

DRAFT

REPORT OF TRAVEL TO

INDIA

11 - 28 MAY 1997

Training in Sea Safety
Development Programmes

TCP/IND/6712(T)

by

J.M.M. TURNER

Senior Fishery Industry Officer



Food and Agriculture Organization of the United Nations
Rome, May 1997

Summary

Following the swift approval of TCP/IND/6712, Training in Sea Safety Development Programmes, the Project Operations Officer of the FAO Regional Office for Asia and the Pacific requested an FAO staff member to visit India to check on all matters relevant to the effective implementation of the project. The technical division concerned (FIIT) had previously expressed considerable misgivings about the project.

All matters relating to disaster preparedness and damage mitigation are the responsibility of specified Federal, State and District Authorities who are also responsible for the coordination of all such activities. It is therefore of concern that the project document was not developed with reference to these authorities. Following discussions with all concerned and available personnel, and following detailed investigations within the project area, the target groups and main activities of the project are clarified and elaborated to reflect the prime and distinct causes of loss of life during the cyclone. In the interest of timely implementation, it is recommended that these clarifications are agreed between FAO and GOI through an exchange of letters as opposed to a formal project revision.

Additional training activities are proposed for which it is recommended an International Consultant Naval Architect is recruited for a period of one month.

Amongst several desired prerequisites to project implementation is the necessity to obtain a number of clearances and authorizations for the construction of two radio towers, and subsequent installation of radio stations and vessel mounted radio equipment. It is recommended that the project commence forthwith to enable recruitment of the National Consultant (Radios) who will expedite the necessary clearances, guide procurement and install the radio communications equipment. To achieve these activities, his consultancy should be increased from 5 to 6 months. The project duration should also be extended by the time required to obtain these clearances, which was estimated as being about 3 months. It is recommended that the Team Leader should commence his first mission in September 1997, conditional on the completion of the above and a list of further prerequisites.

A proposal to co-host (GOAP/FAO) a workshop entitled "Measures to Reduce Loss of Life amongst Fisherfolk during Cyclones" was enthusiastically endorsed by the State Commissioner of Relief, who will commit resources to ensure its effectiveness and chair a task force committed to the organizational aspects. It is proposed to hold the workshop in Visakapatnam in December 1997, though this remains subject to the approval of the Ministry of Agriculture, Delhi. It is recommended that the Project Team Leader should make an additional visit to India to participate in the workshop.

CONTENTS

	<u>Page</u>
Summary	
1. <u>Background</u>	1
2. <u>Findings</u>	1
2.1 The Cyclone	1
2.2 Cyclone forecasting, Cyclone Warning Systems and Evacuation	3
2.3 Base line survey	4
2.4 Workshop proposal	5
2.5 Matters relevant to the effective implementation of the project	5
2.6 Preliminary assessment of measures which are likely to be effective in reducing loss of life amongst fisherfolk.	6
3. <u>Project Implementation</u>	8
3.1 Target group and activities	8
3.2 National project staff and consultant selection	9
3.3 Prerequisites	9
3.4 Equipment procurement	10
3.5 Workplan	11
4. <u>Summary of Recommendations</u>	11
Annexes	
1. Terms of Reference	
2. Itinerary and Persons met	
3. Map of Project Area	
4. Cyclone track Nov 96	
5. Terms of Reference for Base Line Survey	
6. FAO/Department of Fisheries Workshop Proposal: Draft outline "Measures to reduce loss of life amongst fisherfolk during cyclones"	
7. Cyclone track Dec 96	
8. Terms of Reference for Naval Architect	
9. Equipment cost estimates and specifications inc. engines Kirloskar	
9.1 Radio equipment	
9.2 Inboard engines	
9.3 Safety equipment	
10. Project Workplan schedule	
11. Acronyms	
12. Bibliography	

1. Background

As a result of a request for assistance by the Government of India following the cyclone which occurred in November 1996 in the State of Andhra Pradesh, an FAO national consultant drafted a TCP proposal which was subsequently approved (TCP/IND/6712 Training in Sea Safety Development Programmes). The FAO Regional office in Bangkok, having responsibility for operation of the project, requested an initial backstopping visit by an FAO staff member to discuss matters relevant to the effective implementation of the project and ascertain prerequisites for project inception. (TOR are attached as per Annex 1). Travel to the project area provided the opportunity to review the relevance of the objectives and activities of the project document.

2. Findings

2.1 The Cyclone

The coastal area of East Godavari District (Andhra Pradesh State) is characterized by the delta of the Godavari River, with low lying plains, many estuary islands, poor roads and communications, highly fertile land, and extreme vulnerability to flooding as a result of the storm surges and rain induced by cyclones (see Map of Project Area, Annex 3).

Due to the fertile nature of the Godavari River delta, East Godavari District is the most densely populated District in the whole of Andhra Pradesh. Furthermore, the population density of the Konaseema area (the coastal strip worst effected by the cyclone) is, at 800 people per km², more than double that of the District. The level of literacy (42%) measured at state level is amongst the lowest in the whole of India. Within the more remote fishing villages, it is probably far lower. Being a delta, it is very flat and little land is higher than 2 metres above sea level. During the storm surge resulting from a severe cyclone, sea level is increased by between two and four metres.

A report by the Indian Meteorological Department (IMD) notes that of all natural disasters, cyclones account for about 64% of lives lost. The major causes of cyclone damage are strong winds, storm surges and torrential rains. Of these, the most destructive phenomenon is the storm surge, which accounts for more than 90% of loss to life and property.

From data supplied by IMD, the frequency of severe cyclones crossing the coast of Andhra Pradesh is estimated at about one per year. Given that the width of the destructive path of the cyclone is about 30 km, and the length of the coastline is about 1000 km, it would seem that a given location will be seriously affected on average once every thirty or so years.

A cyclone was detected early on 5 November by IMD, and warnings were communicated to the concerned State and District Authorities. The cyclone followed a straight Westerly course, crossing the East Godavari River delta between 2000 and 2200 hours on 6 November (see cyclone track November 1996, Annex 4). Fishermen reported the sudden arrival of the cyclone, and the lack of normal natural warning signs (i.e. cloud and rain). The final dissemination of warnings by bicycle messengers in the most remote areas did not take place due to the speed of advance of the cyclone. It was reported that in some less remote

areas, the messengers issuing the warnings were met with derision by the fisherfolk. Maximum wind speeds reached 220 km/hour, and the storm surge was reported as 2.2 metres in height.

From information supplied by the Department of Fisheries, approximately 1435 fisherfolk were reported as dead or missing (assumed dead) in the Kakinada, Rajahmundry and Amalapuram Divisions of East Godavari District. Of these, 569 were reported to have been lost while fishing in mechanized boats at sea, while 830 fisherfolk were lost while carrying out shrimp seed collection and other shore-based activities in areas remote from the villages. **The causes of death in these two activities are of a totally distinct nature, wherein the former were lost at sea due to high winds and heavy seas, and the latter through the storm surge on land.** The remainder (36) died largely due to collapsing houses and falling trees.

Of particular significance is the number of fisherfolk (approx 10,000) who survived the storm surge whilst sheltering in the two worst affected villages (Bhairavapalem and Balusutippa). Their survival cannot be attributed to intervention by the concerned State or District authorities. The four cyclone shelters in these two villages were deemed unsafe by the fisherfolk and were not used. Fisherfolk took refuge in the few recently constructed houses built of reinforced concrete; children were placed on high shelves while adults stood with water up to chest level. **None of the official written or verbal reports provided to the author acknowledge the fact that the storm surge passed through the area at low tide (2235 hours). Had the cyclone occurred 6 hours earlier or later, it is estimated that many of these 10,000 fisherfolk might also have been lost.**

Fisherfolk engaged in seed collection carry out their activities in locations remote from their villages, living in temporary camps on the beaches of the islands in the River Godavari estuary. As the storm surge passed through, no form of shelter was available. Shrimp seed collection is reportedly a diminishing form of income generation due to the success of hatcheries in the vicinity.

The Fisheries Development Officer with responsibility for Bhairavapalem reported that 25 mechanized fishing vessels (out of a local fleet of 80) were at sea on the day of the cyclone, and on receipt of the normal radio warnings had delayed before heading for the nearest land because they did not anticipate bad weather, and because the fishing was good. As the weather deteriorated, the vessels simply aimed for the shore. No lives were lost. Photographs taken by the fishermen showed the extent of damage to the vessels, reportedly taken up to 2 km inshore.

Fishery officials and representatives of fishermen operating the 400 strong Kakinada based fleet of mechanised boats reported the loss of 110 boats and 569 crew members. Most of the affected vessels had departed Kakinada several days before the cyclone, operating along the coast to the north and south of Kakinada though not beyond the 70 fathom line (typically 35 km offshore and well within range of All India Radio (AIR) transmissions). Some vessels, though not the majority, carry transistor radios (but no VHF's) and had heard the warnings, but the fishing was reported as good. It was also reported that there was heavy radio interference with the weather forecasts.

From the 110 boats lost, about 100 survivors swam or drifted to shore. From them it was possible to ascertain that boats had either capsized or foundered. Few liferafts or lifejackets (if any) were carried. Survivors described how they had been able to hold on to insulated hatches. On a separate occasion, an official noted that liferafts are not normally carried because hatch covers serve that purpose - without appreciating that hatches should be battened down in bad weather to reduce the risk of sinking or foundering. **Survivors noted that while they had drifted for up to 36 hours before landing ashore, a proportion of the 569 lost might have been saved had there been a timely Search and Rescue (SAR) response.**

Fishermen representatives noted that although in the neighbouring state of Orissa, mechanized boats tended to follow the tradition of no fishing during the months of March - May, no such tradition existed in Andhra Pradesh.

2.2 Cyclone forecasting, Cyclone Warning Systems and Evacuation

The State Department for formulating, controlling, monitoring and directing measures for disaster preparedness and for organizing rescue, relief and rehabilitation is the Revenue Department of the State Secretariat. Cyclone forecasting is generally the responsibility of the IMD while cyclone warning dissemination is the responsibility of the State Government. A State Level High Power Standing Committee (SLHPSC) functions under the Chairmanship of the Chief Secretary, having more than 50 members representing State Departments, Army, Navy and Airforce, Red Cross, Telecommunications, Railways, Irrigation, Food Corporation, etc. Secretary to the Committee is the Commissioner of Relief. On receipt of a cyclone alert from IMD, it is communicated to senior officials of the SLHPSC and repeated throughout the State to Districts and Divisional Officers, as well as All India Radio (AIR), Police, Port Authorities, the Forces, etc. The procedures for warning dissemination as well as subsequent actions are set out clearly and in great detail in the Cyclone Contingency Plan of Action issued by the Revenue Department.

In Delhi, during a meeting with IMD, the Assistant Director General posed the rhetorical question that if the cyclone forecasting and warning dissemination systems were effective (as was believed to be the case), why were so many lives lost during cyclones. In this respect, the IMD is to be commended for commissioning a study "Human Response to Cyclone Warnings" which was carried out in association with an NGO, and which concluded that education concerning appropriate precautions would be of value in the event of a cyclone alert and that means of receiving messages of cyclone warnings at sea should be provided. It also concluded that sufficient cyclone shelters exist in most places, and are accessible although this conclusion is not consistent with the findings of this report with respect to remote though densely populated coastal areas. The IMD report has not been published or widely distributed.

According to a report from the well respected Economic Times newspaper, "India has a very good and unique cyclone warning system based on satellite synoptic observations and a network of coastal radars coupled to a network of S-band receivers. The receivers can be selectively activated as soon as atmospheric conditions indicate development of a cyclone which gives a 48-hrs warning. Siren signals are sounded and radio warnings in local language are broadcast. In case that a cyclone changes its course, this procedure is re-

directed to the coastal area to be affected". The Collector and District Magistrate¹ reported that in fact the system did not operate well; DOF were not aware of its existence.

Following the cyclone of 1990 which caused heavy damage in Krishna District, a scheme was set up by the Department of Fisheries in Machilipatnam to alert artisanal fishermen of approaching cyclones through a VHF radio system. Having a budget of 1 crore rupees (approx US\$280,000), the project set out to provide radio warnings with a purpose built radio station, and the distribution (without cost) of 125 handheld walkie talkies. The project has not been a success due to problems with the transmitting power, and lack of current to the transmitter. Only about 55 sets have been donated to date. To assist with operating costs, DOF has recently imposed a monthly charge of Rs 50 to all radio set recipients.

The Collector and District Magistrate was aware that there were only 140 cyclone shelters in his district, and acknowledged that this was too few. Furthermore, he appreciated that due to the lack of roads and bridges, many villages were not readily accessible. Also, that in the case of carrying out a total evacuation procedure, he would not have access at short notice to the required numbers of buses and lorries to transport tens of thousands of villagers. In any case it is suggested that many of the roads to the less accessible (and more vulnerable) villages, being rather narrow, and placed atop the man made bunds, would become blocked by the traffic transporting the evacuees.

It is therefore perhaps not surprising that at the time of my visit, he initiated high alert procedures, including a ban on mechanized fishing, as a result of the satellite TV and other coverage of the cyclone heading north through the Bay of Bengal towards Bangladesh, even though at that time, it appeared unlikely to constitute a threat to the East Coast of India. By issuing such a warning, he appeared not to be following the prescribed procedure whereby a report should have been issued from either or all of the IMD Delhi, IMD Visak, the Relief Commissioner the Andhra Pradesh Secretariat. While conceding that such actions could diminish the effectiveness of cyclone warnings, he considered a precautionary approach should be favoured over inaction.

2.3 Base line survey

Since the project is primarily of a "pilot" nature, a base line survey will be undertaken to ensure a comprehensive understanding of the current demographic situation within the project area, and to provide a basis for future evaluation and impact assessment. It should be noted that adjustments may be made to the findings of this report in the light of the survey.

The project was discussed in detail with Dr Jacob Raj, Executive Secretary of the India Rural Reconstruction and Disaster Response Service, and a terms of reference (attached as Annex 5) was drawn up. This NGO has experience in the setting up of Community Task Forces for disaster mitigation in Krishna District (south of East Godavari), and has close links with the University of Delft in this respect. Dr Raj expressed interest and a willingness for his organization to carry out the baseline survey for which arrangements will be finalized by FIIT and forwarded to RAP for recruitment.

¹ The State is administratively divided into Districts, Divisions (Taluks) and Subdivisions (Mandals). The Government's representative at District Level is the Collector and District Magistrate.

2.4 Workshop proposal

FAO had proposed to hold a workshop to review the results of the base line survey and identify strategies leading to improved safety at sea. The Commissioner of Relief fully endorsed the proposal, and suggested that the scope and participation be expanded (see Annex 6). The Government of Andhra Pradesh will make a substantial financial contribution, while the TCP will commit funds from the training budget line to ensure a regional dimension. Further to discussion, it was agreed that the workshop should review the effectiveness of, and attempt to identify areas for improvement in:

- Cyclone Warning Dissemination Systems for fisherfolk
- Evacuation and other emergency measures which reduce loss of life amongst fisherfolk
- Search and rescue procedures

The burden of organization of the workshop will be considerable, and in this respect, the Commissioner of Relief made the welcome proposal that he would chair a task force having that function. He noted he would also draw the workshop to the attention of the State Level High Power Standing Committee for Disaster Preparedness.

Subject to clearance by, New Delhi, the workshop will take place at Visakapatnam in December 1997. The Workshop will be regional in its scope, and will be attended by TCDC experts from the Bay of Bengal countries. It is recommended that the Project Team Leader should make an additional visit to India for three weeks to ensure that all final arrangements are in place, to participate in the workshop, and to write the workshop report. At that time, he will also meet with project staff and review project progress. It is also recommended that FAOR Delhi write to the Ministry of Agriculture, advising them of these events, and requesting their clearance.

2.5 Matters relevant to the effective implementation of the project

As noted earlier, all activities related to State interventions required as a result of natural disasters are coordinated by the SLHPSC which meets regularly at State level; the Member-Secretary to this committee is the Commissioner of Relief. Coordination and direction of activities at District level are under the charge of the Collector and District Magistrate.

The project contains a number of activities (and it is envisaged that more will be added during execution) which concern the Committee and are within the scope of the Commissioner of Relief and the Collector and District Magistrate, including:

- improvements to the storm warning advisory system
- improvements to the broadcast of marine weather forecasts and storm warnings on commercial radio stations
- establishment of storm safety committees at participating fishing villages
- installation of two radio stations (which in itself requires authorization from at least 5 distinct bodies)
- installation and licensing of VHF radios on vessels

During meetings with the State Commissioner of Relief and the Collector and District Magistrate, it was noted that the TCP project proposal had been formulated without reference to their respective offices. While clearance by these offices of the majority of activities is not required, it was agreed that in future they would be kept closely informed of project activities through regular meetings with project staff and concerned officers at State and District level. During other meetings, it became apparent that a number of authorizations would be required in connection with the erection of the radio tower, installation of a radio station, as well as for the installation and operation of VHF sets on mechanized fishing vessels.

The Collector and District Magistrate who had been only recently appointed (following the transfer of his predecessor shortly after the November 96 cyclone) was also unaware of the project, and particularly requested that project activities be dovetailed with Regular District Administration.

The proposal calls for the nomination of two national consultants (recruited by FAO), one of whom is to act as the National Project Director. Furthermore, this consultant is to be recruited for a period of five months over the 12 month duration of the project. Since this situation could lead to implementing and administrative difficulties, the Fisheries Development Commissioner, Delhi, agreed to nominate the Director of Fisheries, Andhra Pradesh for the post of National Project Director.

The project HQ will be in the Fisheries Terminal Organization of the Kakinada DOF Office. It is close to large numbers of mechanized and traditional fishing craft, and will be the site of one of the two radio stations. It is approximately 1½ hours traveling time from Bhairavapalem and 3½ hours from Balusutippa. It was confirmed that the facilities listed under section VI of the project document (Government Contribution) will be provided i.e. secretarial assistance, telephone, fax and office space etc.

The project document contains a number of references to monitoring, reporting and evaluation without sufficient indication of the recipient of some of these reports. It is suggested that this matter be reviewed by the team leader.

2.6 Preliminary assessment of measures which are likely to be effective in reducing loss of life amongst fisherfolk

Following senior level meetings with the three main authorities concerned with cyclone forecasting and warning dissemination (i.e. IMD, State Commissioner of Relief and the District Collector and Magistrate) as well as a visit to the areas most badly effected by the Nov 96 cyclone, it is possible to make a preliminary assessment of measures which are likely to be effective in reducing loss of life amongst fisherfolk. The assessment is put forward below not as a recommendation, but is suggested for further consideration by the concerned authorities as well as by the Base Line Survey mission. Selected measures have been included in an indicative workplan which will be reviewed by the Team Leader.

Assistance measures to fisherfolk in the project area concerning cyclone disaster management must recognize the distinct circumstances of the two major groups where heavy loss of life occurs, i.e. fishermen at sea in mechanized fishing vessels, and fisherfolk operating on land and in small traditional boats in the estuaries. Measures should also take

into account the low frequency of severe cyclone occurrence (roughly once every thirty years for a particular location), low life expectancy, and thus possibly only a vague recollection of the event by inhabitants of that location.

In the event of a cyclone passing over a coastal areas, loss of life to fisherfolk communities can be reduced either through **evacuation or protection** (i.e. shelter in well designed and constructed buildings). The problems of evacuating an area characterized by many estuary islands, few and narrow roads and poor communications, and high population density are clear, and are further exacerbated if the majority of that population does not want to be evacuated. Evacuation would only be feasible if the exercise commenced 48 hours prior to the onset of the cyclone. But at that time, the precise point at which the cyclone will strike is not known (the width of the cyclone belt of destruction is between only 15 and 50 km and it's path can be erratic, (see cyclone track December 1996, Annex 7), and thus the area of evacuation must be spread wider. There still remains the problem of evacuating large numbers (though widely dispersed) of fisherfolk living in makeshift camps beyond even the remote villages.

The populations of Bhairavapalem and Balusutippa did not evacuate their villages, yet survived through taking shelter in a few good quality houses. There is every reason to believe that fisherfolk working in more remote areas, assuming that they understood danger was imminent, could have taken refuge in cyclone shelters, had such shelters existed within the vicinity. Cyclone shelters in the villages visited were in a poor state of repair, and were not used. The extreme reluctance of fisherfolk to evacuate, and thus leave their homes, boats, fishing gear, stores and livestock must be taken into consideration. Thus measures mentioned here dwell on issuance of clear and readily comprehensible warnings, the provision of safe shelter and means of rapid access to those shelters, as well as on the improved design, construction and equipment of mechanized fishing vessels.

- The response by fisherfolk to cyclone warnings forms an important component for damage mitigation. Clear and comprehensible information about the nature of cyclones, forecasting and warning dissemination to fisherfolk through extension workers, TV programmes and radio messages should be provided. Training to permit fisherfolk to understand the cyclone forecasts seen on BBC and CNN satellite TV (which were noted as being installed in these remote villages) might be of value.
- Provide radio cyclone warnings through VHF transceivers to mechanized boats at sea and to community leaders/village elders, with particular emphasis on language (dialect) and simple format. It is probable that two-way communications might be employed to emphasize the gravity of the situation.
- Improve the standard of construction, maintenance and safety of mechanized fishing vessels and equipment, particularly with regard to stability and watertight integrity through the provision of training to designers, builders and operators of these vessels. Provide such craft with liferafts and lifejackets.
- Investigate the use of "Verry Pistols" for use by community leaders/village elders to alert fisherfolk remote from the villages
- Increase number of cyclone shelters, selecting strategic sites to facilitate access by fisherfolk working in very remote areas. Improve their design and standard of construction. Ensure fresh (not saline) water is used in the concrete mix. Promote use of shelters as community centres, schools and hospitals and make villages responsible for their maintenance (costs of maintenance provided by Government).

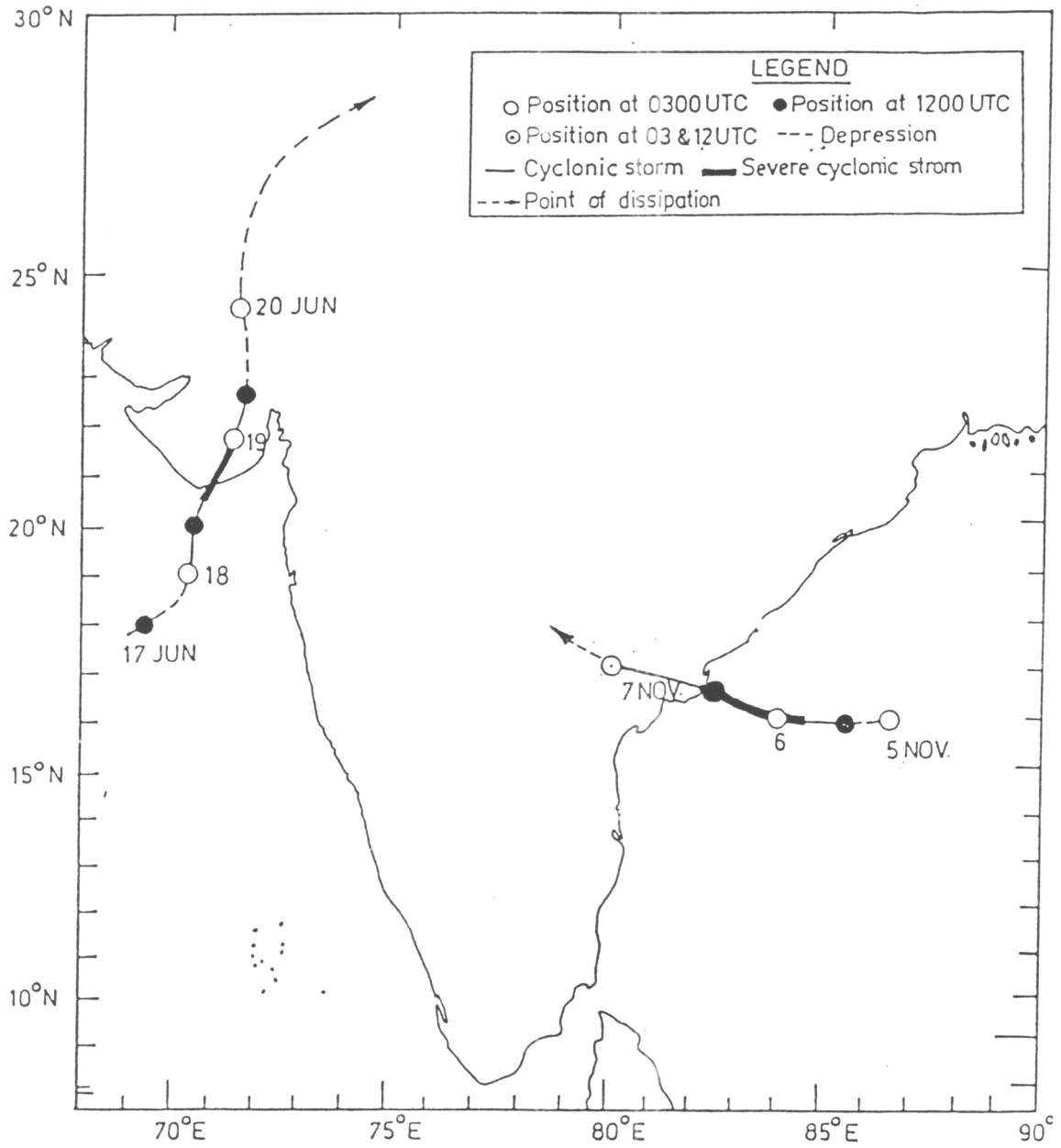


FIG. A2

TOR Base Line Survey. Duration 4 weeks

Locations Bhairavapalem and Balusuttippa, and nearby villages

In preparation for the implementation of TCP/IND/6712, and to increase its effectiveness, the consultant will, in collaboration with the DOF officials designated to the project, and other concerned authorities:

- carry out a study of the area with the assistance of topographical maps, and investigate the reasons for the effect being more severe on these villages rather than others. To what extent has coastal development effected the natural resistance of the topography to cyclone damage
- obtain a demographic profile of the villages, with population detailed by gender, age, education, wealth and occupation. Also numbers, sizes and types of fishing craft and gear (not necessarily operated from craft), whether or not motorized. Description of major distinct population groupings. Normal survival strategies. Effects of motorization. Traditions of weather forecasting
- describe services provided to the villages - education health water electricity phone extension, etc.
- investigate the nature of fishing operations, types of damage which occurred fishing vessel crew profiles, fishermen's responses to crises at sea and on land, survival strategies, and their perceptions of strategies for increased safety
- identify the gender, age and occupation of those dead or missing, as well as a general description of the exact circumstances of their deaths
- investigate the current procedures for cyclone warning dissemination and subsequent actions which should take place in respect of remote villages. What are the constraints to evacuation. Evacuation v protection.
- investigate the warnings actually received in the villages, the channels through which the warnings were received, the resultant reaction to these warnings, the numbers of persons evacuated
- describe the rescue and assistance services put into place following the cyclone, and their effectiveness
- recommendations concerning improvement of CWDS and measures to decrease loss of life in these and similar villages
- Recommendations on choice of beneficiaries (and appropriate terms) concerning distribution of equipment provided by the project.

The report will include a 3 page summary, and will be provided on hard copy and on disk in Word 6 format.

FAO/Department of Fisheries Workshop Proposal: Draft outline

Measures to reduce loss of life amongst fisherfolk during cyclones

During the implementation of project TCP/IND/6712, a workshop will take place to review the effectiveness of, and attempt to identify areas for improvement in:

- Cyclone Warning Dissemination Systems for fisherfolk
- Evacuation and other emergency measures which reduce loss of life amongst fisherfolk
- Search and rescue procedures

Venue Visakapatnam
 Duration 4 days
 Dates December 1997

Participants:

Commissioner of Relief (AP, TN and Orissa)	6
IMD Delhi and Visak	2
Department of Ocean Development	2
DOF	10
Coastguard/Military	2
Ports/MMD	2
PWD	2
GOAP	3
World Bank/Chakrapani	2
AIR/Doordeshan	1
Red Cross	1
ODA project	1
FAO HQ/BOBP	2
FAO project staff	3
District Collectors	6
TCDC resource persons*	4
NGOs	5
INGOs	2
Fishermen's representatives	10
Total	approx 60

* Bangladesh, Indonesia, Philippines, Sri Lanka

- Offer appropriate incentives to increase the number of reinforced concrete houses, and particularly encourage the construction of two floor houses, designed to withstand typical cyclone storm surges.
- Promote the motorization of appropriate traditional craft to fast means of passage to cyclone shelters by fisherfolk from remote areas.
- Investigate the possibility of “last minute” cyclone danger warnings by coastguard/air force aircraft dropping flares/smoke/sound warnings whilst overflying the area where the arrival of the cyclone is imminent. Such an exercise by Air Force jets would cost no more than a routine training mission. Given that the cyclone accelerates as it approaches the coast to around 30 km/hour, it should be possible to provide at least 4 hours warning without putting the aircraft at risk (if this need be a consideration). This suggestion was made during several meetings; responses varied from derision to serious consideration.

3. Project implementation

3.1 Target group and activities

The project document essentially addresses the issues which are required, and are within the competence of the project staff. However, it is felt that certain aspects could be more specific to ensure maximum effect and eventual impact of the project.

The target group should be more clearly defined as fisherfolk operating from the East Godavari coast in mechanized, motorized and non motorized craft, including fisherfolk involved in shrimp seed and shellfish collection, with particular emphasis on fisherfolk from the villages of Bhairavapalem and Balusutippa, and the mechanized fleet based at Kakinada.

In addition to the activities specified in section III of the Project Document, it is recommended that the following activities (extracted from the proposals of the previous section and subject to revision as appropriate following the findings of the Base Line Survey mission) should be included. A detailed work plan should be elaborated by the Team Leader.

General

- Provide information about the nature of cyclones, forecasting and warning dissemination to fisherfolk through extension workers, TV programmes and radio messages is required. Training to permit fisherfolk to understand the cyclone forecasts seen on BBC and CNN satellite TV (which were noted as being installed in these remote villages) might be of value.
- Provide extra radio cyclone warnings to fisherfolk, particularly to mechanized boats at sea, and also to community leaders/village elders, with particular emphasis on language (dialect) and simple format.

Mechanized fishing boat operators and crew

- Provide VHF radios
- Provide training in installation, maintenance and operation of VHF radios
- Ensure radio operators are issued with licenses

- Generate interest in the use of radios through the transmission of useful and interesting information.
- Carry out training and workshop in improved design, construction and maintenance of vessels and safety equipment
- Provide safety equipment to identified beneficiaries

Land based fisherfolk

- Identify beneficiaries and provide inboard diesel engines and sterngear for motorization of country craft
- Provide training in installation, operation and maintenance of engines
- Identify strategic locations for additional cyclone shelters within the project area

3.2 National project staff and consultant selection

The Fisheries Development Commissioner, Ministry of Agriculture, will nominate the Director of Fisheries, Government of Andhra Pradesh for the post of National Project Director.

At the time of writing, GOI has not yet submitted nominations for other national project staff, and these are awaited. Nominations have been submitted for the posts of two National Consultants, and these will shortly be reviewed by FAO.

It is recommended that an International Consultant Naval Architect be recruited for a period of one month to provide training inputs (TOR attached under Annex 8)

It is recommended that the terms of reference of the National Consultant (Radios) be amended (the duration of the consultancy be extended from 5 to 6 months) to include as follows:

The Consultant will assist the DOF in obtaining all necessary clearances and authorizations concerning the construction of two radio towers, and installation and subsequent transmission of the radio transceivers, both on land and on sea. He will ensure the towers and transceivers conform with National and State Regulations, and will supervise and test the installation of the radio equipment to the complete satisfaction of the competent authorities and the Team Leader. He will determine the appropriate specifications of all radio equipment to be purchased by the project, and obtain preliminary cost estimates from local suppliers.

3.3 Prerequisites

Prior to arrival of the Team Leader, a number of activities must be carried out:

- Clearance for tower erection and radio shore station required from at least police and fire departments, airports authority, Shore Area Development Authority (SADA - to meet Coastal Zoning Regulations), and the Wireless Planning and Coordination (WPC) of the Ministry of Communications

- Fishing vessel VHF operator licenses from WPC to use certain frequencies with marine band (156 - 162 MHz) - must include channel 16. It is understood that a block application for such licenses may be made.
- Radio towers should be erected.
- Base line survey to be completed
- Renovation of the project headquarters at the port operations terminal, Department of Fisheries. Installation of telephone and fax machine.

Unfortunately, senior staff from the Animal Husbandry and Fisheries were unavailable to assist with clarification of the required clearances, or the likely period required to obtain all necessary clearances and authorizations. This point is currently being clarified by the Fisheries Development Commissioner, Delhi.

It will be noted that the list of prerequisites pertain to the arrival of the Team Leader, rather than to implementation of the project. This is to facilitate in particular the installation of the shore radio stations which, in turn, requires recruitment of a National Consultant (Radios) as well as procurement of equipment. It is understood that such activities (project staff recruitment and equipment procurement) require that the project is in the process of implementation. The National Consultant (Radios) reports that this work should be completed by end August, and thus implies a project extension of three months.

3.4 Equipment procurement

All costs requested from potential suppliers referred to below are for indicative purposes only, and to permit quantities to be included in tender documents.

Radio equipment specifications and costs have been obtained (attached as Annex 9.1).

The outboard motors (OBM) listed under Equipment are not used in the project area, and are considered inappropriate. It is recommended that this item is replaced by 10 HP diesel inboard motors (20 units) for nava motorization.

Engine specifications and costs of appropriate inboard engines have been obtained (attached as Annex 9.2).

Life saving equipment (life rafts, life jackets and life buoys) specifications and cost estimates have been obtained (see Annex 9.3).

Costs provided by suppliers indicated in Annexes 9.1 and 9.3 are high, and it is recommended that these items are purchased following international tender.

It was agreed during consultation with DOF and representatives of mechanized fishing vessel operators that radios and liferafts provided by the project to owners of mechanized fishing vessels should be sold at 50% cost price to ensure commitment and care in installation and maintenance. Funds so collected by DOF/project should be used to provide more of the same equipment.

It is recommended that following approval by FIIT of specifications and indicative costs, the following equipment be purchased through international tender to arrive prior to the arrival of the team leader:

All shore based radio transceiver equipment (60 km range) for two shore stations

50	VHF marine sets, including all ancillary equipment required for correct installation and operation
25	Liferafts/floats
100	Lifejackets
100	Lifebuoys
20	10 HP single cylinder, water cooled diesel engines, complete with sterngear and all standard accessories for installation and operation, as commonly supplied for motorization of country craft in East Godavari District.

3.5 Workplan

An indicative workplan schedule is attached as Annex 10 and should be elaborated and finalized by the team leader in collaboration with project staff, following the findings and recommendations of the Base Line Survey.

4. **Summary of Recommendations**

- Details concerning the project target group and activities are proposed within the report. It is recommended that these should be agreed between FAO and GOI through an exchange of letters (as opposed to a formal project revision).
- Project implementation should commence forthwith to allow recruitment of the National Consultant (Radios) to expedite the necessary clearances and install the radio communications equipment prior to the arrival of the Team Leader.
- It is recommended that the terms of reference of the National Consultant (Radios) be amended and extended by one month to expedite both clearances for the construction of the radio towers, and their construction.
- It is recommended that the Team Leader should commence his first mission in September 1997, conditional on the completion of the listed prerequisites.
- It is proposed to hold a Workshop during the project titled "Measures to reduce loss of life amongst fisherfolk during cyclones" in December 1997. Full details are provided within the report.
- With reference to the Workshop, it is recommended that FAOR Delhi should request the Ministry of Agriculture for their clearance, and for confirmation of Government contributions.
- Subject to Government clearance of the Workshop, it is recommended that the Project Team Leader should make an additional visit to India to ensure that all final arrangements are in place, to participate in the workshop, and to write the workshop report.

- It is recommended that an International Consultant Naval Architect be recruited for a period of one month to provide training inputs as described within this report.
- It is recommended that radios and liferafts provided by the project to owners of mechanized fishing vessels should be sold at 50% of cost price to ensure commitment and care in installation and maintenance. Funds so collected by DOF/project should be used to provide additional safety equipment.
- It is recommended that the item of outboard motors for purchase by the project is replaced by 10 HP diesel inboard motors (20 units) for nava motorization.
- It is recommended that following approval by FIIT of specifications and indicative costs, specified equipment be purchased through international tender, to arrive prior to the arrival of the team leader. The balance of equipment may be procured following his arrival.
- Indicative costs provided by suppliers indicated in Annexes 9.1 and 9.3 are high, and it is recommended that these items are purchased following international tender.
- It is recommended that the State Commissioner of Relief and the Collector and District Magistrate should be kept closely informed of project activities through regular meetings with project staff and concerned officers at State and District level. Coordination and dissemination of information regarding project activities should be the responsibility of the National Project Director.

Technical Backstopping mission - FAO/FIIT Sr Fishery Industry Officer
May 1997

Terms of Reference

Under the overall responsibility of the Director of the Field Operations Division (TCO) and the direct supervision of the Chief, Operations Group, RAPR to whom the staff member will be directly responsible, the guidance of the designated technical and operations officer and with frequent referral to the national authorities directly concerned in the Government Executing Agency, in particular the project National Coordinator, the staff member will ascertain prerequisites for project inception. He will specifically:

- discuss matters relevant to the effective implementation of the project with the NPD and other responsible project staff;
- visit Delhi and project sites (Trivandrum, Kakinada and outlying villages) with relevant project staff to organize a base line survey to identify the problem areas. The survey will entail a study of the number and categories of fishing boats in use, the nature of fishing operations, types of damage inflicted by cyclones, fishing vessel crew profiles, fishermen' responses to crises at sea, their survival strategies, and their perceptions of strategies for increased safety;
- discuss implementation modalities with representatives from Government and fishers associations, the national fishery and radio-communication personnel, fishing community leaders and fishermen who will be involved in the identification of strategies leading to improved safety at sea;
- assist in the selection of national project staff and consultants;
- assist in specifications of priority equipment requirements;
- draw a detailed project work schedule;
- present a report at the end of the mission, addressed to the project operations officer at RAPA (hard copy together with diskette in Word)

Itinerary

	<u>Arrive</u>	<u>Depart</u>
Rome		10.5.97
Delhi	11.5.97	14.5.97
Trivandrum	14.5.97	15.5.97
Madras	15.5.97	16.5.97
Hyderabad	16.5.97	17.5.97
Kakinada	18.5.97	19.5.97
Bhairavapalem	19.5.97	19.5.97
Balusutippa	19.5.97	19.5.97
Hyderabad	20.5.97	22.5.97
Delhi	22.5.97	27.5.97
Rome	28.5.97	

Persons met**Delhi**

Sunil Sud	Joint Secretary, Fisheries, Department of Agriculture and Cooperation, GOI
K. Radhakrishna	FAO National Consultant
Y. S. Yadava	Fisheries Development Commissioner Dept. of Agriculture and Cooperation, GOI
L. Krishna Murty	Deputy Director General of Meteorology, India Meteorological Department
A.V.R. Krishna Rao	Deputy Director General of Meteorology, India Meteorological Department (Cyclone Warning)
P. Rosenegger	FAOR
Renuka Taimni	CPO, FAOR

Trivandrum

Vivekanandan	Executive Secretary, SIFFS
Paul Calvert	Consultant, SIFFS
Rajasekeran	Superintendent of Police (Marine Enforcement)
Ravindran Nair	Dep. Dir. of Fisheries, Trivandrum

Madras

Chandrika Sharma	ICSF
Mr. R. Raja Manickam	Joint Director of Fisheries (Marine)
Mr. Duncan King	Field Manager, ODA-PHFM
Dr. K. Durairaj	Scientist Officer in Charge, Central Marine Fisheries Research Institute (CMFRI)
Mr. R. Neelakantan Rajendran	Asst. Director of Fisheries (Regional)
Mr. A.P. Md. Ali (I.P.S)	A.I. General of Police, Communication/ Information Officer
Mr. R. Krishnan	Dredger Engineer, State Post Office
Mr. A. AMROSE	Sr. Fishery Scientist, Fishery Survey of India
Mr. Kee Chai Chong	Programme Coordinator, BOBP
Mr. A.D. Isaac	National Consultant, BOBP
Mr. S.R. Madhu	BOBP
Ms. B. Barbara	APO (GIS), BOBP
Dr. Jacob D Raj	Prepare (Indian Rural Reconstruction and Disaster Response Service)

Hyderabad

H. S. Brahma	Commissioner for Relief
D. Chakrapani IAS	Additional Secretary to Govt., Andhra Pradesh Secretariat
N. V. Bhavanishankar	Additional Director in Charge, Department of Fisheries AP
P. Raghu Ram	Rantech Engineering Pvt Ltd

Kakinada

J. S. V. Prasad IAS	Collector and District Magistrate, East Godavari District
C. H. Krishnamurthy	Joint Director (Marine), DOF AP
Captain K Subramanyam	Port Officer (also representing MMD),
S. B. Sharma	Assistant Director, DOD, Machilipatnam
Y. Subara Rao	Assistant Director, DOF, Kakinada
Narashima Rao	Assistant Director of Fisheries
B.V. Raghavulu,	Assistant Director of Fisheries, Shrimp Culture Project
Y. Subbarao	Assistant Director of Fisheries
N. Srinivasa Rao	Hydrologist, Asst. Director of Fisheries
A. Satyanarayana	Fisheries Development
K. Sita Rama Raju	Fisheries Development Officer
P. Rama Kishna Rao	Fisheries Development Officer
P. Sri Ramulu	Fisheries Development Officer
D. Krishna Rao	Fisheries Development Officer
M. Jagannadaa Rao	Fisheries Development Officer

B. Ranga Rao

President, Dolphin type Mechanized Fishing
Boats Association, Kakinada. Also President of
the Trained Fishermen Mechanized Boats
Cooperative Society

Voleti Kannaya

Secretary, The Sona and Sorrah Type
Mechanized Fishing Boat Owners Association



KAKINADA
TALUK

AMALAPURAM
TALUK



LEGEND

- MAJOR DISTRICT ROADS
- - - - - OTHER DISTRICT ROADS
- VILLAGE ROADS

0 1 2 3 MILES

Workshop Programme - Draft Outline

Day 1

Registration

Opening ceremonies

Welcome addresses by GOAP/FAO

Relief Commissioner
FAOCyclones and Cyclone forecasting
at National and State level

IMD

Cyclone Contingency Plans and Procedures
at the National and State levels

Commissioner of Relief

Cyclone Contingency Plans and Procedures
at the National and State levels

Collector East Godavari

A description of the events occurring
6 and 7 November 1996 in
East Godavari District on land and at seaNational Consultant
Fisherfolk representatives

Discussion

CWDS in Bangladesh

TCDC Consultant

A description of the events occurring
17-20 May 1997 in Chittagong area

TCDC Consultant

Discussion

Day 2

Loss of mechanized vessels from Kakinada	Fishermens association
Search and Rescue	Coastguard/Navy
Visit to Bhairavapalem - or film??	
Lunch	
The fisherfolk of East Godavari - demography and fishing operations	FAO Consultant
Analysis of events occurring 6 and 7 November 1996 in affected villages	FAO
Improvements regarding safety in the design, construction and maintenance of mechanized fishing vessels and their equipment	FAO
Cyclone shelters - design, construction, maintenance and use	PWD
The use of radio transceivers at sea and on land for cyclone warnings	National Consultant

Discussion

Day 3

Introduction to Working groups

Working group discussions

CWDS and Coordination from State to fisherfolk
Evacuation and Protection
The use of radio, safety equipment and SAR
Fisherfolk sea and storm safety committees

Lunch

Brief presentation of WG activities (max 5 minute each WG)
Discussion
Resumption of working groups
Drafting and distribution of WG draft reports

Day 4

20 min presentation of WG papers followed by 30 mins discussion
Finalization, typing and distribution of WG reports

Lunch

Presentation of main findings and conclusions.
Where do we go from here? - discussion

Valedictory and closing ceremonies

Close

Notes:

Papers marked * are to be prepared and circulated at least three weeks before start of workshop

Final report to be prepared by FAO and circulated within one month of end of workshop. FAO reserves the right to edit workshop papers to be included in the final report in the interest of clarity and brevity.

GOAP/DOF Inputs

Overall responsibility, including general organization, coordination and administration
(Task force having responsibility to be set up and chaired by the Commissioner of
Relief)

Invitations

Meeting room, stationery, O/H projector, video and secretarial facilities

Transport (hotel/meeting room)

Reception at beginning of workshop

FAO Inputs

Contribution from TCP (Training Workshop Budget)

		US\$
Contribution to GOAP costs		5,000
TCP project staff	3	500
NGO/INGO	3	500
	Total	6,000

Costs from FAO HQ

TCDC countries	4	9,000
FAO HQ staff member		4,000
Reception at completion of workshop		700
	Total	13,700

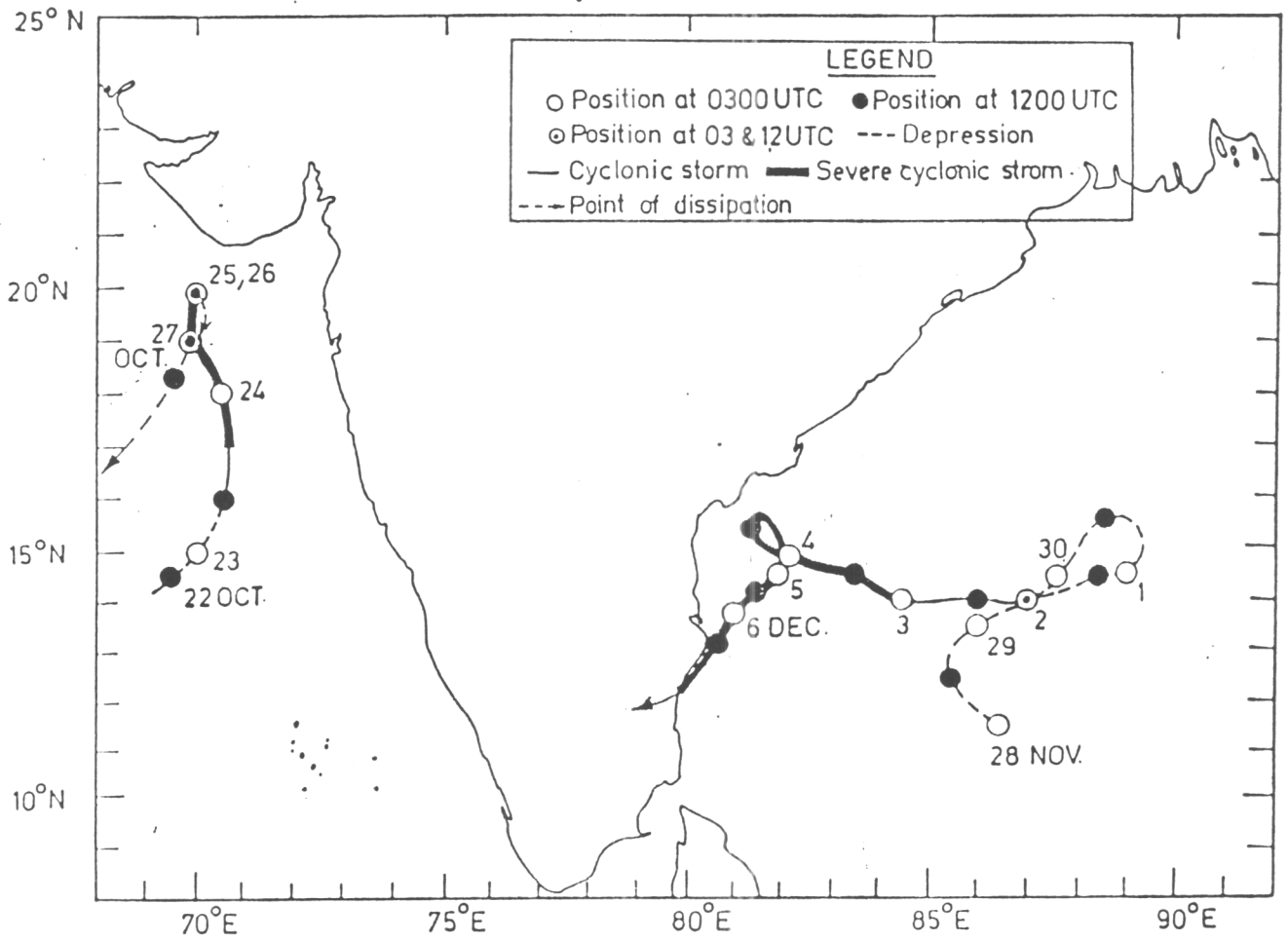


FIG. A3

TOR International Consultant Naval Architect

Duration One month

Duty Station Kakinada

Under the supervision of the technical and operational units of FAO, and in close collaboration with the Team Leader and project staff, the Consultant will demonstrate measures to bring about improved safety at sea on board mechanized fishing vessels operating from the coast of East Godavari District. In particular, he will lead a training workshop addressing the safety aspects of the design, construction and operation of mechanized fishing vessels and their equipment.

He will also provide training in the correct installation of inboard marine diesel engines supplied by the project into traditional craft.

FAX NO.0039652255188

Ref : PR/FAO/TMPS/97
Date : 29.05.1997

P. RAGHU RAM
D.No.50-95-1, Seethammadhara,
Visakhapatnam-530 013, INDIA
Tel./Fax : 543142
Res : 549600

To:

Mr. JEREMY MM. TURNER,
Sr. Fishery Officer,
Food and Agriculture Organisation
of United Nations,
Rome, ITALY

Dear Mr. Turner,

It is a great pleasure meeting you at Hyderabad in your recent visit to India. As per the discussions and further to your fax message No.1163 dt.23.5.97, I am pleased to inform the following:

- (1) I have contacted suppliers of Marine Safety Equipments regarding the offers with specifications for supply of life rafts, life jackets and life buoys. They will be sending their offers shortly to you.
- (2) The specifications and system description are enclosed with this letter. The cost estimates are as follows:

	Qty.	Unit rate in US\$	Total in US\$
I) 1) VHF Base station equipment with antenna and cable	2	1,100	2,200
2) 30 M Antenna Tower	2	6,000	12,000
3) Float battery charger	2	450	900
4) 12V 120AH Lead Acid battery	2	200	400
II) 1) VHF Mobile set with antenna and cable		775	
2) 6M Tubular Mast		150	
3) Battery charger		250	
4) 12V 60AH battery		150	

3. I have asked Vizag Port for the required tidal information. I shall contact back to you as soon as I receive the same. Meanwhile, please feel free to contact me if I am of any further service to you.

With best regards,



P. RAGHU RAM

SYSTEM DESCRIPTION

The Shore to Fishing Vessel Communication system is conceived for the safety of fishermen operating in the sea.

The system is aimed at the following :

- i) Safety of life of fishermen when they are in sea.
- ii) To have effective communication link for better interaction and co-ordination, especially in the event of distress.
- iii) For broadcasting the weather forecast and giving cyclone warnings, etc..
- iv) For dissimulation of Potential Fishing Zone information to enhance fishing productivity.

The above facilities can be provided by establishing a Shore Station with one 25 Watt VHF Radio Telephone Equipment with all accessories. This system must operate in mercantile maritime band (156 - 163 MHz). A suitable Omni Directional Antenna with 0 dB gain to be installed on top of the 30M Antenna Tower. C3

The Fishing Vessels are to be provided with 25W VHF Radio Telephone (Mobile) sets with all accessories. Both the installations on shore as well as in the fishing vessel are powered through a float battery charger and maintenance free lead acid batteries.

The antenna arrangement at shore is recommended to be installed on the top of 30M self-supported lattice mast. The antenna for the vessel is recommended to be mounted on a 20' antenna tubular mast supported with a guy ropes.

The communication system frequencies of operation should have minimum 5 channels apart from the International maritime channel-16. The other 5 channels are to be used for :

- i) Co-ordination in the event of distress.
- ii) Broadcasting and cyclone warnings.
- iii) Dissimulation of Potential Fishing Zone information
- iv) General Communication channel.
- v) Shore monitoring channel.

The system is designed to give service from shore to fishing vessel on 24 hours basis. The shore operator is required to monitor and disseminate the requested information at regular time intervals. Thus the system will facilitate timely assistance, guidance and even help to the fishermen community when they are in the sea.

VHF Licence - Directional Antenna
 ↑ Safe on board
 ↑ Handheld.

SPECIFICATIONS FOR 25W VHF RADIO COMMUNICATION EQUIPMENT

1.	Application	:	Shore station(Fixed)/Fishing Vessel (Mobile)
2.	Frequency of operation:	:	156-163 MHz
3.	Modulation	:	Frequency modulation (Phase) F3E
4.	Transmitter	:	25 Watt power output
	Receiver sensitivity	:	Better than 0.31 Micro volts for 12 dB SINAD.
5.	Channel Spacing	:	12.5 KHz
	Channels	:	Minimum 6 channels including International channel-16.
6.	Adjacent channel selectivity	:	Better than 75 dB
7.	Inter modulation rejection	:	Better than 75 dB
8.	Spurious response rejection	:	Better than 90 dB
9.	Audio output	:	Better than 4 W
10.	Distortion	:	Less than 5%
11.	Power	:	12 Volts DC
12.	Current consumption	:	Less than 6 A (transmitting)
			" " 750mA (receiving)
			" " 475mA (standby)
13.	Frequency stability	:	5 ppm or better
14.	Operating temperature	:	-10 deg.C. to +60 deg.C.
15.	Weight	:	1.4 kg

FEATURES:

- i) High and low power levels
- ii) Transmitter inhibit
- iii) Tx/Rx lock out
- iv) Automatic number identification
- v) Alarm function
- vi) Priority channel change
- vii) Channel scanning
- viii) Re-PTT Timer
- ix) Call diversion

ANTENNA TOWER:

Height	:	90 feet (27.5M)
Structure	:	Lattice angular MS as per BIS Standards
Finish	:	Hot dip galvanised
Foundation:		As per actual soil condition at the side

BATTERY CHARGER:

Input	:	180-240V AC 50 Hz
Output	:	12V DC
Type	:	Float charger with automatic switch over facility

BATTERIES : 12V 120 AH Lead Acid maintenance free batteries



FD41/2

12

KIRLOSKAR OIL ENGINES LIMITED

ANNEX 9.2

KOEL/AP/27/250
DATE : 22.05.97.

FI - REGISTRY
24 - JUN 1997
<i>Turner</i>

TO,
Mr. JEREMY TURNER,
FOOD & AGRICULTURAL ORGANISATION, *of the*
UNITED NATIONS.

Sir,

Sub: Supply of KIRLOSKAR Diesel Engines.

Ref.: As per your telephonic discussions.

We are very happy to know that your keen interest in purchasing our Engines. We are herewith submitting our lowest offer for supply of KIRLOSKAR Diesel Engines.

1. KIRLOSKAR make TV2 (Marine), 16.6 HP / 2000 RPM, Twin cylinder, Water cooled engine.	Rs. 4 2,143.00
a) APGST (Local Tax)	Rs. 4,857.00
b) Stern Gear Equipment, Water Pump & Standard Accessories	Rs. 16,500.00
TOTAL	Rs. 63,000.00
2. KIRLOSKAR make DM20, 20 HP / 1500 RPM Twin cylinder, water cooled engine.	Rs. 4 1,510.00
a) APGST (Local Tax)	Rs. 4,090.00
b) Stern Gear Equipment, Water Pump & Standard Accessories	Rs. 16,500.00
TOTAL	Rs. 6 2,000.00

KIRLOSKAR OIL ENGINES LTD., "CHANDRALOK", FIRST FLOOR, SAROJINI DEVI ROAD, SECUNDERABAD - 500 003
TELEPHONE: 819563, 819561. FAX: (040) 843892. GRAMS 'KIRSALES' SECUNDERABAD

REGD. OFFICE : LAXMANRAO KIRLOSKAR ROAD, PUNE - 411 003. (INDIA), TELEPHONE : 310341,
TELEX : 0145 - 7245, GRAMS : KOEL PUNE (INDIA), FAX : 0212 - 313208/310209



SECUNDERABAD OFFICE

KIRLOSKAR OIL ENGINES LIMITED

ANNEX 9.2

3. KIRLOSKAR make DM10, 10 HP / 1500 RPM Single cylinder, water cooled engine.	.	Rs. 19,924.00
a) APGST (Local Tax)	.	Rs. 1,776.00
b) Stern Gear Equipment, Water Pump & Standard Accessories	.	Rs. 14,500.00
TOTAL		Rs. 36,200.00

4. KIRLOSKAR make WP (Marine), 5 HP / 2200 RPM Single cylinder, water cooled engine.	.	Rs. 20,605.00
a) APGST (Local Tax)	.	Rs. 1,695.00
b) Stern Gear Equipment, Water Pump & Standard Accessories	.	Rs. 5,500.00
TOTAL		Rs. 27,800.00

Continued



SECUNDERABAD OFFICE

KIRLOSKAR OIL ENGINES LIMITED

TERMS OF SUPPLY :-

ANNEX 9.2

1. Materials will be delivered at FOR KAKINADA.
 2. 50 % Advance, along with the confirmed order and balance against proof of supply.
 3. Materials will be supplied through our authorised dealers.
 4. 1 year warranty against any manufacturing defects.
 5. Delivery with in 4 to 6 weeks from the date of confirmed order.
- 2. Prices are valid upto 30/9 Sept '97.*

NOTE :-

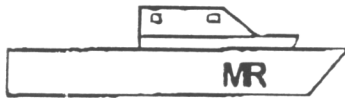
1. DM10/DM20 Engines are not Marine version, where as these are can be used for fishing boats. We have supplied good number of these engines for Fisheries Dept.,

Awaiting for your valuable order,

Thanking you,

Yours faithfully,
for KIRLOSKAR OIL ENGINES LTD.,

(S.B. SRINIVAS RAO)
SALES OFFICER.



M.R. REDDY & SON BOATS PRIVATE LIMITED

F.R.P. BOAT BUILDERS
LSA & FFA TECHNICAL SERVICES
25-8-140/1, MAIN ROAD, VISAKHAPATNAM -

Off : 65987
Res : 558479
Fax :

ANNEX 9.3

Ref :

Date :

TA 9/1 IND

MRR/97-98/0014

June 2, 1997

MR. TEREY M.M. TURNER
FAO/UN, ROME ITALY.

FAX NO : 00396 5225 5108

SUB : QUOTATION FOR SUPPLY OF MARINE SAFETY APPLIANCES

REF : FAX FROM MR. P. RAGHU RAM

BOUYANT APPARATUS - MADE OF FIBRE GLASS 10 PERSON CAPACITY

Rs 37,000.00 EACH / US \$ 1020.00 EACH.

LIFEBACKET - APPROVED BY MERCANTILE MARINE DEPARTMENT (GOVT. OF INDIA)

Rs 2,950.00 EACH / US \$ 1020.00 EACH

LIFEBUOYS - APPROVED BY MERCANTILE MARINE DEPARTMENT. (GOVT. OF INDIA)

Rs 2,800.00 EACH / US \$ 80.00 EACH

TERMS & CONDITIONS :

VALIDITY : OUR OFFER IS VALID FOR 60 DAYS.

Thanking you

Yours faithfully,
FOR M.R. REDDY & SON BOATS (P) LTD.,

Narenimha Rao

APGST : VSP/02/2/1897 }
CST : VSP/02/2/1339 } Dated 27-5-96

Also Undertake : Fire Fighting Appliances
Hydraulic Test & Recharging (M.M.D Approved)

Phones : (Off.) : 60105
65227

Fax :

SHARKS SAFETY (VIZAG) INCORPORATEDAPPROVED SERVICE STATION FOR INFLATABLE LIFE RAFTS
APPROVED BY : GOVT. OF INDIA (DIRECTOR GENERAL OF SHIPPING)

ANNEX 9.3

Ref. :

Date (03/06/97)

TA 9/11 IND

Kind Attn: MR. TEREMY M.M. TURNER
F A O , U.N
ROME , ITALY.

SUB : QUOTATION FOR SAFETY EQUIPMENT.

DEAR SIR,

WITH REFERENCE TO YOUR ENQUIRY, WE WOULD LIKE TO QUOTE OUR RATES.

- | | | |
|---|----------------|-----------|
| A) BUOYANT APPARATUS | = Rs. 33,000/- | US \$ 917 |
| B) LIFE JACKET -MERCANTILE MARINE
DEPARTMENT APPROVED ! WITH
RETRO REFLECTIVE TAPE, LIGHT AND
WHISTLES | = Rs. 2,700/- | US \$ 75 |
| C) LIFE BUOY-SOLAS WITH RETRO
REFLECTIVE TAPE - MERCANTILE
MARINE DEPARTMENT APPROVED | = Rs. 3,200/- | US \$ 89 |

THANKS N REGARDS



COPY TO : MR. P. RAGHU RAM

A. S. Moloobhoj & Sons

ESTD. 1905

SHIP CHANDLERS - NAVAL CONTRACTORS - SHIPBREAKERS



24-4-12, "ANCHOR HOUSE"
HARBOUR ROAD
VISAKHAPATNAM - 530 001
PHONE : 565227.
GRAM : MOLOOBHOYS
TELEX : 495-638 RJ IN
FAX : 563416/

ANNEX 9.3

ASMOV/MSMCFAO/97-98/013

June 2, 1997

MR. TERLIMY M.M. TURNER
FAO/UN, ROME ITALY.

FAX NO : 00396 5225 5188

SUB : QUOTATION FOR SUPPLY OF MARINE SAFETY PRODUCTS

As required by you, we are pleased to offer our rates for your requirement as follows :

BOUYANT APPARATUS - MADE OF FIBRE GLASS WITH RIGID FOAM WITH ROPE HAND HOLDS. CAPACITY 10 PERSONS

Rs 25,000.00 EACH (Rupees twentyfive thousand only)/US\$ 695.

LIFEJACKET - SOLAS FITTED WITH WHISTLE, LIGHT & RETROREFLECTIVE TAPE IN ACCORDANCE WITH LATEST SOLAS AMMENDMENTS. APPROVED BY MERCANTILE MARINE DEPARTMENT (GOVT. OF INDIA)

Rs 2,300.00 EACH (Rupees twothousand three hundred only)/US\$ 64.

LIFEBUOY SOLAS WITH RETROREFLECTIVE TAPE IN ACCORDANCE WITH THE LATEST SOLAS AMMENDMENTS. APPROVED BY MERCANTILE MARINE DEPARTMENT. (GOVT. OF INDIA)

Rs 2,650.00 EACH (Rupees two thousand six hundred fifty only)/
US\$ 74.

TERMS & CONDITIONS :

VALIDITY : OUR OFFER IS VALID FOR 60 DAYS.

PAYMENT : 25% IN ADVANCE. BALANCE AGAINST DELIVERY.

DELIVERY : ITEM NO 1 - WITHIN THREE MONTHS.
ITEM NO 2 & 3 - WITHIN ONE MONTH.

In case you require any further clarification or information, we shall be glad to provide the same.

Thanking you

Yours faithfully,
FOR A. S. MOLOOBHOJ & SONS

AUTHORISED SIGNATORY

COPY TO : MR. P. RAGHU RAM, NATIONAL CONSULTANT
FAX 543142.

ACRONYMS

AIR	Air India Radio
AP	Andhra Pradesh
BOBP	Bay of Bengal Programme
CWDS	Cyclone Warning Dissemination System
DOF	Department of Fisheries
FAOR	FAO Representative
FIIT	Fishing Technology Service (FAO)
GOAP	Government of Andhra Pradesh
GOI	Government of India
IAS	Indian Administrative Service
ICSF	International Collective in Support of Fishworkers
IMD	Indian Meteorological Department
INGO	International Non-Governmental Organization
MMD	Mercantile Marine Department
NGO	Non-Governmental Organization
OBM	Outboard Motor
ODA	Overseas Development Authority
PWD	Public Works Department
SADA	Shore Area Development Authority
SAR	Search and Rescue
SIFFS	South Indian Federation of Fishermen's Societies
SLHPSC	State Level High Power Standing Committee
TCDC	Technical Cooperation between Developing Countries
TOR	Terms of Reference
VHF	Very High Frequency
WPC	Wireless Planning and Coordination

Bibliography

Handbook on Fisheries Statistics (1996)	Ministry of Agriculture, New Delhi
Handbook on Fisheries Statistics of Andhra Pradesh 1993 - 94	Commissioner of Fisheries Hyderabad
Andhra Pradesh - A History of the Coast and it's Development	SIFFS
Cyclone Warnings System	IMD
Human response to Cyclone Warnings	IMD/CASA
Cyclone Contingency Plan of Action	Revenue Dept, GOAP
Notes on Damages/Relief Operations during 1996-97	Revenue (Relief) Dept, GOAP
The Merchant Shipping Act 1958	Ministry of Law and Justice, GOI
Navas/Shoo dhoni	BOBP
Proposed Andhra Pradesh Emergency Cyclone Recovery and Mitigation Programme	World Bank

