



## *Fishing Sustainable Livelihood*

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# *Fishing Sustainable Livelihood*

A discussion paper on the livelihood of coastal fisherwomen in India

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*Front page photo: Fisherwomen with traditional baskets.*

*Back page photo: Fisherwomen with ice box in the fish market.*

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## Executive Summary

This paper describes and discusses a project to improve the livelihood capacities of the tsunami affected fisherwomen in Srikakulam and East Godavari districts of Andhra Pradesh. The project applied a participatory approach: fisherwomen mobilized by IRCS volunteers took active part in the project at all stages. The paper highlights the project methodology, achievements and lessons for the future.

Under the project, several activities were organized to improve the livelihood capacities such as distribution of tools, construction of infrastructures and trainings on the use and maintenance of the resources. In order to ensure the sustainability of the project, Village Maintenance Committees (VMC) were formed and trained on the use and maintenance of the distributed tools and constructed infrastructures. The project was implemented by Indian Red Cross Society with financial and technical support from Spanish Red Cross for a period of two years from March 2008 to March 2010. One of the main stakeholders was the Fisheries department which provided technical and statistical information for the implementation, designing constructions and conducting trainings for fisher folk communities.

Through this project, a total of 5320 fisherwomen affecting 20,800 family members have benefited in the coastal areas of Andhra Pradesh. After analyzing the project results, the conclusions were satisfactory:

- The profit of the fisherwomen was increased up to 32.89%.
- The capacity of the fisherwomen to buy and process fish was increased up to 39.50%.
- Through the trainings, 99% of fisherwomen had gained knowledge on the use and maintenance of livelihood materials and infrastructures.

The results of the project have highlighted the impact and the scope for future need to intervene in the coastal areas related to livelihood. The opportunity through this project has awakened and opened the door for their livelihood sustainability.

The authors thank all the stakeholders for their contribution towards the project's implementation. The authors are grateful to the target group, for their keen interest and active participation in the project, and for the sincerity they showed in maintaining the livelihood infrastructures.

Documents and reports on the assessments and on the project are available from IRCS on request, for more information visit:

[www.indianredcross.org](http://www.indianredcross.org)  
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**LIST OF ABBREVIATIONS**

CBA	Comparative Bid Analysis
CBO	Community Based Organizations
CIFE	Central Institute of Fisheries Education
DFID	Department for International Development
FDO	Fisheries Development Officers
FGD	Focused Group Discussion
FRP	Fiber Reinforced Plastic
ICSF	International Collective in Support of Fish workers
IEC	Information, Education and Communication
IIP	Indian Institute of Packaging
IRCS	Indian Red Cross Society
KSMTF	Kerala Swathanthra Matsya Thozhilali Federation
NGO	Non Governmental Organization
PCM	Procurement Committee Meeting
PRA	Participatory Rural Appraisal
SLA	Sustainable Livelihoods Approach
SIFT	State Institute of Fisheries Technology
SRC	Spanish Red Cross
VMC	Village Maintenance Committees

## I MODULE – PROJECT DESCRIPTION

For thousands of population along the coastline of Andhra Pradesh the sea is the only source of their livelihood. Their source of livelihood at times becomes the destroyer; the perfect example is the terrifying tsunami that the planet Earth witnessed on 26<sup>th</sup> December 2004. Though the magnitude of tsunami varied from place to place, the after scenario was the same. Undoubtedly the fishing community was the worst affected by the tsunami. Hundreds lost lives and thousands lost their livelihood assets leaving behind poor socio economic conditions. One of the most devastating effects of the tsunami was the complete destruction of local economies including the destruction of entire fishing fleets, critical to the survival of families in coastal villages.

Within the fisher folk communities the work is generally divided amongst the men and women. The fishing activities are generally carried out by men while the marketing and processing of fish is done by women.



**Fishermen:** Majority of the fishermen are engaged in fishing which is done with two types of boats i.e., traditional boats and mechanized boats. Approximately 5-6 people go together for fishing mainly during nights. Fishing is practiced for an average of 6 days in a week and 9 months in a year. Fishermen get an average of 15-20 kgs of fish per day. Nets are laid more than once in a trip for catching fish and the fish is stored in a vessel. Mechanized boats are used by few fishermen who have better capacity. After returning from sea men are engaged in maintenance of their nets and boats.

**Fisherwomen:** Fisherwomen are involved in assisting the men in collecting fish from the nets, post harvest fish processing and marketing. They purchase fish from the landings at the auctions and store it at their home. After processing it, they carry it to the nearby villages or markets for selling. Generally the markets they go are weekly and hence they need to preserve the fish. Fish is carried by walk from landing point to the house of the fisherwomen in a traditional bamboo basket called butta. The fish is stored at the house in thermacol boxes or metal containers with ice. The unsold fish is sold at an unfavorable price, dried or literally thrown away. Some species of fish are generally dried after curing in salt water and then sold in market. Fish processing infrastructures available are insufficient.

Restoring the lost livelihoods of the fisher folk in the post-tsunami has turned out to be a major concern for the government and many humanitarian organizations. The poor economic conditions and unhygienic methods adopted by the fisher folk in their livelihood activities have grabbed the attention of Indian Red Cross Society to extend its support by enhancing the livelihoods of these fisher folk in East Godavari and Srikakulam districts with the support of Spanish Red Cross. It was very important for this community to improve their livelihood capacities and in some cases to adopt

the new technologies. For instance, to use ice boxes instead of bamboo baskets to preserve fish; to use Fiber Reinforced Plastic curing tubs (FRP) instead of cement concrete to cure fish; to smoke fish using safe and hygienic smoking bins instead of smoking fish on bamboo logs; to dry fish on the fish drying platforms instead of drying fish on ground; and finally to store dried fish in safer sheds instead of in open areas or in thatched huts to increase their income and to have sustainable livelihood.

The livelihood project, implemented by Indian Red Cross Society with the support of Spanish Red Cross, has been intended to support the fisher-folk communities affected by the Tsunami in the coastal areas of East Godavari and Srikakulam districts in Andhra Pradesh, by building their capacity and providing them with livelihood equipment and infrastructure at the community level with the aim of enhancing their livelihood. The fisher folk communities, Government of Andhra Pradesh (especially through the Fisheries Department) and local authorities were the stakeholders of the project who were fully involved in designing, planning and implementation.

The project sites and beneficiaries were identified in close collaboration with the fisheries department in both districts. Based on the below mentioned criteria the project villages and beneficiaries were selected.

Project villages:

- Villages most affected by tsunami in the district
- Based on the activity practiced and availability of land for construction
- Villages least benefited/intervened by the fisheries department
- Villages having poor socio economic status

Project beneficiaries:

- Fisherwomen engaged in fish vending and vending related activities
- Women fish vendors from the Tsunami affected villages in the district
- Fisherwomen having poor socio economic status
- Fisherwomen registered in the fisherwomen cooperative society or related to someone who is member of the fishermen/fisherwomen cooperative society
- Fisherwomen so far not been benefited through the fishermen/fisherwomen cooperative society

This project through its intervention has made an effort to increase the socio economic status of fisher folk communities by undertaking various activities, such as, supply of ice boxes, FRP fish curing tubs, fish smoking bins and construction of dry fish storage sheds and fish drying platforms. In order to further enhance their livelihood skills, the project has conducted trainings for the fisherwomen on maintenance and hygienic use of the livelihood equipment and infrastructures.

The district collectors and other government officials participated in the distribution and inauguration functions acknowledging the initiatives of IRCS at the district level.

For the benefit of thousands of illiterate fisherwomen the project has designed several IEC materials on maintenance of the livelihood equipment in a pictorial form. Posters were printed in Telugu and were distributed to the fisherwomen during the trainings. The process of maintenance of livelihood equipment was clearly explained using the designed posters. Similarly, the project has also printed fund raising pamphlets and project brochures to spread information on the project and mobilize local resources.



The project has promoted and strengthened the CBO through facilitating the functioning of Village Maintenance Committees. In other way, it has also promoted the people organization and local authorities in maintaining the constructed dry fish storage sheds and fish drying platforms in coordination with the fisheries department through this local management system. Heads of the villages are trained on the use and maintenance of the constructions. They were trained on the rules to be followed for a systematic functioning of the committees. The fisherwomen coordinate with the Fisheries department and local government authorities to maintain the constructions. Through this the fisherwomen have an opportunity to take decisions related to the use and maintenance of the livelihood infrastructures in the village which has changed their lifestyle. The village maintenance committee meets once a month to take decisions related to the rules on the use of construction, maintenance and development.

IRCS volunteers played an important role in bridging the relationship between the different stakeholders. They were involved in mobilizing the communities, coordinating with the local government officials and monitoring the construction activities. Fisheries department hails the initiative of IRCS in implementing this project for it has built a strong relationship between them and the fisher folk communities which has contributed for sustainability even after this project. The local government authorities identify the roles of the village maintenance committees and support their efforts in coordination with the district officials which has also contributed in strengthening the committees.

Fisherwomen are able to negotiate and decide rates for their products because of their capacity in terms of livelihood equipment and infrastructures. This has resulted in reduced migration of fisherwomen to other sectors. Fisherwomen have developed confidence because of their capacity to support their families in terms of educating their children and repaying the debts.

The project has contributed to an increase in the profit of fisherwomen to 32.89% and has equipped their livelihood capacity in buying and processing fish by 39.50%, which in turn reveals the effective use of livelihood materials and infrastructures which has prevented the wastage of fish. Through the trainings, 99% of fisherwomen beneficiaries have knowledge on the use and maintenance of livelihood materials and infrastructures.

These indicators have ultimately contributed to improve the living standards of the fisher folk communities in the coastal areas of East Godavari and Srikakulam Districts in Andhra Pradesh.

## **1. THE APPROACH**

### **1.1 Basic beliefs/assumptions**

The project started with some basic beliefs and assumptions:

- Development which leads towards self reliance must be 'process-oriented'. This means that project activities must be planned not be predetermined and must flow from discussions with the participants. The organization that intervene in this case, the IRCS in cooperation with the Fisheries department must understand the community and the people before launching the activity. At the outset, through facilitation the target group's ideas should be considered. Discussions may be held with them and the process of working together initiated. Once it is started, the full participation of the target group must be encouraged to determine the project's course and direction. A few initial activities with the target group would provide the opportunity to learn more about its problems, needs and its way of life. And the target group

in turn will get to understand the organization and its purpose. In other words, the relationship between project personnel and the target group is that of counterparts in development. The ideas, knowledge, advantages and limitations of both parties are weighed when activities are planned.

- Emphasis should be on the community, not on individuals. The community commands more weight than individuals, and an individual counts only as a member of a community. This principle enhances unity and the decision of the community should be respected by all members.
- The basic attitude of project personnel must be one of respect for and trust in the target group. Such an attitude will improve the self-confidence of community, their sense of responsibility and their critical thinking. Otherwise, the target group will adapt itself to the project personnel's way of thinking and doing things which are wrong, since it will engender dependence and passive acceptance of the project. Further, it is always emphasized to field workers that they should keep improving their skills in listening to local people and be sensitive to their feelings, needs and problems. They should spend some time with any member whenever needed. They should be friendly with everyone in the community. They should take pains to explain the project to whoever is interested.
- Trainings for project personnel are essential. But it is believed that important practical skills needed for development work are acquired only by actual project experience in the field. Development workers seem to assume that some inputs of knowledge and skills through a course will be enough to solve people's problems and improve their living conditions. Such inputs are usually based on needs identified by the development workers themselves. The development process envisaged by the present project, on the other hand, is one of helping the people discover their own abilities through activities that reveal their potential. It is a process of mutual learning, its attitude towards work, life and living, and the target group members acquire new knowledge and skills relevant to their livelihood.

## 1.2 Objectives

The general objective was *"to contribute to sustainable livelihood of the fisherwomen affected by tsunami in the coastal areas of Srikakulam and East Godavari districts in Andhra Pradesh"*. The specific objective was *"to improve the livelihood capacities of the fisherwomen"*.

## 1.3 Methodology

The methodology adopted for the project was participatory tools such as SLA, PRA and FGD. Based on the proposal submitted by the Fisheries department, discussions with Government departments, likeminded organizations, IRCS district branches and community the project was designed and formulated. To measure the project's impact on the coastal fisherwomen's livelihood, a pre assessment and post assessment studies were conducted focused on tsunami affected fisherwomen in Srikakulam and East Godavari coastal districts of Andhra Pradesh.

- The study began with an extensive literature review of the fisheries sector and about the fisherwomen of India.
- Followed by similar reviews of the two selected tsunami affected coastal districts and the State.
- A questionnaire (pre and post assessment study) was designed to obtain the project's objective and measure the planned indicators.

- Random sampling method was adopted to obtain information from at least 20% of project beneficiaries.
- The volunteers were trained on the questionnaire and obtained information from the field which was updated in a database and analyzed.

The literature referred to in these cases ranged from government (Central as well as State) reports, to reports developed by donor agencies that had worked in the area, to studies carried out by research agencies, NGOs and individuals. An "Assessment Team" evaluated and witnessed the project's impact which comprised of representatives from IRCS and SRC. The role of the assessment team was to discuss with all project stakeholders and assess the impact. This team met in March, 2010 at the end of the project period in Andhra Pradesh and consolidated the project's results.

In 2008, the IRCS conducted a pre assessment study of the livelihood conditions of marine fisher folk in Srikakulam and East Godavari districts. The study consisted initially of interviews. Once the project got under way, the activities of 1000 selected women fish vendor beneficiaries were studied. This provided a better understanding of fisher folk and their livelihood capacities.

The pre assessment study's findings in brief conducted before the project's intervention:

- 97% of fisherwomen used bamboo baskets for preserving, vending and transporting fish to market from village landing centers.
- At least 4% of fisherwomen threw away the unsold fish in waste and only 32% could preserve the fish and sell it the next day.
- At least 70% of fisherwomen dried fish on sand/soil and only 10% could dry it on fish drying platforms and fish smoking bins.
- 75% of fisherwomen cured fish in old plastic drums, slotted lorry tyres in unhygienic conditions.
- At least 77% of fisherwomen stored the dried fish at home and 4% in open which were lost due to torrential rains and cyclones.

The post assessment study's findings in brief conducted at the end of the project:

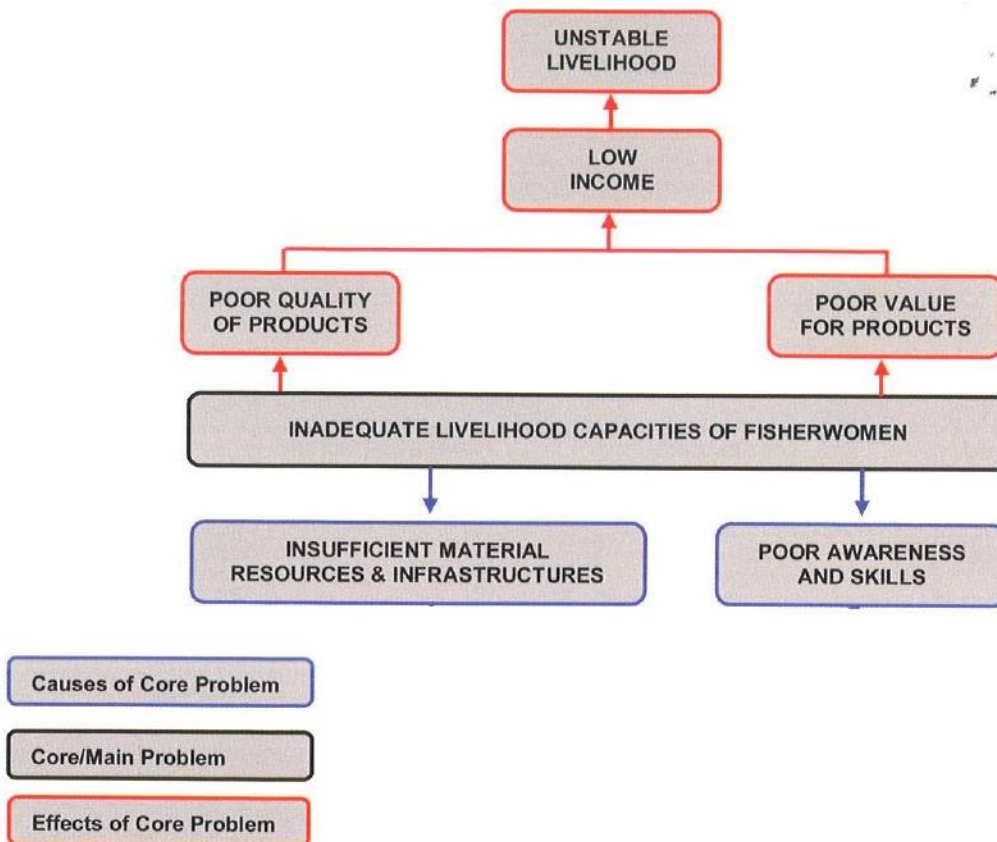
- The use of ice box along with their traditional baskets has increased their capacity to preserve and vend more fish from village to the market. More than 80% started using ice box to transport fish and ice to nearby bigger markets.
- 88% of fisherwomen can preserve fish and sell it the next day. The wastage of fish has totally stopped compared to before.
- 83% of fisherwomen dry fish on fish drying platform and the habit of drying fish on sand/soil has totally stopped.
- 97% of fisherwomen use fiber reinforced plastic fish curing tubs which is made of food grade plastic and hygienic to cure more capacity of fish in a lesser time.
- 97% of fisherwomen store dried fish in dry fish storage sheds which is hygienic and safer to store longer.

Fish marketing is strenuous work; it meant long waits at the shore for fishing boats to arrive, tough bargains to buy a few fish from the auction, carrying head loads of fish for sale either to the local market or to towns nearby, from door-to-door. Indebtedness and high interest rates imposed a crushing burden on them. On days without profit the women had to borrow money to buy fish for marketing, and during the lean fishing season when there were no coolie jobs and no fish to sell, they were again forced to borrow money from local money lenders or shop keepers to feed their families.

## 2. PROJECT ACTIVITIES

The use of PRA tools allowed us to identify and to prioritize the diversity of problems so as to finally design the problem tree together with the objective tree. The project activities were derived based on the objectives developed in the objective tree.

### Problem Tree

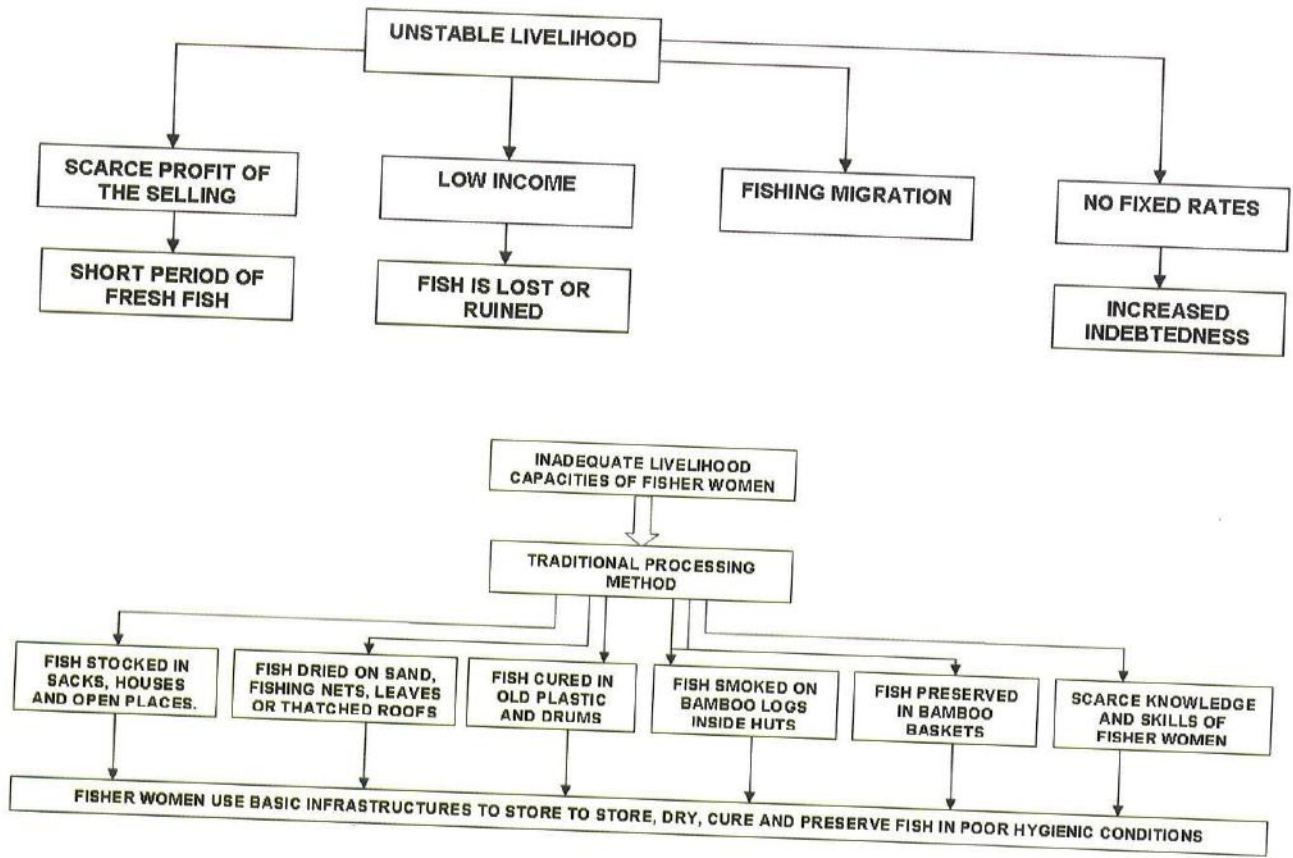


#### Description of the problem tree

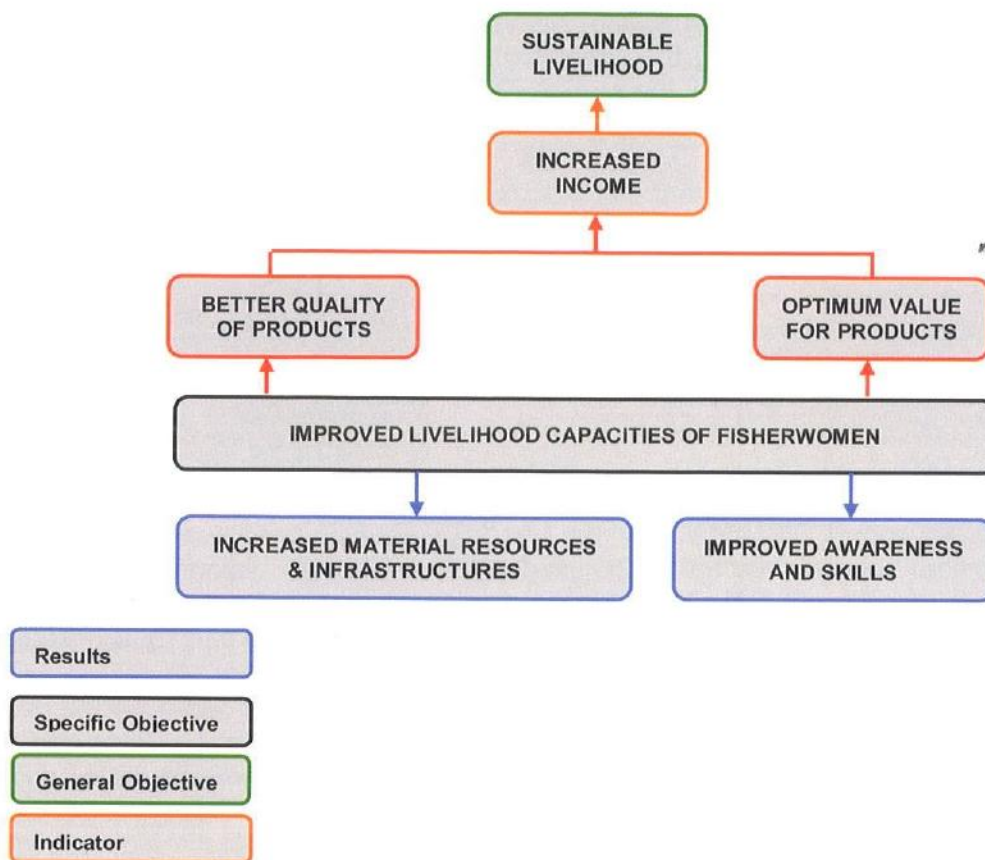
- **Inadequate livelihood capacities of the fisherwomen** are considered to be the core problem of fisher folks in the project area.
- **Insufficient material resources & infrastructures** and **Poor awareness & skills** are the two parallel causes for the core problem.
- **Poor quality of products** and **Poor value for products** are the two parallel effects of the core problem.
- **Low income** is an effect of poor quality of products and poor value for products.
- **Unstable livelihood** is the end effect and it is caused due to low income of the fisher folks and the problem tree is brought to an end.

Meaning of terms in the project's context is as follows,  
**Inadequate** - Insufficient livelihood resources to have a sustainable livelihood.  
**Livelihood Capacities** - Capacities such as ice boxes, fish curing tubs, fish smoking bins, fish drying platforms, dry fish storage sheds and trainings essential for a living.  
**Material Resources** - Ice boxes, fish curing tubs and fish smoking bins.  
**Infrastructures** - Fish drying platforms and dry fish storage sheds  
**Poor Awareness** - Unconscious on use and maintenance of materials and infrastructures  
**Skills** - Ability to use and maintain the materials and infrastructures  
**Poor Quality** - Products not processed in a hygienic manner  
**Poor Value** - Worth of the product is not long lasting  
**Unstable** - Livelihood is not secure

Constraints in the local livelihood pattern of the fisherwomen are explained by the below charts,



## Objective Tree



### Description of the objective tree

- Inadequate livelihood capacities of the fisherwomen (core problem) are converted as an objective "**Improved livelihood capacities of fisherwomen**" and are considered as the specific objective.
- **Increased material resources & infrastructures** and **Improved awareness & skills** are the two parallel results for the specific objective.
- **Better quality of products** and **Optimum value for products** are considered to be the effects of the specific objective.
- Better quality of products and Optimum value for products leads to **Increased income** which is the indicator of the specific objective in the objective tree.
- Increased income leads to have a **Sustainable livelihood** which is the general objective and the objective tree is complete.

Meaning of terms in the project's context is as follows,

**Improved** – Recover from the earlier situation.

**Increased** – The project will add to the earlier situation.

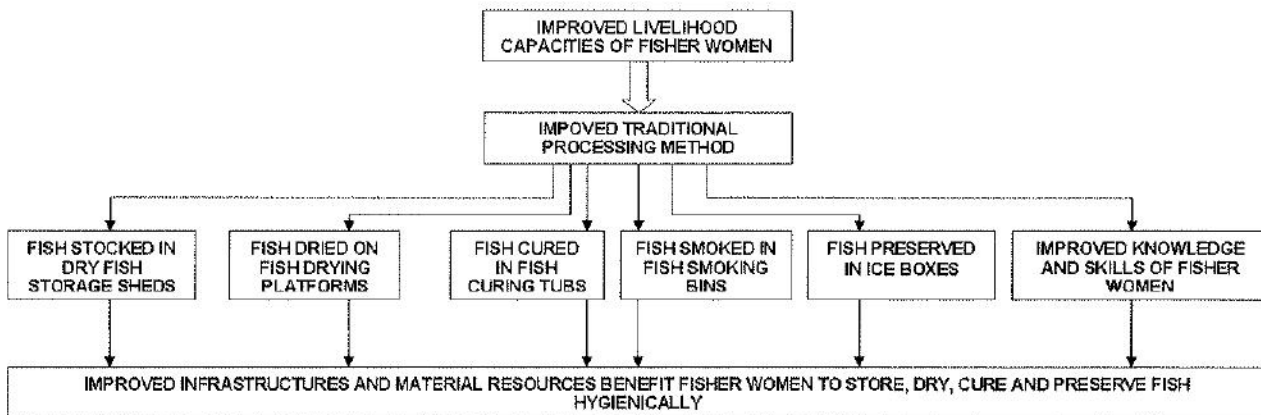
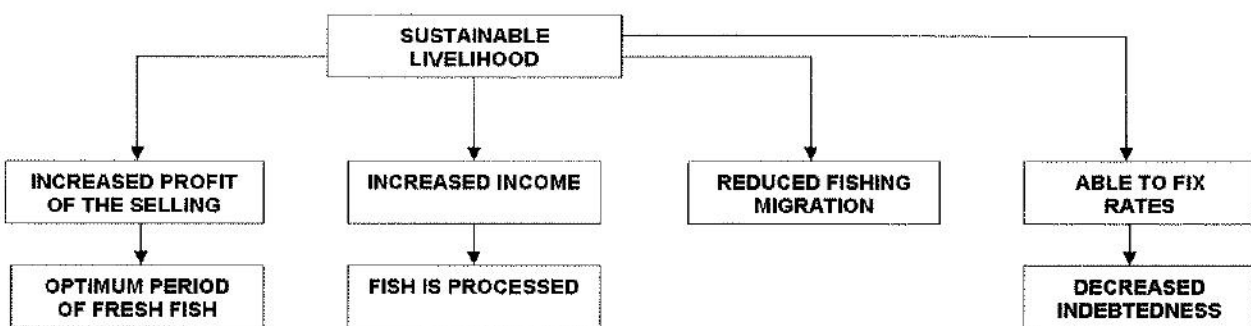
**Better** – The quality will be improved compared to before.

**Optimum** – The best values will be maintained longer compared to before.

**Sustainable** – Contribute to have a secure livelihood

The main problem of fisherwomen in the project area is *inadequate livelihood capacities* and the project addressed this issue with a specific objective i.e., to *improve the livelihood capacities*. The two results to achieve the specific objective were *increased materials & infrastructures* and *improved awareness & skills*. All project activities were implemented to meet the two results of the project. The indicator for achieving the specific objective was that the fisherwomen would have an *increased income* by the end of the project. The project would contribute to *sustainable livelihood* of fisherwomen (general objective) by improving the livelihood capacities of the fisherwomen (specific objective).

Expected changes in the local livelihood pattern of the fisherwomen are explained in below charts,



To sum up, the project aimed to tackle the inadequate women’s livelihood capacities (core problem). Based on the above, in the framework of the project women would increase their capacities by acquiring materials and infrastructures on the one hand, and by improving their awareness and skills on the other. All the activities were implemented in pursuit of these two objectives.

All project activities were centered on fisherwomen, some discussion conducted with fishermen did not lead to any specific activity. Fisheries department were involved in identifying the beneficiaries for distribution of the livelihood tools. The IRCS volunteers verified the list of beneficiaries and the tools were distributed by IRCS district branches. The lands for construction in the selected villages were identified by Fisheries department, local government

authorities, IRCS district branch with consensus of the community. Livelihood infrastructures were constructed in selected villages and handed over to the community. The constructions are used and maintained by the VMC. Beneficiaries contributed 10% of the livelihood tools cost and participated in the trainings for the use and maintenance of the tools and infrastructure.

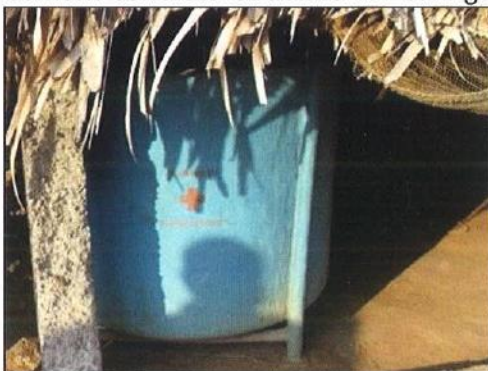
The activities implemented through the project:



**2.1 Ice boxes:** Fisher folks use several kinds of equipment like thermacoal box, basket made of bamboo twigs, aluminum vessel and plastic containers to preserve fish. The efficiency in terms of capacity to store, preserve and transport fish is poor compared to ice box. With the ice box, fisherwomen have better capacity in buying more fish and they can preserve it up to 5 days. Hence, a tender process was followed, tender notice of ice boxes were published in a leading news paper. The tender documents were sold to suppliers and the sealed tenders submitted by suppliers were opened in the PCM. The successful

supplier was selected based on the CBA and an agreement was signed between IRCS State branch and the supplier. The ice box manufactured by the supplier was tested in the IIP. The supplier delivered the stock as per the purchase order and all 4980 ice boxes were distributed by IRCS District branch to the beneficiaries (*Table 1*).

**2.2 Fish curing tubs:** Salting and drying is an ancient and simplest method to preserve fish. Poor economic conditions of the fisher folk have led to the use of locally available tubs and containers to cure fish, which are most often unhygienic. Fisher folks use several types of curing tubs and it varies depending on the practice in the village. Some fisher folks use rectangular constructed cement concrete structure for curing fish; some prefer cylindrical cement concrete tubs. Several



fisher folks cure fish in a bucket with salt water, old plastic drums or slotted truck tyres. The fisher folk community expressed their needs in having a better hygienic curing tubs compared to the traditional methods and IRCS district branches had several discussions with the fisheries department in obtaining information related to curing tubs. With the FRP curing tubs, the duration of time to cure is less, quality of fish is hygienic, increased capacity to cure, easy to maintain and durable compared to the traditional methods practiced. Time taken to cure fish in FRP curing tub is 1.45 days compared to the traditional method which

takes 2.84 days. Hence, based on the suggestions of the Fisheries department, FRP curing tubs were designed and approved by the procurement committee. CIFE certified the use of FRP curing tubs made of food grade resin plastic. Quotations were obtained from fabricators and a successful supplier was selected. A sample of a FRP curing tub, provided by the supplier was tested by representatives from Fisheries department, SIFT, SRC and IRCS. The supplier delivered the FRP curing tubs based on the purchase order and IRCS district branches distributed 200 FRP curing tubs to the beneficiaries (*Table 2*).





**2.3 Fish smoking bins:** Traditionally, fish is smoked on a bed of bamboo logs inside thatched houses. Poor ventilation system often causes lot of health hazards like eye and respiratory problems. There are incidents of fire accidents quite often. In order to improve this situation, the project with the support of fisheries department acquired a sample of smoking bin and modified it taking the opinion of the fisher folk community. Time taken to smoke fish in smoking bin is 5 hours compared to the traditional method which takes 10 hours. Hence, based on the suggestions of the Fisheries department smoking bins were designed and approved by the procurement committee.

Quotations were obtained from fabricators and a successful supplier was selected. A sample of a smoking bin provided by the supplier was tested by representatives from Fisheries department, SIFT, SRC and IRCS. The supplier delivered the smoking bins based on the purchase order and IRCS district branches distributed 140 smoking bins to the beneficiaries (Table 3).

**2.4 Infrastructures:** Fisherwomen dry fish on sand/soil, fishing nets and leaves where the fish is covered by dust and it has less value while sold. The fish dried on a clean cement concrete platform is hygienic and has more value. After drying, the fish is packed in a sack or bamboo basket and stored in open, thatched sheds or at home. Most of the fish stored is lost due to seasonal rains; according to the baseline study the time taken to dry fish on the fish drying platform



is 2.3 days compared to the traditional methods dried on leaves and nets which takes 3.3 days. Fisherwomen lose approximately 146 kgs of dried fish due to cyclones and torrential rains, but now the dry fish storage sheds have benefited them to safely store 127 kgs of dried fish for a period of 10.13 days in a month. The dry fish storage shed is safe for storing fish and clean compared to the thatched sheds. Hence, a tender process was followed after obtaining the list of villages and land documents from the Fisheries department. The tender notice was published in national newspaper for sale of tender

documents. Based on the CBA, the PCM identified a successful bidder and an agreement was signed between the contractor and the IRCS State branch. The contractor constructed 23 fish drying platforms and 21 dry fish storage sheds which was inaugurated and handed over to the community by the IRCS district branches (Table 4).

**2.5 Trainings:** The fisherwomen involved in the post harvesting of fish are illiterates and process fish in unhygienic conditions. Fisher folks regularly follow several practices in processing the fish, but they lack efficiency in terms of income. The practice of fish processing is not hygienic and hence trainings are required. In this regard, trainings were given to the fisherwomen who are fully involved in the processing of fish. The trainings were conducted by the staff from Fisheries department and SIFT in coordination with IRCS district branches and community for more than 5000 fisherwomen on the use and maintenance of the



livelihood tools and infrastructure. In addition, they were trained on the Government Fisheries schemes and awareness was created through IEC activities such as posters, pamphlets and wall paintings.

### 3. ORGANIZATIONAL STRUCTURE OF THE PROJECT

The organizational structure of the project hinged on its participatory approach. This meant the target groups had to organize themselves to give expression to their ideas. Their strength lay in their capacities of managing the resources as an organized group. Thus, the target group was encouraged at the very beginning to form committees. To stimulate formation of VMC and to coordinate the work, IRCS volunteers were selected from among the members. Since they belonged to the same village, the volunteers would be able to understand the needs and problems of village women easily; they were given training on their roles so that they could perform their tasks even better. The Project Coordinator at the district level coordinated with all stakeholders mainly with the volunteers to implement activities.

The Project Coordinators who were occasionally trained coordinated closely with marine fisheries officers/counterparts, particularly on technical activities such as designing livelihood tools, infrastructures and planning contents for training/IEC materials. Consultant Engineers were involved in monitoring and implementing the construction activities.

**State Project Coordinator:** responsible for planning, coordination, and supervision of the activities in field level, in charge of all the social mobilization, selection and motivation of volunteers and liaised with community and Srikakulam & East Godavari District IRCS Branches and other stakeholders.

**Finance & Admin Officer:** responsible to ensure proper financial flow of the project in terms of payments, accounting records, petty cash, etc. provided financial reports as per the donor requirements and as per the Indian law requirements and logistic arrangements for state level.

**District Coordinator:** focal point in the district level, where the project has been implemented. His role has been absolutely necessary for the successful implementation of the activities. He was responsible for organizing & coordinating all activities.

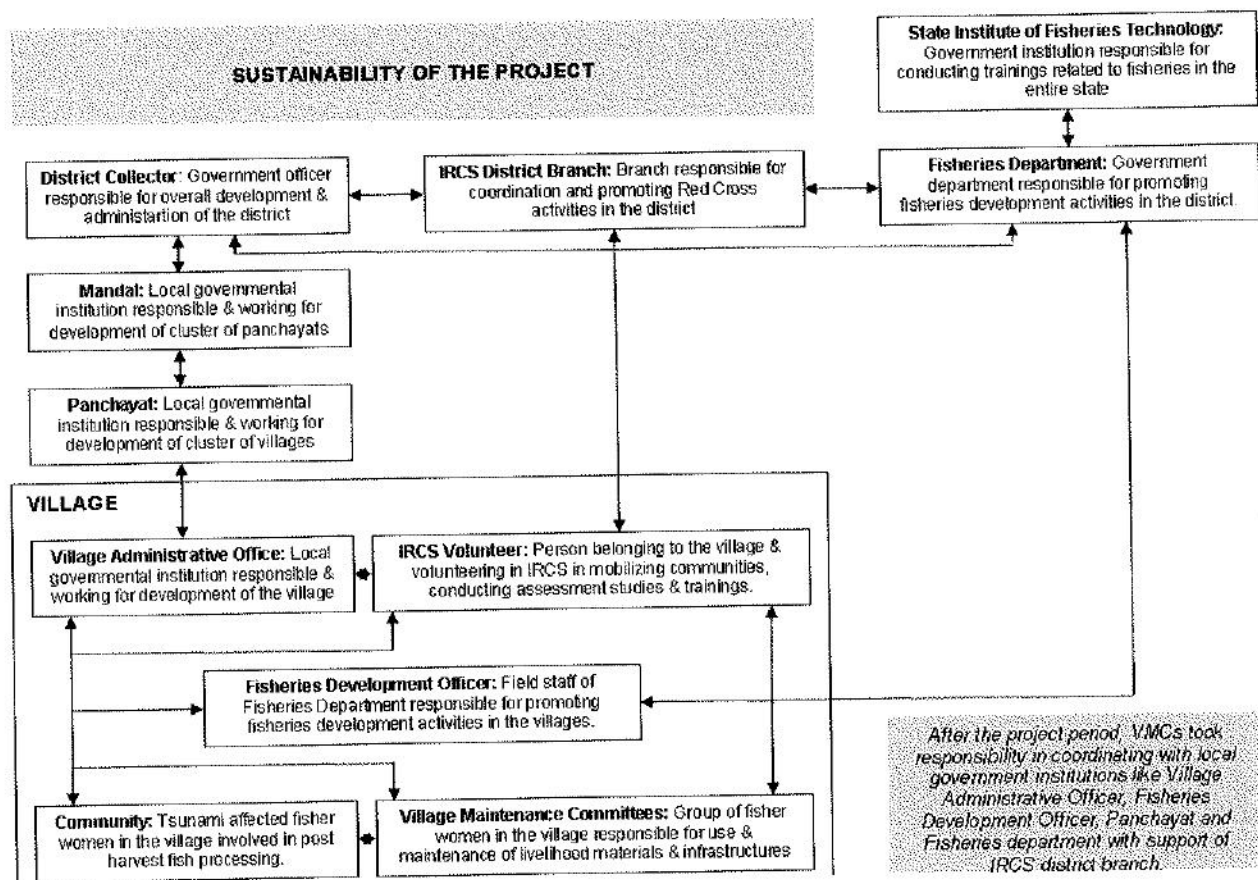
**Consultant Engineer:** key person for monitoring the construction activity in two districts. His role was to visit the construction sites and provide technical support to the construction team. Submit reports to state branch through district branch and participating in project activities when required.

The project's methodology laid high emphasis on bridging the relationship between the Government and the coastal fisher folk communities. Therefore a good bit of time was spent involving the Government departments to implement the project. The result was fruitful: The Fisheries Departments, State Institute of Fisheries Technology and Central Institute of Fisheries Education specially focused on fisheries development and training supported by providing technical expertise and human resources. The contributions made by these institutions have bridged the relationship and has a local medium in place through the VMC.

### 3.1 Sustainability of the project

Every project has a beginning and an end, but for the fisher folk communities it is a basic necessity to sustain for their livelihood. Hence, the project was designed in a way that all the activities are sustainable. The livelihood materials are maintained by the beneficiaries. The infrastructures provided to the community are maintained by the VMC and are coordinated with local government authorities from respective areas under the guidance of Fisheries Department. VMC maintains the construction along with other stakeholders. Hence, the maintenance of fish drying platforms and dry fish storage sheds is sustained by the below process followed in development of the VMC.

Through the VMC, fisherwomen are capable in coordinating with stakeholders and in sustainable management of the livelihood resources. This situation in the villages has reinforced a positive change for the community as shown below,



VMC collects a minimum fee from the beneficiaries and deposits in a joint bank account which is used for maintaining the constructions. Registers are used to keep track of the stock, fee collected, visitor's opinion and minutes. The VMC meets once in a week to discuss the issues and developments related to their village and livelihood.

### **3.2 Project inputs**

The major input of IRCS was in terms of human resources: one state project coordinator (full time), one finance & admin officer (full time), two district project coordinators (full time), two consultant engineers (full time), two admin assistants (part time) and 20 volunteers. Trainings were provided to all staff and volunteers. Training was also provided on use and maintenance of the infrastructures to the local government authorities. Livelihood tools were provided to the fisherwomen and livelihood infrastructures were constructed in the selected villages. Good cooperation was provided by the Andhra Pradesh Government for the trainings and IEC activities in the project. The inputs on the problems and needs were proposed by the Fisheries department. Fisheries department staffs were involved in conducting trainings, designing IEC materials, livelihood tools and constructions. The villages and beneficiaries were identified for each activity and provided to IRCS district branches. Local government authorities were involved in identifying and transferring land for constructions.

## II MODULE – PROJECT DISCUSSION

This module is the discussion of the project implemented by IRCS, focusing on the project approach, VMC formation among fisherwomen, livelihood support for fisherwomen, stakeholders, organizational structure and case studies. The livelihood support for fisherwomen is discussed in detail taking into consideration the results of the pre and post assessment studies and other sources.

### 4. DISCUSSION

#### 4.1 Project approach

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To achieve the objective of improving the livelihood capacities of the fisher folks, an atmosphere of trust was built up between project personnel, the various stakeholders and the fisherwomen. They worked together as equal partners. The following implementation procedures helped the process.

- IRCS considered it essential to study the fisher folk, and to understand their livelihood and lifestyle while interacting with them.
- Every activity proposed by the Fisheries department was discussed with the community members.
- Project activities were decided by the fisher folk, while project personnel provided suggestions and information.
- Care was taken to ensure that the activities and discussions did not go against family beliefs and norms, or religious and social institutions.
- The project focused on fisherwomen because they are the disadvantaged and in the most vulnerable position.
- Project staff explained the purpose of the project and encouraged their participation to avoid creating expectations and dependence.
- Basic livelihood tools such as ice boxes, fish curing tubs and fish smoking bins were lacking among the women fish vendors.
- Basic livelihood infrastructure such as a fish drying platforms and dry fish storage sheds were lacking in the village.
- The government lacked organizational infrastructure to support the project.

*Based on a study conducted by Venkatesh Salagrama in coastal fishing communities of Orissa State, India, 2006 for FAO the Indicators of poverty, food insecurity and vulnerability are subsistence based occupations which subject to fluctuations and increasing competition. There is little or no surplus, low creditworthiness and weakening of social support networks, poor ability to cope with and recover from the combined impact of trends, shocks and seasonality. In general they have poor knowledge base, low literacy, skills, capacities and opportunities to maintain, enhance or diversify current livelihood strategies.*

Taking into consideration the above facts, the project has focused to enhance the livelihood capacity of the fisherwomen which is the core for attaining all the basic social components necessary for having better living standards.

#### **4.2 Village Maintenance Committee (VMC) formation among fisherwomen**

VMC formation among fisherwomen was initially slow but picked up later. The committees were formed for monitoring the use and maintaining the livelihood infrastructures in the villages. VMC members were trained by the staff and volunteers on organizing themselves on maintenance of the constructions, managing the assets through registers, conduct of regular meetings, accounts management, etc. The women obviously found that the committee was their advantage for utilizing the resources and decision making in the village. Perhaps they also relished the opportunity to voice their feelings and problems, and to listen to others.

The functions of the VMC are that the committee consists of only up to 20 members and not more than that per village. Only one member per family can be part of the committee, the meetings are conducted only in the common places for only the village members. Every year the committee leaders are changed and they coordinate with Panchayat, Mandal office, IRCS district branch and Fisheries department. The VMC is responsible for the use and maintenance of the infrastructures, responsible for monitoring the activities. The committee maintains registers to have record of the use and maintenance of the infrastructures. A nominal fee is collected from beneficiaries for using the infrastructures and is monthly deposited in a joint bank account. The monthly meeting date and time is regularly communicated to the IRCS district branches.

*As per the survey conducted among fisherwomen in Coastal Karnataka by Ramachandra Bhatta in 2003 the data was collected on the nature of their work, earnings and role in decision making by giving different weightage to individual activities. The study suggests that only 16 per cent of the women are fully involved in decision making, although their contribution to the family income and household work is substantial. There is a social stigma attached to fish marketing activities and the younger generation is not willing to enter the business. Government support in terms of subsidy does not help in improving social status. Employment generation by providing modern marketing facilities is required for improving the status of fisherwomen.*

Women are the most vulnerable among the fishing communities and empowering their capacities in terms of livelihood and decision making can make them self reliant. This will certainly support the needs of several families through them. The fisherwomen feel that they have gained self respect in the village because of the responsibility taken to use and maintain the livelihood infrastructures.

#### **4.3 Livelihood support for fisherwomen**

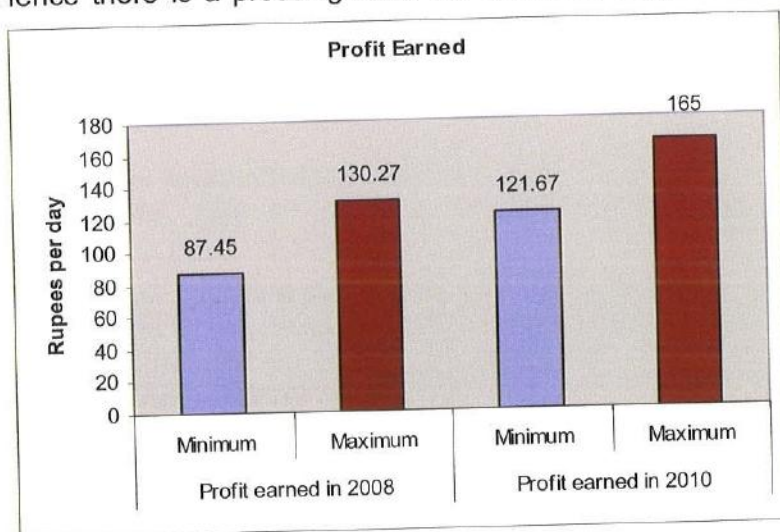
The livelihood tools and infrastructures have benefited the fisherwomen and their income has increased. The project has contributed to an increase in the profit of fisherwomen to 32.89% and has equipped their livelihood capacity in buying and processing fish by 39.50%, which in turn reveals the effective use of livelihood materials and infrastructures which has prevented the wastage of fish. The project's activities did not substantially increase the workload of the women which was already very heavy; it got spread out among the family. Project has strengthened the self-confidence of the women, broadened their horizons, and brought out latent potential. Through the trainings, 99% of fisherwomen beneficiaries have knowledge on the use and maintenance of livelihood materials and infrastructures.

**Suggestions:**

- Livelihood tools may be extended to more members which will certainly contribute to enhance their livelihood capacities.
- More infrastructures may be constructed in the coastal areas for the development of fisher folk communities.
- Periodic trainings and discussions should be held on all activities related to their livelihood resources, costs, time, efforts and earnings.
- Coordination meetings may be planned for all stakeholders to meet regularly and share their views for the development.

Based on a study conducted by U. Tietze, FAO Consultant in Orissa and Maharashtra, 2007 the development of infrastructure in rural coastal areas has been comparatively neglected. There is lack of basic infrastructures which includes an absence of concrete floors and ceilings; a lack of storage, cold storage and fish handling and transport facilities; an irregular supply of electricity and lack of generators to be used during power outages; a lack of supply of clean and safe water; a lack of drainages and solid waste disposal facilities and a lack of hygienic facilities such as bathrooms and latrines. The condition of fish landing centres and sites in coastal villages is even worse. There is also a lack of regulations pertaining to the marketing of fish and fish products and of the monitoring of regulations including health regulations. Remote areas still face accessibility problems, particularly during rainy season and natural calamities, because they do not have all weather roads and public transport services. There is, however, a considerable loss of quality of fish because of unhygienic handling, storage and transport of fish at fish landing centres and in fish markets and because not enough ice is used to preserve the catch on board fishing vessels before landing it. This loss of quality of raw material poses an obstacle to the production of value added fish products. An example is the export of dried fish. The poor quality is largely due to the poor quality of the raw material used and the lack of hygienic fish handling, marketing, processing and transport infrastructure. By improving fish handling and processing and improving the hygiene and quality of fish drying by small-scale fish processors, additional income can be generated for coastal fishing communities.

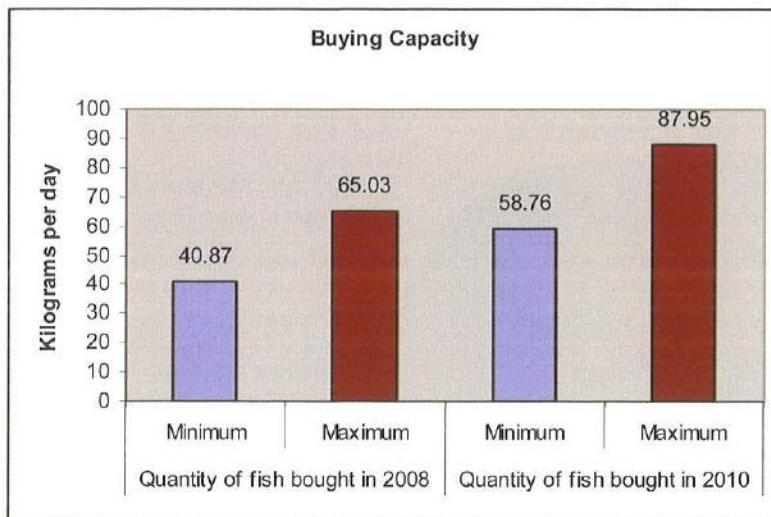
Hence there is a pressing need for livelihood support of fisherwomen in the coastal states of India. This project has showed a way for reaching the remote communities and it is high time to mainstream these communities focused on livelihood for their enhancement.



The Government schemes are fixed and have little scope for flexibility and adaptability to the community, an autonomous body with representatives from all related stakeholders need to pool in their expertise to create a system in taking this initiative forward.

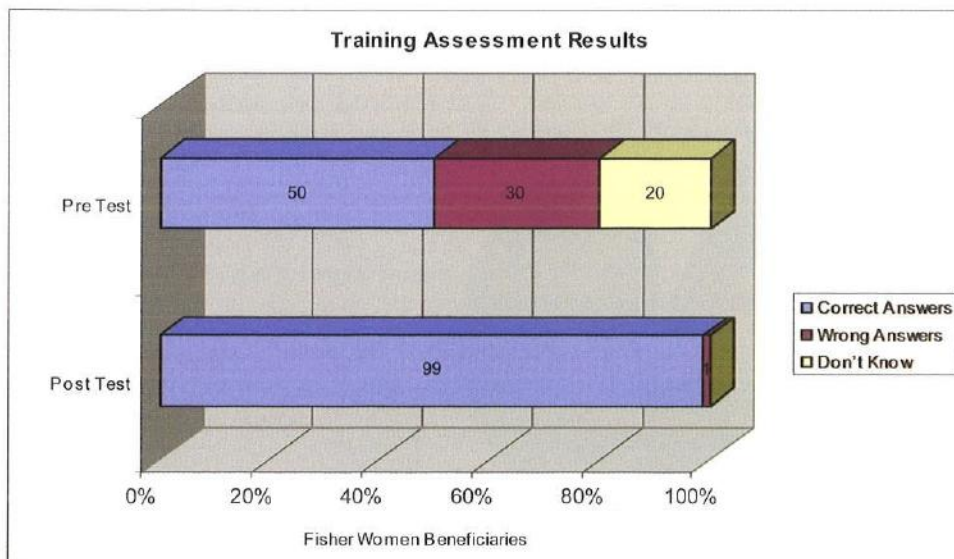
**5320 Fisherwomen beneficiaries in 80 tsunami affected coastal villages of Srikakulam and East Godavari districts have increased profit to 32.89% through their livelihood activities (fish vending, fish curing, fish smoking, fish drying and storing dried fish):** Before the

project's intervention, fisherwomen had command over their products only for few hours because of the bamboo baskets used which could not preserve fish for long. The buyers always decided the rates and the fisherwomen had to sell it to them or loose it. After the project's support, fisherwomen are able to decide rates for their products because of the quality of the products which is hygienically processed and the capacity to preserve it longer. The average profit per day is 143.33 INR compared to before which was only 108.86 INR. Hence, there is 32.89% increase in the profit of fisherwomen.



**5320** Fisherwomen beneficiaries in 80 tsunami affected coastal villages of Srikakulam and East Godavari districts have increased livelihood resources (ice boxes, fish curing tubs, fish smoking bins, fish drying platforms and dry fish storage sheds) to buy and process fish to 39.50% for their livelihood: Before the project's intervention, fisherwomen used to preserve and vend fish in bamboo baskets, cure the fish in old plastic drums,

smoke the fish on bamboo logs inside their huts, dry the fish on nets/leaves and store the dried fish inside thatched huts. In general, the post harvesting of the fish was done in poor hygienic conditions due to lack of livelihood materials and infrastructures. Because of these constraints, fisherwomen bought minimum quantity of fish and processed. After the support obtained through the project, they preserve and vend fish in ice boxes, cure it in fibre reinforced plastic fish curing tubs, smoke it in safer and hygienic smoking bins, dry it on concrete platforms and store the dried fish inside better storage sheds. The post harvesting of fish is done hygienically and the fisherwomen are able to buy more fish because of the increased livelihood capacities. The average quantity of fish bought per day is 73.35 Kg compared to before which was only 52.95 Kg. Hence, there is 39.50% increase in the buying and processing capacity of fisherwomen.



Through the trainings, 99% of fisherwomen beneficiaries in 80 tsunami affected coastal villages have knowledge on the use and maintenance of livelihood materials (ice boxes, fish curing tubs and fish smoking bins) and infrastructure (fish drying platforms



**and dry fish storage sheds):** Before receiving training, only 50% of fisherwomen were aware on the use and maintenance of the livelihood materials and infrastructures. After the training, 99% of fisherwomen have the knowledge not only on the use and maintenance of livelihood materials and infrastructures but also on the Government fisheries schemes. There has been a significant change in the livelihood pattern of the fisherwomen before and after the project's intervention based on the results of pre and post assessment studies. These changes are the indicators of the results achieved and provide scope for future intervention.

#### Comparison table of the fisherwomen's livelihood changes before and after the project

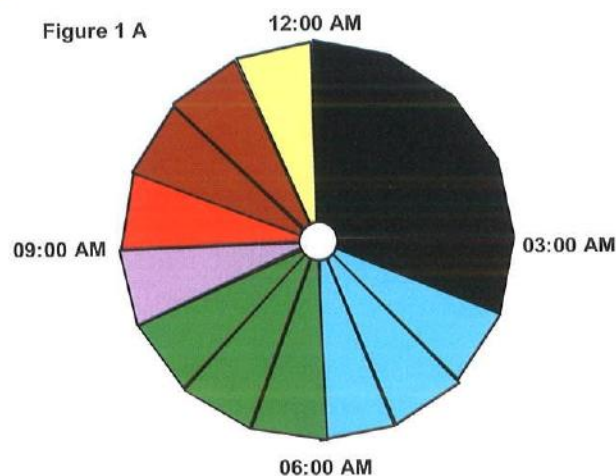
Fish vending activities of the fisherwomen	Before the project 2008	After the project - 2010
Fish vending activity (buying & vending)	5.7 days in a week & 9.28 months in a year	5.66 days in a week & 8.90 months in a year
Mode of travel to vend fish	59% by Auto Rickshaw & 41% by Walk, Bus or Auto Rickshaw	80% by Auto Rickshaw & 20% by Walk, Bus or Auto Rickshaw
Distance traveled for vending fish	15.42 kilometers per day	18.37 kilometers per day
Amount spent for traveling/transporting fish	43.20 rupees per day	72.25 rupees
Tax paid for fish vending activity	7.85 rupees per day	15.09 rupees per day

Reduced working time in fish vending activity: The working time of the fisherwomen has reduced 4.26% compared to before. The reason for this change is because they are capable to earn more in a lesser time. It can also be likewise that the fisherwomen spend more time in traveling and less time in buying and selling fish.

Based on the PRA study conducted in the project areas, the daily routine chart of fisherwomen is very hectic compared to the fishermen as shown below, the fisherwomen used to work 6 days in a week and 10 months in a year. During the lean season they migrated to different places in search of work on a daily wage basis to support their families.

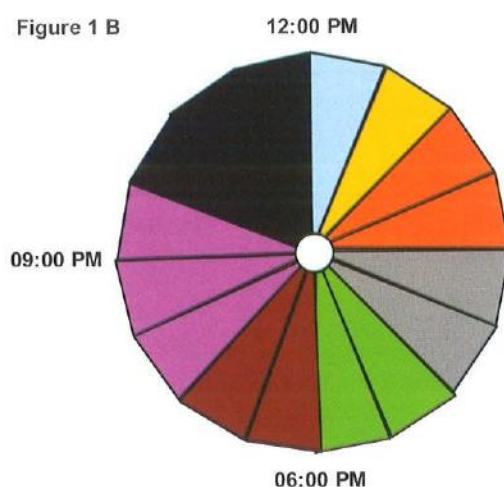
**Figure 1 A**

04:00 TO 06:00 AM	Wake up, toilet, wash vessels, clean the house and prepare breakfast
06:00 TO 08:00 AM	Go and sell fish in the fish market
08:00 TO 09:00 AM	Take food for fishermen to the beach
09:00 TO 10:00 AM	Clean the nets and assist the fishermen in mending nets
10:00 TO 11:00 AM	Take the fish and cure it in salt for 24 Hours
11:00 TO 12:00 PM	Take the previous days cured fish and dry it in the sun



**Figure 1 B**

12:00 TO 01:00 PM	Rearing of livestock
01:00 TO 02:00 PM	Prepare and serve lunch for family
02:00 TO 03:00 PM	Fish is dried
04:00 TO 05:00 PM	Fetch drinking water
05:00 TO 06:00 PM	Catering to the child's need, take bath, collect and store the dried fish
06:00 TO 07:00 PM	Watch television/ Entertainment
08:00 TO 09:00 PM	Prepare and serve dinner for the family
10:00 PM TO 03:00 AM	Go to bed



Increased capacity to travel: There has been a dramatic 21% increase in the use of auto rickshaws to travel. This explains that the fisherwomen have gained the financial capacity to use better means of transport.

Traveling longer distance: Fisherwomen are traveling longer distance i.e., 19.13% increase compared to before. The reason for this is because they have better capacity to transport more quantity of fish to bigger markets.

Capacity to spend more for travel and tax: There has been a considerable change in the capacity to spend for the travel compared to before i.e., 67.24% increase. They are able to pay even nearly double the amount than before for tax which is 92.22% increase. This clearly elucidates the fiscal development of fisherwomen and their capacity to spend which is more than 70%.

### Assessment study comparisons

Description	Pre Assessment Study Results	Post Assessment Study Results
Study conducted in number of states	1 (Andhra Pradesh)	1 (Andhra Pradesh)
Study conducted in number of districts	2 (Srikakulam and East Godavari)	2 (Srikakulam and East Godavari)

Study conducted in number of Mandals	21 (Srikakulam 11 and East Godavari 10)	21 (Srikakulam 11 and East Godavari 10)
Study conducted in number of villages/hamlets	58 (Srikakulam 36 and East Godavari 22)	58 (Srikakulam 35 and East Godavari 23)
Total respondents for the study	1257 (Srikakulam 598 and East Godavari 659)	1195 (Srikakulam 533 and East Godavari 662)
Age of the respondents	40.03 years	41.35 years
Gender of the respondents	1257 female	1195 female
Family size of the respondents	3.94 members	3.88 members
Number of members working in respondents family	1.98 members	1.89 members
Occupation of the respondents	Fish vending 1102/ Fish drying 60/ Fish vending & drying 95	Fish vending 977/ Fish drying 141/ Others 1/ Fish vending & drying 73/ Fish vending, drying & others 2/ Fish vending & others 1
Respondents of the study are beneficiaries of	Ice box 377/ Curing tub 127/ Smoking bin 60/ Ice box & platform 208/ ice box & shed 150/ Ice box, platform & shed 265/ Curing tub & platform 30/ Curing tub & shed 20/ Curing tub, platform & shed 20	Ice box 565/ Curing tub 79/ Smoking bin 42/ Ice box & platform 141/ ice box & shed 97/ Ice box, platform & shed 174/ Curing tub & platform 20/ Curing tub & shed 13/ Curing tub, platform & shed 60/ Smoking bin, platform & shed 31
Quantity of fish you buy or get per day	Minimum 40.87 kilograms	Minimum 58.76 kilograms (43.77% increase)
	Maximum 65.03 kilograms	Maximum 87.95 kilograms (35.24% increase)
How do you carry fish from landing centre?	Rickshaw 6/ Bus 254/ Auto rickshaw 736/ Walk 176/ Bus & walk 26/ Auto rickshaw & walk 24/ Bus, auto rickshaw & walk 35	Bus 137/ Auto rickshaw 949/ Walk 80/ Auto rickshaw & walk 29

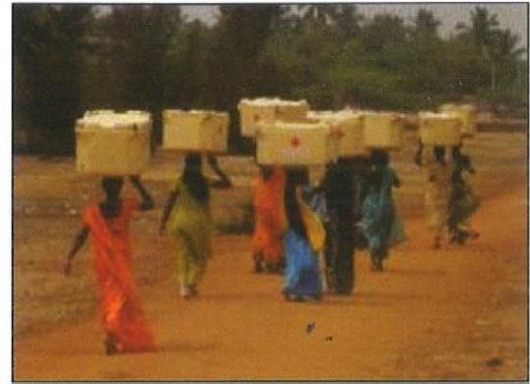
### Efficiency of fish preservation methods [V-Very Good, G-Good, S-Satisfactory, B-Bad]

The ice box is considered very efficient compared to other preservation methods because,

- **Less wastage:** All the beneficiaries have expressed that since the time they began to use the ice box provided to them under the project, they have very few incidents, when they have wasted fish compared to the use of traditional *butta* (bamboo baskets).
- **Preserved for long:** The fish now can be preserved for more than 4 to 5 days and fish looks fresh when preserved in the ice box.
- **Increased income:** All the beneficiaries have informed that there is an increase in their profit.
- **Effective transportation:** The ice boxes are fully utilized by the fisherwomen in different villages. They are using ice box for transporting fish to far away cities like Vishakapatnam.
- **Good quality of ice box:** The beneficiaries have appreciated the quality of the ice boxes provided through the project which has several good features.

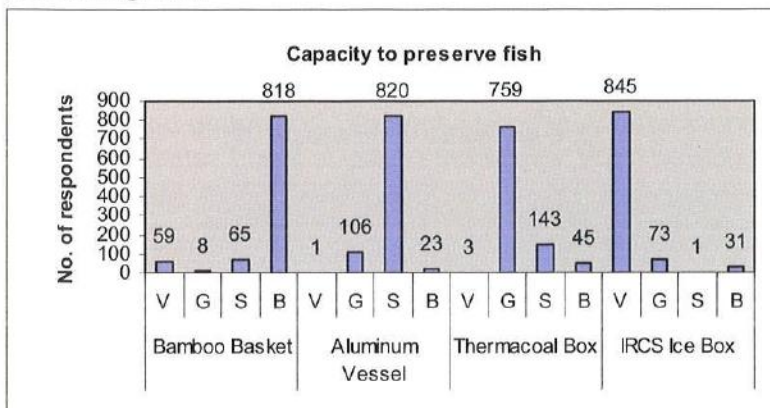


Before the intervention



After the intervention

The capacity to preserve fish in an ice box is considered very good compared to bamboo basket which is bad. However, thermacoal box is considered good, aluminum vessel is satisfactory for preserving fish.

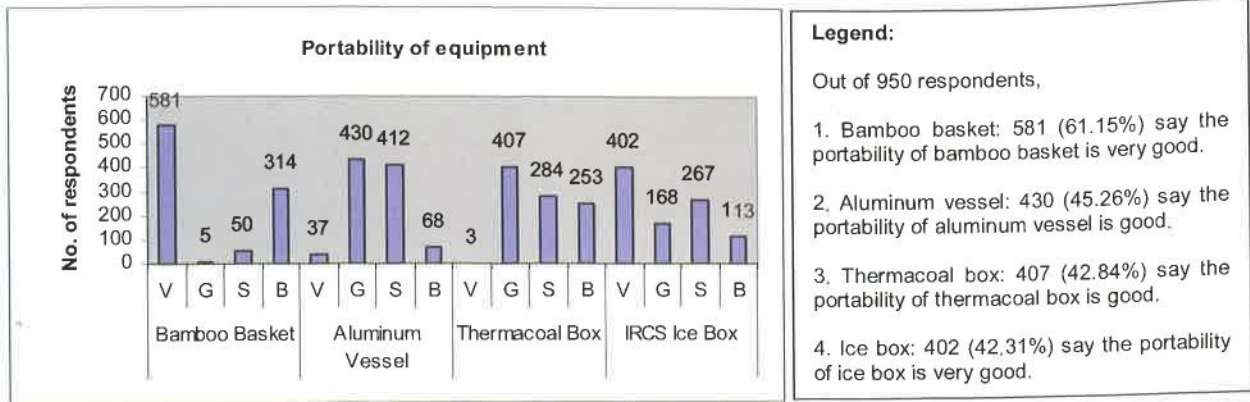


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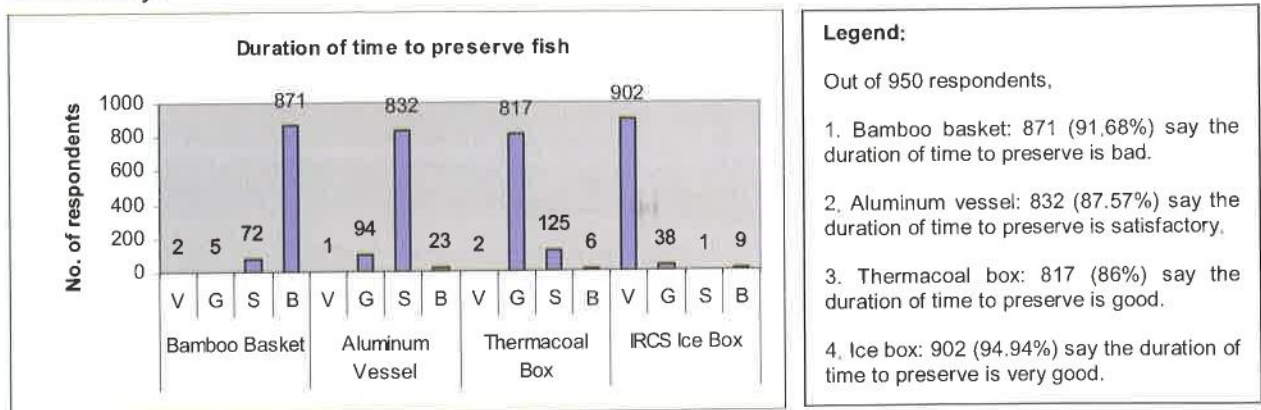
Out of 950 respondents,

1. Bamboo basket: 818 (86.10%) say the capacity to preserve is bad.
2. Aluminum vessel: 820 (86.31%) say the capacity to preserve is satisfactory.
3. Thermacoal box: 759 (79.89%) say the capacity to preserve is good.
4. Ice box: 845 (88.94%) say the capacity to preserve is very good.

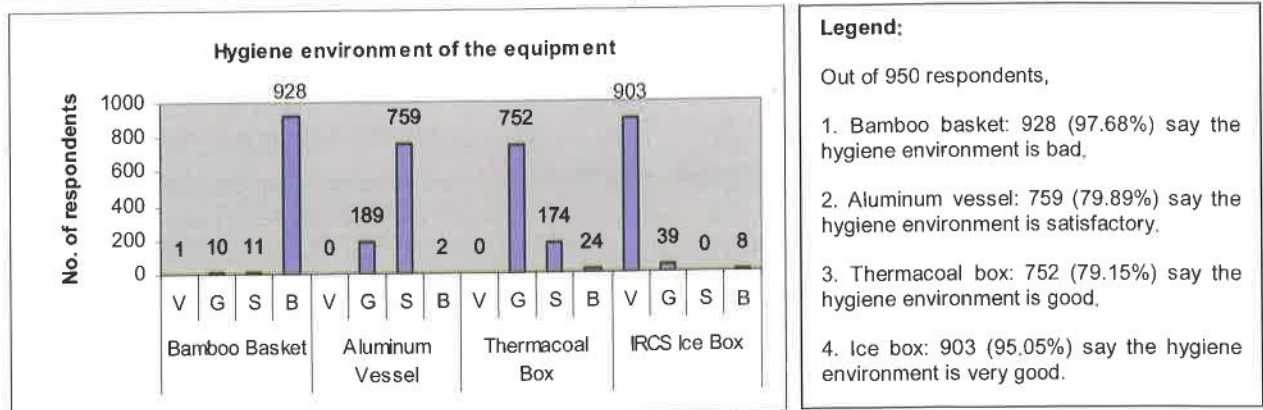
The portability of bamboo basket in vending fish is considered very good compared to ice box. However, aluminum vessel and thermacoal boxes are considered good.



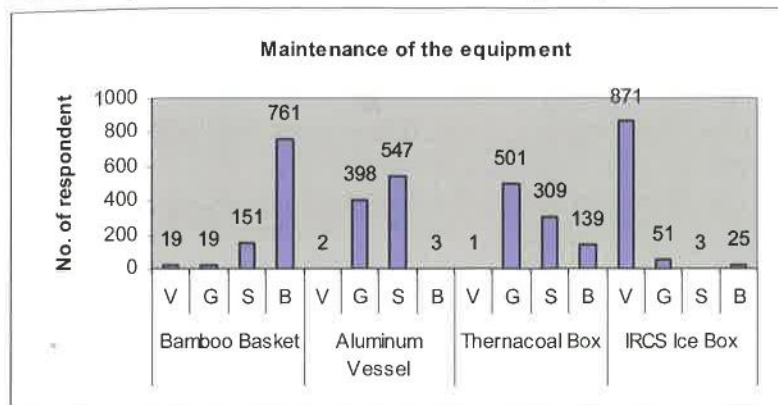
The time duration to preserve fish in ice box is considered very good compared to bamboo basket which is bad. However, thermacoal box is considered good, aluminum vessel is found satisfactory.



The hygiene environment of ice box is considered very good compared to bamboo basket which is bad. However, thermacoal box is considered good, aluminum vessel is found satisfactory.

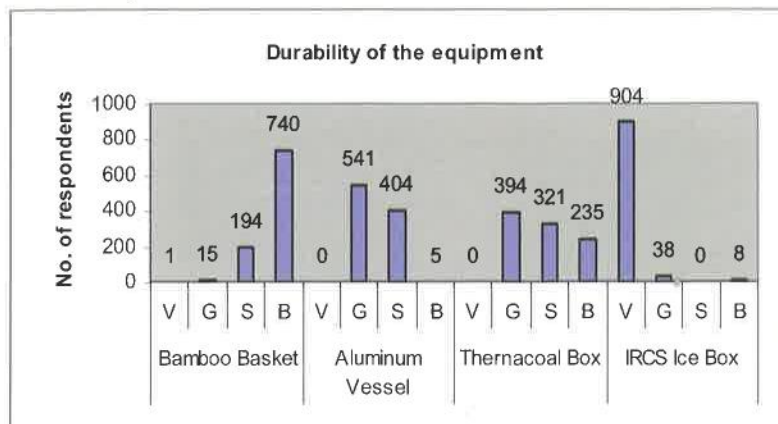


The maintenance of ice box is considered very good compared to bamboo basket which is bad. However, thermacoal box is considered good, aluminum vessel is found satisfactory.



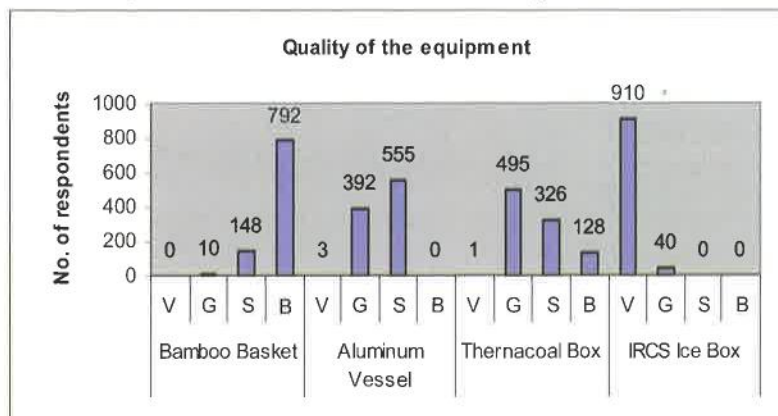
- Legend:**
- Out of 950 respondents,
1. Bamboo basket: 761 (80.10%) say the maintenance of bamboo basket is bad.
  2. Aluminum vessel: 547 (57.57%) say the maintenance is satisfactory.
  3. Thermacoal box: 501 (52.73%) say the maintenance of thermacoal box is good.
  4. Ice box: 871 (91.68%) say the maintenance of ice box is very good.

The durability of ice box is considered very good compared to bamboo basket which is bad. However, aluminum vessel and thermacoal box are considered good.



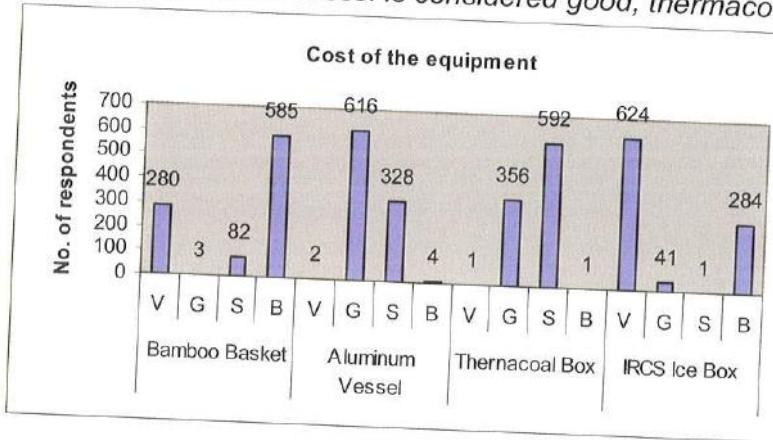
- Legend:**
- Out of 950 respondents,
1. Bamboo basket: 740 (77.89%) say the durability of bamboo basket is bad.
  2. Aluminum vessel: 541 (56.94%) say the durability of aluminum vessel is good.
  3. Thermacoal box: 394 (41.47%) say the durability of thermacoal box is good.
  4. Ice box: 904 (95.15%) say the durability of ice box is very good.

The quality of ice box is considered very good compared to bamboo basket which is bad. However, thermacoal box is considered good, aluminum vessel is found satisfactory.



- Legend:**
- Out of 950 respondents,
1. Bamboo basket: 792 (83.36%) say the quality of bamboo basket is bad.
  2. Aluminum vessel: 555 (58.42%) say the quality of aluminum vessel is satisfactory.
  3. Thermacoal box: 495 (52.10%) say the quality of thermacoal box is good.
  4. Ice box: 910 (95.78%) say the quality of ice box is very good.

The cost to buy ice box is considered very good compared to bamboo basket which is bad. However, aluminum vessel is considered good, thermacoal box found satisfactory.

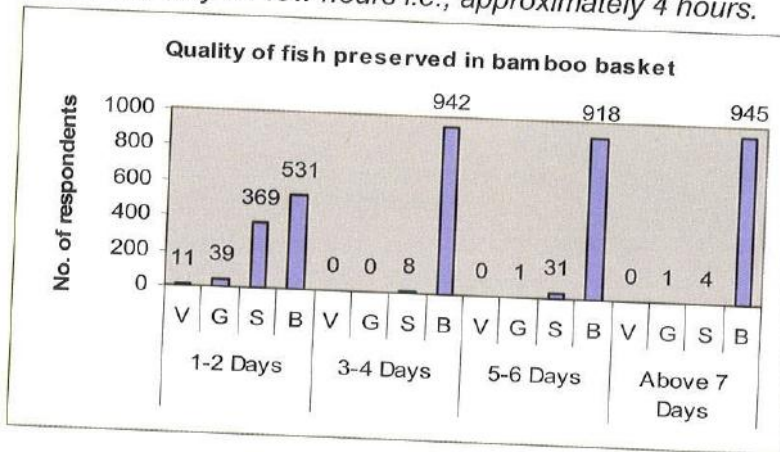


**Legend:**

Out of 950 respondents,

1. Bamboo basket: 585 (61.57%) say the cost to buy bamboo basket is bad.
2. Aluminum vessel: 616 (64.84%) say the cost to buy aluminum vessel is good.
3. Thermacoal box: 592 (62.31%) say the cost to buy thermacoal box is satisfactory.
4. Ice box: 624 (65.68%) say the cost to buy of ice box is very good.

The quality of fish preserved in bamboo basket is considered bad because the fish can be preserved only for few hours i.e., approximately 4 hours.

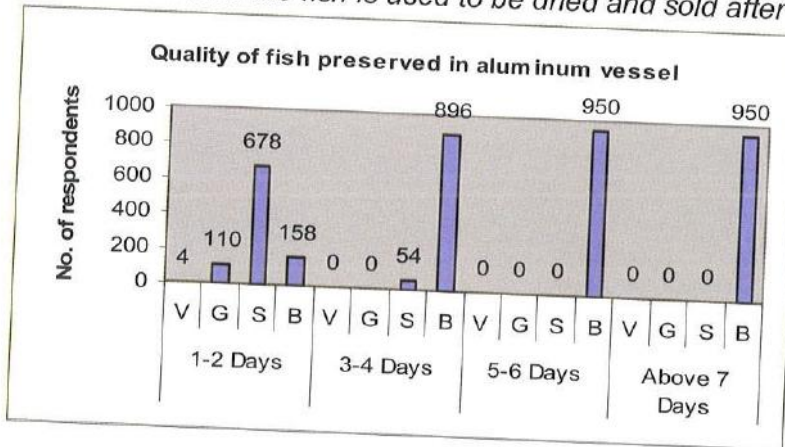


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Out of 950 respondents,

- 1-2 days: 531 (55.89%) say the quality of fish preserved is bad.
- 3-4 days: 942 (99.15%) say the quality of fish preserved is bad.
- 5-6 days: 918 (96.63%) say the quality of fish preserved is bad.
- Above 7 days: 945 (99.47%) say the quality of fish preserved is bad.

The quality of fish preserved in aluminum vessel is considered satisfactory only for 1-2 days with ice and later the fish is used to be dried and sold after curing it in salt water.

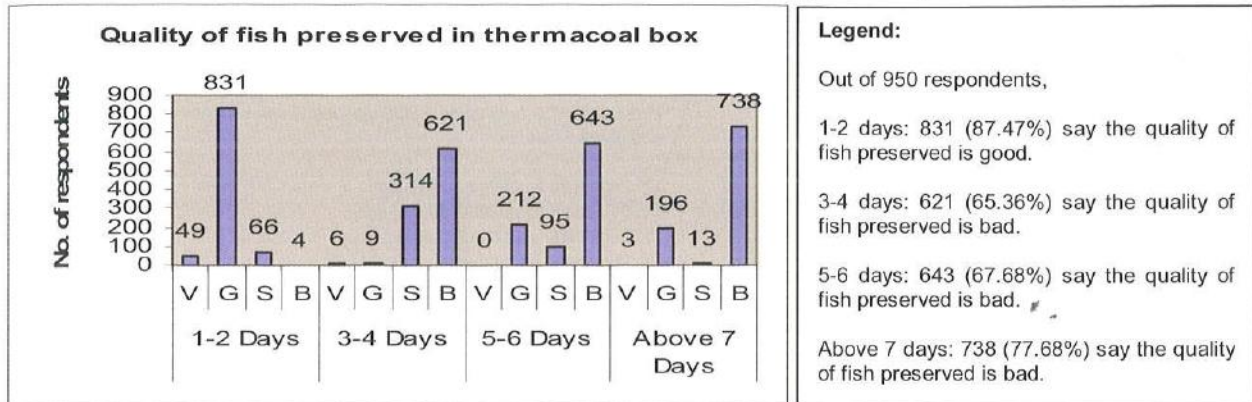


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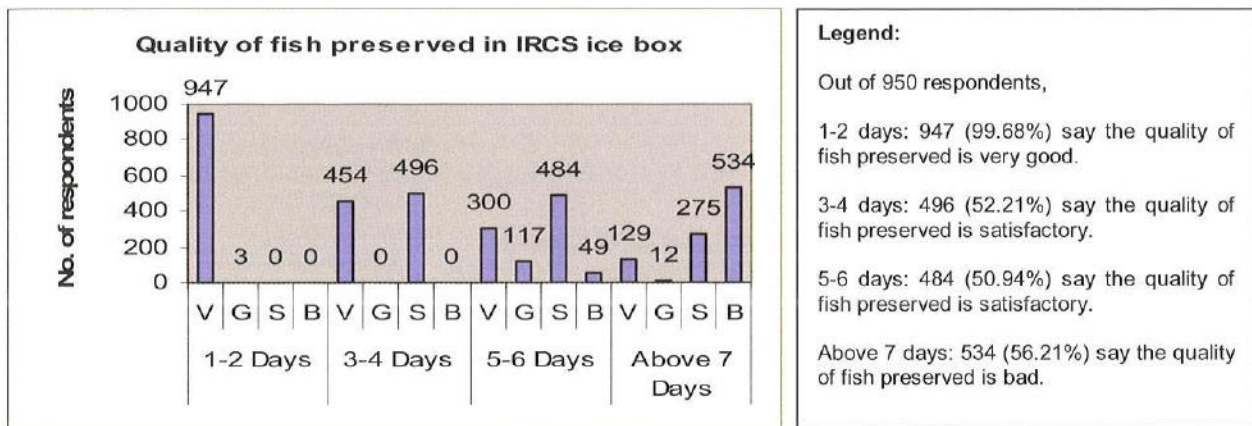
Out of 950 respondents,

- 1-2 days: 678 (71.36%) say the quality of fish preserved is satisfactory.
- 3-4 days: 896 (94.31%) say the quality of fish preserved is bad.
- 5-6 days: 950 (100%) say the quality of fish preserved is bad.
- Above 7 days: 950 (100%) say the quality of fish preserved is bad.

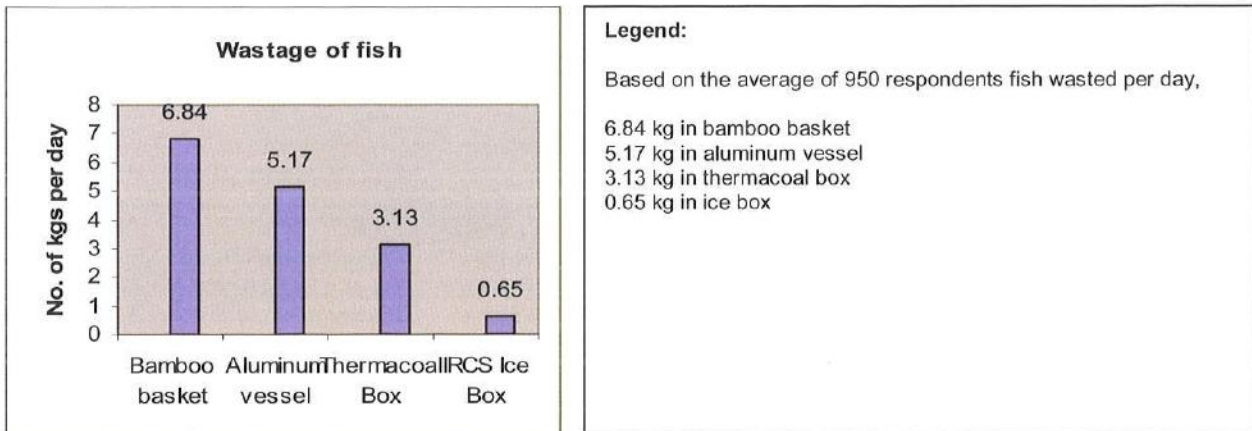
The quality of fish preserved in thermacoal box is considered good only for 1-2 days with ice.



The quality of fish preserved in ice box is considered very good only for 1-2 days with ice, it is satisfactory up to 6 days and later the fish is used to be dried and sold after curing it in salt water.

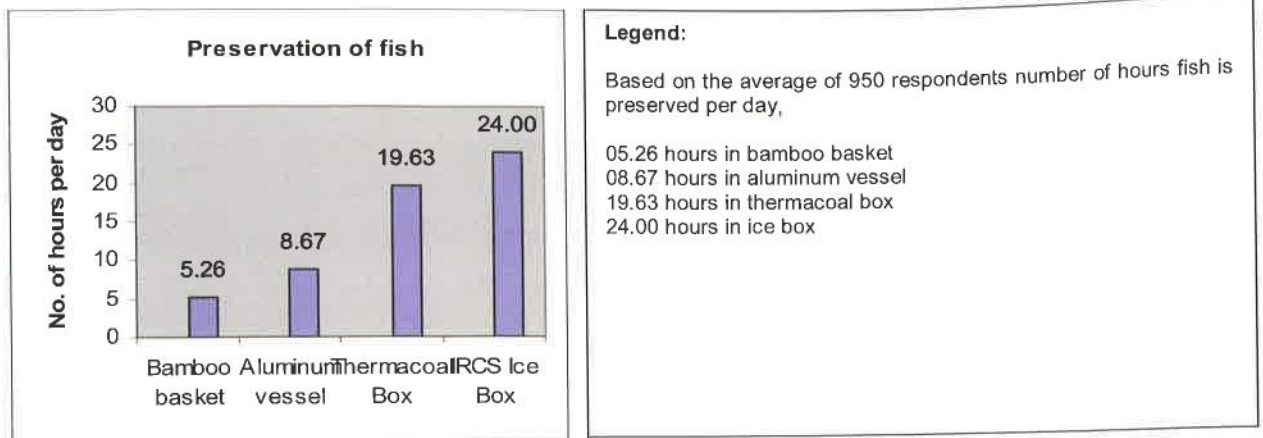


By using ice box the wastage of fish has reduced to 952.30% which is nearly 10 times lesser compared to the use of the traditional bamboo basket.





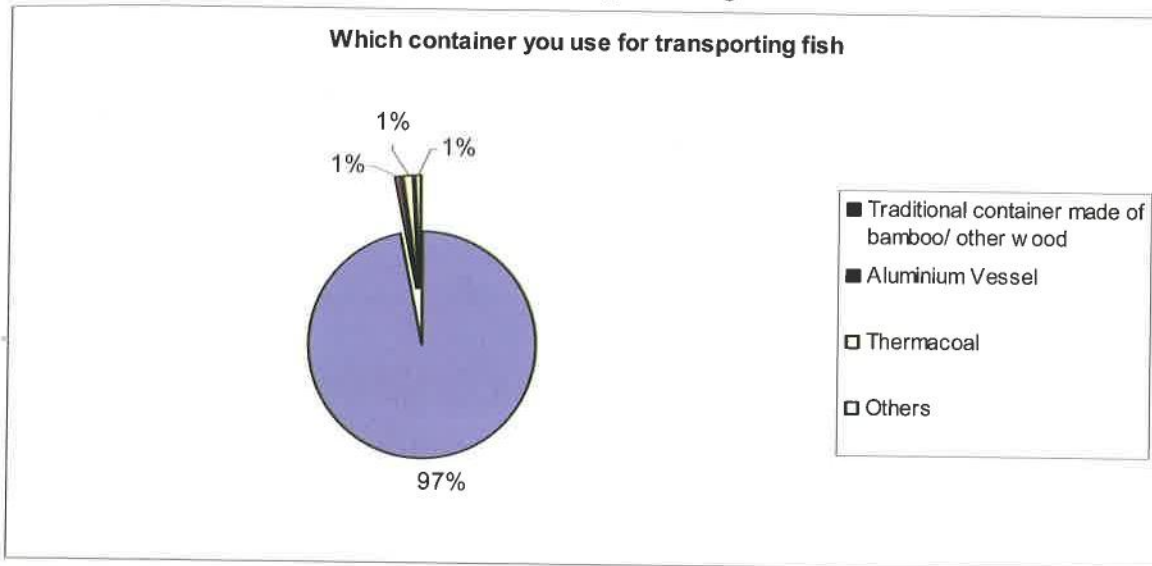
By using ice box the preservation of fish has increased to 356.27% compared to use of bamboo basket.



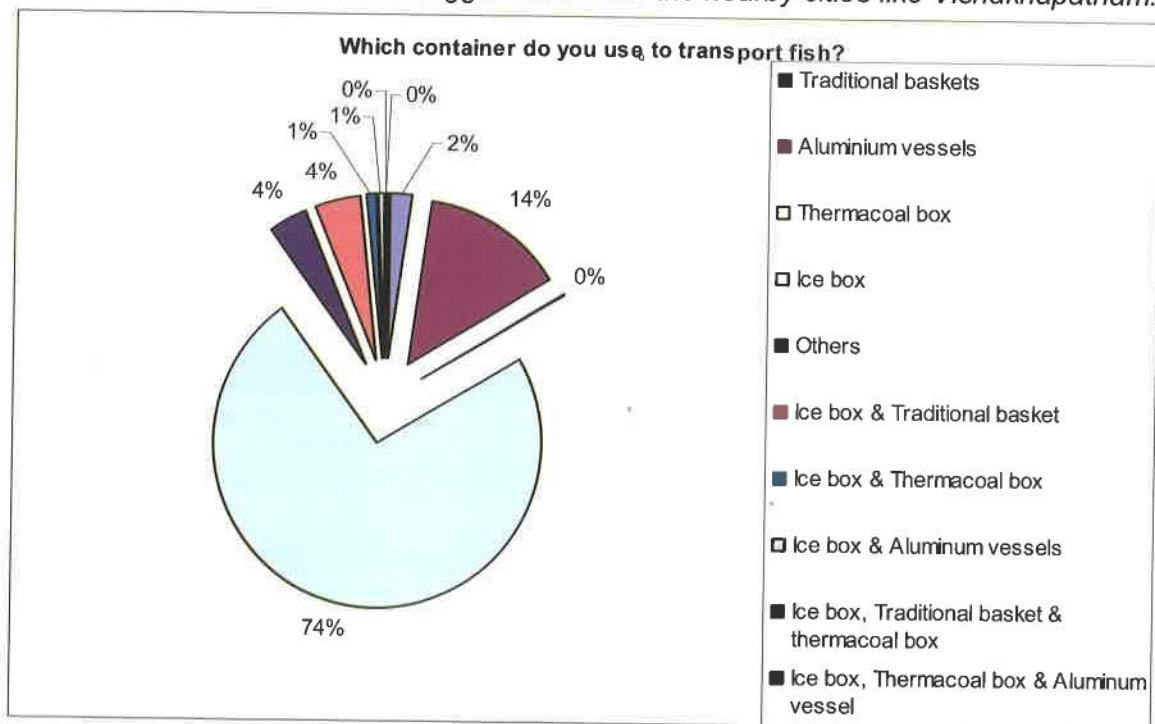
### Assessment study comparisons

Description	Pre Assessment Study Results	Post Assessment Study Results
Which container you use to transport fish?	Bamboo basket 1220/ Aluminum vessel 10/ Thermacoal 18/ Others 9	Bamboo basket 28/ Aluminum vessel 165/ Thermacoal box 3/ Ice box 878/ Others 49/ Ice box & bamboo baskets 52/ Ice box & thermacoal box 10, Ice box & aluminum vessels 7/ Ice box, bamboo baskets & thermacoal box 1/ Ice box, thermacoal box & aluminum vessel 2
How much ice do you use to preserve 1kg of fish?	0.70 kilograms	1.14 kilograms
What is the cost of 1kg of ice?	4.86 rupees	6.92 rupees
How far is the market from your home?	16.18 kilometres	24.02 kilometres
What is the minimum profit you get per day	87.45 rupees	121.67 rupees (39.13% increase)
What is the maximum profit you get per day	130.27 rupees	165.00 rupees (26.66% increase)
What do you do if the fish taken to market is not sold?	Carry the same home, store with ice and sell it next day 317/ Carry the same home and dry it 535/ Thrown away as waste 35/ Carry the same home, store with ice and sell it next day (or) dry it 72/ Carry the same home and dry it (or) thrown away 41	Carry the same home, store with ice and sell it next day 837/ Carry the same home and dry it 91/ Carry the same home, store with ice and sell it next day (or) dry it 22

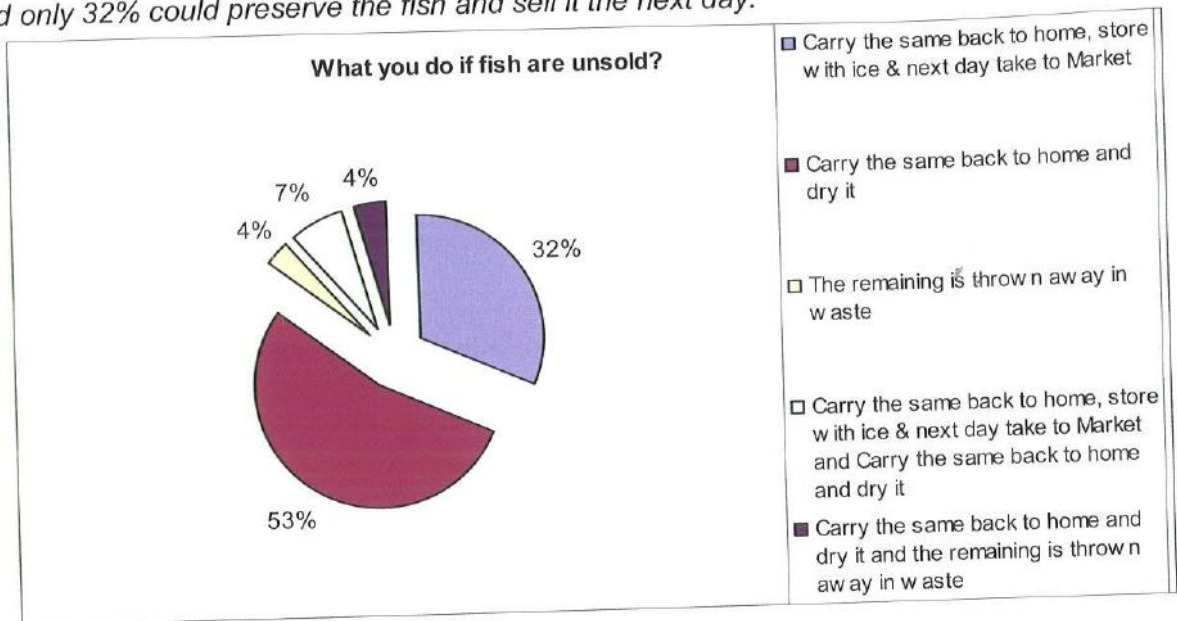
Before the project intervention, 97% of fisherwomen used bamboo baskets for preserving, vending and transporting fish to market from village landing centers



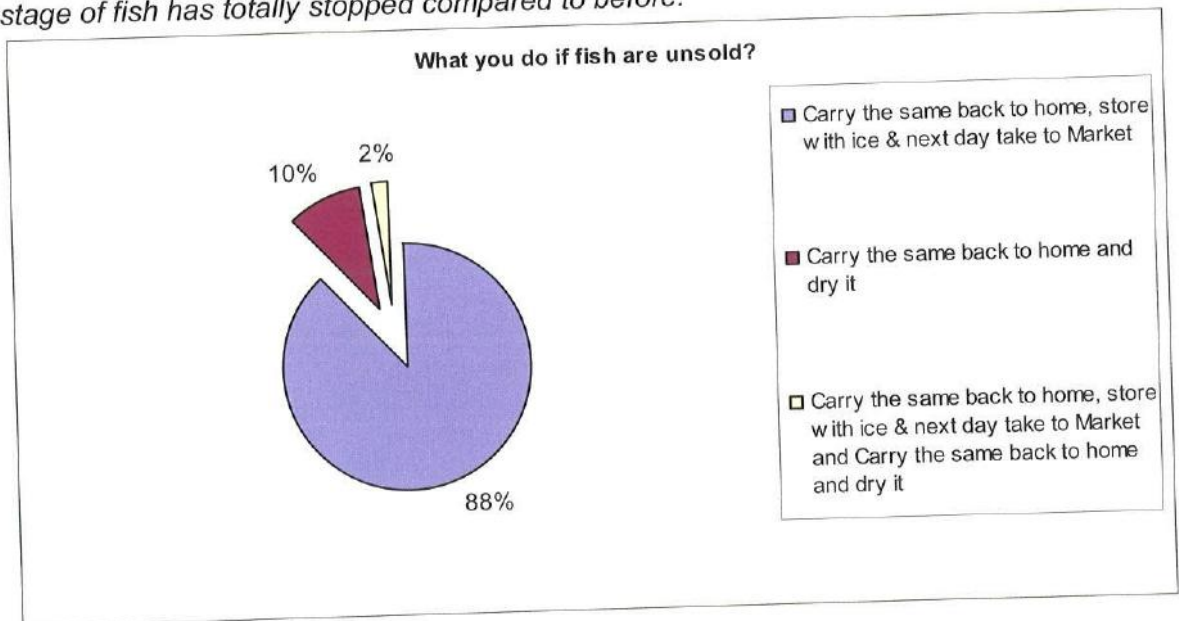
At end of the project, the use of ice box has increased along with their traditional baskets increasing their capacity to preserve and vend more fish from village to the market. The ice box is used to transport fish and ice to bigger markets in the nearby cities like Vishakhapatnam.



Before the project intervention, at least 4% of fisherwomen threw away the unsold fish in waste and only 32% could preserve the fish and sell it the next day.



At end of the project, 88% of fisherwomen can preserve the fish and sell it the next day. The wastage of fish has totally stopped compared to before.



**Efficiency of fish curing methods [V-Very Good, G-Good, S-Satisfactory, B-Bad]**

The FRP fish curing tub is considered very efficient compared to other curing methods because,

- *Hygienic, portable and user friendly:* The beneficiaries of the fish curing tub have said that the FRP fish curing tub is very hygienic. They find it easy to shift from place to place, comfortable to clean the tubs.

- *Safety of the fish:* Since the curing tub provided under the project has a lid to cover the tub, the chances of rain water dripping inside the tub is less and thereby helping them have fish cured in better condition.
- *Clean and easy maintenance:* The chances of insects and worms entering the curing tub is less as it is always kept clean, whereas it was not the same with the cement curing tub.

The quantity of marine fish marketed fresh is less than the quantity dried and salt-cured, owing to insufficient landing and transport facilities. Salt-curing and sun-drying of fish is done at almost every fishing village and landing centre. The techniques used are traditional and primitive and not conducive to a good quality product. The government operates a few fish-curing yards but these are usually located only at selected salt distribution centres.

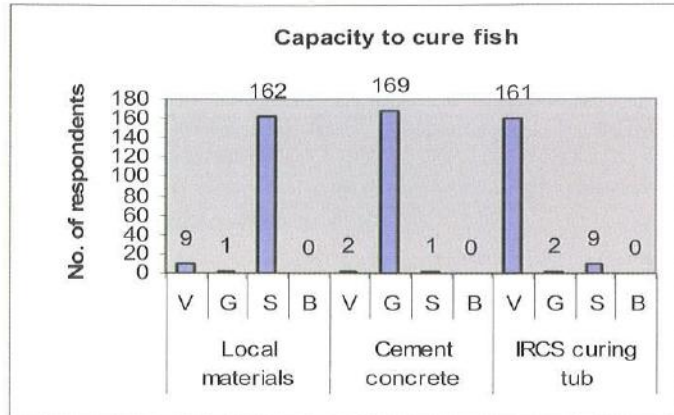


Before the intervention



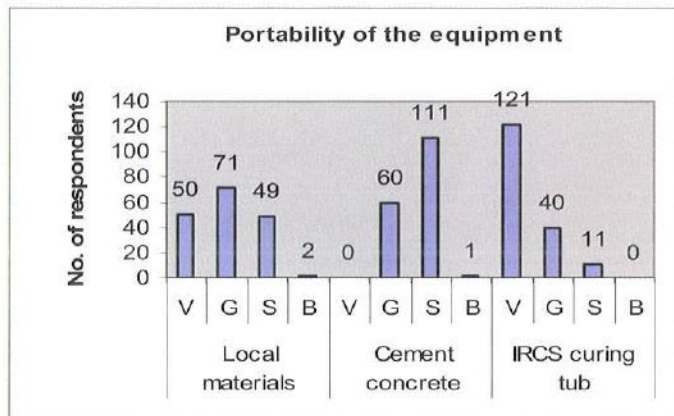
After the intervention

The capacity to cure fish in an ice box is considered very good compared to local materials (plastic drums, slotted lorry tyres, etc) which is satisfactory. However, cement concrete is considered good.



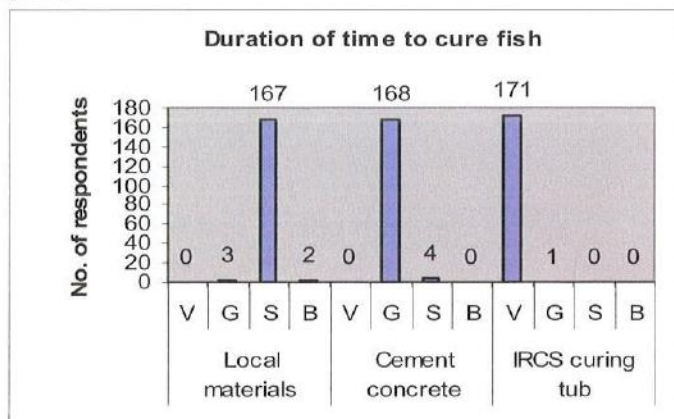
**Legend:**  
 Out of 172 respondents,  
 1. Local materials: 162 (94.18%) say the capacity to cure is satisfactory.  
 2. Cement concrete: 169 (98.25%) say the capacity to cure is good.  
 3. Curing tub: 161 (93.60%) say the capacity to cure is very good.

The portability of curing tub is considered very good compared to cement concrete which is satisfactory. However, local materials (plastic drums, slotted lorry tyres, etc) are considered good.



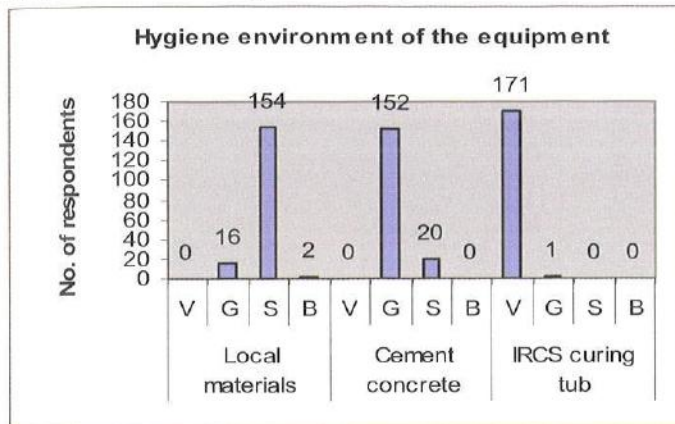
**Legend:**  
 Out of 172 respondents,  
 1. Local materials: 71 (41.27%) say the portability of local materials is good.  
 2. Cement concrete: 111 (98.25%) say the portability of cement concrete is satisfactory.  
 3. Curing tub: 121 (93.60%) say the portability of curing tub is very good.

The time duration to cure fish in fiber reinforced plastic curing tub is considered very good compared to local materials which is satisfactory. However, cement concrete is considered good.



**Legend:**  
 Out of 172 respondents,  
 1. Local materials: 167 (97.09%) say the duration to cure is satisfactory.  
 2. Cement concrete: 168 (97.67%) say the duration to cure is good.  
 3. Curing tub: 171 (99.41%) say the duration to cure is very good.

The hygiene environment of curing tub is considered very good compared to local materials which is satisfactory. However, cement concrete is considered good.

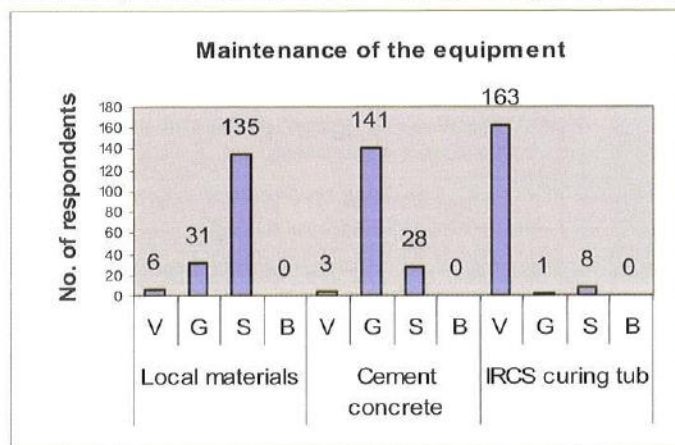


**Legend:**

Out of 172 respondents,

1. Local materials: 154 (89.53%) say the hygiene environment is satisfactory.
2. Cement concrete: 152 (97.67%) say the hygiene environment is good.
3. Curing tub: 171 (99.41%) say the hygiene environment is very good.

The maintenance of ice box is considered very good compared to bamboo basket which is bad. However, thermacoal box is considered good, aluminum vessel is found satisfactory.

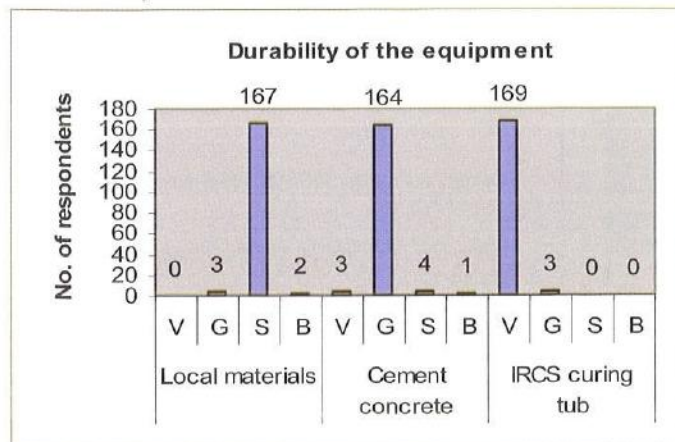


**Legend:**

Out of 172 respondents,

1. Local materials: 135 (89.53%) say the maintenance of local materials is satisfactory.
2. Cement concrete: 152 (97.67%) say the maintenance of cement concrete is good.
3. Curing tub: 171 (99.41%) say the maintenance of curing tub is very good.

The durability of curing tub is considered very good compared to local materials which is satisfactory. However, cement concrete is considered good.

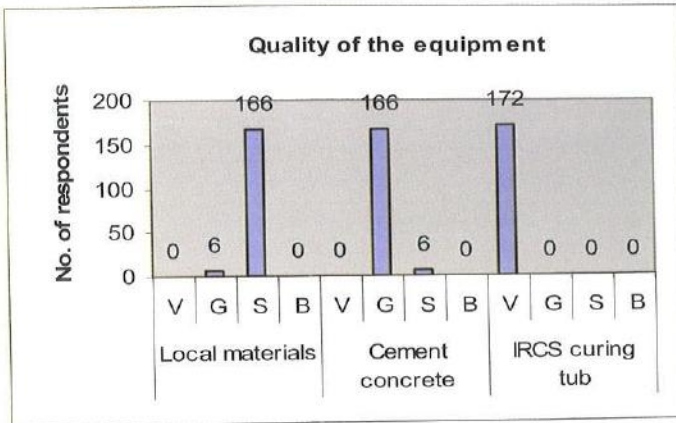


**Legend:**

Out of 172 respondents,

1. Local materials: 167 (97.09%) say the durability of local materials is satisfactory.
2. Cement concrete: 164 (95.34%) say the durability of cement concrete is good.
3. Curing tub: 169 (98.25%) say the durability of curing tub is very good.

The quality of curing tub is considered very good compared to local materials which is satisfactory. However, cement concrete is considered good.

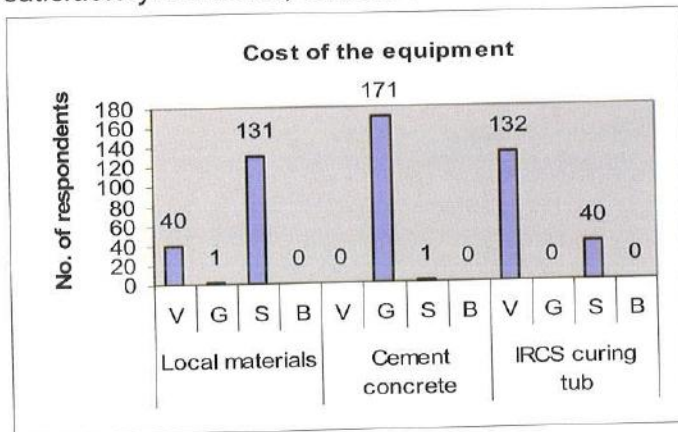


**Legend:**

Out of 172 respondents,

1. Local materials: 166 (96.51%) say the quality of local materials is satisfactory.
2. Cement concrete: 166 (96.51%) say the quality of cement concrete is good.
3. Curing tub: 172 (100%) say the quality of curing tub is very good.

The cost to buy curing tub is considered very good compared to local materials which is satisfactory. However, cement concrete is considered good.

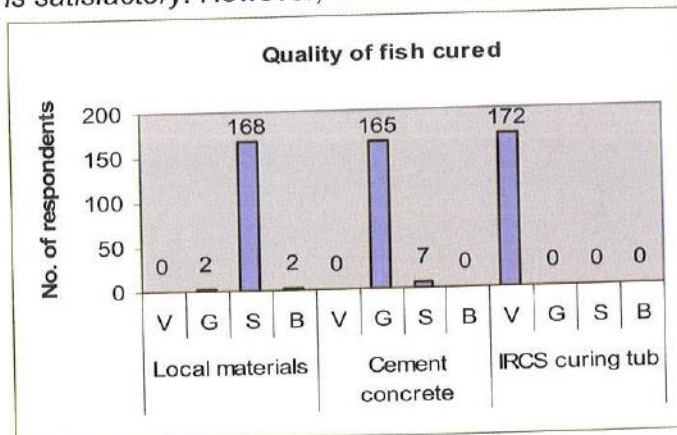


**Legend:**

Out of 172 respondents,

1. Local materials: 131 (76.16%) say the cost to buy local materials is satisfactory.
2. Cement concrete: 171 (99.41%) say the cost to buy cement concrete is good.
3. Curing tub: 132 (76.74%) say the cost to buy curing tub is very good.

The quality of fish cured in curing tub is considered very good compared to local materials which is satisfactory. However, cement concrete is considered good.

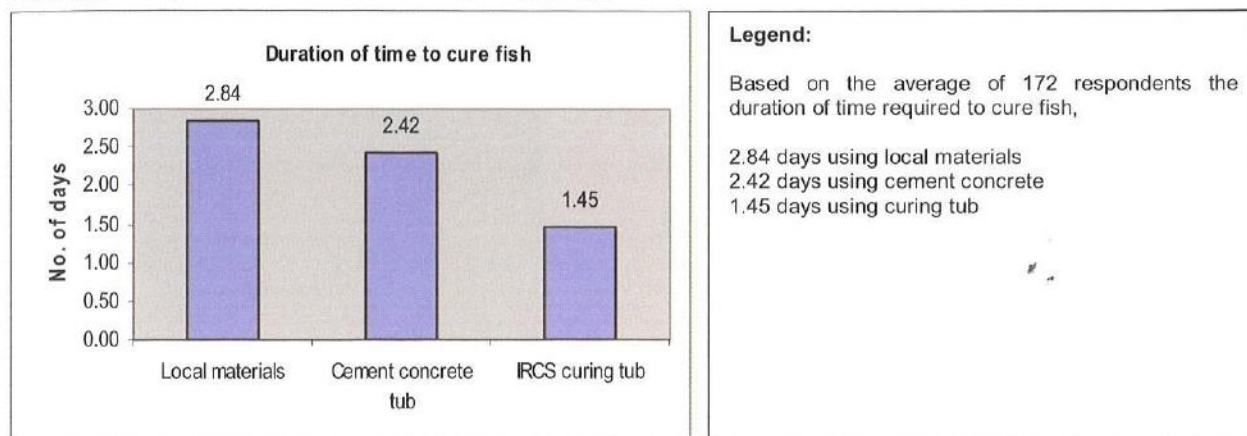


**Legend:**

Out of 172 respondents,

1. Local materials: 168 (97.67%) say the quality of fish cured is satisfactory.
2. Cement concrete: 165 (95.93%) say the quality of fish cured is good.
3. Curing tub: 172 (100%) say the quality of fish cured is very good.

*By using fiber reinforced plastic curing tub the duration of time taken to cure fish has reduced 95.86% compared to the use of local materials.*

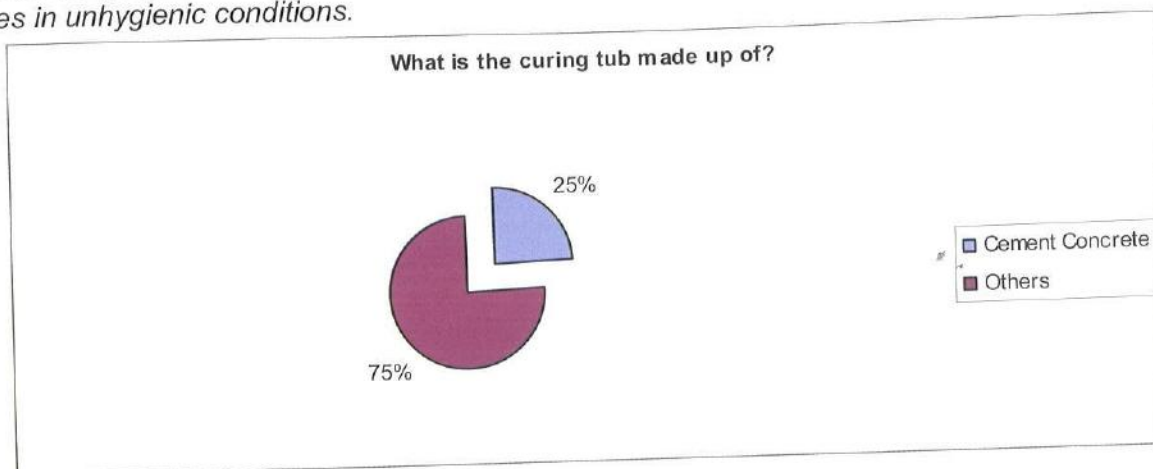


### Assessment study comparisons

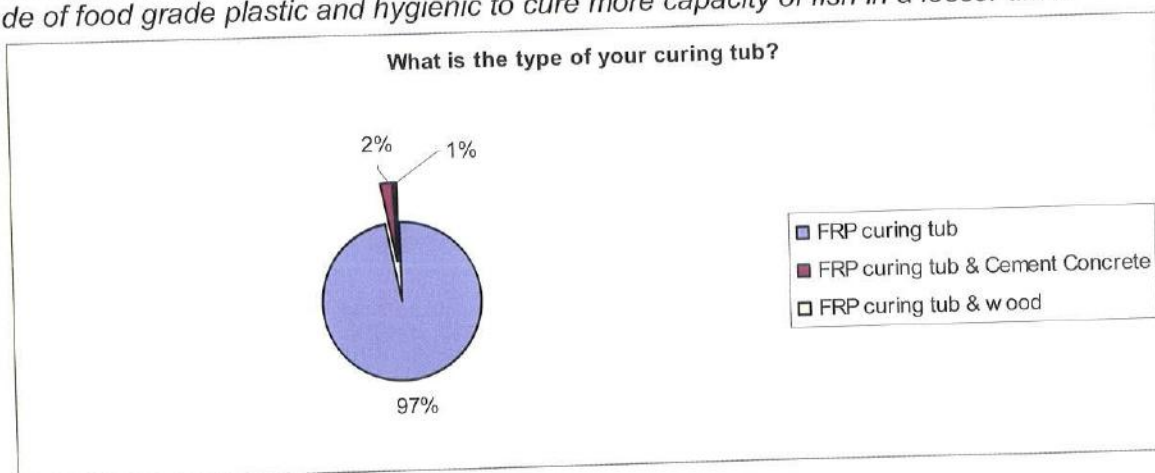
Description	Pre Assessment Study Results	Post Assessment Study Results
Do you cure fish before drying?	Yes 197/ No 0	Yes 172/ No 0
What material is used to cure fish?	Salt 0.55 kilogram for 1 kilogram of fish	Salt 0.60 kilogram for 1 kilogram of fish
Cost of 1 kilogram of salt	5.18 rupees	6.35 rupees
Do you have curing tub?	Yes 179/ No 18	Yes 172/ No 0
What is your curing tub made up of?	Cement concrete 44/ Others 135 (Old plastic drum, etc)	FRP curing tubs 167/ FRP curing tubs & Cement concrete 4/ FRP curing tub & wood 1
What is the condition of your curing tub?	Moderate 35/ Bad 144/ Good 0	Good 172/ Bad 0/ Moderate 0
How old is your curing tub?	0 to 5 years = 164/ 5 to 10 years =15	0 to 5 years = 172
How often do you need to replace your curing tub?	3 years	7.59 years



Before the project intervention, 75% of fisherwomen cured fish in old plastic drums, slotted lorry tyres in unhygienic conditions.



At end of the project, 97% of fisherwomen use fiber reinforced plastic fish curing tubs which is made of food grade plastic and hygienic to cure more capacity of fish in a lesser time.



### Efficiency of fish smoking methods [V-Very Good, G-Good, S-Satisfactory, B-Bad]

The IRCS fish smoking bin is considered very efficient compared to other smoking methods because,

- **Better income:** Since the time they started using the fish smoking bins provided by IRCS, they are able to earn better than before.
- **Increased demand:** The fish looks better, shiny and therefore the fish has better market value
- **Reduced wastage:** Earlier fish used to get broken but after using the IRCS smoking bin it is not so.
- **Less fuel compared to before:** There is less fuel/firewood consumption when using the fish smoking bin, whereas the traditional method of smoking fish used to consume lot of fuel. Now they are able to save lot of money on fuel.
- **Safe and less processing time:** In the past while using the traditional method to smoke fish they had to spend the entire day in the house at the smoking area to ensure that fish is not over burnt and fire/flame is not too high as so to prevent the house/hut catching fire. Using

the IRCS smoking bin they don't need to spend much of their time and they can attend to other works in the house.

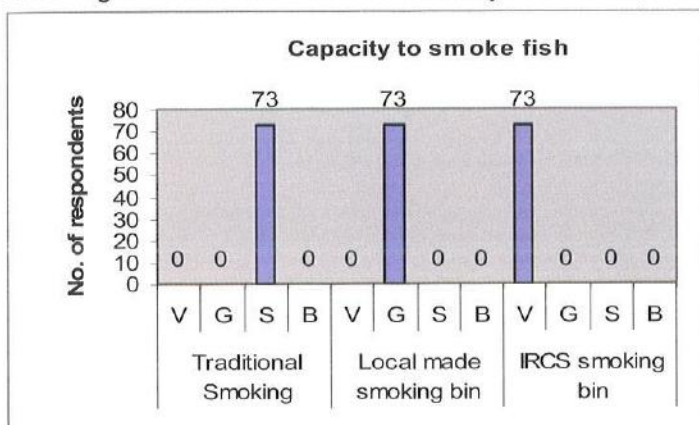


Before the intervention



After the intervention

The capacity to smoke fish in smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.

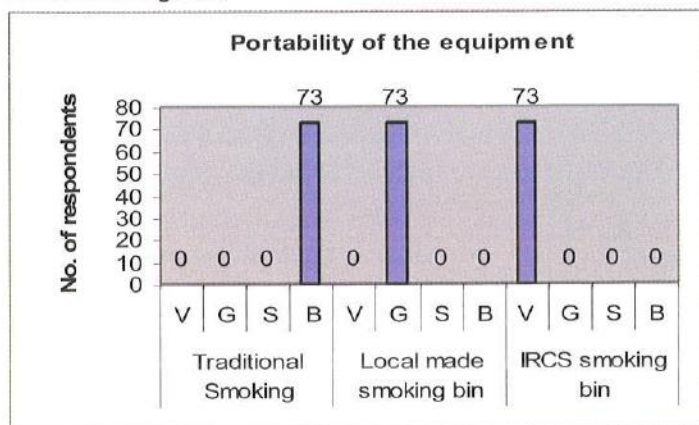


**Legend:**

Out of 73 respondents,

1. Traditional smoking: 73 (100%) say the capacity to smoke is satisfactory.
2. Local made bin: 73 (100%) say the capacity to smoke is good.
3. Smoking bin: 73 (100%) say the capacity to smoke is very good.

The portability of smoking bin is considered very good compared to traditional smoking methods which is bad because it is fixed and cannot be moved. However, local made smoking bin is considered good.

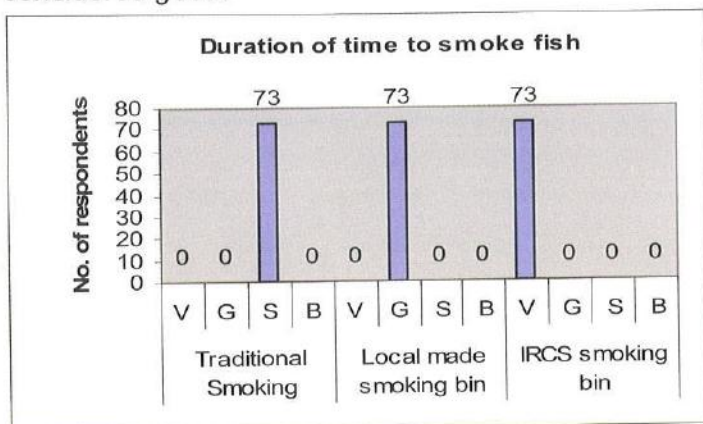


**Legend:**

Out of 73 respondents,

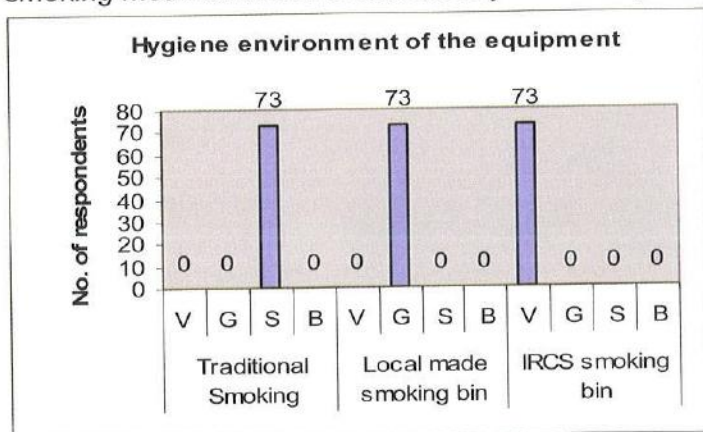
1. Traditional smoking: 73 (100%) say the portability is bad.
2. Local made bin: 73 (100%) say the portability is good.
3. Smoking bin: 73 (100%) say the portability is very good.

The duration of time to smoke fish in smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.



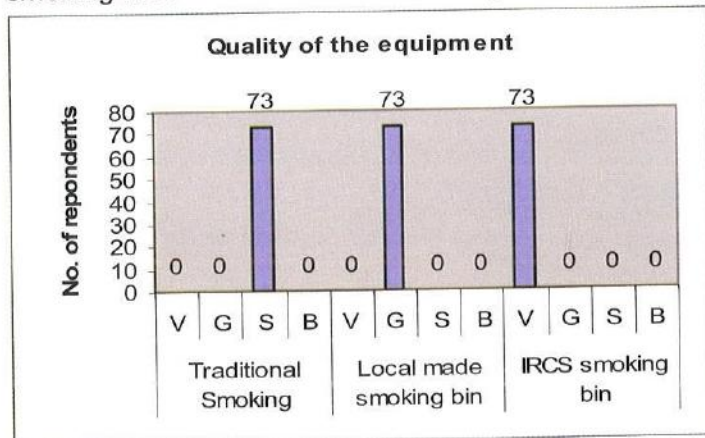
**Legend:**  
 Out of 73 respondents,  
 1. Traditional smoking: 73 (100%) say the duration to smoke fish is satisfactory.  
 2. Local made bin: 73 (100%) say the duration to smoke fish is good.  
 3. Smoking bin: 73 (100%) say the duration to smoke fish is very good.

The hygiene environment of the smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.



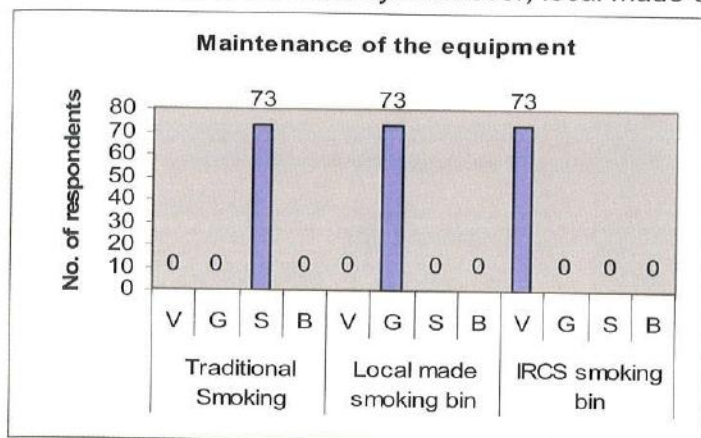
**Legend:**  
 Out of 73 respondents,  
 1. Traditional smoking: 73 (100%) say the hygiene environment is satisfactory.  
 2. Local made bin: 73 (100%) say the hygiene environment is good.  
 3. Smoking bin: 73 (100%) say the hygiene environment is very good.

The hygiene environment of the smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.



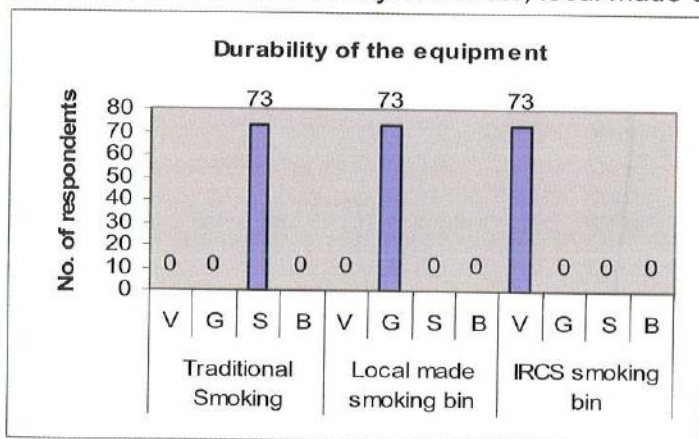
**Legend:**  
 Out of 73 respondents,  
 1. Traditional smoking: 73 (100%) say the quality of traditional smoking is satisfactory.  
 2. Local made bin: 73 (100%) say the quality of local made bin is good.  
 3. Smoking bin: 73 (100%) say the quality of smoking bin is very good.

The maintenance of the smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.



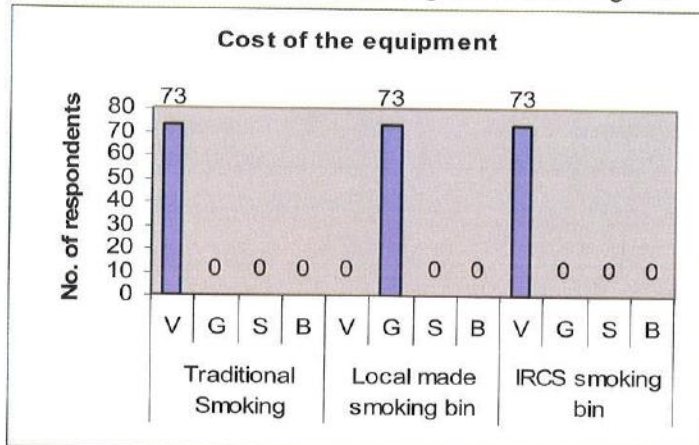
**Legend:**  
 Out of 73 respondents,  
 1. Traditional smoking: 73 (100%) say the maintenance is satisfactory.  
 2. Local made bin: 73 (100%) say the maintenance of local made bin is good.  
 3. Smoking bin: 73 (100%) say the maintenance of smoking bin is very good.

The durability of the smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.



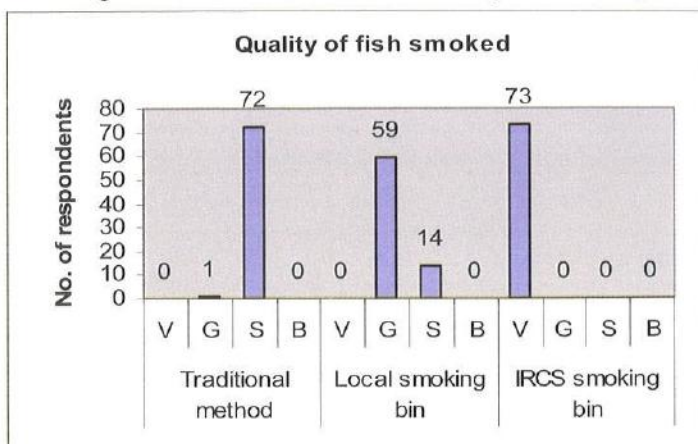
**Legend:**  
 Out of 73 respondents,  
 1. Traditional smoking: 73 (100%) say the durability is satisfactory.  
 2. Local made bin: 73 (100%) say the durability of local made bin is good.  
 3. Smoking bin: 73 (100%) say the durability of smoking bin is very good.

The cost to buy the smoking bin and traditional smoking methods are considered very good compared to local made smoking bin which is good.



**Legend:**  
 Out of 73 respondents,  
 1. Traditional smoking: 73 (100%) say the cost to buy is very good.  
 2. Local made bin: 73 (100%) say the cost to buy local made bin is good.  
 3. Smoking bin: 73 (100%) say the cost to buy smoking bin is very good.

The quality of fish smoked in smoking bin is considered very good compared to traditional smoking methods which is satisfactory. However, local made smoking bin is considered good.

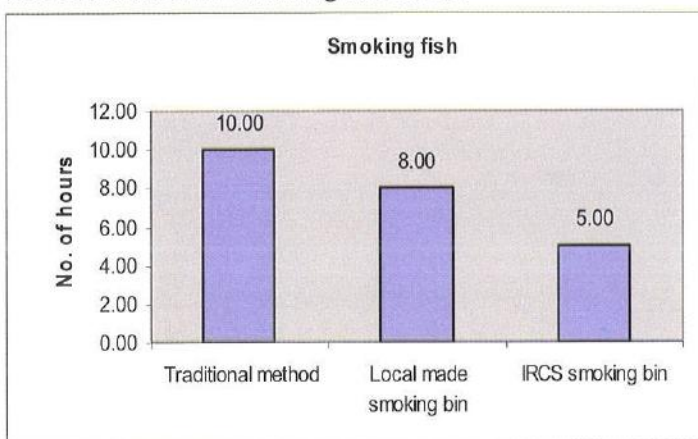


**Legend:**

Out of 73 respondents,

1. Traditional smoking: 72 (98.63%) say the quality of fish smoked is satisfactory.
2. Local made bin: 59 (80.82%) say the quality of fish smoked is good.
3. Smoking bin: 73 (100%) say the quality of fish smoked is very good.

By using smoking bin the duration of time taken to smoke has reduced 50% compared to the use of traditional smoking methods.



**Legend:**

Based on the average of 73 respondents the duration of time required to smoke fish,

- 10 hours using traditional smoking methods
- 08 hours using local made smoking bin
- 05 hours using smoking bin

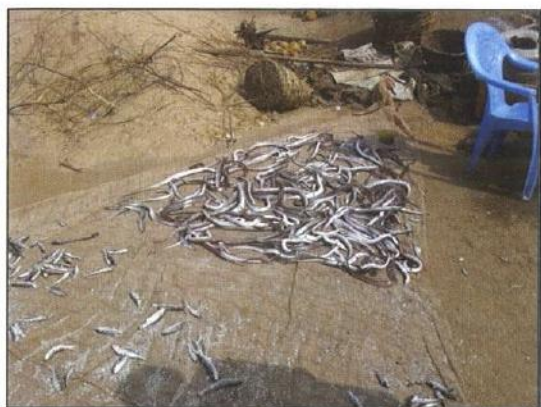
**Assessment study comparisons**

Description	Pre Assessment Study Results	Post Assessment Study Results
What is the type of your smoking bin?	Traditional 60/ Modern 0	Modern 73/ Traditional 0
What is the condition of your smoking bin?	Moderate 28/ Bad 32/ Good 0	Good 73/ Moderate 0/ Bad 0
How old is your smoking bin?	0 to 5 years = 60	0 to 5 years = 73

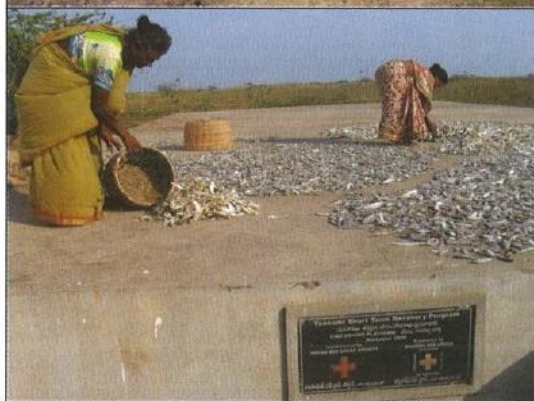
### **Efficiency of fish drying methods [V-Very Good, G-Good, S-Satisfactory, B-Bad]**

The fish drying platform is considered very efficient compared to other drying methods because,

- *Effectively utilized:* The fish drying platforms are fully utilized by the fisher folk communities.
- *Quality construction:* Beneficiaries have appreciated the quality of the fish drying platforms.
- *Good demand:* The fish dried on the platforms are of the best quality and there is good market value.
- *Customers satisfied with product:* The fish is clean and even customers are happy to buy because of its quality.

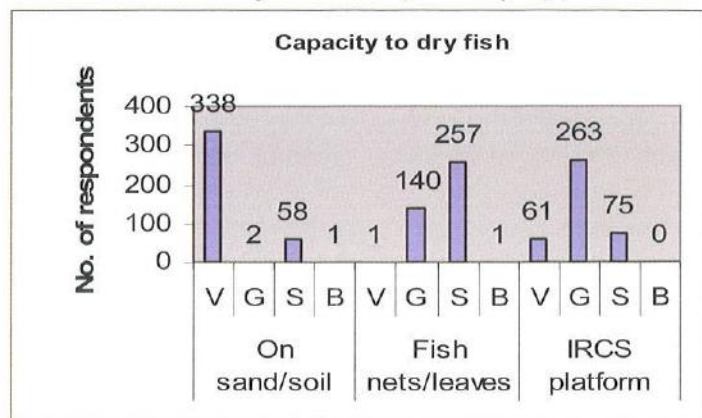


Before the intervention



After the intervention

The capacity to dry fish on sand/soil is considered very good compared to fish nets/leaves which is satisfactory. However, fish drying platform is considered good.

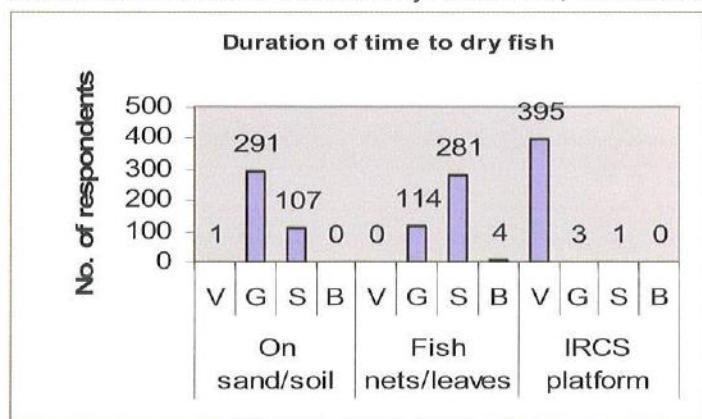


**Legend:**

Out of 399 respondents,

1. On sand/soil: 338 (84.71%) say the capacity to dry fish is very good.
2. Fish nets/leaves: 257 (64.41%) say the capacity to dry fish is satisfactory.
3. Platform: 263 (65.91%) say the capacity to dry fish is good.

The duration of time to dry fish on fish drying platform is considered very good compared to fish nets/leaves which is satisfactory. However, on sand/soil is considered good.

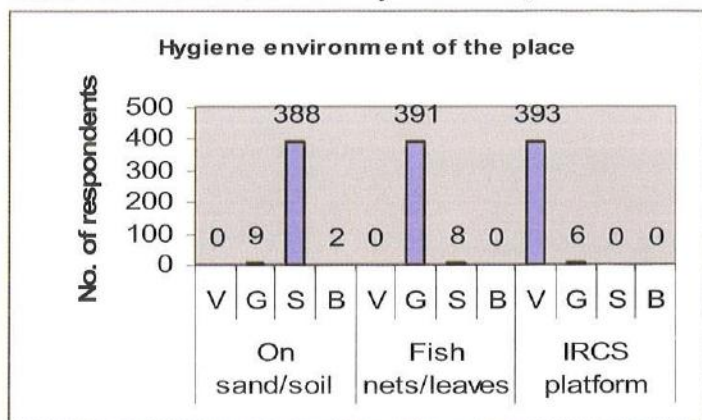


**Legend:**

Out of 399 respondents,

1. On sand/soil: 291 (72.93%) say the duration of time to dry fish is good.
2. Fish nets/leaves: 281 (70.42%) say the duration of time to dry fish is satisfactory.
3. Platform: 395 (98.99%) say the duration of time to dry fish is very good.

The hygiene environment of the fish drying platform is considered very good compared to sand/soil which is satisfactory. However, fish nets/leaves are considered good.

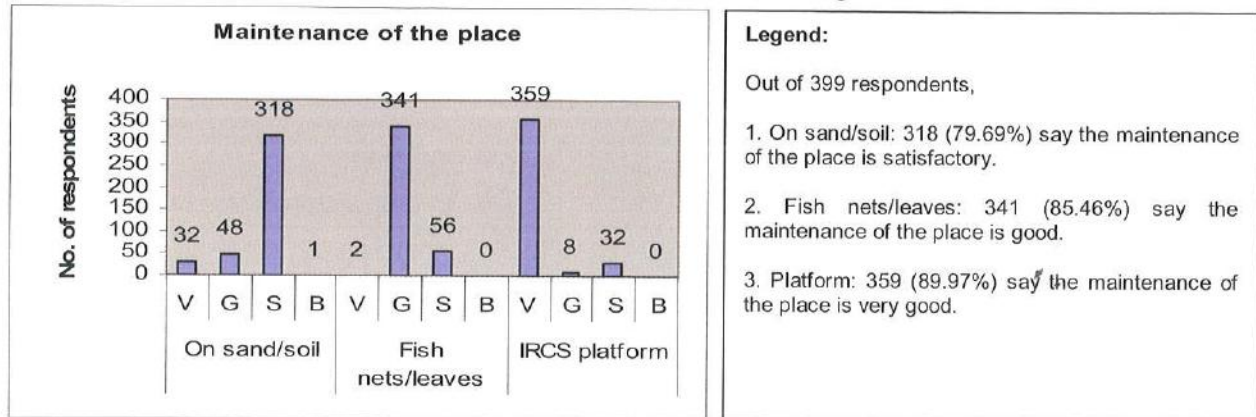


**Legend:**

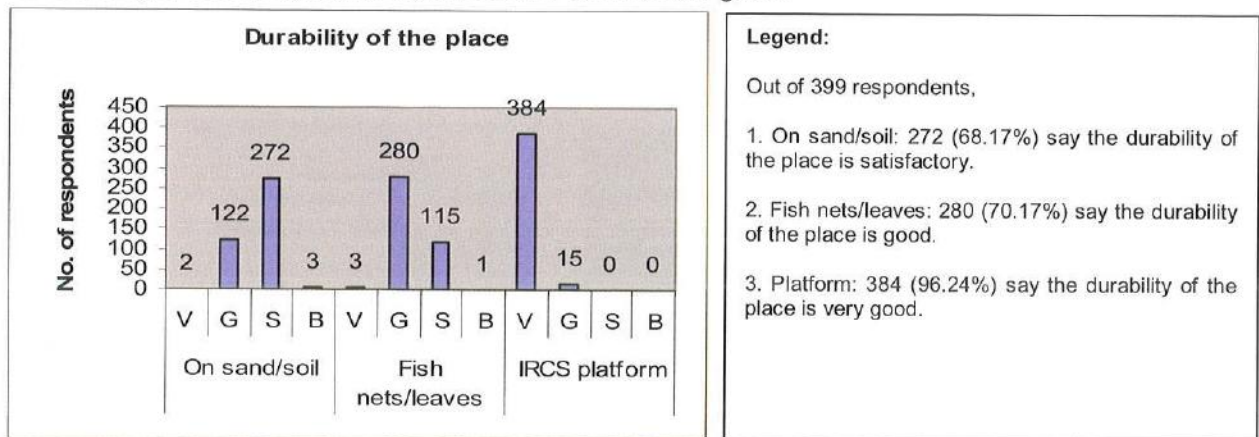
Out of 399 respondents,

1. On sand/soil: 388 (97.24%) say hygiene environment of the place is satisfactory.
2. Fish nets/leaves: 391 (97.99%) say the hygiene environment of the place is good.
3. Platform: 393 (98.49%) say the hygiene environment of the place is very good.

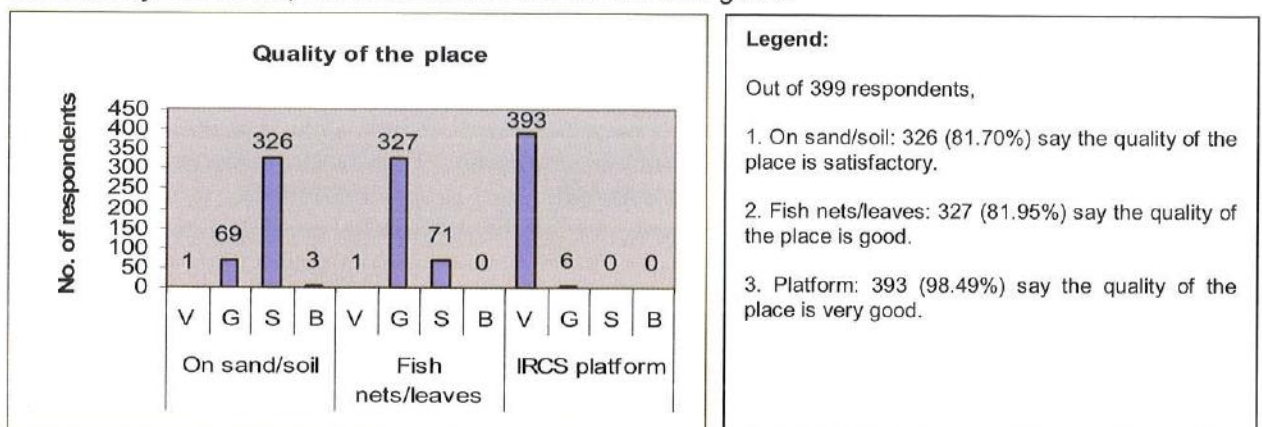
The maintenance of the fish drying platform is considered very good compared to sand/soil which is satisfactory. However, fish nets/leaves are considered good.



The durability of the fish drying platform is considered very good compared to sand/soil which is satisfactory. However, fish nets/leaves are considered good.

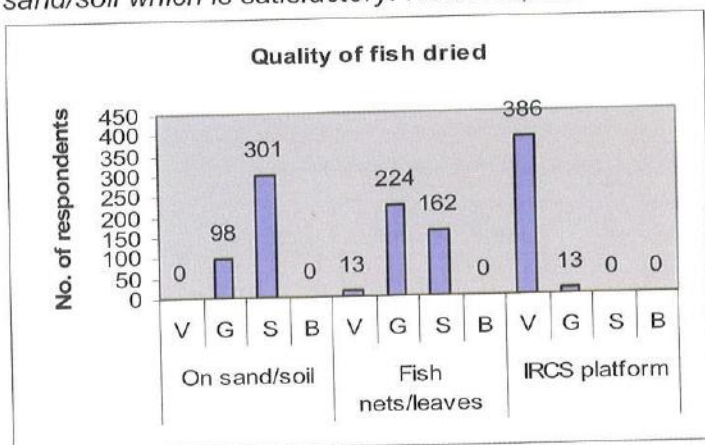


The quality of the fish drying platform is considered very good compared to sand/soil which is satisfactory. However, fish nets/leaves are considered good.





The quality of fish dried on the fish drying platform is considered very good compared to sand/soil which is satisfactory. However, fish nets/leaves are considered good.

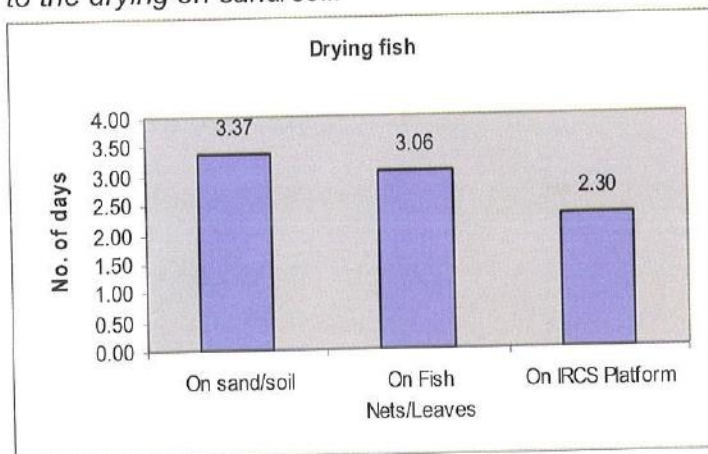


**Legend:**

Out of 399 respondents,

1. On sand/soil: 301 (75.43%) say the quality of fish dried is satisfactory.
2. Fish nets/leaves: 224 (56.14%) say the quality of fish dried is good.
3. Platform: 386 (96.74%) say the quality of fish dried is very good.

By drying fish on fish drying platform the duration of time taken has reduced 46.52% compared to the drying on sand/soil.



**Legend:**

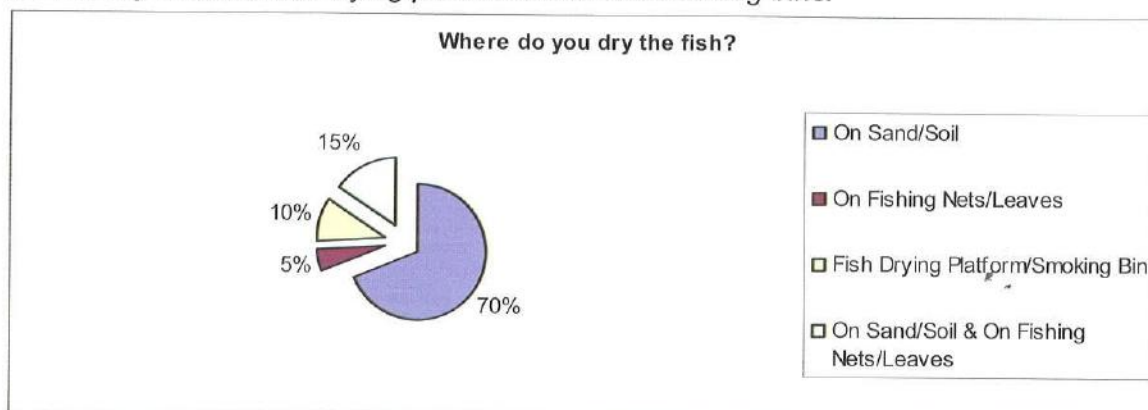
Based on the average of 399 respondents the duration of time required to dry fish,

- 3.37 days on sand/soil
- 3.06 days on fish nets/leaves
- 2.30 days on fish drying platform

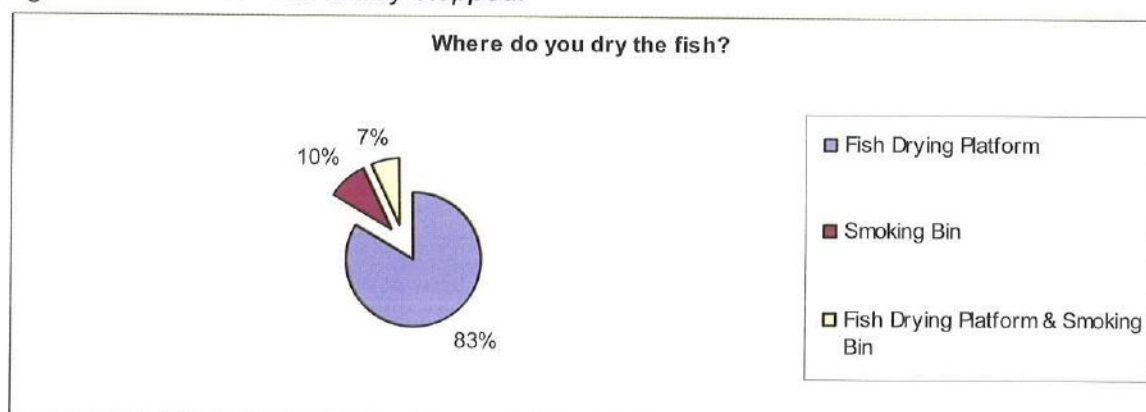
**Assessment study comparisons**

Description	Pre Assessment Study Results	Post Assessment Study Results
Where do you dry the fish?	On sand 401/ On fishing nets, leaves 32/ drying platform, smoking bin 60/ On sand & fishing nets 90	Fish drying platform 368/ Smoking bin 42/ Fish drying platform & smoking bin 31
Will/Is the fish drying platform in your village (be) used?	Yes 583/ No 0	Yes 399/ No 0

Before the project intervention, at least 70% of fisherwomen dried the fish on sand/soil and only 10% could dry it on the fish drying platforms and fish smoking bins.



At end of the project, 83% of fisherwomen dry the fish on fish drying platform and the habit of drying fish on sand/soil has totally stopped.



### **Efficiency of fish storage methods [V-Very Good, G-Good, S-Satisfactory, B-Bad]**

The dry fish storage shed is considered very efficient compared to other storage methods because,

- *Unique construction:* Majority of the beneficiaries have expressed that it is an unique kind of storage sheds constructed at the community level to store dried fish.
- *Safe compared to before:* Earlier, they use to lose lot of dried fish due to rains as they did not have proper place to store them and also they use to sell the fish at cheaper cost since they could not store in their houses for longer period but now they can wait for longer period until they get better price.
- *Maintenance by VMC:* VMC have been formed to maintain the dry fish storage shed and they have regular meetings and track record of people storing dried fish and collect nominal fees from beneficiaries.
- *Awareness through wall paintings:* The paintings, depicting the maintenance of livelihood resources, on the walls of the storage sheds have received appreciation from the beneficiaries as they are simple to understand though they are illiterates.

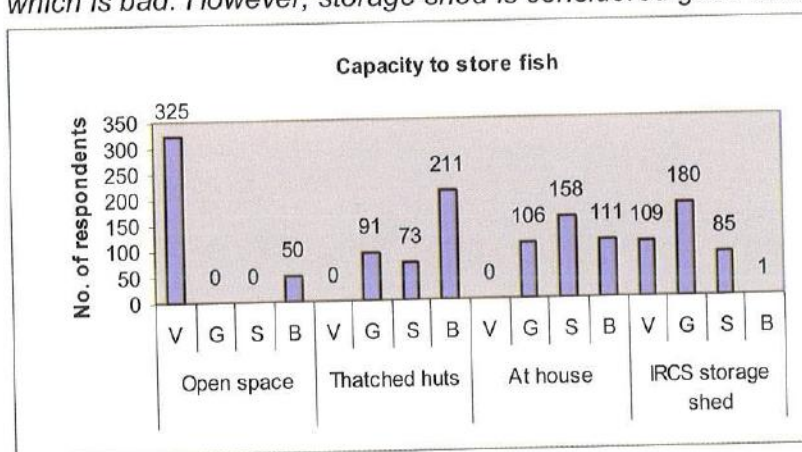


Before the intervention



After the intervention

The capacity to store fish in open space is considered very good compared to thatched huts which is bad. However, storage shed is considered good and at house is satisfactory.

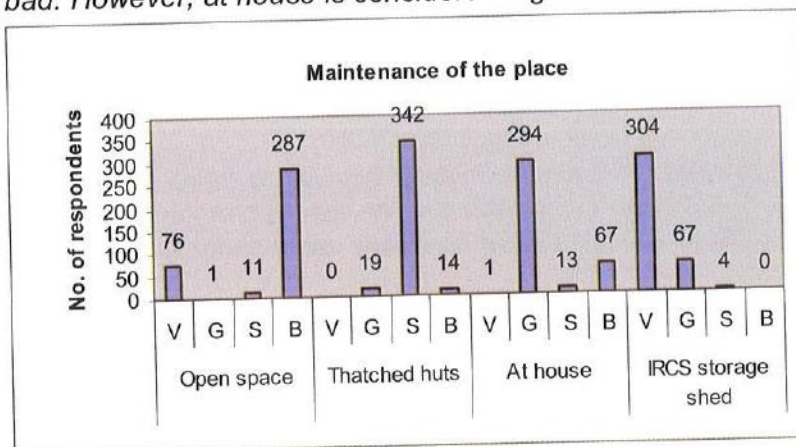


**Legend:**

Out of 375 respondents,

1. Open space: 325 (86.66%) say the capacity to store fish is very good.
2. Thatched huts: 211 (56.26%) say the capacity to store fish is bad.
3. At house: 158 (42.13%) say the capacity to store fish is satisfactory.
4. Storage shed: 180 (48%) say the capacity to store fish is good.

The maintenance of storage shed is considered very good compared to open space which is bad. However, at house is considered a good and thatched hut is satisfactory.

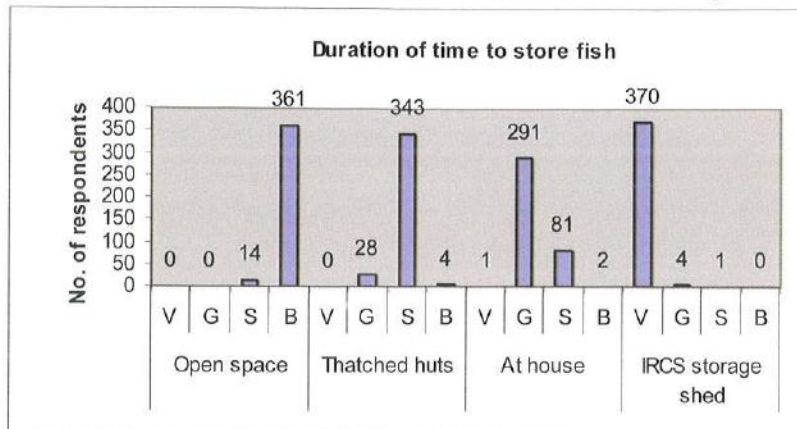


**Legend:**

Out of 375 respondents,

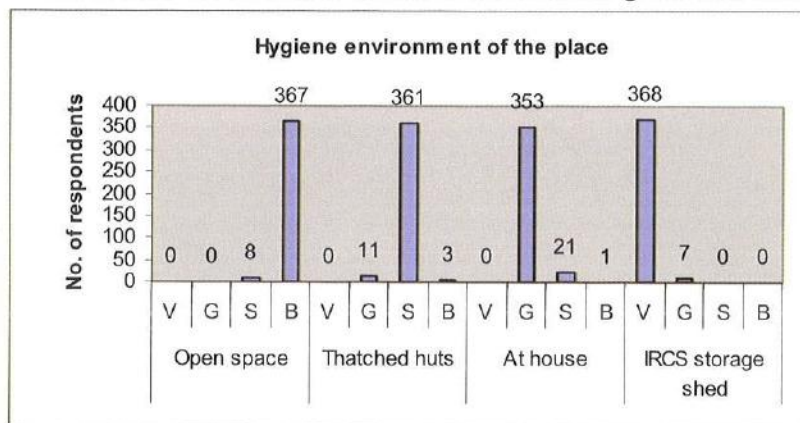
1. Open space: 287 (76.53%) say the maintenance of the place is bad.
2. Thatched huts: 342 (91.20%) say the maintenance of the place is satisfactory.
3. At house: 294 (78.40%) say the maintenance of the place is good.
4. Storage shed: 304 (81.06%) say the maintenance of the place is very good.

The duration of time to store fish in storage shed is considered very good compared to open space which is bad. However, at house is considered good and thatched hut is satisfactory.



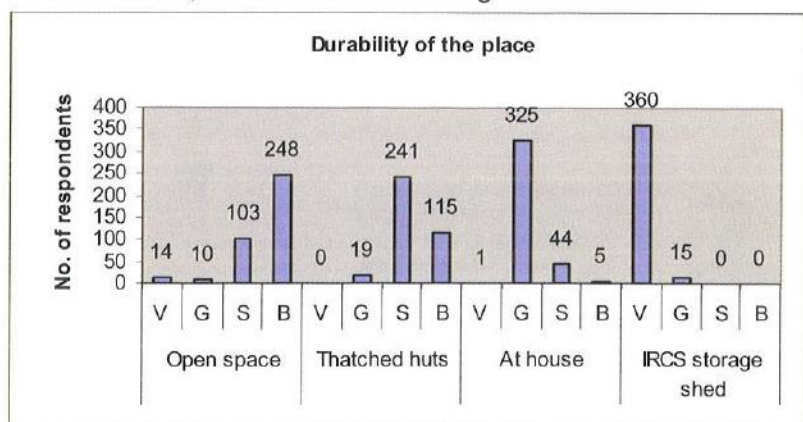
**Legend:**  
 Out of 375 respondents,  
 1. Open space: 361 (96.26%) say the duration of time to store is bad.  
 2. Thatched huts: 343 (91.46%) say the duration of time to store is satisfactory.  
 3. At house: 291 (77.60%) say the duration of time to store is good.  
 4. Storage shed: 370 (98.66%) say the duration of time to store is very good.

The hygiene environment of storage shed is considered very good compared to open space which is bad. However, at house is considered good and thatched hut is satisfactory.



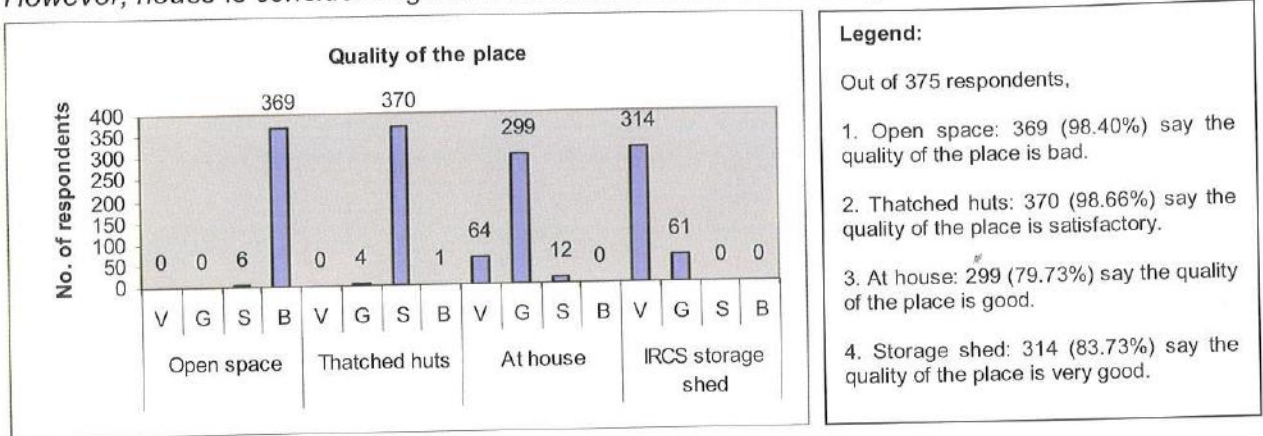
**Legend:**  
 Out of 375 respondents,  
 1. Open space: 367 (97.86%) say the hygiene environment of the place is bad.  
 2. Thatched huts: 361 (96.26%) say hygiene of the place is satisfactory.  
 3. At house: 353 (94.13%) say the hygiene environment of the place is good.  
 4. Storage shed: 368 (98.13%) say hygiene of the place is very good.

The durability of the storage shed is considered very good compared to open space which is bad. However, house is considered good and thatched hut is satisfactory.

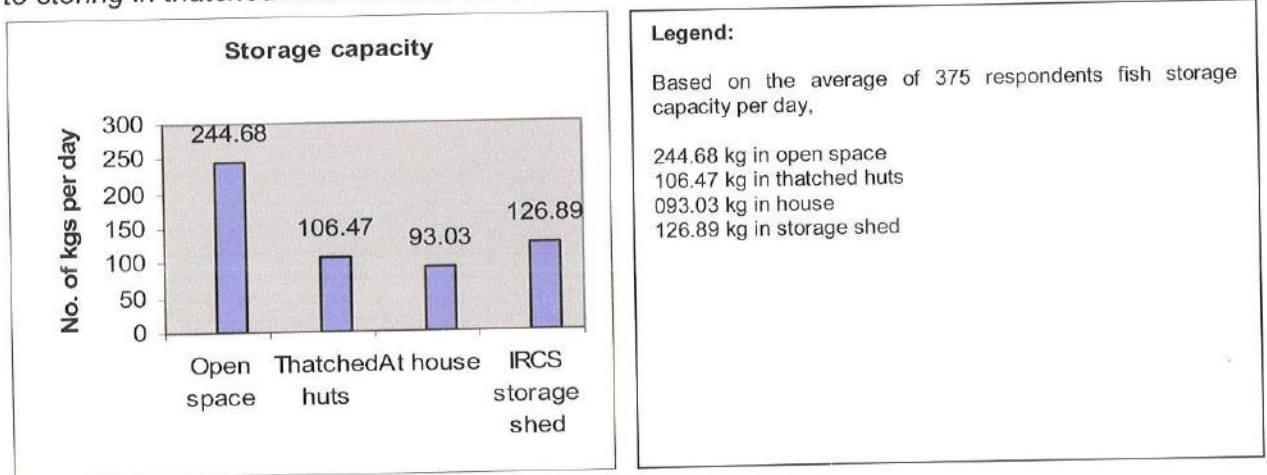


**Legend:**  
 Out of 375 respondents,  
 1. Open space: 248 (66.13%) say the durability of the place is bad.  
 2. Thatched huts: 241 (64.26%) say the durability of the place is satisfactory.  
 3. At house: 325 (86.66%) say the durability of the place is good.  
 4. Storage shed: 360 (96%) say the durability of the place is very good.

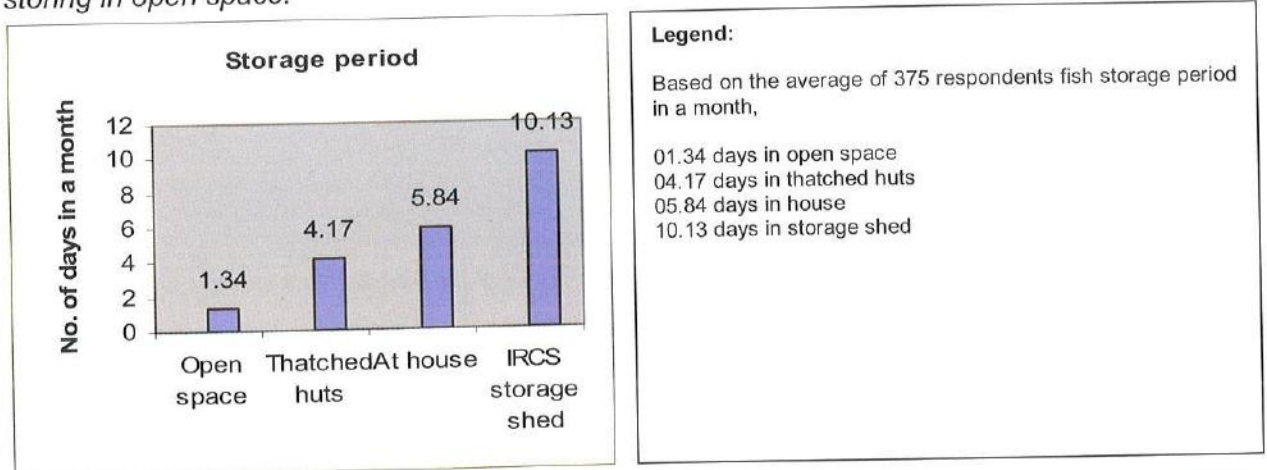
The quality of the storage shed is considered very good compared to open space which is bad. However, house is considered good and thatched hut is satisfactory.



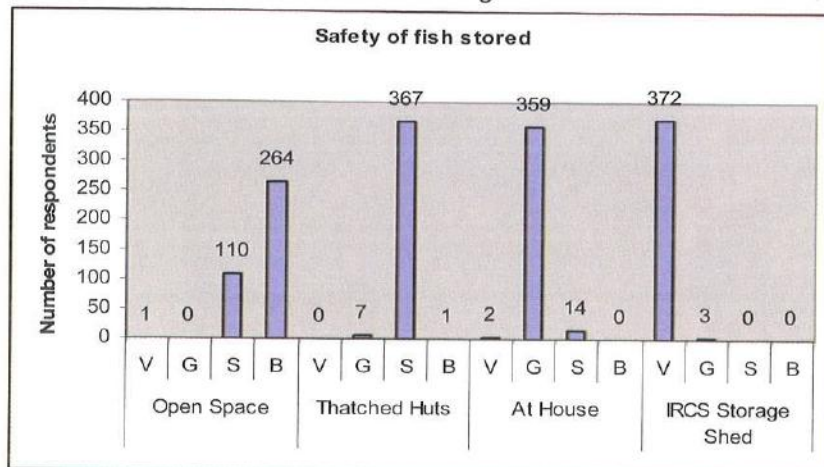
The capacity to store dried fish has increased to 19.17% due to use of storage shed compared to storing in thatched huts which is the traditional means of storing dried fish.



The period to store dried fish has increased to 655.97% due to use of storage shed compared to storing in open space.

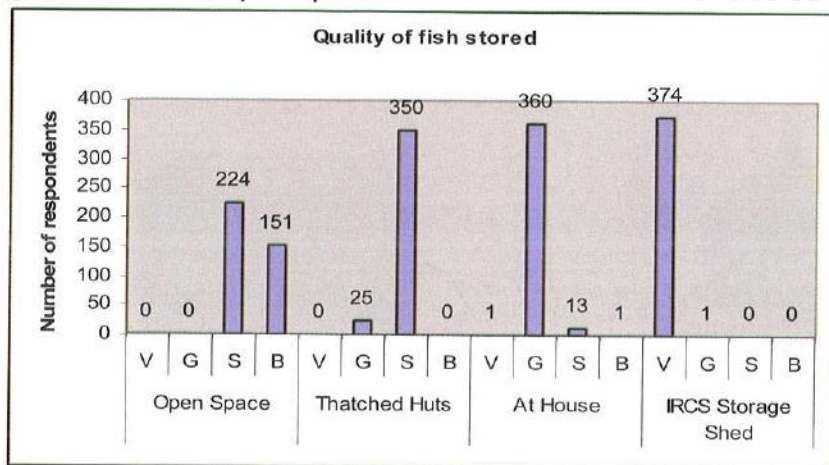


The safety of fish in storage shed is considered very good compared to open space which is bad. However, house is considered good and thatched hut is satisfactory.



**Legend:**  
 Out of 375 respondents,  
 Open space: 264 (70.40%) say the safety of fish store is bad.  
 Thatched huts: 367 (97.86%) say the safety of fish store is satisfactory.  
 At house: 359<sup>#</sup> (95.73%) say the safety of fish store is good.  
 Storage shed: 372 (99.20%) say the safety of fish store is very good.

The quality of fish stored in storage shed is considered very good compared to house which is good. However, open space and thatched huts are considered satisfactory.

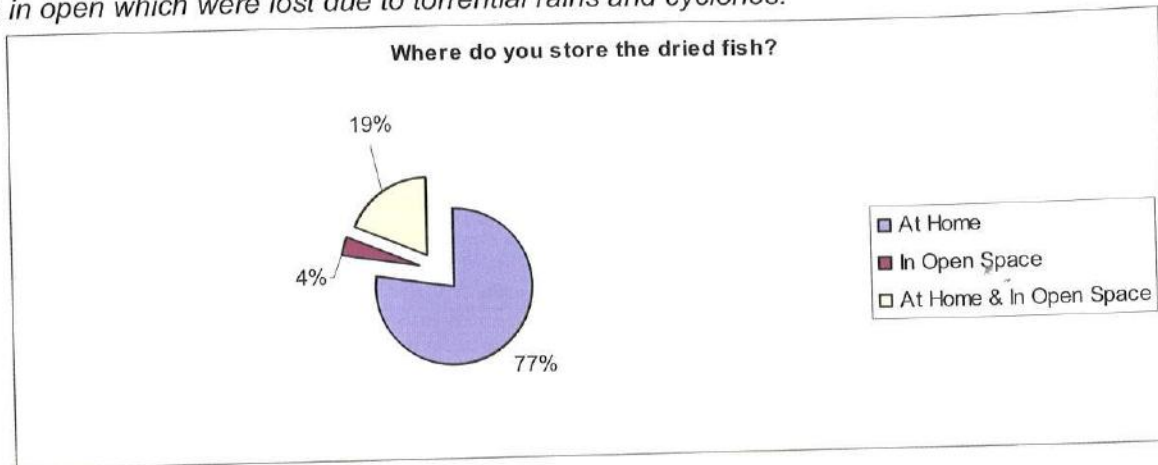


**Legend:**  
 Out of 375 respondents,  
 Open space: 224 (59.73%) say the quality of fish stored is satisfactory.  
 Thatched huts: 350 (93.33%) say the quality of fish stored is satisfactory.  
 At house: 360 (96%) say the quality of fish stored is good.  
 Storage shed: 374 (99.73%) say the quality of fish stored is very good.

**Assessment study comparisons**

Description	Pre Assessment Study Results	Post Assessment Study Results
Where do you store dried fish?	At home 353/ In open space 17/ At home & open space 85	In storage shed 363/ In storage shed & At home 12
Do you loose dried fish due to rain?	Yes 455 / No 0	Yes 0 / No 375
How much dried fish you lost during last rainy season?	146 kilograms	0 kilograms

Before the project intervention, at least 77% of fisherwomen stored the dried fish at home and 4% in open which were lost due to torrential rains and cyclones.



At end of the project, 97% of fisherwomen store the dried fish in dry fish storage sheds which is hygienic and safer to store longer.

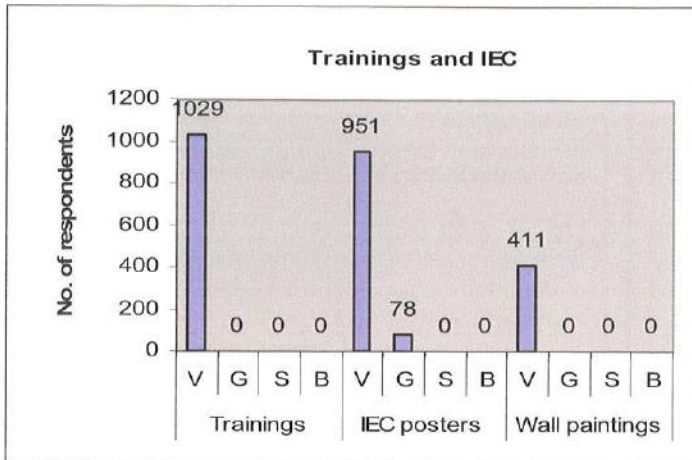


### Trainings and IEC materials [V-Very Good, G-Good, S-Satisfactory, B-Bad]

The trainings and IEC materials has created a positive impact among the communities,

- *Informative:* The trainings are highly appreciated by both the beneficiaries as well as the Fisheries department.
- *Aware on use and maintenance:* Through the trainings the fisherwomen have learned various methods of increasing their profit and maintaining the livelihood resources.
- *Posters recalls the training sessions:* The serves them as reminder of what they have learned in the trainings, as they might at time forget all that has been taught in the training. The Fisheries department said that it has become the base for the trainings.

The trainings, IEC posters and wall paintings are considered very good by the training beneficiaries in Srikakulam and East Godavari districts.



**Legend:**

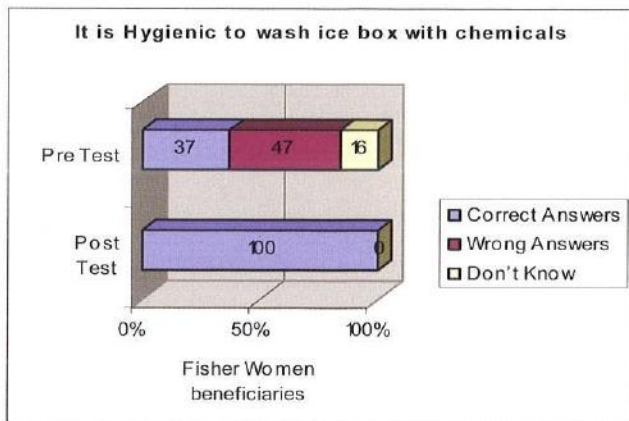
Out of 1029 respondents,

1. Trainings: 1029 (100%) say the trainings were very good.
2. IEC posters: 951 (92.41%) say the IEC posters are very good.

Out of 411 respondents, all 411 (100%) say the wall paintings are very good.

The training and IEC poster beneficiaries responded were 1029, whereas wall paintings were done in 21 villages. The total wall painting beneficiaries responded was 411.

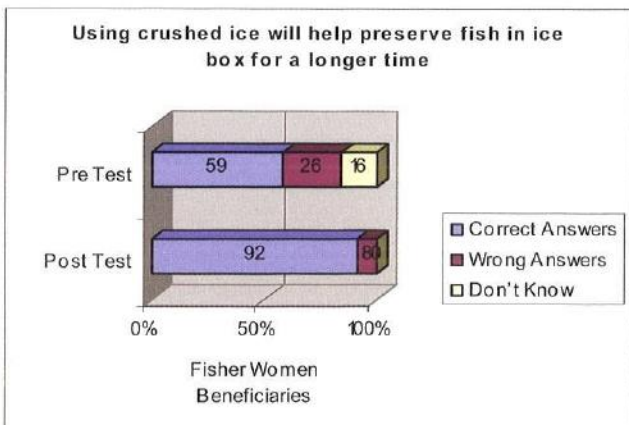
**Training – Use and maintenance of ice box**



**Legend:**

**“It is hygienic to wash ice box with chemicals”.** The answer is false because the chemicals will enter into the fish preserved and it is hazardous for consumption.

Out of 4600 respondents, 47% of fisherwomen were not aware earlier, now 100% have the knowledge.

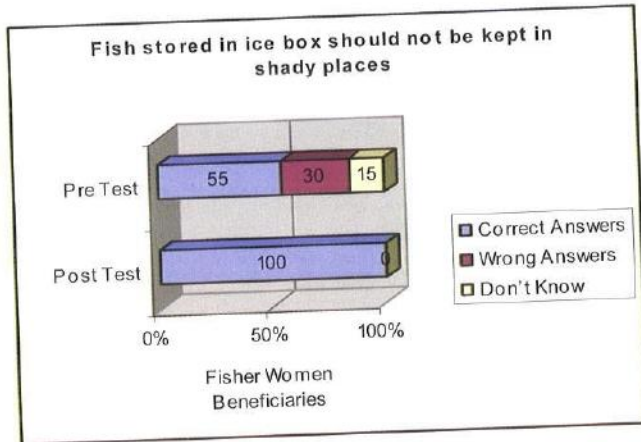


**Legend:**

**“Using crushed ice will help preserve fish in ice box for a longer time”.** The answer is true because the crushed ice will cover a layer around the fish and can be preserved for long.

Out of 4600 respondents, 59% of fisher women were aware earlier, now 92% have the knowledge.

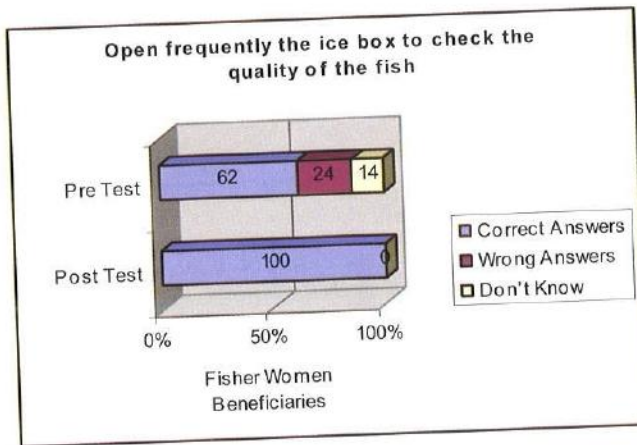




**Legend:**

*“Fish stored in ice box should not be kept in shady places”*. The answer is false because the fish stored in ice box should be kept in shady place so that the fish stays good.

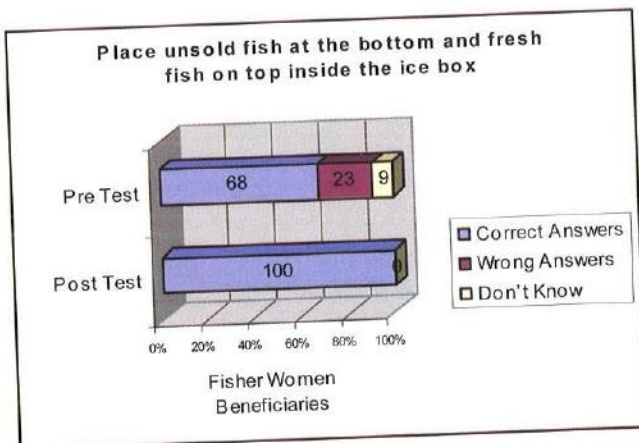
Out of 4600 respondents, 55% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

*“Open frequently the ice box to check the quality of the fish”*. The answer is false because the ice box should be air tight and not opened frequently so that the ice doesn't melt fast.

Out of 4600 respondents, 62% of fisher women were aware earlier, now 100% have the knowledge.

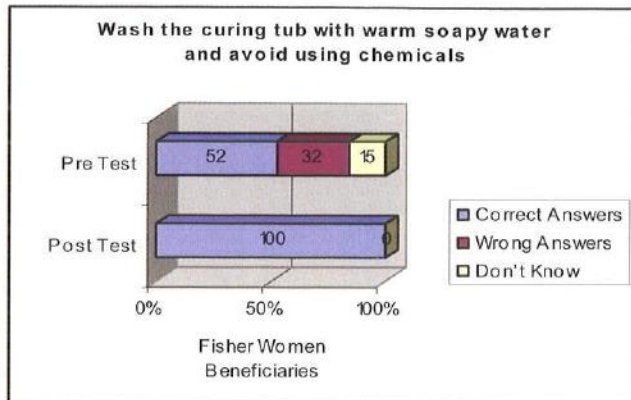


**Legend:**

*“Place unsold fish at the bottom and fresh fish on top inside the ice box”*. The answer is false because the unsold fish should be placed on top or it will get damaged by the weight of fresh fish.

Out of 4600 respondents, 68% of fisher women were aware earlier, now 100% have the knowledge.

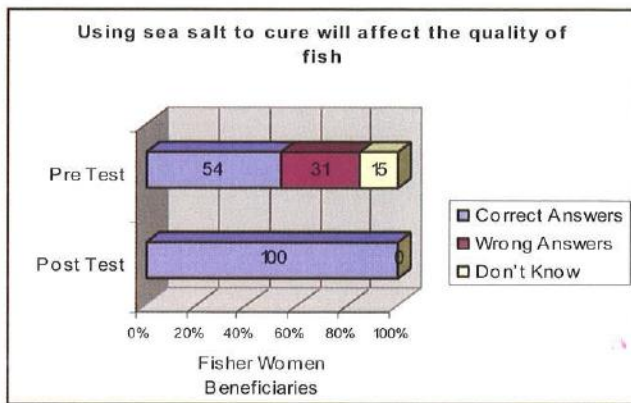
### Training – Use and maintenance of fish curing tub



**Legend:**

*“Wash the curing tub with warm soapy water and avoid using chemicals”*. The answer is true because chemicals will enter into the fish preserved and it is hazardous for consumption.

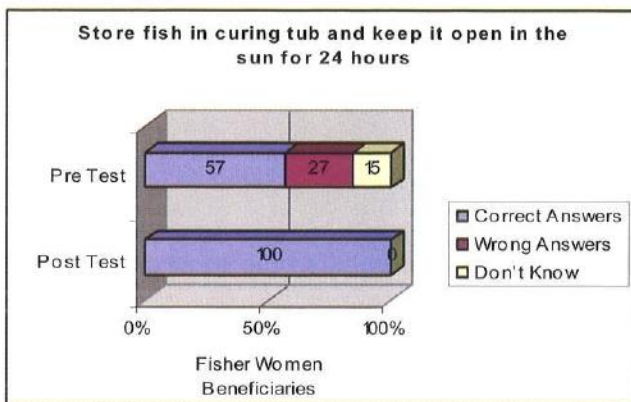
Out of 4600 respondents, 52% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

*“Using sea salt to cure will affect the quality of fish”*. The answer is false because sea salt is natural and safe for consumption.

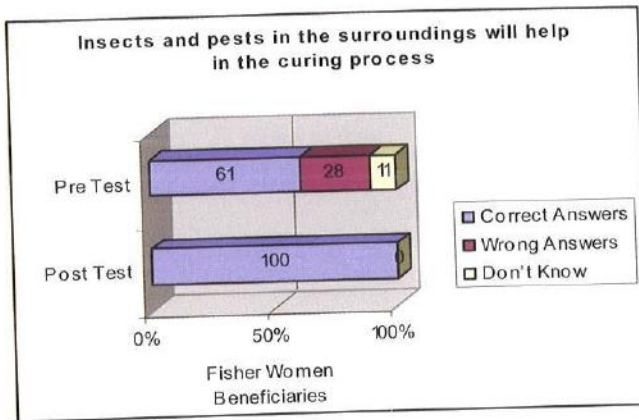
Out of 4600 respondents, 54% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

*“Store fish in curing tub and keep it open in the sun for 24 hours”*. The answer is false because the curing tub should be kept closed to prevent insects and flies.

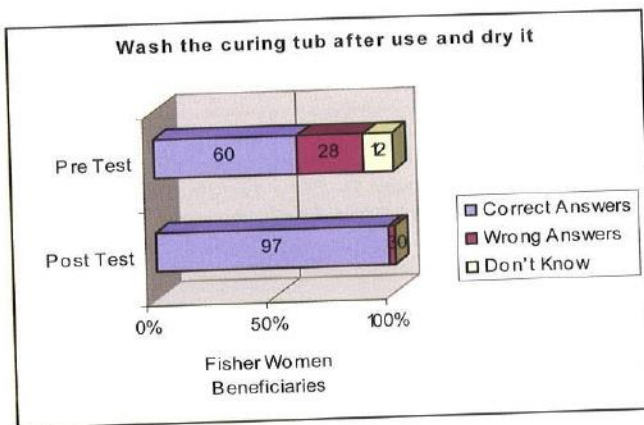
Out of 4600 respondents, 57% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

**"Insects and pests in the surroundings will help in the curing process".** The answer is false because the insects will contaminate the fish.

Out of 4600 respondents, 61% of fisher women were aware earlier, now 100% have the knowledge.

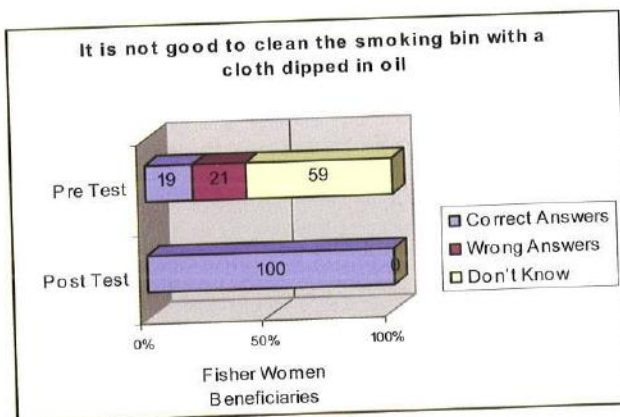


**Legend:**

**"Wash the curing tub after use and dry it".** The answer is true because the curing tub should be dried well because the salt will form layer on the side walls of the curing tub.

Out of 4600 respondents, 60% of fisher women were aware earlier, now 97% have the knowledge.

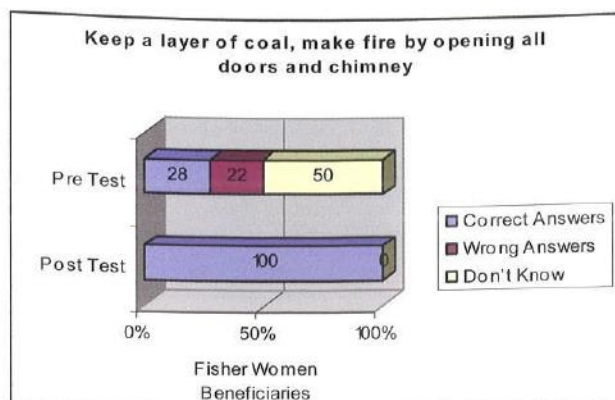
**Training – Use and maintenance of fish smoking bin**



**Legend:**

**"It is good to clean the smoking bin with a cloth dipped in oil".** The answer is false because the smoking bin should be cleaned with a cloth dipped in oil for it is made of iron and aluminum.

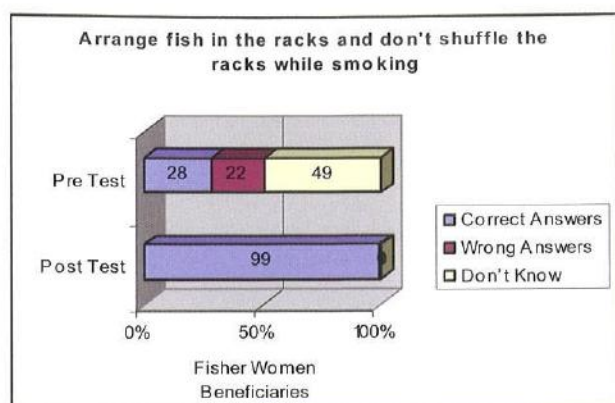
Out of 4600 respondents, 59% of fisher women were not aware earlier, now 100% have the knowledge.



**Legend:**

***“Keep a layer of coal, make fire by opening all doors and chimney”.*** The answer is true because ventilation is required for making fire.

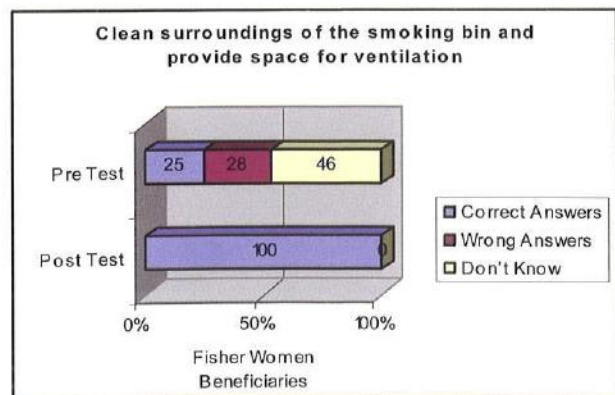
Out of 4600 respondents, 50% of fisher women were not aware earlier, now 100% have the knowledge.



**Legend:**

***“Arrange fish in the racks and don't shuffle the racks while smoking”.*** The answer is false because racks should be regularly shuffled to evenly smoke the fish.

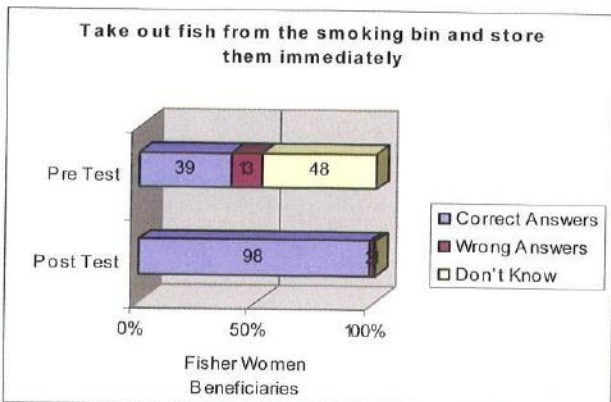
Out of 4600 respondents, 49% of fisher women were not aware earlier, now 99% have the knowledge.



**Legend:**

***“Clean surroundings of the smoking bin and provide space for ventilation”.*** The answer is true because surroundings should be clean and ventilation is required for efficient use of fuel.

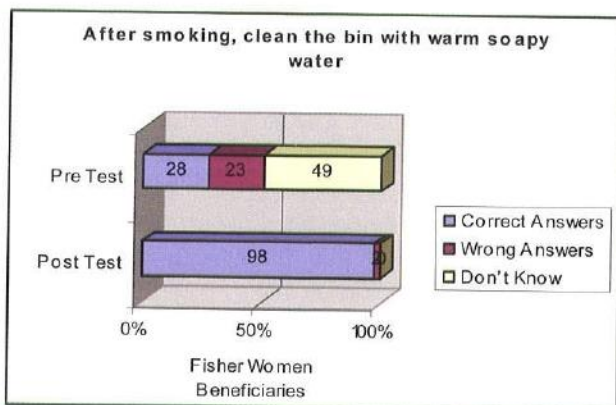
Out of 4600 respondents, 46% of fisher women were not aware earlier, now 100% have the knowledge.



**Legend:**

**“Take out fish from the smoking bin and store them immediately”.** The answer is false because fish should be spread on a plate so that the heat is fully reduced and then stored.

Out of 4600 respondents, 48% of fisher women were not aware earlier, now 98% have the knowledge.

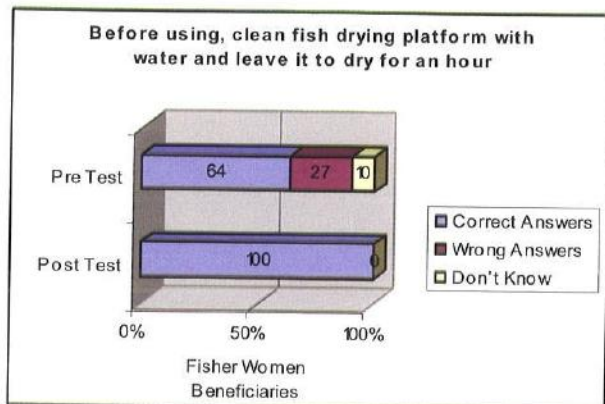


**Legend:**

**“After smoking, clean the bin with warm soapy water”.** The answer is false because the bin should not be cleaned with water.

Out of 4600 respondents, 49% of fisher women were not aware earlier, now 98% have the knowledge.

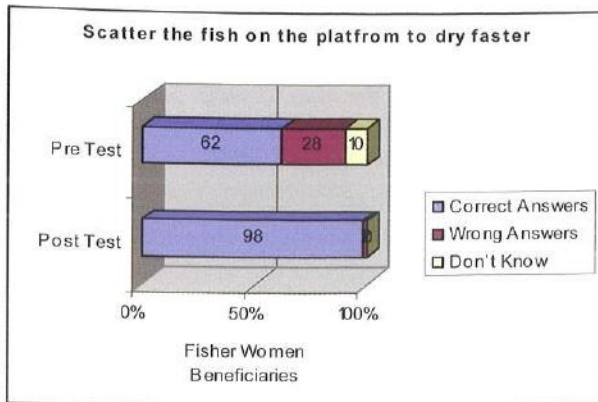
**Training – Use and maintenance of fish drying platform**



**Legend:**

**“Before using, clean fish drying platform with water and leave it to dry for an hour”.** The answer is true because the platform will be full of dust and dirt which should be cleaned before drying.

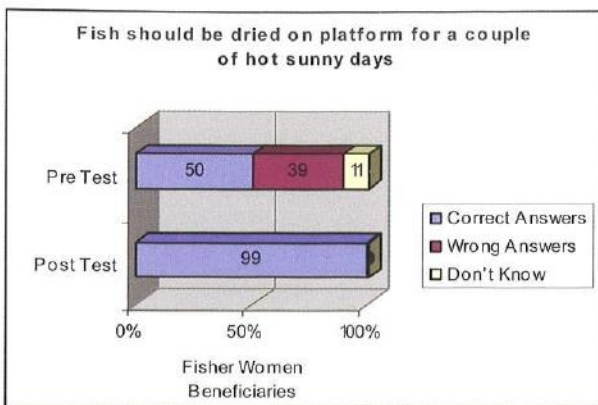
Out of 4600 respondents, 64% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

**“Scatter the fish on the platform to dry faster”.** The answer is false because the fish should not be scattered because they can be damaged.

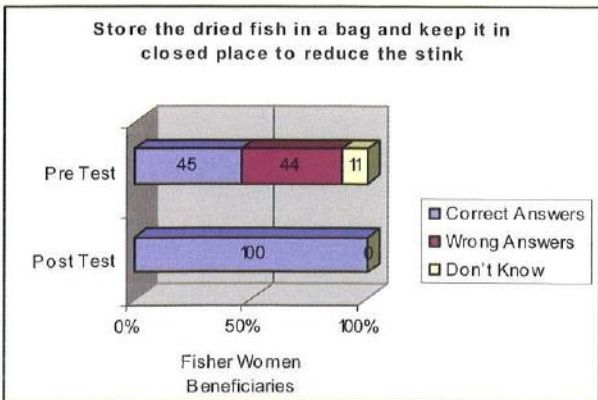
Out of 4600 respondents, 62% of fisher women were aware earlier, now 98% have the knowledge.



**Legend:**

**“Fish should be dried on platform for a couple of hot sunny days”.** The answer is true because the fish should be dried on sunny days.

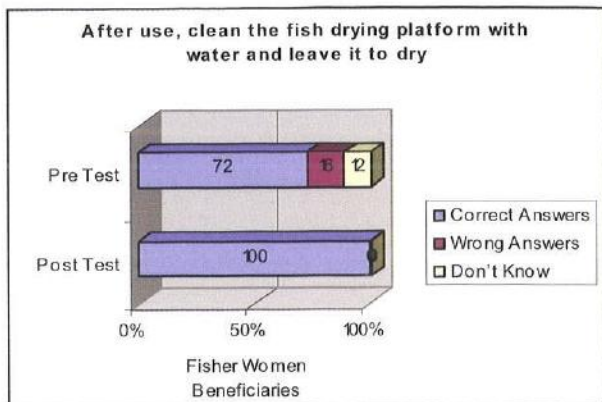
Out of 4600 respondents, 50% of fisher women were aware earlier, now 99% have the knowledge.



**Legend:**

**“Store the dried fish in a bag and keep it in closed place to reduce the stink”.** The answer is false because the fish should be kept in bamboo baskets or sack cloth in a storage shed with ventilation.

Out of 4600 respondents, 45% of fisher women were aware earlier, now 100% have the knowledge.

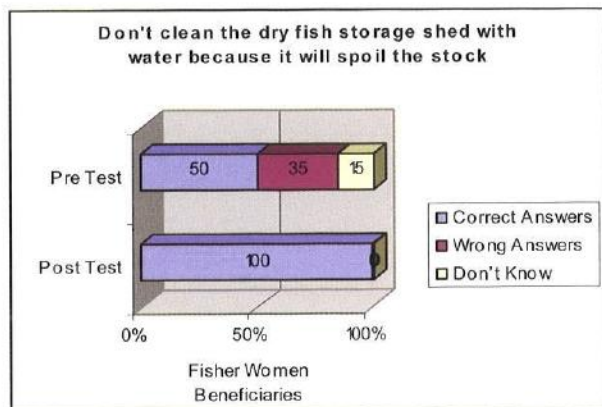


**Legend:**

***“After use, clean the fish drying platform with water and leave it to dry”***. The answer is true because the platform should be cleaned after use.

Out of 4600 respondents, 72% of fisher women were aware earlier, now 100% have the knowledge.

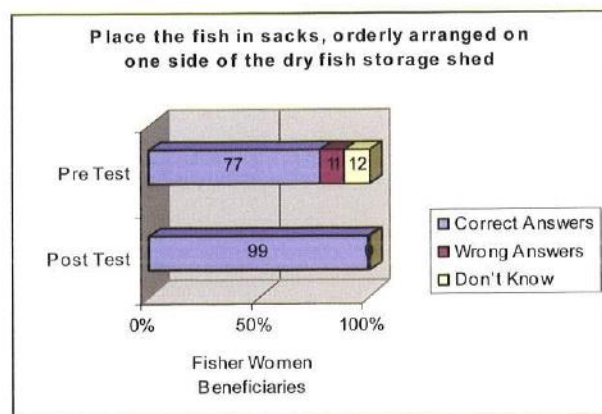
**Training – Use and maintenance of dry fish storage shed**



**Legend:**

***“Don't clean the dry fish storage shed with water because it will spoil the stock”***. The answer is false because the storage shed should be regularly cleaned to avoid pests.

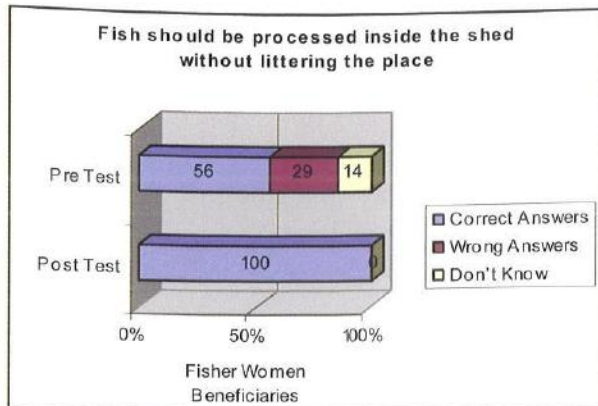
Out of 4600 respondents, 50% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

***“Place the fish in sacks, orderly arranged on one side of the dry fish storage shed”***. The answer is true because the space in the storage shed should be used to its optimum and for more fisher women.

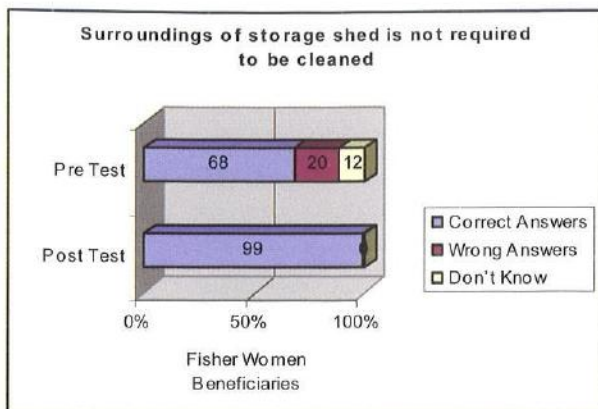
Out of 4600 respondents, 77% of fisher women were aware earlier, now 99% have the knowledge.



**Legend:**

***“Fish should be processed inside the shed without littering the place”.*** The answer is true because the storage shed should be clean and neat.

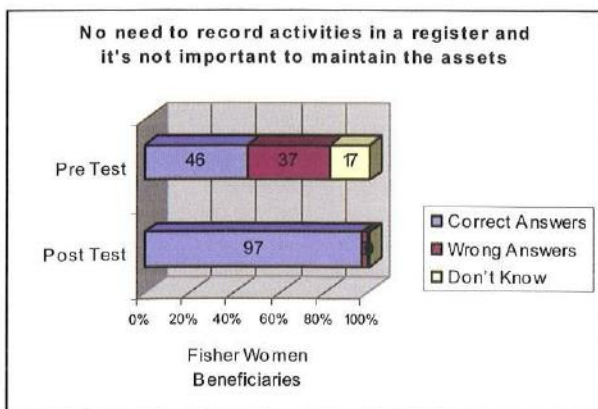
Out of 4600 respondents, 56% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

***“Surroundings of storage shed is not required to be cleaned”.*** The answer is false because the surroundings should be regularly cleaned.

Out of 4600 respondents, 68% of fisher women were aware earlier, now 99% have the knowledge.



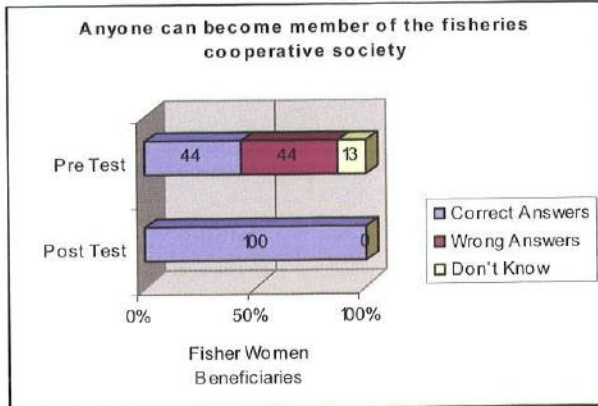
**Legend:**

***“No need to record activities in a register and it's not important to maintain the assets”.*** The answer is false because the registers should be used and the storage shed should be maintained by the fisher women.

Out of 4600 respondents, 46% of fisher women were aware earlier, now 97% have the knowledge.



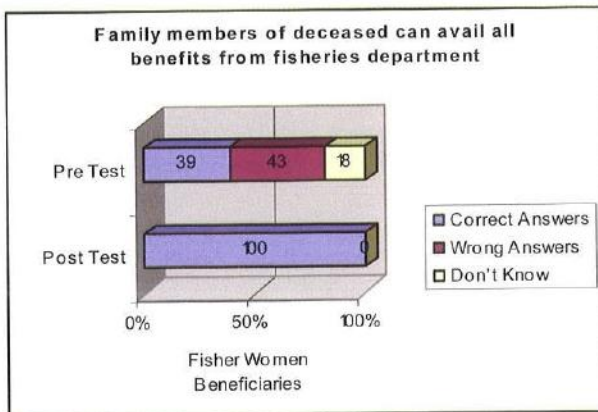
### Training – Awareness on Fisheries Department Schemes



**Legend:**

*“Anyone can become member of the fisheries cooperative society”*. The answer is false because only fishermen or fisherwomen can become members.

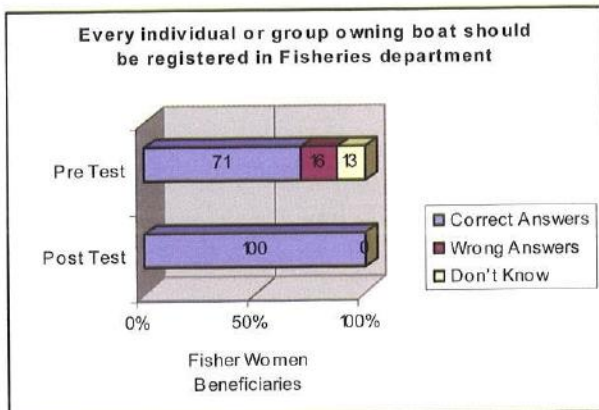
Out of 4600 respondents, 44% of fisher women were not aware earlier, now 100% have the knowledge.



**Legend:**

*“Family members of deceased can avail all benefits from fisheries department”*. The answer is false because family members can avail certain benefits only.

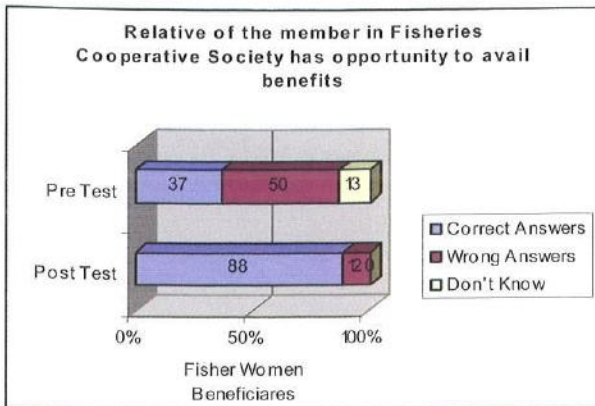
Out of 4600 respondents, 43% of fisher women were not aware earlier, now 100% have the knowledge.



**Legend:**

*“Every individual or group owning boat should be registered in fisheries department”*. The answer is true because every craft should be registered.

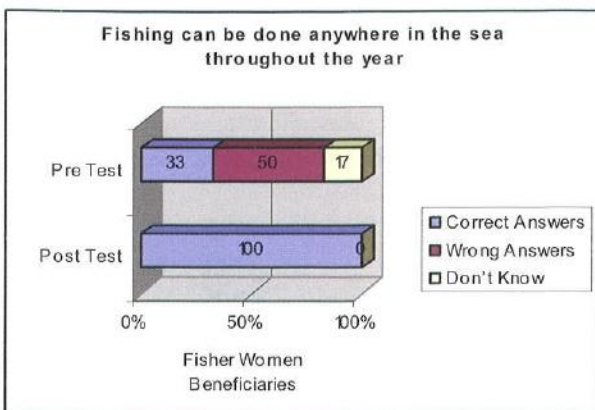
Out of 4600 respondents, 71% of fisher women were aware earlier, now 100% have the knowledge.



**Legend:**

*“Relative of the member in fisheries cooperative society has opportunity to avail benefits”*. The answer is true because the relative to fisher folk has the privilege.

Out of 4600 respondents, 50% of fisher women were not aware earlier, now 88% have the knowledge.



**Legend:**

*“Fishing can be done anywhere in the sea throughout the year”*. The answer is false because fishing can be done only in the prescribed fishing zones and only during fishing seasons. Fishing cannot be done during off season which is banned.

Out of 4600 respondents, 50% of fisher women were not aware earlier, now 100% have the knowledge.

Training assessment: Training on the use and maintenance of the livelihood materials and infrastructures.

- Training Pre Test Results: Correct answers 36733 / Wrong answers 21891 / Don't Know 14976 (50% of fisherwomen beneficiaries were aware)
- Training Post Test Results: Correct answers-72681/ Wrong answers-871 & Don't Know-48 (99% of fisherwomen beneficiaries have knowledge) – **[49% increase]**

**4.4 Stakeholders**

**Interaction with IRCS District Branch**

The IRCS district branches has expressed that the livelihood project has increased its capacity by the way of enhancing the skills of its human resources (district coordinators and volunteers), in managing livelihood project and mobilizing communities. It is for the first time that both districts have ventured into livelihood project and they are indeed happy that the livelihood project was the best platform for IRCS to go beyond its traditional interventions with the community. The livelihood project is in line with the schemes of the state government and they feel satisfied that they have contributed to the government's efforts in responding to the livelihood needs of the fisher folk community. Through this project, Indian Red Cross Society has reached those villages where the government has faced several challenges in implementing its schemes. The project has played a major role spreading the image of Indian Red Cross

Society and increased its visibility across the district, particularly in the coastal villages. Because of the positive impact of the project on the fisher folk community the local media has appreciated the services of IRCS. The project increased the opportunities to work very closely with the fisheries departments in both districts. The collaboration was mutual where they shared and learned from each other's strengths and experiences. The fisherwomen highly value the livelihood equipment provided to them and there is a great demand for the same from other potential beneficiaries of the project such as inland fisher folk community.

### Interaction with Fisheries Departments

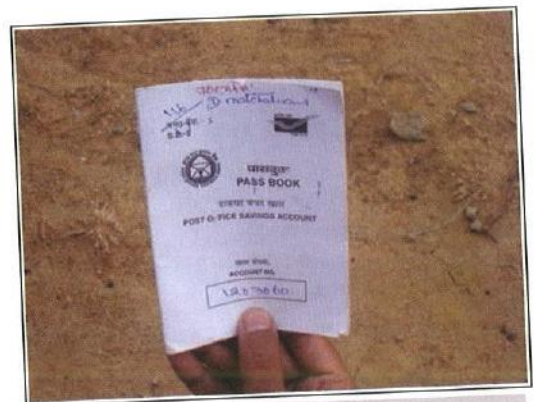
The project was the best platform for the Fisheries Development Officers (FDO) for the first time to have regular encounters with the fisherwomen as there are more schemes of the department for fishermen than women. The fisheries department has expressed that the project has increased the infrastructure at the fisher folk community level with better quality fish drying platforms and dry fish storage sheds. The department has been actively engaged in designing of the training module and conducting training programs at village level. They have appreciated the IEC materials, particularly the posters, as they are very simple to understand by even illiterates. The developed posters have been well utilized by the FDOs in training the fisherwomen. The trainings served as the best platform for the department to create awareness on various social issues prevailing in the fisher folk communities (child marriages, illiteracy, etc) and about their schemes. As the support provided under the livelihood project reached the real needy women the department was highly satisfied and has extended its full support to IRCS and is willing to continue in future. It has been expressed that the strength of the project lies having no mediators in providing the support, which used to be the case earlier. In the past there were many mediators, particularly the village sarpanch or president, to reach any support to the community from the department.

### Interaction with Village Maintenance Committees

The Village Maintenance Committees are well organized and systematic to an extent that they have regular meetings and maintain registers to track the usage of the storage shed by an individual and collect nominal fee for using the facility. The money is utilized for further maintenance of the same. Village Maintenance Committees have opened joint accounts in banks and postal departments. A good number of VMCs are eager to strengthen their group into a federation of women.



Project team interact with VMC



Savings Account Pass Book of VMC

#### 4.5 Organizational structure

The project's volunteers helped women organize themselves and developed the skills and attitudes needed to execute several training programmes. The volunteers are a permanent asset to the community. Choosing volunteers from within the community helped in adopting the participatory approach: they knew and understood village problems far better than an outsider. They were young, energetic and receptive to new ideas: this ensured positive and dynamic change. They had more time than the older women who were busy with their daily occupation. The volunteers from the community had minimum education qualification and it was necessary to train them. The system whereby the project coordinator, volunteers and local government authorities worked together proved effective. Government support to the project was extended at the village level; such support was missing at the policy making level. The community contributed 10% of the cost for procuring livelihood tools and their time for participating in trainings.

At the end of the project, it was found that the project duration was sufficient to develop an organizational structure and a methodology for working with fisher folk. But more time would be needed to make them initiate and manage community organization on their own depending on their interest and initiatives. Further institutional support for the project was seen as essential. The timeframe for implementing the project was flexible to help people organize themselves.

#### 4.6 Case studies

**Ice box:** Tikkada Kameswari, 28 years is from Suryaraopeta village of East Godavari district in Andhra Pradesh. She used to preserve fish in plastic buckets, aluminum basins and tubs for only 4 hours which had no lid and were exposed to contamination. The fish were transported by auto rickshaws from the landing centre to nearby market which is 4 Km for vending. The fish were sold based on rates decided by the buyers and the profit earned per day was only Rs.200. She was identified by IRCS volunteer as a beneficiary based on the list provided by Fisheries department and she contributed 10% for receiving the ice box through the project. Now, she can preserve fish for the entire day which has a lid and it's hygienic. She can negotiate in vending fish and earns a profit of more than Rs.300 per day. With this she is able to support her two children's education and save Rs.100 per month.



**Fish curing tub:** Malladi Gangayamma, 45 years is from Peddaboddu Venkatayapalem village of East Godavari district in Andhra Pradesh. She could cure very few fish species (approximately 10 kg) with salt in plastic pots and buckets. The pots and buckets used had no lids and were exposed to flies and insects. She could earn only Rs.50 per day enough for her food. Being a beneficiary of the project she received a fiber reinforced plastic fish curing tub which has a lid and can cure more than 20 kg of fish free from flies and insects. The cured fish is dried on the fish drying platform and the profit earned by vending the dried fish is Rs.100 per day.



Fish smoking bin: Kaladi Nagalakshmi, 30 years is from Uppalanka Mondi village of East Godavari district in Andhra Pradesh. She used to smoke fish on a bed of bamboo logs in a room inside her thatched hut and at a time only 6 kg of fish could be smoked for 8 hours. While smoking the entire house was filled with smoke and cause several eyes, throat and respiratory infections. Her hut caught fire twice and neighbors helped in putting it off. Even the fish is coated by a layer of smoke and could earn a profit of only Rs.150 per day. After receiving fish smoking bin through the project, she can smoke 8 kg of fish in just 4 hours beside her hut. The smoking bin has a chimney which guides the smoke upwards and several racks one on another which is easy to shuffle. The fuel consumption is less, safe and profit earned by vending smoked fish is Rs.250 per day.



Fish drying platform: Seekoti Adivamma, 55 years is from Light House Tammavaram village of East Godavari district in Andhra Pradesh. She used to dry fish on leaves for there was no other place to dry them. The surroundings were the place for dumping garbage and openly defecated by villagers. She dried fish for 4 sunny days and earned Rs.100 per day. Through the project a fish drying platform has been constructed in her village and she along with other fisherwomen is able to dry more quantity of fish. The fish is dried for 3 sunny days and earns Rs.200 per day. Village Maintenance Committee takes responsibility on the use and maintenance of the fish drying platform in the village.



Dry fish storage shed: Konada Poleru, 35 years is from Light House Tammavaram village of East Godavari district in Andhra Pradesh. She store 120 kg of dried fish at her thatched house and approximately 100 kg of dried fish got drenched and spoilt due to the rains. The remaining dried fish were destroyed by insects and became unfit for consumption. She finally managed to sell few at least to the poultry farm as feed. She earned Rs.100 per day by vending dried fish. Through the project a dry fish storage shed has been constructed in her village and she along with other fisherwomen is able to store 200 kg of dried fish. The dry fish is stored for a week's time and she earns Rs.200 per day. Village Maintenance Committee takes responsibility on the use and maintenance of the dry fish storage shed in the village.

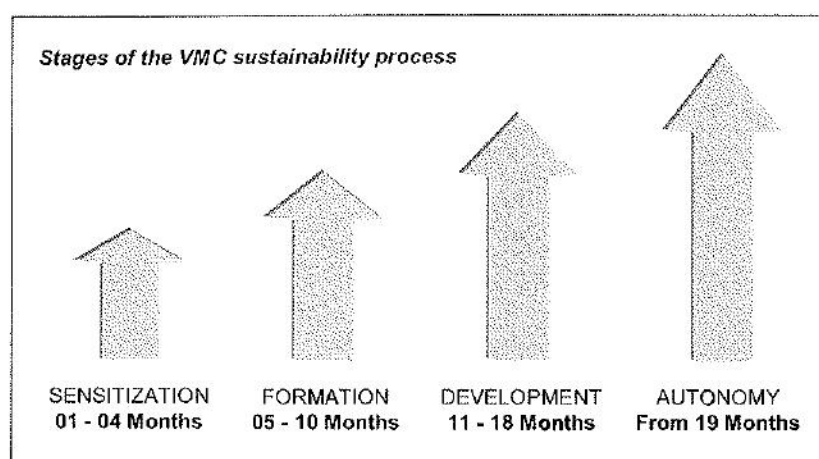


## 5. SUSTAINABILITY AND REPLICABILITY

This chapter discusses the sustainability and replicability of the fisherwomen's project. The discussion refers not only to Andhra Pradesh, but to the whole coastal region of India. The project has tested one approach to development. The results demonstrate the value of the participatory approach. The approach is in line with the greater emphasis worldwide on development of small-scale fishing communities within the context of integrated rural development (illustrated by the report of the FAO World Fisheries Conference, 1984). People's participation is an important element in strategies for integrated rural development. In spite of the positive results demonstrated by the approach, a number of factors limit large scale application within a governmental set up. The government administration is usually organized in sectors, with defined targets for separate sectors. This system does not encompass a multi-sectoral mode of operation.

The results of the project assessment study have highlighted the impact and the scope for future need to intervene in the coastal areas related to livelihood. Fisherwomen have been fishing sustainable livelihood amidst of several constraints. The opportunity through this project has awakened and opened the door for their livelihood sustainability. CBO such as the VMC should be strengthened and supported by the local government institutions. Similar to the situation in Andhra Pradesh, there are livelihood needs of fisherwomen in other coastal states of India which should be implemented through a coastal livelihood programme. Livelihood support in terms of materials, infrastructures and trainings should be planned and mainstreamed in the regular programmes of the concern Government departments.

Based on the project's experience, the maintenance of livelihood infrastructures is assured and sustained by the below process followed in development of the VMC.



#### Stage 1: Sensitization of the fisherwomen

Objective: Fisherwomen collectively focused on management of livelihood

- Conduct a baseline study to understand the livelihood situation of the fisherwomen.
- Meet and organize fisherwomen by discussing livelihood management possibilities.
- Explain the projects objective and results to concentrate the focus of fisherwomen.
- Participatory approach adopted as the implementation methodology.
- Community participation ensured to make communities own the approach.

#### Stage 2: Formation of the Village Maintenance Committees

Objective: VMC is formed and socially recognized as an organized group

- Identify the structure, responsibilities and roles of the VMC
- Identify and select village volunteers for supporting the VMC.
- Election of the VMC representatives.
- The representatives of the VMC meets local authorities

#### Stage 3: Development of the Village Maintenance Committees

Objective: Fisherwomen technical strengthened to manage VMC

- Trainings to VMC members on management procedures
- Members mobilize and organize the fisherwomen
- Members monitor the construction of the livelihood infrastructures

- Members use the livelihood infrastructures as per the defined rules
- VMC manages the finance through opening a joint bank account
- VMC collects fees from the members for maintenance of the infrastructure

Stage 4: Autonomous management of the VMC

Objective: Fisherwomen sustainable in managing VMC

- VMC voluntarily obtain specific technical trainings
- Fisherwomen members adopt new ideas for VMC
- VMC members meet new institutions and Government authorities
- Mobilize and obtain local funds for management

At the end of fourth stage, the fisherwomen members in the VMC are capable in coordinating with stakeholders and in sustainable management of the livelihood resources.

### Acknowledgement

The authors thank Mr. Hansen Thambi Prem, Program Manager of Spanish Red Cross who has been instrumental in conducting the study and developing this document. The efforts of Mr. Jagan Mohan Rao the Srikakulam District Secretary of IRCS district branch, Mr. P. Durga Raju the East Godavari District Secretary of IRCS district branch, Deputy Directors & Assistant Directors in Fisheries Department of Government of Andhra Pradesh are highly appreciated. Our sincere gratitude to the fisherwomen of S. Matchelesam, D. Matchelesam and Budagatlapalem villages in Srikakulam district and Fisherwomen of Suryaraopet, Uppada, Upparlanka and Chinnavalasalu villages in East Godavari district for their active participation. Finally, the authors thank the contribution of IRCS staff and volunteers from Hyderabad, East Godavari and Srikakulam towards the success of the project.

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### **Internet Links**

Food and Agriculture Organization of the United Nations	<a href="http://www.fao.org/fishery/countrysector/FI-CP_IN/en">http://www.fao.org/fishery/countrysector/FI-CP_IN/en</a>
Department of Agriculture & Cooperation	<a href="http://agricoop.nic.in">http://agricoop.nic.in</a>
Department of Animal Husbandry, Dairying & Fisheries	<a href="http://dahd.nic.in">http://dahd.nic.in</a>
Department of Agricultural Research & Education (DARE)	<a href="http://dare.nic.in">http://dare.nic.in</a>
Ministry of Food Processing Industries	<a href="http://mofpi.nic.in">http://mofpi.nic.in</a>
Ministry of Commerce	<a href="http://commerce.nic.in/">http://commerce.nic.in/</a>
Department of Ocean Development (DOD)	<a href="http://dod.nic.in/">http://dod.nic.in/</a>
Department of Bio-Technology	<a href="http://dbtindia.nic.in/">http://dbtindia.nic.in/</a>
Indian Council of Agricultural Research (ICAR)	<a href="http://www.icar.org.in">http://www.icar.org.in</a>
Central Institute of Brackish water Aquaculture (CIBA)	<a href="http://www.ciba.tn.nic.in/">http://www.ciba.tn.nic.in/</a>
Central Inland Fisheries Research Institute (CIFRI)	<a href="http://cifri.gov.in/">http://cifri.gov.in/</a>
Central Institute of Freshwater Aquaculture (CIFA)	<a href="http://www.soft.net/cifa">http://www.soft.net/cifa</a>
Central Institute of Fisheries Technology (CIFT)	<a href="http://www.cift.res.in/">http://www.cift.res.in/</a>
Central Marine Fisheries Research Institute (CMFRI)	<a href="http://education.vsnl.com/cmfrhq">http://education.vsnl.com/cmfrhq</a>
Central Institute of Fisheries Education (CIFE)	<a href="http://www.fisheries.university.org">http://www.fisheries.university.org</a>
National Bureau of Fish Genetic Resources (NBFGR)	<a href="http://www.icar.org.in/nbfgr/tmp/">http://www.icar.org.in/nbfgr/tmp/</a>
National Research Centre on Coldwater Fisheries (NRCCF)	<a href="http://www.icar.org.in/nrccf/">http://www.icar.org.in/nrccf/</a>
Fishery Survey of India (FSI)	<a href="http://dahd.nic.in/fish/fsi.htm">http://dahd.nic.in/fish/fsi.htm</a>
Integrated Fisheries Project (IFP)	<a href="http://dahd.nic.in/fish/ifp.htm">http://dahd.nic.in/fish/ifp.htm</a>
Central Institute of Fisheries, Nautical & Training	<a href="http://dahd.nic.in/fish/cifnet.htm">http://dahd.nic.in/fish/cifnet.htm</a>
Central Institute of Coastal Engineering for Fisheries	<a href="http://dahd.nic.in/fish/ciccf.htm">http://dahd.nic.in/fish/ciccf.htm</a>
Coastal Aquaculture Authority	<a href="http://aquacultureauthority.in.nic.in">http://aquacultureauthority.in.nic.in</a>
Global Aquaculture Alliance	<a href="http://www.gaalliance.org/newsroom/aquasolutions">http://www.gaalliance.org/newsroom/aquasolutions</a>



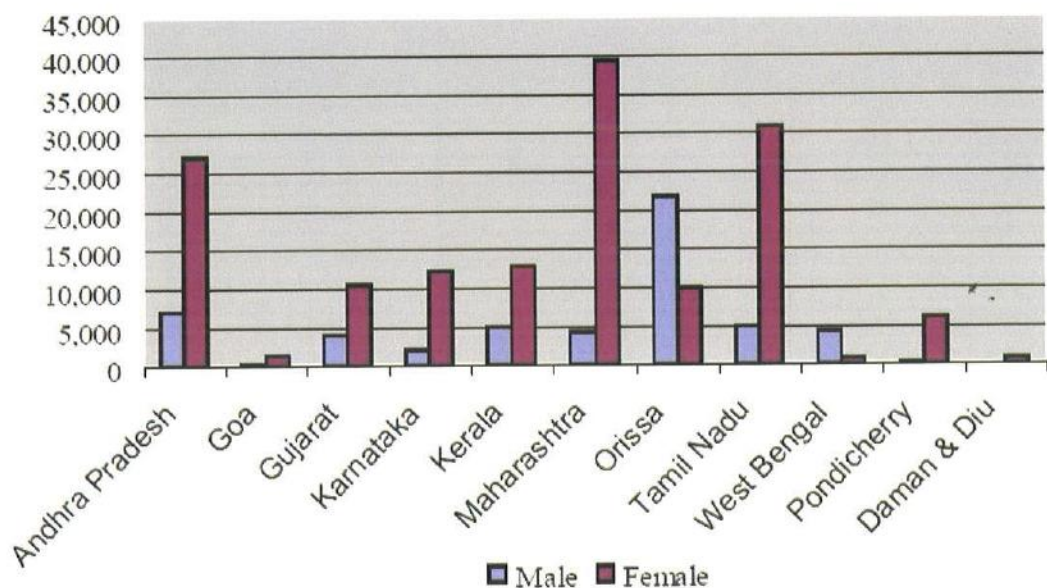
## Annex

### Global Coastal Statistics

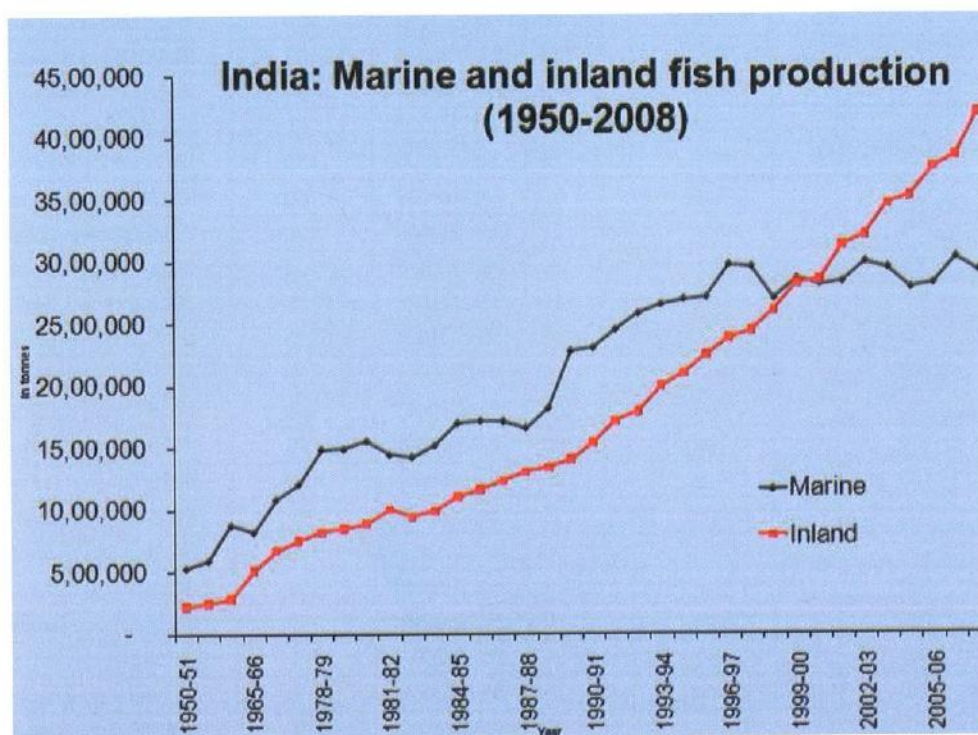
Description	India	Asia (excl. Middle East)	World
<b>Coastal Statistics, 2000</b>			
Length of coastline {a} (km)	17,181	288,459	1,634,701
Percent of population within 100 km of the coast	26%	X	39%
Area of continental shelf (km <sup>2</sup> ) {b}	372,424	5,514,288	24,285,959
Territorial sea (up to 12 nautical miles) (km <sup>2</sup> )	193,834	5,730,868	18,816,919
Claimed Exclusive Economic Zone (km <sup>2</sup> )	2,103,415	11,844,193	102,108,403
<b>Coastal Biodiversity and Protected Areas Data, 1990s</b>			
Area of Mangrove Forests (km <sup>2</sup> )	3,036	40,330	169,452
Percent of Mangrove forests protected	50%	27%	13%
Number of Mangrove Species	28	51	70
Number of Sea grass Species	12	27	58
Number of Scleractinia Coral Genera {c}	59	79	X
International Legal Net Trade in Live Coral, 1997 (no. of pieces) {d}	X	773,430	X
Number of Marine or Littoral Protected Areas, 1999	115	831	3,636
Wetlands of International Importance, Extent (km <sup>2</sup> ), 2000	1,930	31,212	730,116
<b>Fisheries Production</b>			
Avg Annual Capture (excl aquaculture) in metric tons: Marine Fish, 2000	2,773,092	36,516,371	84,411,066
Molluscs and Crustaceans, 1997	365,562	7,959,125	12,055,801
Aquaculture Production (in metric tons): Total (includes freshwater), 2000	2,095,072	41,305,773	45,715,559
Marine and Diadromous Fish, 1997	X	1,325,644	2,623,888
Molluscs and Crustaceans, 1997	X	8,677,590	9,889,688
Aquatic Plants, 1997	X	7,123,694	7,241,754
<b>Fish Consumption and Trade, 2000</b>			
Per Capita Food Supply from Fish and Fishery Products (kg/person)	5	18	16
Fish Protein as a % of Total Protein Supply	2%	10%	6%
Annual Trade in Fish and Fisheries Products Imports (thousand \$US)	16,679	22,787,200	60,008,337
Percent change since 1980	187%	X	275%
Exports (thousand \$US)	1,417,467	16,839,046	54,570,489
Percent change since 1980	428%	403%	258%

Source: Food and Agriculture Organization of the United Nations (FAO), Fishery Information, Data and Statistics Unit (FIDI), July, 2002.

**Gender-wise engagement in marketing of marine fish** (Source: Marine Fisheries Census, 2005)



**Marine and inland fish production** Source: FISHSTAT, FAO (2010)



### Distribution of freezing, frozen storage and ice-making facilities in the coastal districts of AP

Districts	Freezing Capacity (Tonne)		Frozen Storage Capacity (Tonne)		Ice Production (Tonne/Day)	
	Private Sector	Public Sector	Private Sector	Public Sector	Private Sector	Public Sector
Srikakulam	30	-	-	-	-	-
Visakhapatnam	71	5	1770	100	196	20
East Godavari	19	2.7	600	50	81.5	10
West Godavari	-	-	-	10	81.5	6
Krishna	-	-	-	-	100	-
Guntur	-	-	-	10	36	5
Prakasam	-	-	-	-	20	-
Nellore	20	10	-	20	27	-
<b>Total</b>	<b>140</b>	<b>17.7</b>	<b>2370</b>	<b>190</b>	<b>542</b>	<b>41</b>
<b>Grand total</b>	<b>157.7</b>		<b>2560</b>		<b>583</b>	

Source: Directorate of Fisheries

Table 1: Distribution of Ice Boxes by IRCS

EAST GODAVARI DISTRICT							
RECEIPT OF ICE BOXES				DISTRIBUTION OF ICE BOXES			
DATE	CAPACITY	STORAGE PLACE	NO.	DATE	CAPACITY	DISTRIBUTION PLACE	NO.
19/09/2008	150	Office	25	20/10/2008	70	IRCS Office Kakinada	23
25/09/2008	100	Office	115	20/10/2008	100	IRCS Office Kakinada	169
6/10/2008	100	Office	90	20/10/2008	150	IRCS Office Kakinada	20
11/10/2008	70	Office	100	23/10/2008	100	IRCS Office Kakinada	11
29/10/2008	70	Office	125	26/11/2008	100	IRCS Office Kakinada	174
31/10/2008	100	Office	30	26/11/2008	70	Amalapuram	201
31/10/2008	100	Office	75	28/11/2008	150	IRCS Office Kakinada	41
31/10/2008	100	Office	50	28/11/2008	100	IRCS Office Kakinada	27
31/10/2008	70	Office	25	29/11/2008	150	IRCS Office Kakinada	129
31/10/2008	70	Office	25	29/11/2008	100	IRCS Office Kakinada	94
17/11/2008	70	Office	25	30/11/2008	150	IRCS Office Kakinada	43
17/11/2008	70	Office	95	30/11/2008	100	IRCS Office Kakinada	18
17/11/2008	100	Office	150	1/12/2008	150	IRCS Office Kakinada	115
17/11/2008	150	Office	145	1/12/2008	100	IRCS Office Kakinada	44
22/11/2008	150	Office	60	2/12/2008	150	IRCS Office Kakinada	56
22/11/2008	150	Office	40	2/12/2008	100	IRCS Office Kakinada	36
22/11/2008	150	Office	35	4/12/2008	70	IRCS Office Kakinada	7
22/11/2008	150	Office	50	5/12/2008	100	IRCS Office Kakinada	41
22/11/2008	100	Office	50	5/12/2008	150	IRCS Office Kakinada	7
22/11/2008	100	Office	50	6/12/2008	100	IRCS Office Kakinada	29
22/11/2008	100	Office	50	20/12/2008	70	Amalapuram	204
22/11/2008	70	Office	25	20/12/2008	100	Amalapuram	104
22/11/2008	70	Office	80	28/01/2009	70	IRCS Office Kakinada	10
24/11/2008	100	Office	50	28/01/2009	100	IRCS Office Kakinada	20
24/11/2008	100	Office	35	28/01/2009	150	IRCS Office Kakinada	28
24/11/2008	100	Office	40	29/01/2009	100	IRCS Office Kakinada	14
24/11/2008	100	Office	115	29/01/2009	150	IRCS Office Kakinada	22
25/11/2008	100	Office		4/2/2009	150	IRCS Office Kakinada	4
25/11/2008	100	Office	10	12/2/2009	100	IRCS Office Kakinada	18

25/11/2008	100	Office	50	13/2/2009	150	IRCS Office Kakinada	8
25/11/2008	100	Office	40	13/2/2009	100	IRCS Office Kakinada	15
27/11/2008	150	Office	35	16/2/2009	100	IRCS Office Kakinada	45
27/11/2008	150	Office	35	17/2/2009	100	IRCS Office Kakinada	20
5/12/2008	150	Office	73	24/2/2009	70	IRCS Office Kakinada	14
19/12/2008	70	Office		24/2/2009	100	IRCS Office Kakinada	13
19/12/2008	150	Office		27/2/2009	100	IRCS Office Kakinada	12
19/12/2008	100	Office		27/2/2009	70	IRCS Office Kakinada	5
8/1/2009	70	Replaced in Office		17/3/2009	150	IRCS Office Kakinada	7
8/1/2009	150	Replaced in Office		17/3/2009	100	IRCS Office Kakinada	18
8/1/2009	100	Replaced in Office		17/3/2009	70	IRCS Office Kakinada	9
5/2/2009	100	Replaced in Office		11/5/2009	100	IRCS Office Kakinada	3
5/2/2009	70	Replaced in Office		25/5/2009	100	IRCS Office Kakinada	35
5/2/2009	150	Office	2	25/5/2009	150	IRCS Office Kakinada	6
4/3/2010	100	Office	300	1/6/2009	70	IRCS Office Kakinada	10
5/3/2010	100	Office	200	1/6/2009	150	IRCS Office Kakinada	1
				3/6/2009	100	IRCS Office Kakinada	9
				3/6/2009	70	IRCS Office Kakinada	5
				4/6/2009	100	IRCS Office Kakinada	2
				11/6/2009	100	IRCS Office Kakinada	15
				11/6/2009	70	IRCS Office Kakinada	5
				12/6/2009	100	IRCS Office Kakinada	3
				24/6/2009	70	IRCS Office Kakinada	1
				26/6/2009	70	IRCS Office Kakinada	6
				26/6/2009	150	IRCS Office Kakinada	13
				29/6/2009	100	IRCS Office Kakinada	11
				10/3/2010	100	IRCS Office Kakinada	100
				12/3/2010	100	Amalapuram	200
				15/3/2010	100	IRCS Office Kakinada	200
<b>TOTAL ICE BOXES RECEIVED</b>			<b>2500</b>	<b>TOTAL ICE BOXES DISTRIBUTED</b>			<b>2500</b>
<b>SRIKAKULAM DISTRICT</b>							
<b>RECEIPT OF ICE BOXES</b>				<b>DISTRIBUTION OF ICE BOXES</b>			
<b>DATE</b>	<b>CAPACITY</b>	<b>STORAGE PLACE</b>	<b>NO.</b>	<b>DATE</b>	<b>CAPACITY</b>	<b>DISTRIBUTION PLACE</b>	<b>NO.</b>
10-Oct-08	100 ltrs	Office	110	19/10/2008	100 ltrs	Income tax guest house	277
13-Oct-08	100 ltrs	Office	225	19/11/2008	100 ltrs	Palasa	181
29-Oct-08	100 ltrs	Office		12-Dec-08	100 ltrs	Income tax guest house	4
19-Nov-08	100 ltrs	Office	165	28-Jan-09	100 ltrs	Income tax guest house	29
20-Nov-08	100 ltrs	Office		3-Feb-09	100 ltrs	Income tax guest house	9
5-Dec-08	100 ltrs	Replaced in Office		6-Dec-09	100 ltrs	Polytechnic Colg-Elcherla	430
25-Jan-09	100 ltrs	Replaced in Office		8-Dec-09	100 ltrs	PN Colony	34
28-Nov-09	100 ltrs	PN Colony	100	14-Dec-09	100 ltrs	PN Colony	104
1-Dec-09	100 ltrs	PN Colony	144	2-Jan-10	100 ltrs	PN Colony	276
2-Dec-09	100 ltrs	PN Colony	254	8-Feb-10	100 ltrs	Vomaravilli garamandal	398
3-Dec-09	100 ltrs	PN Colony	82	17-Feb-10	100 ltrs	Allivalasa	22
17-Dec-09	100 ltrs	PN Colony	100	27-Feb-10	100 ltrs	Old Srikakulam	83
20-Dec-09	100 ltrs	PN Colony	200	7-Mar-10	100 ltrs	IRCS office	36
27-Dec-09	100 ltrs	PN Colony	100	15-Mar-10	100 ltrs	Palasa Agri Market Yard	241
23-Jan-10	100 ltrs	PN Colony	120	25-Mar-10	100 ltrs	Tekkali	65
1-Feb-10	100 ltrs	Kalingapatnam	100	26-Mar-10	100 ltrs	Palasa Agri Market Yard	250

6-Feb-10	100 ltrs	Kalingapatnam	100	26-Mar-10	100 ltrs	PN Colony	41
8-Feb-10	100 ltrs	Kalingapatnam	120				
9-Feb-10	100 ltrs	Palasa	120				
11-Feb-10	100 ltrs	Palasa	127				
12-Feb-10	100 ltrs	Palasa	100				
15-Feb-10	100 ltrs	Palasa	113				
25-Feb-10	100 ltrs	PN Colony	100				
<b>TOTAL ICE BOXES RECEIVED</b>			<b>2480</b>	<b>TOTAL ICE BOXES DISTRIBUTED</b>			<b>2480</b>
						<b>Grand total (Received)</b>	<b>4980</b>
						<b>Grand total (Distributed)</b>	<b>4980</b>

Table 2: Distribution of Fish Curing Tubs by IRCS

EAST GODAVARI DISTRICT							
RECEIPT OF FISH CURING TUBS				DISTRIBUTION OF FISH CURING TUBS			
DATE	CAPACITY	STORAGE PLACE	NO.	DATE	CAPACITY	DISTRIBUTION PLACE	NO.
28/4/2009	500 Lt	IRCS Office	70	28/4/2009	500 Lt	IRCS Office	51
11/5/2009	500 Lt	IRCS Office	30	1/5/2009	500 Lt	IRCS Office	4
				2/5/2009	500 Lt	IRCS Office	6
				6/5/2009	500 Lt	IRCS Office	1
				11/5/2009	500 Lt	IRCS Office	38
<b>TOTAL FISH CURING TUBS RECEIVED</b>			<b>100</b>	<b>TOTAL FISH CURING TUBS DISTRIBUTED</b>			<b>100</b>
SRIKAKULAM DISTRICT							
RECEIPT OF FISH CURING TUBS				DISTRIBUTION OF FISH CURING TUBS			
DATE	CAPACITY	STORAGE PLACE	NO.	DATE	CAPACITY	DISTRIBUTION PLACE	NO.
21/4/2009	500 Lt	IRCS Office	52	21/4/2009	500 Lt	IRCS Office	47
24/4/2009	500 Lt	IRCS Office	48	2/5/2009	500 Lt	IRCS Office	43
				8/5/2009	500 Lt	IRCS Office	10
<b>TOTAL FISH CURING TUBS RECEIVED</b>			<b>100</b>	<b>TOTAL FISH CURING TUBS DISTRIBUTED</b>			<b>100</b>
						<b>Grand total (Received)</b>	<b>200</b>
						<b>Grand total (Distributed)</b>	<b>200</b>

Table 3: Distribution of Fish Smoking Bins by IRCS

EAST GODAVARI DISTRICT					
RECEIPT OF FISH SMOKING BINS			DISTRIBUTION OF FISH SMOKING BINS		
DATE	STORAGE PLACE	NO.	DATE	DISTRIBUTION PLACE	NO.
28/2/2009	IRCS Office	20	28/2/2009	IRCS Office	20
4/5/2009	IRCS Office	16	4/5/2009	IRCS Office	16
6/5/2009	IRCS Office	24	6/5/2009	IRCS Office	24
12/8/2009	IRCS Office	30	12/8/2009	IRCS Office	30
12/20/2009	IRCS Office	30	12/21/2009	IRCS Office	30
12/28/2009	IRCS Office	20	12/30/2009	IRCS Office	20
<b>TOTAL FISH SMOKING BINS RECEIVED</b>		<b>140</b>	<b>TOTAL FISH SMOKING BINS DISTRIBUTED</b>		<b>140</b>

Table 4: Construction of Fish Drying Platforms &amp; Dry Fish Storage Sheds by IRCS

SRIKAKULAM DISTRICT			EAST GODAVARI DISTRICT		
MANDAL	VILLAGE	CONSTRUCTION OF	VILLAGE	MANDAL	CONSTRUCTION OF
Etoharla	Buddagutlapalem	Platform	Karapa	Uppalanka	Platform
Etoharla	D.Matyalesam	Storage Shed	Karapa	Uppalanka	Platform
Gara	S.Matyalesam	Storage Shed	Karapa	Uppalanka	Storage Shed
Ichapuram	Donkur	Platform	Surya Rao Peta	Kakinada	Platform
Kaviti	Kapasukkudi	Storage Shed	Surya Rao Peta	Kakinada	Storage Shed
Kaviti	Kapasukkudi	Platform	Uppada	U.Kothapalli	Platform
Kaviti	Kothapalem	Platform	Uppada	U.Kothapalli	Storage Shed
Sompeta	Battiguluru	Platform	Mulapeta	U.Kothapalli	Storage Shed
Sompeta	Nadumuru	Storage Shed	Danavapeta	Thondangi	Platform
Sompeta	Iskapalem	Storage Shed	Danavapeta	Thondangi	Storage Shed
Gara	Mogadalpadu	Platform	Gondi	Sakhinetipalli	Platform
Gara	Parivanipet	Platform	Pallipalem	Sakhinetipalli	Platform
Vajrapukottur	Devenaitadu	Storage Shed	Pallipalem	Sakhinetipalli	Storage Shed
Vajrapukottur	Gunipalli	Platform	Karavaka	Mamidikuduru	Storage Shed
Vajrapukottur	Kambalarayudupet	Platform	Odalarevu	Allavaram	Platform
Vajrapukottur	Manchineelapet	Storage Shed	Balustippa	Katrenukona	Storage Shed
Vajrapukottur	Manchineelapet	Platform	Pallam	Katrenukona	Storage Shed
Vajrapukottur	Kothapet	Platform	Pallam	Katrenukona	Platform
Polakki	Guppidiapet	Storage Shed	Gachakayala Pora	Katrenukona	Storage Shed
Santabornilli	Geddalpadu	Storage Shed	Gachakayala Pora	Katrenukona	Platform
Santabornilli	M.Sunapalli	Platform			
Ranastalam	Gurapet	Storage Shed	Total (10 Platforms & 10 Storage Sheds)		
Ranastalam	Allivalasa	Storage Shed			
Ranastalam	Allivalasa	Platform			
Total (13 Platforms & 11 Storage Sheds)					

**Grand Total (23 fish drying platforms and 21 dry fish storage sheds)**

**Pre assessment study questionnaire**

No

Date: \_\_\_\_\_

(DD / MM / YYYY)

**Indian Red Cross Society**

Baseline Study

Tsunami Livelihood Project – 3739

Supported by

**General Information****1. Location**1.1. State Andhra Pradesh

1.2. District.....

1.3. Mandal.....

1.4. Village/Hamlet.....

1.5. House No.....

**2. Activities in the Village/Hamlet**

Distribution of Ice Box [ ]

Construction of Fish Drying Platform [ ]

Distribution of Curing Tub [ ]

Construction of Dry Fish Storage Shed [ ]

Distribution of Smoking Bin [ ]

**3. Beneficiary General Information**

3.1. Name..... 3.2. Age in Years [ ]

3.3. Gender: Male [ ] Female [ ] 3.4. No. of Family Members [ ]

3.5. No. of Working Family Members [ ]

**4. Occupation of Beneficiary**

4.1. Fishing [ ] 4.2. Fish Vending [ ]

4.3. Fish Drying (Sun) [ ] 4.4. Fish Smoking [ ]

4.5. Others .....

**5. Beneficiary of**

5.1. Ice Box [ ] 5.2. Fish Curing Tub [ ]

- 5.3. Smoking Bin [ ]      5.4. Fish Drying Platform [ ]  
 5.5. Dry Fish Storage Shed [ ]

### 6. Activity wise information:

6.1 How much distance do you travel to reach the market? [ ] Kms

6.2 What is the quantity of fish you generally buy/get per day?

6.2.1 Minimum quantity (Kg) [ ] per day

6.2.2 Maximum quantity (Kg) [ ] per day

6.3 At what price do you buy this fish?

S/N	Name of Fish (Species)	Minimum Cost Per Kg	Maximum Cost Per Kg
6.3.1			
6.3.2			
6.3.3			
6.3.4			
6.3.5			

6.4 How many days in a week you buy/get the fish? [ ] Days per week

6.5 How many months in a year you have this business? [ ] Months

6.6 How do you carry fish from landing centre?

6.6.1 Rickshaw [ ]      6.6.2 Bus [ ]

6.6.3 Auto Rickshaw [ ]      6.6.4 Walk [ ]

6.7 Which container do you use to transport the fish?

6.7.1 [ ] Traditional container made of bamboo/other wood

6.7.2 [ ] Aluminum Vessel

6.7.3 [ ] Ice Box

6.7.4 [ ] Thermofoam

6.8 Do you use ice to store fish, if yes how much ice you use for 1 kg of fish? [ ] Kg

6.9 What is the cost of 1 Kg of Ice? Rs. [ ] Per Kg

6.10 How far the market is from your home? [ ] Kms

6.11 How much do you spend on traveling to market to sell fish? Rs. [ ]

6.12 Do you pay tax in the market, if yes then how much? Rs. [ ]



## 7. ICE BOXES

7.1 At what price do you sell fish?

S/N	Name of Fish (Species)	Minimum Cost Per Kg	Maximum Cost Per Kg
7.1.1			
7.1.2			
7.1.3			
7.1.4			
7.1.5			

7.2 What is the minimum amount (profit) do you get every day? Rs. [     ] per day

7.3 What is the maximum amount (profit) do you get every day? Rs. [     ] per day

7.4 What do you do if all the fish taken to the market is not sold?

7.4.1 [   ] Carry the same back to home, store with ice & next day take to Market

7.4.2 [   ] Carry the same back to home and dry it

7.4.3 [   ] The remaining is thrown away in waste

7.5 How much selling price do you get for fresh and dry fish of the same type?

S/N	Type of Fish	Minimum selling price of 1 Kg dried fish	Minimum selling price of 1 Kg dried fish	How many kgs of fresh fish are required to dry to get 1 kg of dried fish?
7.5.1				
7.5.2				
7.5.3				
7.5.4				
7.5.5				

## 8. FISH DRYING/SMOKING

8.1 Where do you dry the fish?

8.1.1 [   ] On sand/on soil

8.1.2 [   ] On net/on leaves

8.1.3 [   ] Fish Drying Platform/Smoking Bin

8.1.4 [   ] Others .....

8.2 If you are using smoking bin, what is its type?

(To be personally inspected by interviewer)

Type:  Traditional  Modern

8.3 If Modern then specify the condition

8.3.1  Good 8.3.2  Moderate 8.3.3  Bad

*Good : All the parts of the smoking bins are well maintain and smoke produced by burning the fuel is all most all coming out from the top of the smoking bin.*

*Moderate: Smoke is wasted and only the part of the smoke produced is coming out from the top of smoking bin.*

*Bad: Smoking bin is in broken condition and smoke produced is wasted significantly.*

8.4 How old is your modern smoking bin?

8.4.1  0-5 Years

8.4.2  >5 and <10 years

8.4.3  >10 years

8.5 At what rate per kg you can sell the fish dried on sand/soil and fish dried on fish drying platform?

S/N	Type of Fish	Cost of 1 kg of fish dried on sand/soil (A)	Cost of 1 kg of fish dried on concert platform (B)	Cost of 1 kg of fish dried using smoking bin(C)	A-B	A-C
8.5.1						
8.5.2						
8.5.3						
8.5.4						
8.5.5						

8.6 If we construct fish drying platform in your village, will you use it?  Yes  No

### 9. FISH CURING

9.1 Do you cure fish before drying?  Yes  No

9.2 What is the material that you use for curing the fish?

9.2.1 Quantity of salt required to cure 1 Kg of fish [ ] Kg

9.2.2 Cost for 1 Kg of salt in Rs. [ ]

9.3 Do you have fish curing tub?  Yes  No

9.4 If yes, what does it made up of? (Write number)

9.4.1 [ ] Wood      9.4.2 [ ] Cement Concrete      9.4.3 [ ] Others .....

9.5 What is the total capacity (Kg of Fish) of fish curing you have? [ ] Kg

9.6 What is its condition? (To be filled in by the interviewer)

9.6.1 [ ] Good      9.6.2 [ ] Moderate      9.6.3 [ ] Bad

*Good: New, Moderate: old but in good condition, Bad: Broken*

9.7 How old is/are your curing tub/s?

9.7.1 [ ] 0-5 years      9.7.2 [ ] >5 and < 10 years      9.7.3 [ ] > 10 Years

9.8 For how long you need to cure the fish? ..... Hours/Days

S/N	Type of Fish	Time required for curing
9.8.1		.....Hours/Days
9.8.2		.....Hours/Days
9.8.3		.....Hours/Days
9.8.4		.....Hours/Days
9.8.5		.....Hours/Days

9.9 How often you need to replace your curing tub? [ ] Years

**10. DRY FISH STORAGE SHED**

10.1 Where do you store dried fish?

10.1.1 [ ] At home      10.1.2 [ ] In open space  
 10.1.3 [ ] In storage shed      10.1.4 [ ] Others .....

10.2 Do you loose the dried fish because of rain water? [ ] Yes      [ ] No

10.3 If yes, how much dried fish you lost in last rainy season? Kg [ ]

Name of Interviewer : .....

Signature : .....

Table - Pre assessment study respondents

Name of the District	Name of the Mandal	Name of the Village	No. of Respondents
Srikakulam	Vajrapukottur	Gunupalli	22
		Manchineelapeta	20
		Nuvularevu	2
		Kothapeta	12
		Devenaltada	21
	Mandasa	Ganguvada	10
	Gara	Mogadalpadu	12
		Perlavaniapeta	10
		S.Mathykesham	12
		Bandaruvanipeta	30
	Santabomilli	M.Sunapalli	12
		Geddallapadu	12
		Bhavanapadu	11
	Polakki	Guppidipeta	10
		Koyiripeta	10
	Etcherla	Budagutlapalem	32
		Battivanipeta	9
	Sompeta	Battigaluru	12
		Nadamuru	12
		Iskapalem	12
		Borivanka	10
	Kaviti	Kalingapatnam	1
		Peddakarivanipalem	11
		Kottpalem	12
		Kapasukkudi	22
		K.Matsyalesam	3
	Ranasthalam	Chenakovada	14
		Allivalasa	9
		Pothayapeta	11
		Guraiapeta	12
		Jagannathapuram	11
		Jeerupalem	18
	Ichapuram	Donkuru	22
Srikakulam	Peddaganagalapeta	12	
	Kunduvanipetta	103	
	Chinnagaganapeta	9	
		<i>Sub total</i>	598
Name of the District	Name of the Mandal	Name of the Village	No. of Respondents
East Godavari	Karapa	Uppalanka	68
		Uppalanka Mondri	29
	Tallarevu	Patavala	11
		Gadimoga	20
		Venkatayapalem	10
	Katrenikona	Kandikuppa	40
	Allavaram	Odalarevu	40
		N.Rameswaram	40
	U.Kothapalli	Uppada	50
		Subbammappeta	14
		Konnappapeta	3
		Mulapeta	13
	Kakinada Urban	Suryaraopeta	84
		Vakalapudi	42
		Fishing Harbour	14
	Mammidikuduru	Karavaka	15
	Shakinettipalli	Pallipalem	41
		Gondi	40
	I.Pollavaram	G.Moolapalam	40
		Annayipeta	4
Thondangi	Kothapeta	8	
	Yerrayipeta	8	
			8
		<i>Sub total</i>	659
		<b>Grand total</b>	<b>1257</b>

**Post assessment study questionnaire**

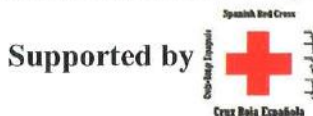
No

Date: \_\_\_\_\_  
(DD / MM / YYYY)



**Indian Red Cross Society**

Impact Assessment Study  
Tsunami Livelihood Project – 3739



**PART – A**

**General Information**

**1. Location**

- 1.1. State Andhra Pradesh
- 1.2. District.....
- 1.3. Mandal.....
- 1.4. Village/Hamlet.....
- 1.5. House No.....

**2. Project Activities in the Village/Hamlet [Not Applicable]**

**3. Beneficiary General Information**

- 3.1. Name.....
- 3.2. Age in Years [ ]
- 3.3. Gender: Male [ ] Female [ ]
- 3.4. No. of Family Members [ ]
- 3.5. No. of Working Family Members [ ]

**4. Occupation of Beneficiary**

- 4.1. Fishing [ ]
- 4.2. Fish Vending [ ]
- 4.3. Fish Drying (Sun) [ ]
- 4.4. Fish Smoking [ ]
- 4.5. Others .....

**5. Beneficiary of**

- 5.1. Ice Box [ ]
- 5.2. Fish Curing Tub [ ]
- 5.3. Smoking Bin [ ]
- 5.4. Fish Drying Platform [ ]
- 5.5. Dry Fish Storage Shed [ ]

**6. Activity wise information:**

- 6.1 How much distance do you travel to reach the market? [            ] Kms
- 6.2 What is the quantity of fish you generally buy/get per day?
- 6.2.3 Minimum quantity (Kg) [            ] per day
- 6.2.4 Maximum quantity (Kg) [            ] per day
- 6.3 At what price do you buy this fish?
- 6.3.1 Minimum cost per Kg Rs. [            ]
- 6.3.2 Maximum cost per Kg Rs. [            ]
- 6.4 How many days in a week you buy/get the fish? [            ] Days per week
- 6.5 How many months in a year you have this business? [            ] Months
- 6.6 How do you carry fish from landing centre?
- 6.6.1 Rickshaw [    ]    6.6.2 Bus [    ]
- 6.6.3 Auto Rickshaw [    ]    6.6.4 Walk [    ]
- 6.7 Which container do you use to transport the fish?
- 6.7.1 [    ] Traditional container made of bamboo/other wood
- 6.7.2 [    ] Aluminum Vessel
- 6.7.3 [    ] Ice Box
- 6.7.4 [    ] Thermacol
- 6.8 Do you use ice to store fish, if yes how much ice you use for 1 kg of fish? [            ] Kg
- 6.9 What is the cost of 1 Kg of Ice? Rs. [            ] Per Kg
- 6.10 How far the market is from your home? [            ] Kms
- 6.11 How much do you spend on traveling to market to sell fish? Rs. [            ]
- 6.12 Do you pay tax in the market, if yes then how much? Rs. [            ]

**7. ICE BOXES**

- 7.1 At what price do you sell fish?
- 7.1.1 Minimum cost per Kg Rs. [            ]
- 7.1.2 Maximum cost per Kg Rs. [            ]
- 7.2 What is the minimum amount (profit) do you get every day? Rs. [            ] per day
- 7.3 What is the maximum amount (profit) do you get every day? Rs. [            ] per day
- 7.4 What do you do if all the fish taken to the market is not sold?

7.4.1  Carry the same back to home, store with ice & next day take to Market

7.4.2  Carry the same back to home and dry it

7.4.3  The remaining is thrown away in waste

7.5 How much selling price do you get for fresh and dry fish of the same type?

7.5.1 Minimum selling price for 1 Kg dried fish Rs. [      ]

7.5.2 Maximum selling price for 1 Kg dried fish Rs. [      ]

7.5.3 How many kg of fresh fish are required to dry to get 1 kg of dried fish? [      ] Kg

## 9. FISH DRYING/SMOKING

8.4 Where do you dry the fish?

8.1.1  On sand/on soil

8.1.2  On net/on leaves

8.1.3  Fish Drying Platform/Smoking Bin

8.1.4  Others .....

8.5 If you are using smoking bin, what is its type?

(To be personally inspected by interviewer)

Type:  Traditional       Modern

8.6 If Modern then specify the condition

8.3.1  Good      8.3.2  Moderate      8.3.3  Bad

*Good : All the parts of the smoking bins are well maintain and smoke produced by burning the fuel is all most all coming out from the top of the smoking bin.*

*Moderate: Smoke is wasted and only the part of the smoke produced is coming out from the top of smoking bin.*

*Bad: Smoking bin is in broken condition and smoke produced is wasted significantly.*

8.4 How old is your modern smoking bin?

8.4.1  0-5 Years

8.4.2  >5 and <10 years

8.4.3  >10 years

8.5 At what rate per kg you can sell the fish dried on sand/soil and fish dried on fish drying platform?

8.5.1 Cost of 1 kg of fish dried on sand/soil is Rs. [      ]

8.5.2 Cost of 1 kg of fish dried on concrete platform (B) Rs. [      ]

8.5.3 Cost of 1 kg of fish dried using smoking bin(C) Rs. [      ]

8.6 If we construct fish drying platform in your village, will you use it?  Yes     No

**9. FISH CURING**

9.1 Do you cure fish before drying?  Yes  No

9.2 What is the material that you use for curing the fish?

9.2.1 Quantity of salt required to cure 1 Kg of fish [ ] Kg

9.2.2 Cost for 1 Kg of salt in Rs. [ ]

9.3 Do you have fish curing tub?  Yes  No

9.4 If yes, what does it made up of? (Write number)

9.4.1  Wood 9.4.2  Cement Concrete 9.4.3  Others .....

9.5 What is the total capacity (Kg of Fish) of fish curing you have? [ ] Kg

9.6 What is its condition? (To be filled in by the interviewer)

9.6.1  Good 9.6.2  Moderate 9.6.3  Bad

*Good: New, Moderate: old but in good condition, Bad: Broken*

9.7 How old is/are your curing tub/s?

9.7.1  0-5 years 9.7.2  >5 and < 10 years 9.7.3  > 10 Years

9.8 For how long you need to cure the fish? ..... Hours/Days

9.9 How often you need to replace your curing tub? [ ] Years

**10. DRY FISH STORAGE SHED**

10.1 Where do you store dried fish?

10.1.1  At home 10.1.2  In open space

10.1.3  In storage shed 10.1.4  Others .....

10.2 Do you loose the dried fish because of rain water?  Yes  No

10.3 If yes, how much dried fish you lost in last rainy season? Kg [ ]



**PART – B****Interviewer's Guide:****I - Efficiency:**

- Capacity - How much volume or space is available?
- Portability - How easy is it to move or transport?
- Duration - How much time is required to process (or) product can be accommodated?
- Hygiene - How clean/neat is it? How fish is preserved from dirt?
- Maintenance - How easy is it to look after/repair/annual cost?
- Durability - How strong/long lasting is it?
- Quality - How good are the features?

**II - Grades:**

- Very Good - 1
- Good - 2
- Satisfactory - 3
- Bad - 4

**1. EFFICIENCY OF THE FISH PRESERVING METHODS**

Description of the fish preserving equipment	Bamboo Basket	Aluminum Vessel	Thernacoal Box	Red Cross Ice Box
	Use Grades			
Capacity to preserve fish				
Portability of the equipment				
Duration of time to preserve fish				
Hygiene environment of the equipment				
Maintenance of the equipment				
Durability of the equipment				
Quality of the equipment				
Cost of the equipment				

**2. PRESERVATION/WASTAGE/QUALITY OF FISH**

Fish preserving equipment	Preservation of Fish	Wastage of Fish	Quality of Fish Preserved ( <i>Use Grades</i> )			
	No. of Days	Kg per Day	1-2 Days	3-4 Days	5-6 Days	Above 7 Days
Bamboo Basket						
Aluminum Vessel						
Thermacoal						
Red Cross Ice Box						

**3. EFFICIENCY OF THE FISH CURING METHODS**

Description of the fish curing equipment	Local Materials	Cement Concrete	Red Cross Curing Tub
	Use Grades		
Capacity to cure fish			
Portability of the equipment			
Duration of time to cure fish			
Hygiene environment of the equipment			
Maintenance of the equipment			
Durability of the equipment			
Quality of the equipment			
Cost of the equipment			

**4. CURING/QUALITY OF FISH**

Fish curing equipment	Duration to Cure	Quality of Fish Cured
	No. of Days	Use Grades
Local materials (Plastic tubs, Tyres, Etc.)		
Cement Concrete		
Red Cross Fish Curing Tub		

**5. EFFICIENCY OF THE FISH SMOKING METHODS**

Description of the fish smoking equipment	Traditional Smoking Bin	Local Made Smoking Bin	Red Cross Smoking Bin
	Use Grades		
Capacity to smoke fish			
Portability of the equipment			
Duration of time to smoke fish			
Hygiene environment of the equipment			
Maintenance of the equipment			
Durability of the equipment			
Quality of the equipment			
Cost of the equipment			

**6. SMOKING/QUALITY OF FISH**

Fish smoking equipment	Duration to Smoke Fish	Quality of Fish Smoked
	No. of Hours	Use Grades
Traditional Smoking Bin		
Local Made Smoking Bin		
Red Cross Smoking Bin		

**7. EFFICIENCY OF THE FISH DRYING METHODS**

Description of the fish drying method	On Sand/ Soil	Fish Nets/ Leaves	Red Cross Drying Platform
	Use Grades		
Capacity to dry fish			
Duration of time to dry fish			
Hygiene environment of the place			
Maintenance for the place			
Durability of the place			
Quality of the place			

**8. DRYING/QUALITY OF FISH**

Fish drying methods	Duration to Dry Fish	Quality of Fish Dried
	No. of Days	Rs. per Kg
On sand/soil		
Red Cross Fish Drying Platform		
Fishing net/leaves		

**9. EFFICIENCY OF THE FISH STORAGE METHODS**

Description of the fish storage method	Open Space	Thatched Huts	At House	Red Cross Storage Shed
	Use Grades			
Capacity to store fish				
Duration of time to store fish				
Hygiene environment of the place				
Maintenance for the place				
Durability of the place				
Quality of the place				

**10. STORAGE CAPACITY/PERIOD/SAFETY/QUALITY OF FISH**

Fish storage methods	Storage Capacity	Storage Period	Safety of fish	Quality of Fish
	Kg Per Day	No. of Days	Use Grades	Use Grades
Open Space				
Thatched Huts				
At House				
Red Cross Dry Fish Storage Shed				

**12. TRAINING/IEC MATERIALS**

How do you evaluate?	Very Good	Good	Satisfactory	Bad
	Use Grades			
Training				
IEC Poster				
Wall Paintings				

Name of the Interviewer : .....

Signature : .....

**Table - Post assessment study respondents**

Name of the District	Name of the Mandal	Name of the Village	No. of Respondents
Srikakulam	Vajrapukottur	Gunupalli	27
		Manchineelapeta	14
		Nuvularevu	24
		Kothapeta	12
		Devenaltada	21
	Mandasa	Ganguvada	10
		Balarampuram	12
	Gara	Mogadalpadu	12
		Perlavanipeta	9
		S.Mathykesham	12
		Bandaruvanipeta	29
		M.Sunapalli	11
	Santabommilli	Geddallapadu	12
		Bhavanapadu	12
		Joggampeta	10
	Polakki	Guppipeta	10
		D.Matsyalesam	13
	Etcheria	Budagutlapalem	32
		Battivanipeta	9
		Uppalam	24
Sompeta	Iskapalem	21	
	Peddakarivanipalem	11	
Kaviti	Kottpalem	12	
	Kapasukkudi	30	
	Allivalasa	9	
Ranasthalam	Pothayapeta	11	
	Guralpeta	13	

		Jagannathapuram	4
		Chinnakolluru	6
		Chikathipeta	3
		Jeerupalem	18
	Ichapuram	Donkuru	14
		Peddaganagalapeta	7
	Srikakulam	Kunduvanipetta	49
		Chinnagaganapeta	10
		<i>Sub total</i>	533
Name of the District	Name of the Mandal	Name of the Village	No. of Respondents
East Godavari	Karapa	Uppalanka	68
		Uppalanka Mondri	31
	Tallarevu	Chinnavalasa	15
		Patavala	15
		Venkatayapalem	12
	Katrenikona	Kandikuppa	40
	Allavaram	Odalarevu	40
		Komaragiri Patnam	2
		N.Rameswaram	37
	U.Kothapalli	Uppada	51
		Subbammappeta	26
		Konnappapeta	4
	Kakinada Urban	Suryaraopeta	108
		Vakalapudi	42
		Fishing Harbour	15
	Mammidikuduru	Karavaka	15
	Shakinettipalli	Pallipalem	41
		Gondi	40
	I.Pollavaram	G.Moolapalam	40
		Annayipeta	4
Thondangi	Kothapeta	4	
	Yerrayipeta	11	
	<i>Sub total</i>	662	
		<b>Grand total</b>	<b>1195</b>

## Training pre and post assessment format

## TRAINING OF FISHER FOLKS IN EAST GODAVARI DISTRICT PRE AND POST ASSESSMENT

No. of participants: 50

Date:	Venue:	Time:			
<b>Ans</b>	<b>Assessment quiz on ice box</b>		<b>T</b>	<b>F</b>	<b>D</b>
F	It is hygienic to wash ice box with chemicals				
T	Using crushed ice will help preserve fishes in the ice box for a longer time				
F	Fishes stored in the ice box should not be kept in shady places				
F	Open frequently the ice box to check the quality of the fishes				
F	Place unsold fishes at the bottom and fresh fishes on top in the ice box				
T	After selling fishes wash the ice box with warm soapy water and dry it				
<b>Ans</b>	<b>Assessment quiz on fish curing tub</b>		<b>T</b>	<b>F</b>	<b>D</b>
T	Wash the curing tub with warm soapy water and avoid using chemicals				
F	Using sea salt to cure fishes will affect its quality				
F	Store fishes in the curing tub and keep the tub open in the sun for 24 hrs				
F	Insects and pests in the surroundings will help in the curing process				
T	Wash the curing tubs after use and dry the tubs				
<b>Ans</b>	<b>Assessment quiz on smoking bin</b>		<b>T</b>	<b>F</b>	<b>D</b>
F	It is not good to clean the smoking bin with a cloth dipped in oil.				
T	Keep a layer of coal and make fire by opening all doors and the chimney				
F	Arrange the fishes in racks and don't shuffle the racks				
T	Clean the surroundings of the smoking bin and provide space for ventilation				
F	Take out the fishes and store them immediately				
F	Clean the smoking bins with warm soapy water after smoking				
<b>Ans</b>	<b>Assessment quiz on fish drying platform</b>		<b>T</b>	<b>F</b>	<b>D</b>
T	Clean the fish drying platform with water and leave it to dry for an hour.				
F	Scatter the fishes on the platform to dry				
T	Fishes should be dried on the platform for a couple of hot sunny days				
F	Store the dried fishes in a bag and keep it in a closed place to reduce the stink				
T	Clean the fish drying platform with water and leave it to dry				
<b>Ans</b>	<b>Assessment quiz on dry fish storage shed</b>		<b>T</b>	<b>F</b>	<b>D</b>
F	Don't clean the dry fish storage shed with water because it will spoil the stock				
T	Place the fish in sacks orderly arranged on one side of the dry fish storage shed				
T	Fishes should be processed in the shed without littering the area				
F	The surroundings of the storage shed should not be cleaned				
F	No need to record activities in a register & there is no need to maintain the assets				
<b>Ans</b>	<b>Assessment quiz on fisheries department schemes</b>		<b>T</b>	<b>F</b>	<b>D</b>
F	Anyone can become a member of the fisheries cooperative society				
F	Family members of the deceased can get all benefits from the fisheries dept				
T	Every individual or community owning boat should be registered in the dept				
T	Relative of the member of fisheries cooperative has opportunity to avail benefits				
F	Fishing can be done anywhere in the sea throughout the year				

[Note: Ans-Answers for the quiz, T-True, F-False, D-Don't know]

**Resource person I**

Signature :

Name :

**Resource person II**

Signature :

Name :



Indian Red Cross Society



Cruz Roja Española