SUMMARY
Cured fish industry and export trade have been important aspects of the economic life of the people since the ancient time all over the world. In India, curing was the only method of processing of fish till 1953. In earlier days India exported large quantities of cured fish to Sri Lanka, Burma, Malaysia, Singapore and Hong Kong. But the post war development adversely affected our marine products export. Still, about 20% of fish landed in India is cured. Curing is the largest single method of fish processing in India and it is likely to remain as such for many years to come.

Fish curing industry has not shown much improvements from its primitive nature because this industry has
been mainly handled by illiterate and less educated fishermen/fisherwomen. The cured fish produced by them is unhygienic and poor in quality. Such products spoil quickly leading to huge national loss of this protein rich food. This situation demands urgent steps to be taken for rectifying the defects of the fish curing industry and for adopting modern methods to avoid the wastage and improve the quality of cured fish. Therefore, transfer of new technology to the fish curing industry is the solution of the problems existing in this industry.

The Central and State agencies have already made considerable efforts to transfer the improved methods to the fish curing industry by way of training courses, demonstrations, Lab-to-Land programmes, film shows, exhibitions, replies to technical queries, personal discussion etc. As the result of these efforts, fish curers have started adopting the improved practices in fish curing. Still there is a considerable gap between the technology available and the technology adopted in this field. A comprehensive study on the extent of adoption of improved practices in fish curing industry is lacking at present.
The following are the objectives of the present study:

1. To identify the technological gap in terms of knowledge of fish curing technology among fish curers and fisheries extension workers.

2. To identify the technological gap in terms of adoption of fish curing technology among fish curers.

3. To study the reasons for partial adoption or non-adoption of improved fish curing practices by fish curers.

4. To evolve a strategy for effective transfer of technology related to fish curing.

Three important fishing regions, namely, Calicut in Kerala, Malpe in Karnataka and Tuticorin in Tamil Nadu were selected for the present study. Total population of active fish curers in all the three regions were taken as the respondents. Calicut region had 140, Malpe had 125 and Tuticorin region had 40 fish curers actively engaged in fish curing industry. Seven independent variables namely, age, education, social participation, contact with extension agency, perception of profitability of the technology, income and debts of the respondents were selected for this study. The
following six major improved practices comprising of 28 sub-practices were taken up to study the adoption gap.

6.1. **Construction of improved fish curing shed**
   1. Construction of shed
   2. Provision of drainage facilities
   3. Provision of tables/platforms for derssing fish

6.2. **Cleaning and maintenance of hygiene in fish curing shed**
   4. Use of potable water in the shed
   5. Use of detergents and disinfectants
   6. Adoption of cleaning schedule
   7. Regular washing of mat used for drying fish

6.3. **Handling and pre-processing of fish**
   8. Use of fresh fish
   9. Proper washing of fresh fish
  10. Proper dressing and evisceration of fish
  11. Proper washing of gutted fish
  12. Use of ice for preserving fish

6.4. **Salting of fish**
   13. Use of sufficient good salt
   14. Salting of fish in cement tanks or other suitable containers
15. Sufficient salting period
16. Convering of salted fish to avoid flies
17. Rinsing of salted fish in freshly prepared salt water
18. Removal of urea by desalting
20. Covering of fish with sufficient quantity of brine in the case of pickling

6.5. **Drying of salted fish.**

21. Allowance of sufficient drying of fish
22. Drying of fish on mat
23. Drying of fish on raised platform
24. Drying of fish in tunnel dryer

6.6. **Packing and storage of cured fish**

25. Use of chemical preservatives in cured fish
26. Retail packing of cured fish in polythene bags
27. Bulk packing of cured fish in improved containers
28. Proper storage of cured fish

The results showed that Calicut region has a higher percentage of younger fish curers compared to the other
two regions. Calicut region registered the highest level of education among the three regions under study. The level of social participation and contact with extension agency do not make any marked difference from region to region. A comparatively high percentage of fish curers at Calicut region perceived that the improved fish curing practices are profitable. The fish curers in Calicut region showed a higher level of income compared to the other two regions. As the result of this situation, Calicut region shows minimum percentage of fish curers having debts. The average knowledge gap was found to be minimum in Calicut and maximum in Malpe. The average adoption gap was observed to be minimum in Calicut and maximum in Tuticorin. Thus the fish curers in Calicut region have comparatively less knowledge gap and adoption gap. It is generally concluded that increase in knowledge lead to higher rate of adoption. Among the 6 major practices, the maximum adoption gap was observed in packing and storage of cured fish and in the construction of improved fish curing shed in all the three regions while adoption gap is comparatively less in salting and drying of fish.

It is seen that about 1/3rd of the extension workers had full knowledge about the improved fish
curing practices while 1/5th of them had no knowledge about the improved technology.

   Statistical analysis reveals the following situation in general.

6.7. Age

Age and debt of fish curers are found to be positively correlated. As the age of the fish curers increases, their level of education, social participation, contact with extension agency, perception of profitability, income, adoption etc. are found to be decreasing.

6.8. Education

Education is found to be negatively correlated with debt. As the level of education increases, more will be the degree of adoption, social participation, contact with extension agency, perception of profitability and income.

6.9. Social participation

The more social participation among respondents, the less will be the debt. Social participation is found positively correlated with the level of contact with extension agency, perception of profitability, income and adoption.
6.10. **Contact with extension agency**

This variable is positively correlated with income, perception of profitability, level of education, social participation etc. This is negatively correlated with age and debt.

6.11. **Perception of profitability of technology**

This variable is positively correlated with education, social participation, contact with extension agency, income and adoption. This variable is negatively correlated with age and debt.

6.12. **Income**

Income is positively correlated with education, social participation, contact with extension agency, perception of profitability and adoption. Income is negatively correlated with age and debt.

6.13. **Debt**

Debt is negatively correlated with all the variables except age.

On the basis of the observations made during this study, the following strategy of technology transfer is suggested in four systems to the fish curing industry.
Research system:

The research organisations should evolve training programmes on systematic basis to train extension workers from other departments as well as the fish curers.

Extension system:

The State Fisheries Departments and the other organisations related with fisheries should be brought under this system. The extension workers in these organisations should be trained in improved fish curing practices and extension methods. After this training, they should conduct demonstration, training, technical discussion, film shows etc. and distribute technical publications for the benefit of the fish curers. Reasonable target of extension work for adopting fish curing practices should be fixed for the extension workers and the performance of the individual workers should be assessed.

Effective supervision and technical support should be extended to grass root extension workers. Fishermen training centres should include fish curing as one of the subjects and teach the same with due importance.

State Fisheries Departments and other development agencies should construct model fish curing yards and
community fish curing centres and provide these facilities to the fish curers on nominal charges. State Fisheries Departments should have the over all responsibility of extension work, developmental task, regulatory functions and ensuring supplies and services in the field of fish curing. The Fisheries Departments should properly plan, monitor and evaluate various developmental programmes in fish curing.

In addition to State Fisheries Departments, Marine Products Export Development Authority, Export Inspection Agency and voluntary organisations should share the above responsibility of providing facilities to the fish curing industry.

Client system:

The fish curers should analyse their situations, identify their problems and organise themselves to solve such problems with the assistance from the other three systems (research, extension and support systems).

Support system:

Support system should include Fisheries Departments and voluntary organisations which can support fish curing industry by supplying inputs and marketing the cured fish products. Loans and subsidy should be provided to the
Basic requirements like protected water supply, electricity, good quality salt, ice, chemicals, packaging materials etc. should be provided. Co-operative societies, marketing federations or other agencies should take the entire quantity of cured fish prepared by improved methods and market them.

There should be proper co-ordination of the administration and extension efforts of all the concerned organisations so as to make the technology transfer more effective. Linkage among various agencies involved should be strengthened.

The interdepartmental coordination and linkages among extension, research, input and other supporting agencies, fish curers and local authorities should be ensured at appropriate levels. Committees should be set up at various levels to ensure adequate co-ordination among officials, agencies and autonomous bodies connected with fisheries development. Some legislation on quality should be enforced in fish curing sheds and cured fish markets so that the quality of cured fish can be improved.