

Assessing the Importance of the Fishing and Associated Livelihoods in the Coastal Fishing Sector in Trinidad and Tobago: Early Results

ARTHUR POTTS¹, JUDY ROCKE¹, BEN MAHARAJ², SHANTA RAMNATH², and LESTER DOODNATH²

¹University of Trinidad and Tobago (UTT),

C/o Centre for Marine Sciences, Institute of Marine Affairs,
Hilltop Lane, Chaguaramas, Trinidad,
Republic of Trinidad and Tobago

²Institute of Marine Affairs (IMA)

C/o Centre for Marine Sciences, IMA, Institute of Marine Affairs,
Hilltop Lane, Chaguaramas, Trinidad,
Republic of Trinidad and Tobago

ABSTRACT

The lack of easily accessible current information and data on the fisheries resources and on the use of these resources is highlighted in several of the fisheries reports prepared in Trinidad and Tobago in the last ten years. Within that nebulous mix is the number of persons engaged in the associated livelihoods in the coastal fisheries. Though these activities contribute significantly to the income and welfare of fisherfolk, they are not officially recognized as income generating activities. Underestimation of the extent of the associated livelihoods contributes to uncertainty and weakness in the management of fisheries. This paper presents the results of a project undertaken to increase the understanding of the importance of the coastal and marine fisheries in Trinidad and Tobago; to identify the number of people employed in the associated livelihoods and assess their importance of their contribution to the sector. The authors interviewed approximately 500 respondents in both islands, seeking information on a number of aspects including information on the fishing gear used. Data collected are to be used to create a working data base to inform the Seafood Industry Development Company and to add to the baseline knowledge for the Living Marine Resources Programme within the University of Trinidad and Tobago.

KEY WORDS: Fisheries associated livelihoods, Trinidad and Tobago

Determinación de la Importancia de la Pesca y de los Sustentos Asociados en el Sector Costero de la Pesca en Trinidad y Tobago

La carencia de la información y de los datos actuales fácilmente accesibles sobre la pesca, los recursos de las industrias pesqueras y sobre el uso de estos recursos se destaca en varios de los informes de las industrias pesqueras preparados en Trinidad y Tobago en los diez años pasados. Dentro de esa mezcla nebulosa está el número de las personas contratadas a los sustentos asociados en las industrias pesqueras costeras. Aunque estas actividades contribuyen perceptiblemente a la renta y al bienestar del fisherfolk, no se reconocen oficialmente como renta que genera actividades. La subestimación del grado de los sustentos asociados contribuye a la incertidumbre y a la debilidad en la gerencia de industrias pesqueras. Este papel presenta los resultados de un proyecto emprendido para aumentar la comprensión de la importancia de las industrias pesqueras costeras y marinas en Trinidad y Tobago; para identificar el número de la gente empleada en los sustentos asociados y determinar la importancia de su contribución al sector. Los autores se entrevistaron con a cerca de 500 respondedores en ambas islas (Trinidad y Tobago) y según el engranaje de pesca usado. Los datos recogidos fueron utilizados para crear una base de datos de trabajo para informar a los Seafood Industry Development Company y para agregar al conocimiento de la línea de fondo para el programa vivo de los recursos dentro de la universidad de Trinidad y de Tobago.

PALABRAS CLAVES: Sustentos asociados, Trinidad y Tobago, industrias pesqueras

L'évaluation de L'Importance de la Pêche et des vies Associees dans le Secteur Côtier de Pêche en Trinite-et-Tabago

Le manque d'information et de données courantes facilement accessibles sur la pêche, les ressources de pêche et sur l'utilisation de ces ressources est accentué dans plusieurs des rapports de pêche préparés en Trinité-et-Tabago en dix dernières années. Dans ce mélange nébuleux est le nombre de personnes occupées dans les vies associées dans la pêche côtière. Bien que ces activités contribuent de manière significative au revenu et au bien-être du fisherfolk, elles ne sont pas officiellement identifiées comme revenu produisant des activités. La sous-estimation de l'ampleur des vies associées contribue à l'incertitude et à la faiblesse dans la gestion de la pêche. Cet article présente les résultats d'un projet entrepris pour augmenter la compréhension d'importance de la pêche côtière et marine en Trinité-et-Tabago ; pour identifier le nombre de personnes employées dans les vies associées et évaluer l'importance de leur contribution au secteur. Les auteurs ont interviewé environ 500 répondants dans les deux îles (Trinité-et-Tabago) et selon les attirails de pêche utilisés. Des données rassemblées ont été employées pour créer une base de données fonctionnante pour informer Seafood Industry Development Company et pour s'ajouter à la connaissance de ligne de base pour le programme vivant de ressources dans l'université des Trinité-et-Tabago.

MOTS CLÉS: Vies associées de pêche, Trinité-et-Tabago

INTRODUCTION

There is a general lack of accessible current information and data on the fishing, the fisheries resources and on the use of these resources in Trinidad and Tobago. This is the case despite the fact that there are computerized databases for the fisheries generated both locally, through a network of data collectors and internationally, when information from the local environment is added to international databases.

There are four agencies responsible for the gathering, storage and development of fisheries data in Trinidad and Tobago. These agencies include the Fisheries Division (FD), the Department of Marine Resources and Fisheries (DMR&F), the Institute of Marine Affairs (IMA) and the University of the West Indies (UWI). A fifth source, which provides generalized data on specific areas, is the Environmental Management Authority (EMA).

The Fisheries Division is a statutory body that has the mandate to direct all fisheries in Trinidad and Tobago and to routinely collect data within the fisheries sector. However, this routine collection is limited to selected fish landing sites and the registration of boats and fishermen. The associated livelihoods are not routinely monitored.

The Caribbean Fisheries Training and Development Institute (CFTDI) of the FD provides training for persons involved in fisheries, and to some extent for marine merchants. The short courses for fishing vessel personnel include among others: Fishing Gear Technology, Fishing Gear Methods, Outboard Engine Maintenance and Repair, Fibreglass Reinforced Plastic Technology, Net Mending, Basic Navigation, Seamanship and Survival at Sea Techniques. The Institute also offers courses for the associated livelihoods which include fish handling for vessels operators, merchandising of fish, processing of fish and shellfish by various preservation techniques and Quality Control/Quality Assurance in fish and fishery products.

The Institute of Marine Affairs (IMA) is a source of both primary and secondary information on the fisheries sector. The primary information comprises reports on the research conducted by the Institute. The most recent study conducted on the fisheries sector was an assessment of the fisheries in Southeast Trinidad to address the data on fishing communities (Kishore *et al.* 2004). This two year study resulted in the formation of a women's group which has developed specific objectives for the development of fish processing initiatives. The IMA also houses several internationally published journals on fisheries at its library.

The University of the West Indies (UWI) collaborates with various organizations to conduct research on the fisheries sector. The most recent collaboration was between UWI and the Fisheries Division, whereby a Policy document for the Marine Fisheries of Trinidad and Tobago was developed (UWI 2007). This document focused on the premise that despite increasing fishing effort there is declining fish landing. The factors directly responsible for

these diminishing returns were reported to be the overexploitation of the resource by an oversized fishing fleet and inappropriate fishing gear. However, there is inadequate research data upon which to base this claim. Little of the fish biology of some commercial and all of the non-commercial species is known. Additionally, pollution from the land-based sources such as industrial effluent, domestic sewage, solid waste and marine based sources such as oil spills and ballast waters have a negative effect on the habitats and therefore influence the quality and quantity of the near shore marine fishery.

The Environmental Management Authority (EMA) requires that specific energy sector projects, *inter alia*, produce a detailed assessment of the environment prior to the commencement of projects. In the coastal environment, the fishing communities expressed concerns about displacement of fish landing facilities, as well as, changes to the coastal environment where the fish spawn. In the offshore fishing grounds, especially off the east and west coasts, the concerns were about lack of government involvement and representation of the interests of fishing communities, periodic restrictions on access to traditional fishing grounds, collisions with supply boats, and environmental changes in the fishing grounds due to the release of production water, drill cuttings and the effects of seismic activities.

The Central Statistical Office (CSO) provides generalized data on the fisheries sector. However this data is aggregated into a category of non-cropping agricultural activities that include hunting, forestry and fishing, mining and quarrying. Most of the persons in agriculture, fishing, forestry, hunting and quarrying have either a primary or secondary school education. Eighty percent of these reported having a monthly income of less than TT\$3,000 in 2000. However the highest income was reported by the University graduates who, though fewer, had up to three times the income of other categories. Many inferences can be drawn here. The lower income of the less educated can reflect that they were mainly dependent upon artisanal methods and may not have owned the equipment used to generate their income. There are opportunities for more educated citizens in the fishing sector but few have ventured into the sector for a career even though their expected earnings may exceed that of all other persons in the sector. Their real income was within the national norm where most persons had an average monthly income of between TT\$1000 and TT\$5000 per month.

The Seafood Industry Development Company (SIDC) is a special purpose State company mandated to improve the seafood sector of Trinidad and Tobago. An article produced by the SIDC explained why the prices of fish products have increased in recent times. This increase was caused by factors other than the traditional increase at peak demand periods, especially Easter, when there is a fasting from other traditional sources of protein. Explaining this rise in prices and consequently, the growing importance of

the sector are the influences of demand and supply side economics which arise due to the changes in the physical and biotic environment both locally and abroad and socio-cultural and administrative factors (SIDC 2007).

There are many gaps in the literature on the fisheries sector of Trinidad and Tobago, including: Many studies are in the preliminary stages or under review; many studies were conducted prior to 1996 and there were few major policy documents commissioned since 2004. Census data is not available for the marine fisheries sector or by landing site, most studies lack supporting data, fishkill reports are inconclusive, and current collection of the data omits information on the very important recreational and game fishing sub-sector.

Stakeholder Identification and Analysis

In order to bridge this data gap and provide insight on the many sub-sectors of the fishing industry of Trinidad and Tobago, the IMA embarked on a project to conduct an assessment of the fisheries sector of Trinidad and Tobago. This project was commissioned by the SIDC. In order to conduct such an assessment, the IMA began with identifying the various stakeholders of the fishing sector and whom to involve in this process.

The Caribbean Natural Resources Institute (CANARI), through projects over a twenty-year period, has produced guidelines for stakeholder analysis and identification (CANARI 2000). CANARI identified the stakeholders as local and non-local persons, formal and non-formal organizations and groups, as well as, users and non-users of the environmental resources. CANARI (2000) and Mikalsen and Jentoft (2001) provided a comprehensive assessment of stakeholder identification and needs assessment. They both identified that stakeholders should be encouraged to participate in the study design, implementation, dissemination and adoption of strategies to ensure that the different interest are best represented in different phases and fora of the process.

Soma (2003) recognized resource users as the major individuals and organizations to be used when discussing stakeholders. In contrast, Lejano and Ocampo-Salvador (2006) made the case for including all resource users because of their cooperation and conflicts and considering the effects of external factors on their activities. This premise opened the analysis to groups wider than the direct resource users. However, increasing the number of stakeholders increases the complexity of the analysis (Soma 2003).

Issues Identified by Fisheries Stakeholders

Several studies were conducted both locally and internationally on the state of the coastal fisheries. In many instances, the focus has been on the entire fishery or on a particular segment of the industry. The needs of the fishers have only recently come into prominence with the shift away from biotic and environmental studies to a

social enquiry approach that focuses on the needs of the persons involved in the industry. This management approach to the fishery rather than the stock assessment is a paradigm shift that requires the state and local users to work together to manage the fisheries.

There are a few local articles, by officers of the local Fisheries Division that include a discussion on the needs of the sector. Regionally and internationally, there are more articles spanning a wider range of social issues that affect the fisheries sector. These include: the women in fisheries, co-management, stakeholder analysis, marine governance, the impact of a growing aquaculture sector and product development.

These articles provided an insight into the concerns of the local coastal fisheries. In the post World War II years, there was a move towards food self sufficiency. There were concerns regarding the discards from the beach seine fishery targeting shrimp and from pollution in the Gulf of Paria arising from the petrochemical and agricultural industries (Mohammed and Chan A Shing 2003). The fisherfolk were experiencing displacement because of the increase in the importance and use of the coast by competing activities. In the 1970s to 1980s, the complaints included lack of adequate harbor facilities, marketing problems, loss of traditional fishing grounds to increasing offshore oil exploration and exploitation, and lack of access to traditional grounds because of the Exclusive Economic Zone (EEZ) limitations.

Socio-cultural research into the fisheries sector revealed issues such as the role of women in fishing and associated livelihoods (Kishore *et al.* 2004). At a stakeholder consultation for the preparation of a policy document for Strategic Intervention for the Ministry of Agriculture, Land and Marine Resources, several issues were addressed:

- i) Incentives for fisherfolk in an economy that is dominated by the oil and gas sector,
- ii) Provision of adequate infrastructure for fisherfolk. (e.g. improved landing sites),
- iii) Security for fisherfolk,
- iv) Provision of relevant extension support, and
- v) Preservation of the environment of Trinidad and Tobago to ensure sustainable livelihoods, particularly in rural communities which exist in harmony with the environment.

Regionally, the Caribbean Regional Fisheries Mechanism (CRFM) and the Centre for Resource Management and Environmental Studies (CERMES) produce reports that highlight the concerns for the assessment of the fishstocks and coordination of regional developmental initiatives, and how planned marine resource governance initiatives can be more adaptive and resilient at various scales to benefit a diverse array of stakeholders in the fishery sector.

At the international level, Wiber *et.al.* (2004) ad-

ressed the problems faced by the artisanal fisheries as they strive to maintain their presence when there is higher capitalization and higher territorial reach of other sub-sectors within the fisheries; the fishermen lost control of the near shore resources. The fishermen were of the view that there should be co-management of the fishery rather than fish-stock assessment. As mentioned earlier, the IMA undertook this study to assess the needs of stakeholders of the fishing sector of Trinidad and Tobago. This study was commissioned by the SIDC, who provided a detailed and specific Terms of Reference (TOR). The description of the Scope of Works that follows provides a summary of these terms.

Scope of Works

Project activities that were agreed upon at the beginning of the study are itemized as follows:

- i) Reviewing available literature on the: involvement of stakeholders in the fishing industry in terms of their socio-economic and cultural profile; worldwide examples of strategic development plans for fishing communities; Socio-economic survey methods and methods of analysis that were developed by the FAO and other organizations which prepare assessments to international standards.
- ii) Developing a survey instrument to capture pertinent socio-economic and cultural indicators for the stakeholders listed in Section 3 of the TORs and which includes coverage for Trinidad and Tobago. The survey instrument must capture the level of awareness of developmental programmes available and reasons why these may or may not be used. The survey design involved tasks such as: Designing a survey instrument with assistance from the SIDC; developing a sample design to capture information in Trinidad and Tobago with assistance from the SIDC; Training technicians to administer the questionnaire; Pre-testing of the survey instrument and making necessary adjustments.
- iii) Engaging stakeholders in the data collection exercise: A stratified sample of the coastal communities with the boat crew as the unit of assessment based on data collected in the literature review; a survey of other stakeholders through knowledgeable informant interviews and completion of questionnaires.
- iv) Producing a mid term report to the staff and Board of Directors of the SIDC to indicate: Progress with the project at the end of 2 months; The Key indicators that are to be analyzed in the assessment.
- v) Producing a final report that includes, inter alia: Description and analysis of fisheries development issues in each community; Identification of the

needs for training, employment, infrastructure, etc., of stakeholder groups; Recommendations for programmes to be developed to address the needs of stakeholders.

- vi) Preparing and delivering three seminar presentations to the staff of the SIDC, Board of Governors of SIDC, and the Trinidad and Tobago Unified Fisherfolk Association.

METHODOLOGY

The study was organized to follow three distinct phases. These included data gathering, data analysis, and data presentation.

Data Gathering

Data gathering for this study was three-fold. It comprised of a comprehensive literature review aspect and continued with organized focus group meetings at some 10 major fish landing sites all around the country, as well as, a detailed questionnaire survey of individuals involved in the various livelihoods within the fisheries sector.

The literature review was conducted to provide a comprehensive understanding of the development constraints faced by the stakeholder groups within the sector and to understand the data gaps existing within the literature. The literature review was also included to capture a description of the stakeholders as from the previous studies including, but not limited to: The Draft Policy for the Marine Fisheries of Trinidad and Tobago (Fisheries Division), A Policy for the Marine Fisheries of Trinidad and Tobago (UWI), Strategic Plan for the Development of the Fish and Fish Processing Industry in Trinidad and Tobago (SIDC), and The Vision 20/20 Sub Committee report on Agriculture by the Government of the Republic of Trinidad and Tobago (GORTT).

The IMA also consulted with institutions that have traditionally collected data or which have prepared reports on the fisheries sector, namely: Fisheries Division, Ministry of Agriculture, Land and Marine Resources, The Department of Marine Resources and Fisheries, Tobago House of Assembly, The Central Statistical Office (CSO), The University of the West Indies IOB (Institute of Business), The WECAFC (Western Central Atlantic Fisheries Commission) of the FAO (Food and Agriculture Organization of the UN and the CFRM (Caribbean Regional Fisheries Mechanism).

Efforts were made to include information from institutions that produce pertinent 'non-traditional' sources of data including: The Ministry of Social Development, the Agricultural Development Bank (ADB), the Ministry of Community Development, Culture and Gender Affairs, the Trinidad and Tobago Coast Guard, the Environmental Management Authority, the Energy Sector Entities and the CFTDI (Caribbean Fisheries Training and Development Institute).

The Focus Group meeting is a participatory approach which was first envisaged as the underlying framework for the development of the study. It was none-the-less a vital aspect of the study and every attempt was made to inform and invite the widest forum of stakeholders to participate in the study. Focus Group meetings were planned in specific areas of Trinidad and Tobago so that representative information for each coastline of the islands was obtained. The format of the focus group meetings involved a listing of the major issues/problems facing the stakeholders and categorizing these issues in either of fisheries, associated livelihoods or organizations grouping. Organizing the issues in this way helped in the later analysis for the study but no one issue was entirely the problem for one of the three major groups at a fish landing site. After the issues were raised the group was asked to offer possible causes for these issues, as well as possible solution(s).

A list of individual stakeholders for each of the Industry/stakeholder Groups was identified in the list provided in the Terms of Reference for this project. Questionnaires were administered to individuals of key stakeholder groups at Focus Group meetings and within the communities. The questionnaires were designed with input from the SIDC. The IMA employed quota sampling for the larger landing sites. The completed set of questionnaires were checked for quality by contacting 50 (10%) of the respondents to verify that the interviews were conducted. There was also a check to ensure geographic coverage of the islands in the administration of the questionnaires. Mature students from the Cipriani College of Labour and Cooperative Studies' Environmental Science Programme were engaged in the project to conduct the questionnaire survey. They were afforded an 8-hour training session over two days and organized into teams to canvas across Trinidad at times convenient to themselves and the stakeholders. Some of the students will join the staff of the Technical Advisory Services (TAS) Unit of the IMA in the conduct of the questionnaire survey in Tobago. Identified group leaders were to report directly to the IMA representative designated this task. A major motivating action which required reflection and care in administering the questionnaire was that the students were to elect to submit either as a group, or as individuals, a paper to report on an issue or a landing site observed during their interactions with the stakeholders. The IMA team agreed to review and guide the writing process.

Data Analysis

Both qualitative and quantitative information were gathered in the first three months of the study. The data was integrated into a database using MS Access. Significant trends, similarities, and differences were noted to justify the selection of robust indicators sensitive to the stakeholder groups.

Analysis of the results of the study included the development of an index based on the findings of the

United Nations Industrial Development Organization's (UNIDO) cluster and network analysis for Small and Medium Size Enterprises (SIDC 2007). This will produce a grouping of the landing sites for which a specific package of development programmes will be recommended. The programmes were further informed by the Focus Group meetings at which stakeholders stated their ideas for solutions to identified concerns and their recommendations for specific projects.

Recommendations will be made reflective of experiences gained in previous stages of the project. By integrating the various sources of information and following through the development of an index of clustering and networks, recommendations will be made to address the needs of the sector. This involved developing a suite of indicators by which groups may be evaluated for clustering, recommendations for interventions to address development constraints faced by stakeholders, and recommendations for areas for future study pertinent to the goals of the SIDC.

Data Presentation

The language and format of the presentations are intended to communicate the findings of the study to the largest possible audience of people involved and associated with the fisheries sector in Trinidad and Tobago. The IMA proposed to jointly host two major stakeholder consultations to deliver the findings of the report to the wider body of stakeholders involved in the fisheries sector. This action will satisfy the request of the stakeholders that they be informed of the outcome of the study in which they have been involved. This practice is not usually the case and leaves the stakeholders to surmise that there is no tangible outcome to their involvement in the consultation process.

RESULTS AND DISCUSSION

Trinidad and Tobago lies between 10.00 and 11.50 N Latitude, 60.0 and 62.0 W Longitude. They are the southeasterly-most islands of the Caribbean archipelago. The country is just about 14 km off the eastern coast of Venezuela and it experiences a tropical maritime influence. The total land area is approximately 5,126 km², with Trinidad having 4,826 km² and Tobago contributing 300 km². The country has approximately 9337 km² of territorial sea. The length of coastline of Trinidad is 420 km with Tobago having 120 km of coastline (FAO 2005). Most of the territorial sea and coastline is restricted due to developmental and energy activities; as such, the total area available to a fisherfolk is limited and will result in restricted tonnage of the catch. The population reached at 1.3 million in 2000 (census year) with Tobago having 55,000.

Trinidad and Tobago is located on Brazil-Guianas Continental Shelf, off NE South America in the path of the Guiana Current and the South Equatorial Current. It is down current of 17 South American rivers, including the

Orinoco and Amazon Rivers. The marine environment receives freshwater and estuarine influences of South American rivers and saline influences of the Atlantic Ocean. This results in a diversity of marine species which are typical of coastal areas off the South American continent and also of the Caribbean island chain.

Some fish stocks are shared with neighbouring countries, some have migratory habits, and some live in close geographic proximity of states. A regional approach to management of the marine fisheries is achieved as Trinidad and Tobago is presently involved with the both the Caribbean Regional Fisheries Mechanism (CRFM) to co-ordinate and manage marine fisheries in CARICOM, as well as, the Western Central Atlantic Fisheries Commission (WECAFC) of the FAO.

The fishermen of Trinidad and Tobago are engaged in four main fisheries. These include: The Coastal pelagic (gillnet and line fishery) for mackerels and associated species, mainly sharks and jacks; The Oceanic (highly migratory) pelagic fisheries for tunas, swordfish and dolphinfish, with by-catch which includes sharks and mackerels. Industrial long-line vessels, semi-industrial multi-purpose commercial vessels, and recreational vessels are involved in this fishery; Hard-bottom demersal fishery for snappers and groupers, with by-catch normally including lobsters and grunts. Fish are caught by fish-pots, bank lines and other demersal lines. The fourth fishery being the Soft-bottom demersal (shrimp and groundfish) fishery for shrimp and associated groundfish namely: croakers, weakfish, grunts, snappers and other by-catch species. This is also known as the demersal trawl fishery. Most of the traditional coastal species are close to full exploitation, fully-exploited, over-exploited (over-fished). Coastal fisheries in Trinidad and Tobago are also affected by land-based sources of pollution in the near-shore, other sectors wanting use of the coastal zone and habitat degradation.

In 2005, the contribution of agriculture, forestry, and fisheries to the total Gross Domestic Product (GDP) of the country, at market prices, was 1% (US \$98 million), with the fishing sector contributing approximately 0.09%, US \$10 million. The total GDP for 2005 was US \$14.8 billion (FAO 2005). The fisheries production comprises the lowest proportion of the agricultural production, with contributions coming from the pelagic and demersal sector (FAO 2004). Therefore, it can be concluded that the fisheries contribution to the economy of the country is insignificant and this is probably as a result of the under-developed state of that sector. In 2003, the total marine production for human consumption was approximately 9,743 tons, with an export tonnage of 4,478. It is interesting to note that this country imports most of its fish, with an approximate tonnage in 2003 of 12,993. Therefore, demand of this commodity cannot be supplied by the production from the fisherfolk of the country. A reason for this can be explained by the number of persons employed

in this sector. The year 2003 saw a total labour force of 596,500 persons, with employment from the fisheries sector only contributing 7085 persons (1.18%).

In Trinidad and Tobago, there are approximately 98 identifiable landing sites, 65 located in Trinidad and 33 in Tobago. However, data on the number of fish landed is only collected at 19 sites in Trinidad and five sites in Tobago. Therefore, there are several concerns with the published data, the main being that the information presented may not be an accurate representation of the current situation.

The questionnaire survey for this project showed that there are very few associated livelihoods among the fishing industry. Of the 455 questionnaires completed to date, 71% were done by Fishers, 25% by Associated Livelihood and 4% from Associations stakeholders. Most persons surveyed owned their own vessels, with the hopes of earning a greater income by selling their catch directly to the fish processors, rather than waiting on a boat owner to be paid from a fish processor and then being paid themselves from the meager earnings.

Ten Focus Groups were conducted throughout Trinidad, with one being planned in Tobago and two more in Trinidad to capture the views of fisherfolk. Focus Group meetings to date were conducted at the Northwestern peninsula, Mathura, Maracas, San Fernando I, San Fernando II, Mayaro, Guayaguayare, Moruga, Cedros, Tobago, and Toco. These were done throughout Trinidad, highlighting the fact that the four coasts were well represented, and one in Tobago. At each Focus Group meeting, the issues highlighted by the participants were recorded and grouped according to the following headings:

- i) Physical Infrastructure,
- ii) Basic needs of sites,
- iii) Security of Property and Person,
- iv) Economic Concerns,
- v) Safety at Sea,
- vi) Fisheries Management,
- vii) Conflicts (Intra-Sectoral),
- viii) Conflicts (Inter-Sectoral), as well as,
- ix) Representation, Advocacy, and Agency.

Physical Infrastructure

At each Focus Group, the concerns highlighted under this category were the same. There were concerns at the various fishing facilities about the lack of a slipway or jetty, and mending sheds as the key parts of the infrastructure that need to be installed or upgraded. In some areas such as Balandra, on the north-east coast, such structures would help the fisherfolk greatly with respect to securing their vessels and equipment from the inclement weather. In the early half of 2008, some fisherfolk suffered damages to their boats and gear due to the inclement weather created by the passage of tropical storms. In Tobago, there is a lack of cold storage facilities. At the Northwest Peninsula, the participants identified the inappropriate design of the

newer facilities as the problem with the infrastructure. The fishers who must use the facilities were not involved in informing the design and now they have difficulty maneuvering within new structures.

The San Fernando facility is another such example, being bisected by the Water Taxi Project. Some fishing facilities are located close to nearby rivers and streams. As a result, there is a lack of maintenance of these waterways by the local area representatives. Fisherfolk complained of clogged drains and sand bars at river mouths creating stagnant water resulting in the breeding of mosquitoes and unsanitary working conditions. A major associated livelihood that resulted from the fishing industry, and a dying art, is net mending. Currently, there are no facilities designated for persons to mend their nets and in some sites, there are no net menders, and fisherfolk in the area have to await a wandering net mender or try to do the work themselves.

The main cause of these problems, as deduced by the attendees of the Focus Group, is a lack of support and commitment from the authorities (Fisheries Division and DMR&F) to support the local fishing industry. This is manifested in the lack of investment in the sector over the years. Fishers also blame the lack of unity among fishers at the sites. There is no cooperation and support for development plans that have been announced. In terms of future development of fishing facilities, the fishers believe that they, as the users of the facilities, should be consulted at design stage of the facilities, otherwise these facilities would be inappropriate and dysfunctional.

Basic Needs of the Site

Generally, the problem was the state of disrepair of the facilities at the landing sites. The facilities do not give adequate support to the fishermen and the industry as there is a lack of storage lockers for their equipment and fishing gear. The toilets are also in a continuous state of disrepair. Fish waste management is another of the basic needs of the site. There is no treatment and disposal of the waste created when the fish is cleaned. This waste is washed down the nearby rivers and may compromise the sanitation of the site. The main cause of this problem was deemed to be an overlap in the responsibility of the Fisheries Division and the Regional Corporation. This results in no one agency assuming the role of cleaning the drains, repairing roads and other facilities at the landing sites. Caretakers are currently not available at all of the landing sites, resulting in no supervision of the activities taking place there.

Security of Property and Person

All sites indicated a lack of safety and security at the landing sites, resulting in unwanted illicit activities taking place. At some sites, there was theft of valuable boats, boat-engines, nets and other essentials. This theft causes the fishers to lose income for the period that it takes to find

replacements. There were also losses of equipment attributed to sudden storms. These losses result in diminished income for the fisher. The cause of this problem, as stated for those above, is a lack of commitment from the authorities to support the local fishing industry.

Economic Concerns

As most developed countries find themselves in an economic recession, Trinidad and Tobago being a Small Island Developing State (SIDS) and an oil-producing nation is also influenced by the world economic crisis. The financial strain is being felt by the fisherfolk of the country, where they find themselves having to pay an increased cost for the price of fuel and supplies, as well as, finding that there is a lack of micro-credit and retirement plans available to them. The fishermen, when purchasing fuel for their vessels, have to pay a Road Tax, as well as, a Green Fund Tax. However, despite the fact that they are rebated to some extent for the fuel, they are saying that the rebate is not sufficient to cover their taxes and it is also not timely. Some fisherfolk highlighted the need for more suppliers in their area to supply ice and various necessities. Currently, they are being forced to pay exorbitant prices quoted by the few suppliers who pass through their area.

Trinidad and Tobago shares fishing grounds with the Venezuelan fisherfolk, and as such, the Trinidad North-western fisherfolk and those on Tobago highlighted the need to learn Spanish, since there is need to communicate with the Venezuelan fishermen and the Guardia National, who frequently patrol the border. "The fishing trade is a dying one", say some fisherfolk. The younger generation is unwilling to join and learn the fishing ways because of the hardship and problems associated with the industry. The control of the supply of ice and fuel gives the middlemen the power to set the price for the catch. Until there are adequate facilities to preserve the fish and secure the fuel and the boats, the fishers will continue to enter into informal arrangements with the vendors and others who supply the ice and fuel. The fish markets are at major centralized locations which benefit the buyers. Smaller markets can be located closer to the landing sites so that the fishers may engage in marketing and receive a higher return for their efforts.

Microcredit becomes necessary when the fishers experience loss or damage to gear and equipment, or just to invest in more equipment. Most of the time the loss or damage is due to collisions with ships in the marine traffic lanes or piracy. The microcredit institutions do not exercise flexibility in their dealings with the fishers. The Agricultural Development Bank (ADB) requires immediate monthly payments as a commercial bank would, not having regard to the seasonality of the fishing. Applicants need to have 20% of the investment and at least 50% security in collateral. This limits borrowing to fewer stakeholders. With regards to retirement planning, most fisherfolk are uneducated as to the benefits of the local National Insur-

ance Scheme, which is the body that has the responsibility for providing retired persons with a monthly stipend.

Safety at Sea

Many of the fishers lack Personal Protective Equipment (PPE), and those who have some form of PPE, have very few because of the cost of such equipment. These include life vests and ship to shore radios. Acts of piracy, both at the landing sites and at sea, have increased in recent times and as such, theft of boat engines, equipment and gear continues. The fisherfolk have highlighted the slow response to distress calls at sea as a major concern to them. Approximately four days of drifting goes by before a rescue is made. No infrastructure exists for radio communications with shore base.

The piracy reflects the general rise in crime in the country. At the fish landing sites where equipment is left without adequate security it is more than likely that the thefts will continue. The police patrols at the landing sites are not frequent and legitimate fishers may be harassed on suspicion of participating in the drug trade. The Coast Guard patrols at sea are limited so pirates have hijacked fishers and stolen boat engines. Previously, many of the artisanal fishers operated closer to the shore. They now operate further away from the shore and can get into difficulties when they are out of range of the cellular phones. A reliable radio frequency has not been established to support their safety at sea. The fisherfolk are calling for increased training in safety procedures, basic First Aid practices, and GPS training to allow them to navigate at night and at times of inclement weather. The need for micro-credit facilities are again highlighted due to the fact that the fisherfolk have limited funds to spend in PPE, which is costly.

Fisheries Management

Trinidad and Tobago is on the road to acquiring developed nation status by the year 2020 and as such, development of the country's infrastructure is being fast-tracked. However, this development comes into conflict with the users who earn their living from the sea. The establishment of various oil platforms off the Eastern coast of Trinidad and the Southwestern coast of Tobago has restricted the fishermen in the areas where they can fish. Members of the public, who utilize the sea for various activities, are advised that there is a 5 km restriction zone around the platforms. This is to ensure the safety of all persons in case of an emergency.

The problem though is these platforms act as Fish Attracting Devices (FADs), thereby limiting the tonnage and diversity of the catch and the amount of profit the fisherfolk can be expected to make. The development of major ports to accommodate the vessels for the energy sector is utilizing traditional fishing grounds and landing sites and restricting the areas fishermen are allowed to fish. These developments also raise the issue of pollution of the

waters around Trinidad and Tobago. The planning controls that are legislated are not enforced. There is unbridled development in the coastal fringe. Mangroves are being cut, sand banks are being stabilized and other natural systems that support the nurseries for the fisheries are being destroyed. The fishing facilities are not being maintained and are in a desperate state that is inadequate to meet the needs of the fishermen. The increased and unregulated marine traffic through the fishing grounds places the fishers at increased risk and affects the fisheries.

The apparent absence of a fisheries management policy seems to be the chief cause of the problem with fisheries management. Ignorance of the importance of some of the natural habitat that supports the fisheries also causes the removal of that habitat. There is no policing of the coastal areas to enforce existing laws. Lack of planning, control, and monitoring of some activities is another cause of the problems affecting the fisheries. The Environmental Management Authority (EMA) is seen as the agency that grants Certificates of Environmental Clearance (CECs) for the start of major projects but it lacks the staff to enforce the conditions of the CECs. There has been no concern for the cumulative impact of the increased marine traffic in the Gulf of Paria and other fishing grounds.

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