

Challenges in the management of small-scale fisheries in “Salli” GN division, Trincomalee, Sri Lanka

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Abstract: The contribution of small-scale fisheries to national GDP is modest but they are very important for food, employment, livelihoods income of more people. Problems and challenges in fisheries have been addressed by scholars from the different point of views. Lack of systematic data collection and integrated information as to small-scale fisheries has only been addressed to the certain extent. However, challenges in the management of small-scale fisheries are not studied well. Researches in small-scale fisheries pay limited attention to socio-economic issues rather focusing biological-ecological aspects. The reliability of collection of catch data has been questioned when multispecies fisheries are in place. Management tools commonly used in the small-scale fisheries are size limit, gear restriction, closed season, closed area, and fishing permits. The legal framework has been introduced in Sri Lanka to regulate fisheries. However, unsuccessful management of small-scale fisheries could lead to the weak institution, unclear management instrument, and limited involvement of fishers in the management process. Hence, this paper presents challenges in the management of small-scale fisheries in “Salli” GN Division. This research was based on primary and secondary data. Informants selected through snowball sampling methods. Collected data were qualitatively analyzed using content analysis. Characteristics of small-scale fisheries in “Salli” GN Division includes multi-gear and multispecies, low capital and labour intensive, remote landing sites, weak market and bargaining power among fishers. Management of Small-scale fisheries in “Salli” GN Division faces resource overexploitation, complex fleet interactions, competition and conflicts between fleets (small-scale, industrial and recreational), and post-harvest problems, such as lack of infrastructure.

Keywords: Fisheries management, co-management, community-based management, small-scale fisheries.

1. INTRODUCTION

Countries with poor institutional capacity face difficulties in achieving good outcomes from fisheries as Forms and capacity of institutions decide the quality of fisheries management[1]. This is a major challenge in many developing countries as fisheries are the important provider of proteins and other nutrients [2]. Further, fisheries contribute to public health, food security, employment and income [3], [4]. Moreover, fisheries management systems have direct and indirect impacts on coastal communities [5]. International donors provide the fund for fisheries development projects to improve fish production through appropriate fisheries management in developing countries.

Issues with small-scale fisheries are recognized all over the world [5]. It is difficult to keep the balance between marine resource use and conservation. It is true especially in the area where population density and migration are very high. This scenario put more pressure on the coastal resources that creates competition among the particular resource users. This, in turn, affects the livelihoods of the coastal communities [6].

The Downfall of fisheries industry, search for income, livelihood sustainability is major issues with coastal fishers. It is a great challenge to define a management scheme that suits the different context of small-scale fisheries [7]. However, there are some factors that contribute to the unsustainability of small-scale fisheries such as poverty, unemployment, lack of

incentives, weak governance etc. [8]. Problems and challenges in fisheries have been addressed in the different point of view by many scholars. However, research about management challenges in small-scale fisheries is limited. Literature as to fisheries did not cover much about quantitative information of small-scale fisheries because the information about fisheries has generally been collected at the national level and accepted to the regional level. The Distinction between large scale/ commercial fisheries and small-scale fisheries is rarely made.

It is easy to get more information about the large-scale fisheries and its contribution to the national GDP [9]. The Contribution of small-scale fisheries to national GDP is modest but they are very important for food, employment, livelihoods income of more people [9]. Issues in small-scale fisheries such as food security, employment, poverty, etc have been discussed in the global context. FAO prepared a guideline for responsible fisheries to address poverty in small-scale fisheries [6]. However, steps have been taken to estimate catches of small-scale fisheries all over the world [10]. Lack of systematic data collection and integrated information as to small-scale fisheries has only been addressed to certain extent. However, challenges in the management of small-scale fisheries are not studied well. These management challenges should be addressed to enhance the contribution of small-scale fisheries in poverty reduction and food securities.

For a couple of years, Government of Sri Lanka has made many steps to get a better understanding of small-scale fisheries in Sri Lanka. A systematic approach has been used to bring together scientists, fisheries managers, fishers to share information and experiences in managing small-scale fisheries. In addition, challenges in data collection, assessment and management of small-scale fisheries within Sri Lanka have also identified. Therefore, this paper addresses challenges in the management of small-scale fisheries in “Salli” GN Division, Trincomalee and provides useful direction for the management of small-scale fisheries in future.

2. METHODS

a. Study area and data collection

“Salli” GN Division is one of the well-known fishing villages in Trincomalee district, Sri Lanka with an estimated population of 2110 people. Criteria for site selection were being long established, accessibilities and resident interaction with coastal and marine resources [11].

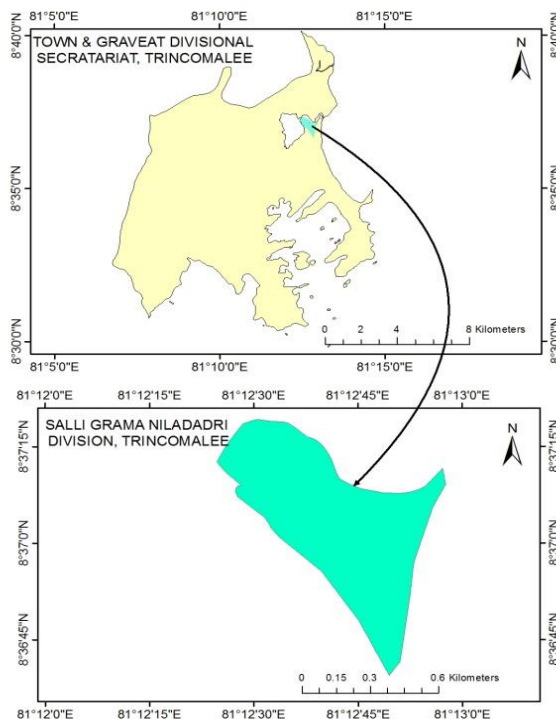


Figure 1: Location of the study area

Researchers used a mixed method approach to collect data in the selected location. The researcher applied qualitative research technique and approaches in this study [12]. Qualitative techniques such as Focused Group Discussion, Key Informant Interviews and Participant Observations were applied for data collection. This approach was important for a deep understanding of challenges in the management of small-scale fisheries. Focused group discussions were conducted from 25 November to 30 November 2017 at four locations in “Salli” GN Division. One focused group discussion was arranged with local fishers’ leaders and three focused group discussion with local peoples. Each focused group with local people comprised of 8-10 individuals selected by the community leader to represent a cross-section of the community. The field team comprised of three members who had sound knowledge in focused group discussion. Each focused group discussion lasted for around 1 hour and was audio recorded. The purpose of focused group discussion was to understand overall picture and challenges in the management of small-scale fisheries in “Salli” GN Division. Four key informant interviews were conducted with fishing community leaders who were selected using snowball sampling in which community members suggested appropriate respondents [13]. Key informant interview questions reflected socio-cultural relation and resource use patterns in their area. Participant observation was also conducted to validate information gathered through focused group discussion and key informant interviews. In this technique, some informal discussions were also conducted with young fishers to gather general information on population, access to water, health and education, employment opportunities and other important feature of the village. Data were collected in the form of field note and audio recorded.

b. Data analysis

Collected data were qualitatively analyzed using content analysis. Field notes from focused group discussion, key informant interviews, observation were categorized into the variety of themes and then inferences were made about the message within the context [14]. Result presented in the form of description.

3. CHARACTERISTICS OF SMALL-SCALE FISHERIES

The term “Small-scale fisheries” is broadly referred the world’s fishers and fishing vessels. Scholars agree that a universal definition is not either possible or useful. Small-scale fisheries are diverse, dynamic, attached to livelihoods and culture of the local communities. Differences between small-scale fisheries and large-scale fisheries are widely mentioned in the scientific literature [13]. However, diversity of fisheries industry makes difficult to define. The words that can generally be used instead of small-scale fisheries are “Artisanal fisheries, coastal fisheries, traditional fisheries, small, subsistence fisheries, nonindustrial fisheries, low tech and poor fisheries [15]. Small-scale fisheries have been defined based on its Characteristics such as the size of the boats, the mobility of the fleet, the method of production, level of organization and distribution of the products. Some common characteristics of small-scale fisheries are using multi types of boats and fishing gear, less capital investment, high labour intensive, wide range of landing site along the coast, the attraction of migrant fishers, limited power to influence the fish market, Lack of the mechanism to provide jobs and health to the fishers [10].

4. FISHERIES IN SRI LANKA

The contribution of the fisheries sector in Sri Lanka’ economy is very vital. It provides livelihoods for more than 2.6 million people [16]. The major part of animal protein for the population is consumed by fish products and the contribution of this sector to GDP is about 1.4% [16]. Fisheries industry is divided into coastal, offshore/Deep sea and inland and aquaculture sub-sectors. The total fish products of Sri Lanka were 656,000 Metric tons in 2015 [16]. The Contribution of marine sector and inland & aquaculture was 566,000 metric tons and 90,000 metric tons respectively in 2016. Further, the small-scale fish product was 269,020 metric tons while 183,870 metric tons from offshore/Deep sea [16]. Small-scale fisheries in Sri Lanka consist of artisanal, semi-industrial and subsistence fisheries. It has been defined in Sri Lanka based on the type of vessel and engine used. Small-scale fishing fleets consist of non-motorized traditional crafts, motorized traditional crafts and outboard Motorboats, owned and operated by private individuals. Simple canoes have traditionally been used for fishing. Canoes are still in use in small-scale fisheries in Sri Lanka.

Small-scale fisheries are in action along the country’s 1585 km long coastal line [16]. Most small-scale fishers operate outboard Motorboats (24,028) and non-motorized traditional boats (19,051). In addition, they use purse seines, beach seines, gillnets, long net and hook and line to fish shallow and deep water demersal and small pelagic species[16]. About 43,070 boats (outboard Motorboats, non-motorized traditional boats) are involved in fishing in Sri Lanka. Most of the caught fish and fish products are consumed locally.

The department of fisheries and aquatic resources, is operating under the ministry of fisheries and aquatic resource development, is responsible for management, development and conservation of fisheries and aquatic resources of Sri Lanka. The role of Department of Fisheries and Aquatic Resources is to implement fisheries policies, formulate guideline, rules and regulations to govern national fisheries and aquaculture. Department of Fisheries and Aquatic Resources involves in the registration of fishing vessels, issuance of the fishing license, inspection of fishing vessels and gears. Fisheries are under regulated open access in Sri Lanka. Illegal fishing boats notably foreign trawler is the biggest challenge in Sri Lanka [16].

5. FISHERIES IN “SALLI” GN DIVISION

“Salli” GN Division is a small fishing village with about 2110 people (640 families) and is one of the popular fishing villages in Trincomalee district, Sri Lanka. Fishing activities take place around the entire coastal area of “Salli” GN Division. 1 multi-day, 178 outboard motor boats and 7 non-motorized traditional boats have been used in fishing [11]. Boat owners get fishing permits from the Department of Fisheries Trincomalee. Fishers in “Salli” GN Division typically fish every day during dry seasons. However, they go fishing as long as weather condition is good during the rainy season. Windy seasons affect their fishing activities. On some windy days, they don't want to go fishing.

Small-scale fisheries in “Salli” GN Division consist of artisanal and subsistence fisheries which are defined based on the type of vessels and engine used for fishing. Small-scale fisheries in “Salli” GN Division provide livelihoods for 640 fishing families. Most of the fishers have their own outboard Motorboats to involve in fishing. Fishers commonly use purse seines, beach seines, gillnet, longline, and hook to capture coastal shallow and deep water fish. Local community largely involved in the processing of fish through salting, drying, and smoking. Most of the fish products target the local market.

6. CURRENT PERSPECTIVES ON MANAGEMENT OF SMALL-SCALE FISHERIES

There should be a management system for all kind fisheries to achieve its objectives. In a broad sense, fisheries management can be defined as “*The integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation, with enforcement as necessary, of regulations or rules which govern fisheries activities to ensure the continued productivity of the resources and the accomplishment of other fisheries objectives.*” [6]. Majority of the fisheries around the world is not effectively managed [17]. The management method of the small-scale fishery will consist of financially well supported high management capacity, well organized scientific information, enforcement of management regulations, one or few target species, the small number of well-organized stakeholders etc. Unfortunately, small-scale fisheries impose constraints on the effectiveness of such management methods.

7. THE OBJECTIVE OF FISHERIES MANAGEMENT

Stakeholders of fisheries practice multiple goals that will reflect conflicting interest and values [18]. Three types of goals come under fisheries management such as “biological and ecological sustainability”, “social benefits” and “economic returns”. Social benefits and economic returns require fisheries being managed. Merging conflicts in fisheries is a political issue that can be resolved in consultation with stakeholders. Ecological sustainability objectives cover a range of potential solutions which depend on the acceptable extent of the individual population, pristine condition, the acceptable degree of undesirable outcomes [15]. The acceptable degree of risk should be decided in combination with social and economic objectives ensuring that overall objectives are realistic and achievable. There are potential differences from fishery to the fishery in terms of objectives and approach adopted. However, modern global and national policies ensure the inclusion of ecological sustainability. The world committed to working on the principle of sustainable use of natural resources, for instance, UN convention on the Law of the Sea. Fishers recognized that healthy fish stocks and sustainable use of natural resources are fundamental goals in their livelihoods [7].

8. THE ESSENTIAL FOR INFORMATION AND KNOWLEDGE

Information and knowledge play a key role in making sound decisions as to the system being managed. The better information leads the great likelihood of making good decisions [19]. This is merged form UN convention on environment and development in Rio de Janeiro in 1992 and now accepted as an essential component of the sustainable use of natural resources [4], [15], [20]. It is a common principle that uncertainty is more likely to lead optimal decision

and undesirable consequences as a result of management mistakes. Therefore, precaution is required to manage unacceptable ecological change below the level that is expected to be appropriate to the circumstances. The huge amount of money and expert knowledge are invested in commercial fisheries to reduce uncertainty [8]. Contrary, in developing countries, the majority of small-scale fisheries don't have the resources to invest in acquiring potential knowledge or the perceived economic value of fisheries is very low to justify the investment on it. The fact is therefore that the poorer fishers and communities who are in most needs of optimal, sustainable returns from their resources have the greatest need to invoke the precautionary approach, thereby losing potential returns that would be sustainable if the underlying uncertainties could be reduced

9. TRADITIONAL SMALL-SCALE FISHERIES MANAGEMENT IN “SALLI” GN DIVISION

Traditional small-scale fisheries in “Salli” GN Division operate along the coast. Village fishers are organized in a systematic way in which leader/president of the Fisheries Cooperative Society (FCS) has more power on controlling small-scale fisheries. The Leader of FCS settles disputes and some other communal issues. The fishing community is responsible for running daily fishing activities. The government does not have many impacts on day to day fishing activities of the community. Beach and coastal water in “Salli” GN Division is legally open access and anyone can fish from the coastal water, however, they must get permission from the particular FCS of the village and Department of Fisheries Trincomalee. The regulations of the government of Sri Lanka guide the fishing activities. However, there is a local level regulation through a system of traditional use-rights and common property resources. The “Salli” GN Division has its own set of norms that control the fishing behaviour on the coastal water and beach. For instance, some days in a week particularly every Thursday is avoided for fishing. The FCS and Department of Fisheries will determine the types and number of nets that can be used in anyone days. There are a set of regulations regarding the sale of catch in order to avoid conflicts among the fishers. Local norms and regulations don't aim at preserving fish stock rather; they aim at more catch and more profit. Nevertheless, the state regulations mainly concern individual behaviours and fishing practices. The state regulations and rigid laws are in force to segregate fishing gear types and to identify conflicting net types. The licensing and fishing permission is controlled by state laws.

10. CHALLENGES IN THE MANAGEMENT OF SMALL-SCALE FISHERIES IN “SALLI” GN DIVISION

The primary challenge facing small-scale fishing community in “salli” GN division is to maintain a sustainable livelihood in cooperating with increasing resource pressures. Encroaching ‘modernisation’ in small-scale fisheries in the study area threatens traditional management structures of small-scale fisheries. Problems in small-scale fisheries in Salli GN division range from “high level of labour involvement” to “lack of policy support”. Small-scale fisheries contribute to Sri Lanka's national economy to a certain extent. However, the livelihood of the people this fishing village is not significantly improved. Fisherman and fishers family are in trouble due to the decline of economically important fish species in “Salli” fishing village.

This fishing village is reserved for a group of people who have the very long fishing tradition in that village. Nobody can fish or land at the beaches without permission from respective FCS which is a community organization formed by local fishers. The number of fishing vessels operating in the “Salli” GN Division is suddenly increased since 2009. Consequently, the profitability of vessels has also decreased due to reduced catch rate. However, competitions for scarce resources have increased that decline the profitability of fishing in this fishing village.

Some challenges are identified with respect to management of small-scale fisheries in “Salli” GN Division which include open access fishing, lack of control of fishing efforts, conflict between traditional and modern management system, Poverty among the fishers, inability to curb illegal fishing, lack of proper institutional structure to promote sustainable fisheries, lack of mechanism for assessment and management of small-scale fisheries, Lack of fishers' participation in management and decision making, disputes with other fishing area vessels, lack of policy framework, increased market pressure on fishers.

Enforcement of rules to control the number of boats is not properly maintained. Consequently, competition among the fishers is also increased. Sufficient personals are not recruited by the government to monitor the enforcement of rules. Inadequately enforce legislation by the state regarding illegal fishing and fishing methods increase in conflict between fishers in Salli GN division. Conflicts between fishers will be solved by FCS under normal condition. Resolving this

conflict is sometimes difficult due to the involvement of the different ethnic community. In certain circumstances, some of the fishing boats are owned by outsiders that makes harder settling dispute as both sides is functioning under different community structure. Some places in the study area experience coastal erosion and silting up problems that, in turn, affects fishing habitats. Traditional landing beaches and places are being affected due to coastal erosion.

The conflict between traditional and modern management system is the greatest challenge facing the management of small-scale fisheries in Salli GN division. Fisheries industry requires management and development measures for effective conservation and utilization as it is important to local and national interest. Small-scale fisheries have been managed effectively by local fishers for many generations in Salli GN division. Sri Lankan government spent the considerable amount of money to build up an effective management system in small-scale fisheries. In some cases, the traditional fishing sector in small-scale fisheries has been ignored from the government subsidies.

Poverty among fishers in is one of the major challenges in the management of small-scale fisheries in “Salli” GN Division because small-scale fisheries provide the major part for local consumption. The problem in supply to the local market will have severe implication on nutritional well-being of the coastal community. It is proved in many places that community-based management of resources is more efficient in producing sustainable outcome rather than company oriented management system in the long term. Lack of support and recognition of the existing traditional management system in the study area could have negative impacts on the management of small-scale fisheries. The observation showed that the fish stocks targeted by the small-scale fisheries sector are already overexploited. The small-scale fisheries sector of the study area is highly vulnerable to economic and natural shocks. Thus, small-scale fisheries need protection to implement an effective management system. The protection could be passive through adequately forming regulations to control the number of vessels and activities such initiation could improve community-based fisheries management system for open access resources.

Fishers saw that lack of the institutional framework to deal with fishery issues is a major challenge in the management of small-scale fisheries. Poor control of illegal fishing is increased the number of fishers in the coastal area that led increased pressure on the marine resources. It is observed that lack of institutional capacity to effectively monitor fishing activities leads to ineffective management of small-scale fisheries in Salli GN division. Small-scale fisheries managers or inspectors in the study area face social pressure and they respond on the basis of the most pressuring demands. Limited legislation and lack of transparency in the institutional arrangement in “Salli” GN division is also a hamper to have effective management in small-scale fisheries. Sustainable fisheries in “Salli” GN division require the development of management plan and fisheries legislation.

11. CONCLUSION

It is very clear that the long-term management plan is essential to achieve sustainable fisheries in Salli GN division. Sufficient legal and policy framework must be introduced to implement effective management in small-scale fisheries in the study area. Management process in small-scale fisheries should be more transparency and participatory to implement an effective legal and policy framework. This process consists of co-management approaches, defining fishing rights, the participation of fishers in the management process. Under this consideration, local governance, equity rights and self-regulation and socio-economic and livelihood consideration need to be addressed. The Decline in catches in the study area has been a result of increased competition over valuable fishing resources that resulted in increased travel cost for fishers. It is mandatory to reduce the overall pressure on fish resources to rebuild an effective management system in the study area. It is observed that control on fishing intensity could ease management of small-scale fisheries in “Salli” GN division. In addition, in order to promote co-management and develop local institutions, an alternative form of governance should be introduced in small-scale fisheries in the study area that could be achieved through collective access rights for a specific fishing community. Providing equitable access to the resources is a common issue in fisheries. This issue can be solved through the establishment of access rights and implementation of co-management in the small-scale fisheries. The complex market structure is a critical problem in many small-scale fisheries. Fishers are searching for the better option to come out from the debts as fishers get relatively little of the benefits obtained from the small-scale fisheries.

To sum up, improving local capacity for self-governance and self-organization for participation in fisheries management are important to overcome challenges in terms of small-scale fisheries management in “Salli” GN division. Further, challenges in the management of small-scale fisheries in study area call for the establishment of equitable access and rights to resources among stakeholders. Socio-economic issues need to be taken into account as it affects the management of small-scale fisheries directly and indirectly.

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