with the adoption of fishing boat designs. This means that the adoption of fishing boat designs of any type largely does not necessarily imply that the design has been obtained from a particular source. Also, the adoption of fishing boat designs does not vary with the particular area in which the boats may be operating after constructing; this may be due to the fact that CIFT designed boats are operating all over the coastline.

Table 7. *Number of boat yards classified with regard to sources of designs and adoption type*

Types of adoption	Source of designs	
	Govt. agencies	Other yards
CIFT designs	31	10
Modified CIFT designs	12	4
Other designs	9	3

Chi-square = 4.70 (not significant)

Table 8. *Number of boat yards classified with regard to area of operation and adoption type*

Types of adoption	Area of operation	
	West coast	East coast
CIFT designs	33	11
Modified CIFT designs	12	7
Other designs	14	3

Chi-square = 1.3 (not significant)

Taking 1957 as the year from which the CIFT boat design started, innovativeness was calculated depending upon the year of adoption as per Rogers (1962). Table 9 shows that innovativeness is not associated with adoption of fishing boat designs which is contrary to similar such studies in agriculture. In the two situations, the operating factors may be different, e.g. greater initial investment, different parties for operation and construction.

Table 9. *Innovativeness and adoption type*

Types of adoption	No. of yards	Innovativeness	
		Mean	S.D.
CIFT designs	36	14.17	7.20
Modified CIFT designs	14	11.21	5.65
Other designs	12	12.17	6.53

Perhaps the insistence of the state government authorities to adopt CIFT designs may be a factor responsible for their adoption. Ancillary data collected during this study showed that in those states where the government insisted upon the fishing boats conforming to CIFT designs alone, the adoption was more.

However, CIFT designs with modification were used in about 15% of the yards. From the information gathered from Bombay, Goa and North Karnataka areas, the nature of modification of CIFT boat designs depended upon the type of fishing and local conditions. When the boats have to land their catches in shallow waters, flat-bottomed boats (nearly U-shaped) were preferred as they did not have much rolling in such waters. When the boats were to be landed in deep waters (with jetty facility), V-shaped boats with sufficient breadth would not produce much rolling. For dol net operation in Bombay area, flat type boats (Bassein type) which have less vertical heights were convenient to lift the nets and hence the prevalence of Bassein type designs in this area. Another reason for modification of the design as per the information gathered from South Karnataka is to accommodate the engines available from time to time.

With regard to the protective sheathing some variations were noted. No sheathing is used in Bombay area. Lambi ('chandrus') a resin preparation, is applied as a coating. The wood used here is teak except for the upper-most plank for which jungle jackwood (Aini) is used. In Karnataka, the practices of using sheathing and not using any sheathing both prevail. In North Karnataka

most of the boats are made without sheathing, at present. Application of copper sheathing for a few boats was reported from a few yards of this region. Application of the resin preparation 'lambi' prevailed in this area also. In South Karnataka about 3/4th of the yards reported the use of copper and aluminium sheathing. Fibre glass sheathing was also reported from a couple of yards From Kerala aluminium, copper and fibre glass sheathing were reported. Use of copper and aluminium sheathing was reported from Orissa and aluminium sheathing from Andhra Pradesh.

Scarcity of wood and nonavailability of design of larger boats were some of the problems faced by a few boat builders. Out of the 54 boat yards, 49 yards (91 %) adopted CIFT designs with or without modification.

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References

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