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ANALYSIS OF THE FISHERIES SECTOR IN SRI LANKA

**GUIDED CASE STUDIES FOR VALUE CHAIN DEVELOPMENT IN
CONFLICT-AFFECTED ENVIRONMENTS**

microREPORT #100

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ACRONYMS

AMAP	Accelerated Microenterprise Advancement Program
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BOI	Board of Investment
CCD	Department of Coast Conservation
CFC	Ceylon Fishery Corporation
CFHC	Ceylon Fishery Harbour Corporation
CRMP	Coastal Resource Management Project
DEOCOM	Delimitation of the Outer Edge of the Continental Margin of Sri Lanka
DFAR	Department of Fisheries and Aquatic Resources
EDB	Export Development Board
EEZ	Exclusive Economic Zone
EU	European Union
FAO	United Nations Food and Agriculture Organization
FGD	Focus Group Discussion
FO	Farmers' Organization
FRP	Fiberglass Reinforced Plastic (boats)
GoSL	Government of Sri Lanka
GSP	Generalized System of Preferences
HACCP	Hazard Analysis and Critical Control Points
IFAD	International Fund for Agricultural Development
ITI	Industrial Technology Institution
LTTE	Liberation Tigers of Tamil Eelam
MFAR	Ministry of Fisheries and Aquatic Resources
NARA	National Aquatic Resources Research and Development Agency
PT-CRRreMP	Post-Tsunami Coastal Rehabilitation and Resource Management Programme
PT-LSPP	Post-Tsunami Livelihoods Support and Partnership Programme
SJM	St. John's Fish Market
SLSI	Sri Lanka Standards Institution
UNCLOS	Third United Nations Convention on Law of the Sea
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

Sri Lanka has been affected by prolonged armed conflict, and attendant chronic governance failures, for the past three decades. Evaluating its impact on the performance of specific productive sectors, such as ocean fisheries, remains a timely and important exercise. The value chain analysis methodology offers an insightful way to approach this critical topic due to its focus on identifying the actual and potential competitiveness of particular products and the areas of possible economic development and growth. The USAID AMAP program commissioned this study to ascertain the ability of a value chain analysis to determine the impact these two types of conflict have had on the fisheries industry in southern Sri Lanka—both the direct and indirect physical and other effects the armed conflict has inflicted and the structural consequences of institutional and governance failures. The study used the analysis to compose recommendations for effectively developing the capacity of the fisheries sector to contribute to equitable economic opportunities in Sri Lanka.

The research team based their analysis on data from primary and secondary sources at both the national and regional levels. Team members obtained secondary data from fishery-related institutes—community-level organizations, the Ministry of Fisheries and others—and used a participatory appraisal approach to collect primary data from stakeholders involved directly and indirectly in the fisheries value chain—fishermen, traders, processors, government officials and other informed groups. The team selected three study sites—Negombo, Chillaw and Hambanthota—and convened focus groups representing the ethnic and religious heterogeneity of the country’s fishing communities and the range of impacts the conflict was having on different regions of the country.

The study addresses the research question, ‘How can value chain analysis and the value chain framework help to identify and understand both the major opportunities for upgrading and the driving constraints to market growth of the fisheries sector given the context of conflict?’ To fully demonstrate the opportunities and constraints associated with the direct and indirect impacts of the conflict, the team developed a value chain/conflict dynamics matrix that identifies both the different chain segments affected directly and indirectly by conflict and the ways in which they are affected. Further analysis of the opportunities and constraints posed by the various dimensions of the conflict yields case-specific examples of the ways the conflict interacts with and affects a given value chain.

Opportunities generated by the continuing violent conflicts and related institutional failures in Sri Lanka are negligible compared to the large number of constraints they present to the entire chain, including lack of access to and competitiveness in end markets; sluggish or dormant firms and supporting markets; the need for firm-level upgrading, and a poor business enabling environment. The limited supply of fish to end markets, both domestic and export, and the increased cost of inputs are the most visible impact of conflict on the fisheries industry at the present time. Further, increased security measures and related expenditures have increased the transaction costs for the industry. Such conditions have made ocean fishery a high-cost industry in Sri Lanka, thus reducing not only its competitiveness but also its ultimate potential for growth and ability to act as a driver of poverty reduction.

Many entrepreneurs in Sri Lanka’s fisheries industry have identified the constraints to and potential of the sector, but they are unable to bring about substantial change in the conflict-affected environment. The research concludes that the current situation is one of impact-mitigation and maximization of gains because of constraints imposed by the conflicts. Issues related to the generation of a favorable enabling environment through the improvement of public infrastructure (harbor facilities and roads) and services (research, extension and institutional support such as policy reform, quality assurance, input delivery, etc.) depend primarily on the capacity and commitment of relevant state agencies. Although private-sector actors may be able to play a role in advocating for needed reforms the weak governance environment poses obstacles to targeting such efforts and driving meaningful change. To improve competitiveness of the industry, the state should focus on identifying niche markets and product categories,

introducing technology, facilitating support services, revising existing trade and export policies and developing needed infrastructure.

The private sector can improve the functioning of the value chain through wider access to credit, infrastructure enhancement and increased inter-firm cooperation. These changes are not easily implemented by individual actors, but are possible through collective action with existing fisheries cooperative societies playing a role. In addition, the development of micro-credit facilities is a promising way to circumvent the problems fishers experience with formal financial institutions and could provide them with an alternative to the private moneylenders who are part of an often highly exploitative industry. Cooperative societies can increase fishers' bargaining power with large organizations higher up the chain and conduct lobbying efforts with state authorities for better operating conditions. Successful cooperative organizations have the potential to enter into public-private partnerships to facilitate the provision of much-needed infrastructure, such as harbors, anchorages and related facilities and to participate in broader development of the sector.

To further an understanding of how the conflict affects Sri Lanka's fisheries industry and how the chain might realize its competitive potential, this study analyzes the value chain as well as the way it interacts with direct and indirect conflict dynamics. Section 1 provides an overview of the conflict context and the fisheries sector and identifies the key development and relief initiatives currently being implemented. Section 2 presents the methodology employed in conducting this study, and Section 3 gives a detailed analysis of the conflict environment in Sri Lanka.¹ In Section 4, a detailed analysis of the fisheries industry leads to a discussion of the links between value chain and conflict dynamics. The concluding section highlights insights from applying the value chain analysis in a conflict-affected context, as well as possible ways forward identified by the integrated conflict/value chain analysis.

¹ The conflict analysis is based on an adapted version of the USAID Conflict Management and Mitigation Office guide "Conducting a Conflict Assessment: A Framework for Strategy and Program Development".

I. INTRODUCTION

I.1 COUNTRY AND CONFLICT CONTEXT

Sri Lanka is a low- to middle-income country with a population of nearly 20 million. The majority are Sinhalese (74 percent) while the rest include Sri Lankan Tamils (12.7 percent), Indian Tamils (5.6 percent), Muslims (7 percent), Burghers and others.²

Although the Sri Lankan economy has maintained an average economic growth rate of above five percent since the 1990s, the need for substantially higher growth and a more equal distribution of benefits are needed to address the persistent poverty and lack of employment opportunities. The prolonged ethnic strife has contributed substantially to slowing economic growth, increased fiscal constraints, and reduced the government's ability to cushion the economy against external price fluctuations. In addition, about two percent of the population is internally displaced by the ongoing armed conflict, and economic and social problems are compounded by natural disasters such as floods and droughts that annually affect large numbers of people. The lack of adequate social protection for the poor, who are most vulnerable to natural and man-made disasters, is responsible, at least in part, for maintaining the country's high levels of poverty, discontent and violence over the years.

I.2 INTRODUCTION TO THE FISHERIES SECTOR

The northern and eastern coastal belts cover nearly 60 percent of Sri Lanka's coastline and the armed conflict disturbances directly affect fishing community livelihoods in these areas. While the situation results in a significant impediment to the overall progress of the fisheries sector, it also is responsible for the numerous hardships the communities face, including exposure to violence and displacement. The chronic governance failures of fisheries-related public sector agencies are closely linked to conflict dynamics and contribute to undermining growth of the sector. The 2004 tsunami further exacerbated these problems, affecting nearly all Sri Lankan fishing communities (only a handful along the western coast escaped), and the lack of security made it difficult to undertake rehabilitation efforts in the most severely damaged conflict-affected fishing communities. The result of the natural disasters, the armed conflict and poor public sector governance has been the inability of most fisheries value chain stakeholders and activities to recover and move forward.

Given the seasonal nature of fisheries industry incomes and other uncertainties (weather, ability to find fish, etc.), fishing communities find it difficult to secure a dependable livelihood. Coastal fishing depends on monsoon climate patterns and fishers must migrate between the country's major fishing areas as seasons change. Except for a small number of large commercial operators with modern facilities, the fisheries sector in Sri Lanka comprises mostly small-scale operators. The poorest industry workers are the fishermen who use small traditional boats, fish workers, small-scale vendors and low-paid workers of associated, often labor-intensive industries. Overall, the fishing subsector is one of the most vulnerable communities in Sri Lankan society.

I.3 KEY DEVELOPMENT AND RELIEF ACTIVITIES IN THE SECTOR

The December 2004 tsunami had a devastating impact on Sri Lanka's fisheries sector and post-tsunami aid has been a major contributor to the sector during the past few years, particularly at the household level. Numerous government, donor, NGO (local and international) and other projects have helped rehabilitate the sector during this period. However, the excessive amounts of uncoordinated assistance during the post-tsunami period appear to have resulted

² Percentages are based on 1981 Department of Census and Statistics information. Although a census was conducted in 2001 it did not cover the Jaffna, Mannar, Vavunia, Mullativu, Killinochchi, Batticaloa and Trincomalee districts.

in an over-supply of boats, which may have exacerbated the over-exploitation of coastal fisheries, a problem the government and development agencies were trying to address prior to the tsunami and influx of relief efforts (Ministry of Fisheries and Aquatic Resources [MFAR], 2006).

The United Nations Food and Agriculture Organization (FAO) and the International Fund for Agricultural Development (IFAD) are the two major organizations that continue providing support for tsunami-affected fishers. In close partnership with MFAR, the FAO assessed the sector's rehabilitation and reconstruction needs, including harbors and anchorages, fishing gear, post-harvest facilities and coastal conservation structures. The FAO plans to conduct a comprehensive survey of selected fishery resources within the Exclusive Economic Zone (EEZ)³ in 2008. IFAD helped provide housing for tsunami-affected fishers and alternative livelihood programs for small-scale fishers under two initiatives: the Post-Tsunami Livelihoods Support and Partnership Programme and the Post-Tsunami Coastal Rehabilitation and Resource Management Programme (PT-CRRoMP). IFAD has also provided 25 multi-day boats with modern storage facilities for fishermen in the tsunami-affected districts of Kalutara, Galle, Matara, Hambantota, Ampara, Batticaloa and Trincomalee. Overall, there was a 66 percent increase in the number of multi-day boats in 2007—from 1,581 in 2004 to 2,618 (channeled through the state and NGOs)—as a result of post-tsunami donor assistance.

Two current projects not related to tsunami relief are the Coastal Resource Management Project (CRMP, funded by the Asian Development Bank), and the UNCLOS Project on the Delimitation of the Outer Edge of the Continental Margin of Sri Lanka (DEOCOM). The main CRMP project components comprise: (i) coastline stabilization; (ii) coastal environment and resource management; (iii) fisheries resource management and fish quality improvement, and the construction of harbors/anchorages and ancillary facilities for the improvement of fish quality and reduction of pollution in lagoons; and (iv) institutional strengthening of MFAR, community organizations in coastal and fisheries resource management, and other concerned agencies. Currently, the project is in the process of constructing harbors in areas such as Ambalangoda, Hambantota and Chilaw (see map in Appendix F).

Apart from donor-funded projects, the National Aquatic Resources Research and Development Agency (NARA) is developing a satellite system to provide information on the availability of fish stock in the sea and the MFAR Fisheries Department plans to provide about 50 fishermen with price subsidies to purchase multi-day boats with refrigerated seawater storage facilities.

While these relief and development initiatives are often critical to the ability of individuals to secure a livelihood from the fisheries sector in Sri Lanka and represent key support mechanisms, particularly for the poorest of the poor and the most vulnerable members of fishing communities, they do not address the underlying conflict issues. However, as elaborated in Section 4, it is the multifaceted and dynamic impacts of conflict that continue to impede the sustained development and growth of the sector and its ability to provide meaningful economic opportunities.

³ EEZ is a sea zone over which a nation has special sovereign rights for the exploration and use of marine resources under the Third United Nations Convention on Law of the Sea (UNCLOS). It extends 200 nautical miles from the shore – more under specified circumstances (Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations).

II. PROBLEM AND ANALYTICAL FRAMEWORK

2.1 RATIONALE AND OBJECTIVES OF THE STUDY

It is a common observation in many developing countries that economic growth has failed to improve the conditions of the poor, as the benefits of growth are enjoyed mainly by small sections of affluent classes. The value chain approach is a tool that aims to achieve economic growth with poverty reduction in developing and transitioning economies by identifying and enhancing the competitiveness of sectors that have both a high level of participation by small and medium-sized enterprises and opportunities for upgrading.

This study focuses on the marine fishing industry in Sri Lanka, including the coastal and deep-sea subsectors. Given the long and continued conflict situation; its effects on the fisheries value chain; and the many constraints to its effective functioning, competitiveness and ability to provide participants with economic opportunities, it is critical that an analysis of the impacts of conflict be included in the value chain analysis.

2.1.1 TYPES OF CONFLICTS UNDER CONSIDERATION

Not all conflicts result in violence—many remain latent and embedded in societal structures, institutions and power - and resource-sharing arrangements. Such conflicts, however, have the potential to erupt into violence if not managed in a way that all stakeholders perceive to be equitable and mutually agreeable. The study considers both the armed violence and governance failures to be conflicts that impact the fisheries value chain—as direct, armed conflict and as structural conflict resulting in institutional and governance failures identified in Sri Lanka’s institutional arrangements and present in government agencies responsible for regulating and supporting the fisheries sector.

The study attempts to 1) assess the effects of both types of conflict and their actions on the fisheries value chain and 2) identify possible solutions to the negative and destructive impact that conflict has on the chain. The study findings indicate ways the value chain structure and behavior might be changed to improve industry competitiveness and demonstrates that the value chain approach and a conflict analysis can help determine how conflict may influence an industry’s ability to compete.

2.2 RESEARCH QUESTION

Within the methodological framework laid out above, this study focuses on the following research question:

How can value chain analysis and the value chain framework help in identifying and understanding (a) the major opportunities for upgrading and (b) the driving constraints to market growth of the fisheries sector in a context of conflict?

The armed conflict directly affects Sri Lanka’s north and east and has an indirect effect on the fisheries sector in the southern regions by restricting both the supply of fish from those areas and the movement of fishers. This adds a security risk to those that are inherent in the industry, which increases transaction costs, while the underlying governance failures become increasingly significant due to industry dependency on the state for infrastructural inputs (harbor facilities, anchorages, etc.), regulatory controls and management (product certification, quality control, etc.) and services (research, extension).

In examining interactions between conflicts and the industry, the value chain analysis should shed light on how problems identified in the sector might be successfully overcome so that future opportunities can be exploited.

2.3 METHODOLOGY

The general methodology adopted in this study comprises three analytical stages. The first is based on a value chain analysis and the identification of general opportunities and constraints at different levels of the chain—stakeholders, relationships and linkages. Every conflict has multiple and changing economic, social and political dimensions, and the second analytical stage tabulates these against the value chain analysis to identify elements at each level of the chain that are affected by particular aspects of the conflict and how (Appendices D and E). The third stage presents a qualitative analysis that identifies and discusses the static and dynamic forces at each value chain/conflict intersection that lead to their perpetuation or to change.

The sites included in this study are Chillaw in the Northwestern Province, Negombo in Western Province and Hambantota in Southern Province. These three locations are geographically distinct and their fishing communities represent the ethnic and religious heterogeneity found in Sri Lanka's fishing communities. The communities in the three areas have all faced the direct and indirect impacts of conflict on their livelihoods.

The team collected both secondary and primary data from September to October 2007 and made three preliminary field visits to Chilaw, Negombo and Tangalle Districts to organize the data collection. They subsequently collected primary data from a range of stakeholders using two methods—focus group discussions (FGDs) and key informant interviews.

For the FGDs, the team selected two representative samples of fishers in each study district (one from a remote area and another from a highly commercialized area) with the help of the district Assistant Director and MFAE Fishery Inspectors. They conducted a total of six focus group discussions in Thoduwawa and Wennapuwa, Chilaw District; Negombo and Pitipana, Negombo District; and Tangalle and Rekewa, Tangalle district. Each focus group comprised 8-10 fishers representing three major types of vessels—small canoes, fiberglass reinforced plastic boats (FRP) and multi-day boats—and different activities including exclusive fishing, fishing and trading, exclusive trading. Fishery cooperatives were also represented.

The research team conducted interviews with key informants from the Ministry of Fisheries and Aquatic Resources, the Export Development Board, the Ceylon Fishery Corporation, harbors, fishery cooperatives and federations, large- and medium-scale exporters and processors, fish traders, commission agents and input suppliers (Appendix 1, list of interviewees). Team members carried out a literature review to collect secondary data and conducted additional interviews with the Ministry of Fisheries and Aquatic Resources, Export Development Board, National Aquatic Resource Research and Development Agency (NARA), Ceylon Fishery Corporation (CFC), and Ceylon Fishery Harbour Corporation. The team developed a draft value chain map based on the information they collected through the initial discussions, surveys and interviews and completed a final version following a second round of key informant interviews to fill identified gaps and validate findings.

III. ANALYSIS OF THE CONFLICT ENVIRONMENT

3.1 INCENTIVES FOR VIOLENCE

3.1.1 ETHNIC AND RELIGIOUS DIVISIONS

Sri Lanka is an ethnically, religiously and linguistically diverse country with a Sinhalese majority (about 75 percent), of which 90 percent are Buddhist. Tamils and Muslims form significant minorities. Tamils comprise two distinct groups: Sri Lankan Tamils and Indian Tamils. Approximately two-thirds of Sri Lankan Tamils live in the northern and eastern parts of the country and are concentrated primarily in coastal towns, while the rest are scattered throughout the country. Indian Tamils reside mostly in the plantation areas in the central part of Sri Lanka. The majority of both groups are Hindu. Muslims, who comprise eight percent of the population, are mainly Tamil-speaking and are distinguished by their religion. About one-third of Sri Lanka's Muslims live in the Eastern Province, while others tend to be concentrated in pockets throughout the country (K.M. de Silva, 1996).

The country has experienced a series of socio-political disturbances over the past several decades, stemming mainly from the multiple and multi-faceted grievances of both the Sinhalese and the Tamils. These include the unequal distribution of benefits from economic growth, post-colonial language legislation prescribing Sinhala as the official language, perceived injustices regarding ethnic representation in public institutions, access to land and water and the devolution of power to regions. Post-colonial ethnic tensions turned violent in 1983 when the militant Liberation Tigers of Tamil Eelam (LTTE) emerged as the dominant Tamil group, demanding a separate state for the Tamil-speaking minority in the northeastern region of the country. This conflict has been ongoing since that time. Additionally, in the early 1970s and the latter part of the 1980s, the country experienced sporadic rebellions by Sinhala youth demanding more equal distribution of the benefits of economic growth and access to employment opportunities (K.M. De Silva, 1996).

3.1.2 ECONOMIC CAUSES

Beginning with independence in 1948, the Sri Lankan economy was governed by several policy regimes that fluctuated between various forms of liberal, market-oriented policies and state-centered development approaches. In 1977, the Government of Sri Lanka (GoSL) initiated a far-reaching economic liberalization program. Successive administrations have continued these liberal economic policies, resulting in a surge in private sector activity and increased foreign direct investment in the country (Lakshman, 1997). However, while fueling economic progress, the liberalization process has also resulted in new avenues for rent-seeking, corrupt behavior and socio-political decay, which has exacerbated pre-existing social tension and friction (Dunham and Jayasuriya, 2000).

Though the Sri Lankan economy has enjoyed an average growth rate of over five percent in the post-1990 period, keeping up with the fast-changing global environment and reducing persistently high levels of poverty and unemployment means the economy must sustain a much higher growth rate with benefits distributed more equitably throughout the country. Indeed, close to a quarter of the population continues to live below the poverty line and unemployment rates, despite dedicated government policies designed to address them, remain high, with only around 52 percent of the working age population participating in the labor force.⁴ Since the early 1970s, social unrest and high levels of unemployment among youth have persuaded governments to promote vocational and technical training

⁴Department of Census and Statistics, Sri Lanka Labour Force Survey Final Report 2006

and other youth-oriented policies as an important means of improving employability. However, success has been limited and the highest unemployment rates continue to be reported among youth, women and educated individuals.

Development in the country continues to be highly uneven and concentrated primarily in the Western Province where Colombo, the capital, is situated. The resulting income disparities between regions reflect discrepancies in access to physical infrastructure such as electricity, telephone services, paved roads, safe drinking water and access to quality health and education services. Direct government involvement in implementing development projects and favoritism by political groups in power at different levels of government have decreased citizens' confidence in the ability of politicians and the national bureaucracy to ensure shared and equitable development based on non-partisan politics. The patronage dynamics have resulted in conflicts both between different political parties and among members of the same party at various levels of government, eroding the efficient functioning of institutions and of law and order.

Over the past several years a significant share of the population has been affected by a series of annual environmental disasters—droughts, floods and cyclones—with the tsunami of December 2004, the most devastating natural disaster ever to strike the country, directly affecting almost five percent of the population. With approximately two percent of people remaining displaced by the civil conflict, these vulnerable, conflict- and disaster-affected groups suffer from the inadequacy of social protection, itself an important contributing factor to the continuing conflict.

The number of individuals leaving the country, both for political and economic reasons, has increased significantly since the outbreak of the ethnic conflict in the 1980s. At present, over one million Sri Lankan citizens are estimated to have emigrated to seek better employment opportunities elsewhere. This estimated out-flow of migrants exceeds the number entering the labor force annually. The majority of these migrants are unskilled female workers from all ethnic groups who go to Middle Eastern countries.

3.1.3 NATURAL RESOURCES

The majority of the rural population in Sri Lanka subsists on agriculture. The scarcity of ground water and inadequate rainfall make water for crop production a major problem in dry zone areas. The land claimed by the LTTE in the Northern and Eastern Provinces is situated in this dry zone. In the Northern Province's Jaffna Peninsula, subsidiary food crops such as chili, onion and potato are grown with lift-irrigated ground water. Over the past five decades, the GoSL has established irrigation infrastructure in dry zone areas to increase the country's food production capacity. In dry zone areas where irrigation facilities are not available farmers cultivate agricultural lands only during one of the two monsoons during the year.

Access to land is affected by population increases and lack of economic opportunities outside agriculture, leading to a fragmentation of village landholdings in most rural areas and illegal encroachment on state-owned land that is protected for ecological and other reasons. Economic liberalization in the late 1970s further increased the competition for arable land. However, it is also the case that returns to nonagricultural use of land have increased due to both an expanding tourism industry outside of the conflict-affected areas and higher urban household incomes (Hettige 1997).

Fishing remains the key livelihood activity for the coastal populations of Sri Lanka. Indeed, the natural resource value of the conflict-affected area, which accounts for about 60 percent of the perimeter of the island, is derived mainly from its coastal belt and deep-sea resources. Before the outbreak of conflict both coastal and deep-sea fishing were practiced extensively and about one half of the country's requirement of fish used to be met with supplies from the area. In addition, most beaches in conflict-affected areas, particularly on the eastern coast, are ideally suited for tourism and the war in this area has been a significant blow to the growing industry. The possibility of discovering offshore mineral resources, primarily deep-sea petroleum, plays an important role in the interest of various parties in controlling the eastern territories.

3.2 DRIVERS OF CONFLICT

The LTTE is a highly organized group, designated internationally as a terrorist organization with connections to similar organizations in other parts of the world. The dominance of the LTTE since 1980s and their success in obtaining support from the Tamil diaspora around the world has marked the wider internationalization of the conflict (De Silva, K.M., 1996). Through a sophisticated global network that carries out publicity, propaganda and fundraising activities, the LTTE has been highly successful in persuading the Tamil diaspora and others to lend support, including financial, to their struggle. The close cultural affinity and political links between the Sri Lankan Tamils and political groups in the Indian state of Tamilnadu, which has provided training to guerilla Tamil groups, as well as the Indian government's military and mediation involvement in the 1980s, have further aggravated and prolonged the conflict (De Silva, K.M., 1996).

Although the LTTE's cadre of about 3,000 fighters is relatively small compared to the size of the Sri Lankan army, the smaller operational areas in the north and east and the use of unconventional terrorist tactics have enabled them to cause considerable damage to people, property and the economic infrastructure. The LTTE has been responsible for numerous violent incidents including attacks on civilians, assassinations, the recruitment of child soldiers, suicide bombings, ethnic cleansing, extortion, arms smuggling and other criminal activities throughout the period of the violent conflict. In recent years the Sri Lankan government has engaged in an active campaign to restrict LTTE fundraising activities and with the onset of the "global war on terror," these efforts have gained some momentum and garnered international support.

3.3 THE STATE'S RESPONSE TO CONFLICT

Corruption and patronage in economic and political spheres and the attendant erosion of state institutions have increased markedly in the post-liberalization period, and the inflow of foreign aid for development programs has opened even more avenues for rent-seeking by politicians and bureaucrats. Not only have increased military expenditures further facilitated corruption and patronage, they have crowded out much needed public investments in social and physical infrastructure that could have ensured better access to economic resources and a fairer distribution of economic benefits, thereby addressing an underlying source of the conflict. Political influence in recruitment to the public sector has eroded the effective management of public resources and returns on public investments. These increases in the level and degree of corruption in the country over the past several decades have both reduced the efficiency and raised the transaction costs of private investments. Corruption has also raised the costs of public administration due to the increased role and size of government and political institutions (IPS, 2006). The economic hardships and increased insecurity driving this deterioration of public institutions were instrumental in catalyzing rebellion in the 1980s and these same tensions, if not abated, could precipitate future violence (Dunham and Jayasuriya, 2001).

Since the 1987 constitutional changes, the GoSL has had a three-tier governance structure that includes the center (national level), the provinces and local communities. The center is responsible primarily for developing macro policies and development plans. Given the system of proportional representation currently practiced, the likelihood of a government with a clear majority is small. Recent years have seen political instability due to coalition governments that give prominence to the parochial interests of small political groups at the expense of national priorities. This has resulted in an increase in the number of line ministries responsible for sectoral policy management and ambiguities in assigned responsibilities between central ministries and between different levels of government, all of which have confused and held back the development process. Moreover, the unclear distribution of institutions among central ministries, lack of coordination between various government bodies, irregularities in appointing personnel for various positions, and insufficient physical and human resource capacity have harmed the effectiveness of governance. When coupled with the increase in the level and degree of corruption over the past several decades, it is easy to see why the efficiency of public investments has decreased and private investment transaction costs have increased. All of these

factors have led to increases in the costs of public administration, the role of government, and the size of political institutions (IPS, 2006).

3.4 CURRENT AND ANTICIPATED CONFLICT TRENDS AND DYNAMICS

Since mid-2006 Sri Lanka has seen a steep rise in the scope and severity of armed conflict and violence. Though this led to the government's formal withdrawal from the 2002 ceasefire in early 2008, it recently regained control over the Eastern Province and has initiated plans to carry out rehabilitation and reconstruction efforts there. Meanwhile, the living and working conditions in other parts of the country are also severely affected by the conflict due to heightened security, as well as sporadic incidences of violence and direct attacks by the LTTE. The current climate of hostility leaves little space for Sri Lankan or foreign peace efforts and even less hope for a settlement to the conflict in the near future.

Governance failures exacerbated by the armed conflict have continued to feed social tensions in the south, and the lack of confidence in politicians and the bureaucracy has intensified. Although the GoSL recognizes the need to alleviate regional imbalances in development and budget constraints, political instability in the south and violent conflicts elsewhere make it impossible to redress these issues in the short- to medium-term and are likely to further inflame them.

IV. VALUE CHAIN ANALYSIS OF THE FISHERIES SECTOR

4.1 VALUE CHAIN CONTEXT

4.1.1 VALUE CHAIN SUMMARY

The Sri Lankan fisheries sector can be divided broadly into two subsectors—marine and inland freshwater. Overall, the sector provides livelihoods directly for approximately 150,000 people and indirectly for about 250,000. The marine subsector, which is the subject of this study, can be further subdivided into two major components—coastal and offshore or deep sea fishing—and the value chain map in Appendix C covers both categories. The team developed the map on the basis of information collected in the three selected study sites (Section 2).

PRODUCTION

A critical element of the chain is the broad base of numerous small-scale fishers who operate in small motorized, traditional craft and relatively large, multi-day boats that are able to exploit offshore and deep sea fisheries and carry out fish production. Of the two marine fishing categories, the major share of production (about 60 percent) comes from coastal fishing along the entire coastline. Fishers harvest a variety of species that reflect the spatial variations of the fishing grounds. The output of coastal fishing is marketed through diverse channels to different, mainly domestic end markets that include urban and rural retail fish outlets, small mobile vendors, supermarket chains and the state-owned Ceylon Fisheries Cooperation (CFC) outlets. Urban wholesale markets, such as St. Johns Fish Market in Colombo and Kandy wholesale fish market, play an important role in distributing coastal fishery outputs.

While coastal fisheries still dominate the overall fish output of the country, production from offshore and deep sea fishing has been increasing rapidly since the early 1990s. This trend is largely in response to higher demand for tropical fish, particularly tuna species, from markets in industrial economies such as Japan, the EU and the U.S. As a result, deep sea fish production reached nearly 100,000 MT by 2004, an increase that has gone hand in hand with a number of improvements throughout the entire chain such as more reliable and larger vessels with cold storage, modern navigation instruments and fishing gear, fish processing plants (for frozen fish), and laboratory and quality testing facilities. These improvements have been instrumental in attracting significant amounts of foreign exchange earnings to the sector and have had an important impact on the entire Sri Lankan fisheries sector, bringing substantial technological advancements and marketing changes.

Responding to rising demand in Japanese, EU and U.S. markets, tuna has rapidly become Sri Lanka's main fish export, overtaking cultured prawns, which dominated fish exports over the last two decades. The attendant investments in fishing vessels and other equipment and operational funds for fishing trips have come mainly from private investors. In line with this growth in the offshore and deep sea fish industry, the government has developed infrastructure such as fishing harbors, anchorages and associated road networks. Despite the absence of statistics, it is clear that the growing numbers of multi-day craft, which provide a significant number of jobs to rural youth in fishing villages, are instrumental in bringing economic benefits to the poverty-stricken fishing villages in certain coastal areas.

OWNERSHIP AND COLLECTIVE ACTION

The fisheries value chain is dominated by the private sector at all levels. Although the value chain map presented in Appendix C includes the CFC (the state fish marketing arm) as a separate channel, in reality it controls less than 3 percent of the total market. It is apparent that the structure of the fishery supply chain as well as the roles and

responsibilities of its multiple stakeholders are undergoing rapid transformations in response to dynamic changes taking place in the sector. In progressive markets, some actors who are successfully performing multiple roles at different levels of the supply chain are contributing to the momentum of the system. For instance, coastal operators venturing into deep sea fishing have moved from being local market suppliers to suppliers for the export market, thus helping to expand the fish processing industry from the previously dominant cultured prawns to tropical marine fish production, especially tuna. In addition, the recent emergence of cooperative societies of fishers has led in some instances to both horizontal and vertical linkages, enhancing the bargaining power of small-scale operators while keeping pace with the dynamics in the sector (this is discussed further below).

In spite of these important signs of progress, their impact remains limited and recently, Sri Lanka's fisheries sector has performed less than satisfactorily with domestic supply unable to provide the quantities of fish products required at affordable prices to meet the nutritional needs of the country's population. Likewise, the rapidly growing opportunities for fish exports have not been fully exploited. As a result, poverty and inequity among producers remains rampant in this sector. The chronic armed conflict and related governance failures of state institutions mandated to support the sector continue to have a significant negative impact on the Sri Lankan fisheries industry, driving the inequities and inefficiencies that characterize the sector.

4.2 FISHERIES VALUE CHAIN STRUCTURE AND DYNAMICS

Details of each segment of the fisheries value chain map (presented in Appendix C) are discussed in the following section.

4.2.1 END MARKETS FOR MARINE FISH

The Sri Lankan fishery sector serves both the domestic and export markets, with the domestic component attracting 75 percent of the marine fish production. In 2006, total marine fish production was 215,980 MT, and the export market and dried fish production accounted for 9 percent and 15 percent, respectively. The domestic fish market comprises a number of diverse end markets including urban wholesale fish markets, retailers, fish vendors, CFC and supermarket outlets.

St. John's fish market (SJM) in Colombo is the largest wholesale market and domestic trading hub in Sri Lanka. SJM, where most retail activities also take place, receives supplies from all over the country; the bulk of distribution to island-wide destinations begins there. However, this internal trade has decreased drastically since the late 1980s and at present less than 20 percent of the average daily fish load at SJM comes from the north and east⁵—two heavily conflict-affected areas—despite the fact that these regions account for nearly 65 percent of the country's coastline (Department of Fisheries and Aquatic Resources). Regional wholesale fish markets operate in the rest of the country, while a considerable amount of trading occurs through retailers.

The GoSL established the CFC in 1964 with a mandate that covered all activities pertaining to the fishing industry. After its reorganization, the CFC's role has been limited to that of a distribution and marketing outfit with the major aim of providing competition to private traders. Due to the presence of economic and physical barriers to entry into the fish trade, producers still do not receive a fair price for their products. However CFC is intensifying its efforts to compete with the private fish trade, including through the purchase of fish at competitive prices at auction alongside private merchants. Though still insignificant in terms of scale, CFC and various supermarket chains (such as Cargills) involved in fish trading represent emerging markets.

There is a growing demand for fishery products by both local and export markets, and world demand for all types of fish products is increasing. While fish products from Sri Lanka are no exception (Appendix G), the country has still

⁵ Average daily number of lorries coming to SJM from the North and East was 12 in 2007 while it was 52 from other areas.

not been able to fully capture these opportunities and supply remains far below the potential capacity and existing demand.

The competitiveness of fish depends on price, quality and the stability of supply. The importance of these factors varies depending on the end market; price is the major factor determining competitiveness in the local market, while quality and regularity of supply play a major role in export market competitiveness. Although the armed conflict has drastically reduced fish supply from the north and east areas, which provided more than half of total production in the mid-1980s, Sri Lanka's fish products currently compete well in export market in terms of both price and quality, although steadiness of supply remains a problem. As Appendix G shows, most of the fish product categories (HS 06) are in the 'champions' quadrant with positive annual growth of world imports and parallel positive growth in Sri Lanka's exports. However, in some product categories, such as lobster and frozen shrimp, Sri Lankan exporters have not been able to fully exploit potential global demand. The focus of the sector should be on products that are experiencing negative export growth, but are in a favorable position vis-à-vis growing world demand.

Export earnings have shown steady growth during recent years—increasing from 7,126 MT in 1995 to 18,646 MT in 2006—and now account for approximately 2 percent of total GDP. Sri Lankan fish exports include fresh and frozen fish (tuna, sword fish, shark, sear, etc.), crustaceans (prawns, lobsters, crabs), sea cucumber and shark fins (Appendix G shows demand for different Sri Lankan fish products).

The UK and Japan are the largest international buyers of Sri Lankan fisheries products, accounting for 25 percent and 22 percent of total fish exports respectively, followed by France, Germany and the U.S. The European Union is the main buyer for Sri Lankan fisheries exports, and the Maldives, being duty free and cost competitive, is Sri Lanka's main competitor in the EU market. As part of its cooperation with the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC, which groups Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka and Thailand), Japan assists the Sri Lankan fishery sector to increase the productivity of its offshore and deep sea fisheries industry and the quality of its fish.⁶

4.2.2 BUSINESS ENABLING ENVIRONMENT

The regulation, conservation and development of fisheries and aquatic resources are addressed in the Fisheries and Aquatic Resources Act No. 2 of 1996, which comprises a number of regulations and provides for conservation and management at both national and regional levels (Sydnes and Normann, 2003). The National Fisheries and Aquatic Resources Policy of 2006 and The Ten Year Development Policy Framework of the Fisheries and Aquatic Resources Sector (2007-2016) include strengthening the legal framework to support fishery management, improving productivity through the use of new technology, preventing the use of habitat- and resource-destructive methods, diversifying fishing methods, promoting harvesting of underutilized species, improving the quality of fish, minimizing post-harvest losses, and increasing foreign exchange earnings from fish products. National and local fishery-related institutions provide a variety of technical and advisory support services, including research, extension and environmental conservation.

⁶ This includes: technology for tuna long-lining; forecasting potential fishing zones; onboard fish handling and processing; boat designing; training of fishermen and scientists; improvements to infrastructure facilities such as fishing harbors, processing plants etc.; joint fisheries resources surveys for sustainable utilization of resources and fisheries management; development of economic cooperation (credit lines, non-tariff measures); joint efforts to respond to international trade/marketing barriers; establishment of a disaster management system to protect fishermen and the coastal communities; assistance for coastal engineering for construction of harbors and other coastal structures; human resource development through training and exchange of experts; and joint studies.

Responsibility for the implementation of policies, laws, plans and programs is centralized around the MFAR as well as departments and regional and local-level state organizations established under its auspices.⁷ The Quality Control Division of the ministry provides services such as supervision, factory approval, export certificates and awareness-raising programs on EU procedures for exporters, quality management techniques, and other relevant issues. The Department of Fisheries and Aquatic Resources (DFAR), operating under the Fisheries and Aquatic Resources Act No. 2 of 1996, is responsible for managing, regulating, conserving and developing fisheries and aquatic resources. The National Aquatic Resources Research and Development (NARA) is primarily responsible for conducting research and establishing policies designed to improve and conserve fishery resources, in particular mapping resources to determine stock levels and rate of exploitation. NARA also provides laboratory facilities for quality control. District fishery offices under the ministry are responsible for local extension services, the registration of boats, the distribution of subsidies (fuel subsidy for small boat owners and a proposed price subsidy for buying boats), maintaining environmental standards and conflict resolution at the local level.

Fish exports are regulated by the 1998 Fish Product (Export) Regulations to ensure that Sri Lankan exports meet specific international quality standards. Exporters have to obtain certificates of health and food safety and Hazard Analysis and Critical Control Points (HACCP), and obtain approval to export to the EU by the Ministry of Fisheries and Aquatic Resources. Approved laboratories in different institutions such as the Sri Lanka Standard Institution (SLSI), the Industrial Technology Institution (ITI) and NARA perform quality inspections and there are several approved private laboratories that also provide this service. These institutes are generally perceived as supportive and transparent given that the industry does not face significant difficulties or administrative obstacles in meeting export market quality and safety standards.

The Export Development Board (EDB) is responsible for promoting fish and fish product exports and it also provides capital grants at concessionary interest rates to selected exporters to enable them to upgrade their processing units according to HACCP standards. As a result, most processing plants have the necessary equipment to meet these standards, but continue to operate below their potential capacity. Currently, 26 medium- and large-scale export companies are reported to have their own processing units compliant with EU standards (See Appendix B).

Recently, the CFC extended its support to small fishermen by assisting them in marketing and providing price support under a guaranteed price scheme. The CCD is responsible for the conservation, protection and development of the coastal zone under the Coastal Conservation Act, as amended by Act No 64 of 1988. The basic objectives of Ceynor Foundation, Ltd., established in 1967, are to build and sell fishing vessels and related marine equipment, fishing nets and other gear and to operate workshops for the fishing industry (Sydnes and Normann, 2003).

Fishery harbors, controlled and managed by the Ceylon Fishery Harbour Corporation (CFHC), provide anchoring facilities; harbor maintenance facilities; ice, water and fuel for vessels; boat repair and net making facilities; auction halls; and electricity and sanitary facilities. Except for a handful, most harbors are still under development, so most of these services are still provided on a subsidized basis. Currently there are 12 harbors on the coastline with the main fishery harbor in Colombo (Appendix F). However, existing harbor facilities are largely inadequate and privately-owned boat yards provide a considerable service to fishers around the country. The existing 37 anchorages and 710 fish landing places (or *thotupola*) are also inadequate, poorly managed and often lack even basic facilities.

⁷MFAR is organized under six divisions and it consists of two departments, five statutory bodies and a public company under its purview. These include the Department of Fisheries and Aquatic Resources (DFAR), Department of Coast Conservation (CCD), The National Aquatic Resource Research and Development Agency (NARA), Institute of Fisheries and Nautical Engineering (NIFNE), Ceylon Fishery Harbors Corporation (CFHC), Ceylon Fisheries Corporation (CFC) and Ceynor.

4.2.3 VALUE CHAIN PARTICIPANTS

PRODUCERS

There are approximately 130,800⁸ fishers in Sri Lanka's marine fishery value chain, of which approximately 90 percent operate in coastal and offshore subsectors, with the remaining 10 percent in the deep sea subsector. The total marine fishing fleet of 42,678 vessels consists mostly of small to medium-sized craft such as day boats with an inboard engine, FRP boats with outboard motors, traditional motorized and non-motorized craft and beach seine boats owned and operated by private individuals. With respect to small-to-medium sized boats, owners normally fish with a few crew members. Multi-day boats used for deep sea fishing make up only 6 percent of the total fishing fleet. Multi-day boat owners do not usually get involved directly in fishing, but hire crews instead.

Unlike modern fishing techniques that use multi-day boats, traditional fishing activities are seasonal since they depend on sea surface currents that are directly influenced by the monsoons. During the off-season, most fishermen find employment as laborers on multi-day boats or migrate to other areas that are in season. Sometimes they find wage work in other, fishery-related activities, including dried fish production.

ASSEMBLING, WHOLESALE TRADING AND RETAIL

Wholesalers, collectors/beach assemblers and various categories of retailers including the CFC, supermarkets and fish vendors purchase fish as it is being unloaded from the boat (See Appendix C). Consumers also assemble on the beach to buy their daily requirement of fish. Retail traders and fish vendors buy their daily market requirements from numerous fish landing sites along the coastal strip, urban wholesale markets or nearby regional markets. These small vendors and traders include those who operate fish stalls at market places or roadside locations, push-bicycle traders, motorcycle traders, pingo carriers, basket carriers and head loaders, and they tend to be relatively poor compared to other chain participants. The CFC operates purchasing centers at major fishing sites where fish is purchased at pre-determined prices, which are usually set a little above beach prices and are revised every three months.

Along the marketing channel, beginning with the beach assembler, all value chain participants maintain a profit margin that accumulates to determine the retail price. The beach assemblers' margins depend on the wholesale market selling price and commission agents charge 5-10 percent of product value for handling. Retailers' profit margins tend to be highly variable and are assumed to be anywhere from 25 to 50 percent or more of the selling price (Samaranayake, 2003).

PROCESSORS

Participants in the supply chain to the export market include multi-day boat owners, assemblers, processors and other exporters. Processors are also engaged in exporting and some process the products of other exporters who do not have that capacity. In general, processors have contract arrangements with multi-day boat owners and assemblers and tend to purchase only their product if it meets quality standards. In certain cases, processors use their own multi-day boats to meet their requirements, and they import fresh fish from countries like the Maldives, Yemen and Thailand to maintain continuous production during off-seasons.

4.2.4 SUPPORTING MARKETS

The industry is supported by a number of state and private-sector fishery-related services, including boat building, fishing gear manufacture, ice production, credit, research, extension, marketing and export promotion. However, such support, particularly access to credit, is far below required levels. Due to the inherent risk and uncertainty attached to the sector and the lack of collateral, small-scale fishers are often unable to access much-needed financial and insurance

⁸Ministry of Fisheries and Aquatic Resources

services. Informal credit markets play a significant role in the small-scale fishery sector with collectors, or *mudalali*, usually providing credit for boat owners who consign fish to them in order to buy boats or repair their vessels in times of distress. Collectors can be wholesalers, commission agents⁹ at SJM or individuals operating from out-station, urban wholesale market centers. Beach assemblers also buy fish directly from the fishermen and deliver it to urban wholesale markets like SJM and regional market centers. In addition, beach assemblers who operate from villages often finance the fishermen. At times the urban wholesaler may finance the assembler so that he is assured of a continued supply of fish. These are informal credit arrangements largely operating on trust, without any guarantees or collateral. Most small traders obtain credit on interest from moneylenders operating in the market at exorbitant interest rates and/or binding obligations.

There are several other supporting market actors serving the sector including vessel manufacturers and mechanics, fuel suppliers, transporters, and so on. Fish mixed with ice are normally packed in wooden boxes, which are transported in trucks or vans to the wholesale trading centers, with only a few freezer trucks owned by private traders and CFC. The total production capacity of the 60 existing ice plants is approximately 1,200 MT—well below existing demand. Ice quality is also often below the required standards. There are about 50 boatyards and 7 gear manufacturing factories, and most are privately owned. The Ceynor Foundation is the only state-owned manufacturer.

4.2.5 INTER-FIRM LINKAGES

Strong inter-firm linkages, both horizontal and vertical, are seen at different levels of the fishery supply chain, but they vary substantially and are dependent on other social and economic factors. For example, differences in inter-firm linkages can be observed between the two sample study sites, Negombo and Hambantota. Negombo is located close to urban centers and there are strong linkages between firms; whereas in Hambantota, which is further away from urban centers, these relations are quite weak. Differences in infrastructure and access may be the reason for this variation. Moreover, cohesion within strong fishing groups and fishery communities is observed in Negombo, but cohesion is weak among the Hambantota fishers. Although the causes of this long-standing difference are not entirely clear, what is evident is that it puts Negombo at a comparative advantage when it comes to strengthening possible future collective action.

Even though the degree of cohesion among firms varies substantially across the country, these linkages provide mutual benefits to all the parties in terms of supplying continuous and high-quality produce, regular supply of inputs, reasonable prices, financial assistance and the like, irrespective of the scale of operation.

The majority of linkages are based on formal agreements, while certain informal arrangements also exist based on mutual relationships. Contract agreements are a very effective mechanism of product transfer at both the lower and upper ends of the fishery supply chains. For example, poor fishermen who lack operational capital for fishing obtain credit from merchants on the promise of a certain percentage of the yield. Alternatively, the total catch is given to the merchant, who charges a commission for its sale. Supermarket chains such as Cargills have also entered into long-term contracts with fishery organizations on different terms and conditions; and large fish processors and exporters enter into contracts with multi-day boat owners or commission agents. This obviously restricts the freedom of fishers to sell to the buyer offering the highest price for their product, but this institutional arrangement has gained popularity as it assures a timely supply of inputs.

Horizontal linkages also exist at certain stages of the supply chain. For example, fishers with multi-day boats develop relationships with small boat-owners to provide the latter with employment as wage workers on their larger vessels during the off-season when the small boats cannot operate. At the processor level, horizontal links allow those who have surplus plant capacity to process the produce of those who do not.

⁹Commission agents sell their products to stall owners at the SJM, keeping a commission for the product they handle.

The major form of inter-firm cooperation in the study area is the formation of fishery cooperative societies and the umbrella federation of such societies. Although this is primarily an outcome of the country-wide campaign for small producer cooperatives, conditions created by governance failures and the need to adapt accordingly could also represent a contributory factor. Small-scale fishers lack bargaining power and these cooperatives are an effective way of providing them a collective voice that can articulate their problems and grievances with the relevant authorities. The activities these societies encourage and facilitate include household savings, credit facilities to acquire capital assets (especially boats), the establishment of links with supermarket chains and NGOs, common property management, conflict resolution and collective bargaining.¹⁰

4.2.6 VALUE CHAIN GOVERNANCE AND POWER RELATIONS

Sri Lanka's fisheries value chain is governed by a combination of market-based, directed, balanced and hierarchical governance structures. Market-based governance is dominant in the domestic market and there tend to be minimal amounts of formal cooperation, documentation or paper transactions among participants since the entire operation is based more on trust and mutual understanding than on formal business practices.

The major reason for the emergence of other governance structures in the market is the existence of different inter-firm linkages. Balanced governance is seen in the special domestic marketing channels involving farmers' organizations (FOs) and supermarkets. The FOs coordinate with supermarkets such as Cargills on behalf of their members to market their fish products. Since no party is dominant and the participants enjoy equal bargaining power, this can be considered a balanced marketing channel.

Directed governance is prominent in the domestic marketing channel involving the CFC and also in the export marketing channel. The CFC directly contacts either the fishers or collectors to purchase according to its own product requirements, while processors buy fish from collectors on contractual agreements. In both these instances, they determine product quality specifications, pricing structures and other regulations. Hierarchical governance is rare in Sri Lanka's fisheries industry except for a few occasions where vertically integrated processing companies operate at different levels of the value chain (See Appendix 1).

Table 1 provides a summary of the opportunities and constraints related to the fisheries value chain.

¹⁰The cohesion among members and activities performed by the societies vary considerably by region and within regions. For example, in Negombo, which enjoys better infrastructure, including a road network and an airport in the vicinity, the fishery cooperatives are more active compared to other regions. There are less active societies in Negombo District and the study did not look into the reasons for such a variation.

4.3 VALUE CHAIN FINDINGS

Table 1. Opportunities for and Constraints to Upgrading

	Opportunities	Constraints
<p>End Markets</p> <p>Export market</p>	<ul style="list-style-type: none"> Unmet and increasing demand in the export market for tuna fish 	<p>Limited supply of quality fish for exporters and processors due to:</p> <ul style="list-style-type: none"> Post-harvest losses (poor storage facilities and handling methods) Fuel costs High operational costs make it difficult to compete with other competitors in the export market High initial capital costs to comply with HACCP standards
<p>Local market</p>	<ul style="list-style-type: none"> High demand in the local market for fresh fish 	<ul style="list-style-type: none"> Demand in the local market for imported canned fish Cheap fish imports for local consumption <p>Declining fish catch over time due to:</p> <ul style="list-style-type: none"> Increased number of boats Use of undesirable and illegal methods that destroy fish breeding grounds (destructive, resource-unfriendly gear, e.g., certain gill nets with smaller mesh size and light course methods).
<p>Enabling Environment</p>	<ul style="list-style-type: none"> EU - Generalized System of Preferences (GSP) scheme provides duty free access for Sri Lankan fish to European markets Future opportunities to export fish to Japan under BIMSTEC agreement EDB support – grant scheme for exporters to upgrade their factories to comply with EU standards Support of MFAR quality control division to comply with standards 	<ul style="list-style-type: none"> Levies charged by Sri Lankan ports for foreign vessels comparatively high The CFC buys 25 percent of foreign vessel fish catch at fixed prices (lower than the market price) Conflicts over exceeding Sri Lanka's boundaries Increasing fuel prices High air freight charges for edible fish exports High aviation security charges for exports Flight delays and no direct flights to certain countries Difficulties in obtaining health certificates for urgent orders (MFAR works only weekdays and during specific hours) Delay in refunding VAT for the exporter Poorly targeted ad hoc subsidies Inefficient use of available institutions and facilities (CFC) Inadequate and poorly targeted research and development that does not cater to the industry Inadequate infrastructure facilities No proper anchorages in remote areas Overcrowding of existing harbors and anchorages Limited space to expand harbors due to encroachments

	Opportunities	Constraints
		<ul style="list-style-type: none"> • Absence of property rights except for a few traditional fishing methods (e.g., stake net fishing) • No territories reserved for different communities in ocean fishing (an open access resource) • No quality standards imposed on multi-day boat manufacturers
Inter-firm Cooperation	<p>Initiatives by fisher cooperative societies and federations to:</p> <ul style="list-style-type: none"> • Encourage savings • Provide loans for boats, nets and engines • Sell fish to supermarket chains • Natural resource management • Conflict management • Collective bargaining (e.g., for fuel subsidy) • Fishery cooperatives link with NGOs to provide training in clean dry fish production • Backward integration by some exporters/processors to ensure quality and a continuous supply of product for export markets • The CFC buys a certain percentage of fresh fish from fishermen in specific areas • Good relationships between multi-day and small boat (FRP/canoes) fishers (off- season work for small fishers on multi-day boats) 	<ul style="list-style-type: none"> • Poor coordination between government institutions and fishery industry R&D • Conflicts between fishers and fishery officials, private boat yards, and harbor officials • Conflicts among fishers due to inadequate space in harbors and anchorages • Increase in number of boats due to tsunami donations (previous non-boat owners also received boats) • Lack of property rights and open access to fishery resources
Supporting Markets	<ul style="list-style-type: none"> • Government (SLSI, ITI) and private intuitions (SGS) provide laboratory testing facilities that exporters need <p>Informal credit arrangements without collateral to:</p> <ul style="list-style-type: none"> • Provide loans for fuel and other operational inputs • Sell fish catch and charge boat owners a commission 	<ul style="list-style-type: none"> • Inadequate formal credit facilities • Credit facilities provided by formal banks to buy multi-day boats only if borrower has property to mortgage • Bank credit facilities do not cover operational costs • Problems with multi-day boat insurance facilities <p>Remote areas suffer from:</p> <ul style="list-style-type: none"> • Lack of storage facilities and ice • Lack of transport facilities • Inadequate water supplies • Limited access to fuel stations • Inadequate credit facilities • Lack of security for boats • Limited number of traders to buy fish • Low quality standards of most ice plants (especially for exports) • Poor quality multi-day boats <p>Inadequate harbor facilities include:</p>

	Opportunities	Constraints
		<ul style="list-style-type: none"> • Water, ice, fuel, electricity for boat repairs, sanitary facilities • Poor storage facilities at the local level compel fishers to sell at low prices
Firm-level Upgrading	<ul style="list-style-type: none"> • Knowledge and skills of processors/exporters to process fish for export markets • Positive attitude among fishers towards fishery industry improvement 	<ul style="list-style-type: none"> • High capital cost of multi-day boats • High operational cost of fuel, ice, food, water and labor • Use of poor and destructive fishing methods <p>Use of poor technology in multi-day boats:</p> <ul style="list-style-type: none"> • No cool rooms • Boats must carry tons of ice, which decreases fuel efficiency • Engines • Poor fish handling methods by fishers • Limited fishing during off-season, especially by small boat owners

4.3.1 INCENTIVES FOR AND CONSTRAINTS ON VALUE CHAIN PARTICIPANTS

The excess demand relative to supply in both domestic and international markets provides incentives for actors at all levels of the chain to undertake improvements. The low supply of fish from the north and east regions has increased the price of fish in other parts of the country and made traders at all levels relatively better off in the short run. However, the effect on their incomes over the long term remains to be studied. The limited supply both restricts the number of transactions throughout the chain and limits growth of the sector. Government support (such as that provided by district fishery offices and the MFAR quality control division) and the growth in inter-firm linkages have encouraged some value chain participants to invest in the sector. Industry growth in terms of distribution network and processing unit improvements as well as the increase in exports over the years has created opportunities for firms to interact and develop strong relationships with one another. Exporters that do not have processing facilities have formed strong links with others that have them and, since fish is exported as fresh fish with a short shelf-life, these types of transactions between firms are vital to maintaining product quality. There is, however, considerable spatial variation in the occurrence of such linkages, especially between rural and urban areas. In addition, presently there are direct incentives for fishermen, such as the fuel subsidy for small-scale operators and subsidies to purchase multi-day boats.

The prevailing economic and political environment in Sri Lanka has not been very supportive of the sector and has even restricted the ability of all actors to realize the potential benefits of their efforts. This can be viewed as a clear disincentive for value chain participants. The frequent changes in macro policies and the ongoing war are very discouraging and the sector needs reforms for long-term growth—research and development, infrastructure improvements and better networks for marketing and input supply—rather than short-term remedies such as subsidies.

Fishers operating on a small scale do not have storage facilities and are compelled to sell their produce at the prevailing market price. They are ‘price takers,’ lacking bargaining power and vulnerable to exploitation in the market, which provides them with no incentives to improve or maintain product quality. The same is true for laborers working on boats who, without proper incentives to maintain product quality, engage in improper handling that reduces the end market shelf-life of fish and negatively impacts sellers’ profits and reputations. Further, the catch-per-

boat has been declining drastically due to high fuel prices and the lack of satellite technology for information gathering. It is very costly for fishers to locate fishing grounds without technology, and the search consumes considerable time and fuel.

The lack of coordination between state institutions and the poor targeting of grants and subsidies have also affected the growth of the industry. The lack of quality fish and cooling facilities for transport, the low availability and quality of ice, and high transport costs are common disincentives for both large and small-scale traders. Only a few companies with their own units or sub-companies that provide some or all of these auxiliary services manage to escape these negative impacts. Exporters with their own multi-day boats, processing units, ice producing units and other equipment are able to effectively maintain supply quality and continuity. Fishers and traders who operate without access to similar facilities have a very difficult time competing with companies such as these.

4.3.2 RELATIONSHIP BETWEEN VALUE CHAIN AND CONFLICT DYNAMICS

The ongoing war and unfriendly macro-economic environment in Sri Lanka resulting from the policy failures of successive governments inhibit sector growth and obstruct its efforts to reach its full potential. Governance failures, including ad hoc sector policies and underperforming implementation agencies, have not supported the growth of the sector for the past two to three decades. Instead, they have adversely affected all levels of the chain to varying degrees. An example is the state research institutes, which are driven by internal interests and tend not to address the real research requirements. Further, the GoSL fish marketing institution has been insufficiently involved in the local fish trade, leading to a supply shortage in certain areas and adversely affecting the price of fish. Also, small-scale fishermen usually have limited access to these institutions in comparison to larger, influential producers.

The production of fish has been limited by increasing fuel prices and the conflict in north and east. Security restrictions on sea boundaries and access to fishing grounds (especially in the north and east), as well on boat engine power, have contributed to drastically declining fish production around the country over the years.

Further, the armed conflict has drastically reduced the migration of southern fishers to the north and east during the off-season. There have been incidents of Sinhalese fishermen being imprisoned for entering LTTE-held territories, and only a few Tamil-speaking fishermen continue this practice now. Likewise, the movement of fishers from the north and east to southern areas and inlands has declined for security reasons, and the situation has negatively affected the livelihoods of people employed at all levels of the supply chain.

While there are conflicts among fishers over access to limited infrastructure, there have been no major incidences of violence between fishers or other value chain actors from different parts of the country. Migration has been a common practice among fishermen since long before the conflict. Even today the fishing community comprises different ethnic groups and there are few conflicts between them on ethnic or political grounds. Rather, at the micro level the major factors affecting the supply chain are economic. Given the opportunity, fishermen are willing to move north and east for fishing, and traders and other intermediaries express interest in extending their business activities to those areas. This lost opportunity at the micro level is due to the macro-level armed conflict.

V. ANALYSIS OF THE RESEARCH QUESTION

The research question posed in Section 2 asked how value chain analysis can be employed to identify and understand the major opportunities for upgrading of and the constraints to growth in the fisheries sector that result from direct armed conflict and the attendant governance failures. Because both the armed and governance conflicts have affected the structure and functioning of the fishery value chain in the selected areas over an extended period of time, a pre-conflict benchmark could not be established. However, the research reveals constraints to the chain that can be traced back to conflict impacts. This section presents these causes and impacts and the concluding section suggests strategies to mitigate constraints and more effectively exploit opportunities.

A standard value chain analysis can effectively detail the stages of a chain in the context of existing social and institutional milieus and lead to the identification of available opportunities and the prevailing constraints. In the case of a conflict-affected environment it is possible for a value chain analysis to relate or attribute particular opportunities and constraints to different aspects of the conflict. However, given the many variations and manifestations of conflict presented in Section 3, the framework should be adapted to break down the impact that specific dimensions of conflict have on particular segments of the chain. This adds an additional step to the analysis—a conflict/value chain interaction matrix. Table 2, below, provides a summary, while Tables 3 and 4 in Appendices D and E present the opportunities and constraints observed in each aspect of the conflict (economic, ethnic, political, etc.).

Team members developed the conflict/value chain interaction matrix so they could arrange the opportunities and constraints they found at different stages of the chain within each of the conflict dimensions. This helps to identify which observation (opportunity or constraint) is affected by which dimension of the conflict. Team members conducted the analysis for each conflict (armed and governance) under study and summarized the findings in Table 2. It is evident that the conflict presents few opportunities and the table lists those that could provide the basis for upgrading strategies in the future. These opportunities are presented alongside the particular constraints resulting from each conflict type, which allows comparisons and possible mitigation strategies as part of upgrading plans. A discussion of the opportunities and constraints in each value chain segment follows.

Table 2. Value Chain Opportunities and Constraints Resulting from Conflict

	Opportunities	Constraints	
		Armed Conflict	Governance Failure
End Markets	<ul style="list-style-type: none"> • Export demand • High domestic prices due to low supply • Cheap labor due to resettlement of displaced people 	<ul style="list-style-type: none"> • Restricted movement of market players 	<ul style="list-style-type: none"> • Low competitiveness due to high costs • High import demand for cheap canned fish
Enabling Environment	<ul style="list-style-type: none"> • Donor funded support • Board of Investment (BOI) concessions for investment by the private sector in fishery exports 	<ul style="list-style-type: none"> • Poor security (attacks on, arrests and killings of, fishermen in LTTE-controlled areas) • Poor road infrastructure • High security and air freight charges on exports • Low and inadequate investment due to budget deficit and risk • Inadequate social protection • High input prices • Illegal taxation by the LTTE • Lack of foreign direct investment due to high costs and risks 	<ul style="list-style-type: none"> • Sluggish services in the public sector • Poor targeting of subsidies • Inadequate research • Inequitable allocation of resources • Contradictory government trade policies • Lack of defined property rights • Lack of standards for vessels, equipment and inputs
Inter-firm Cooperation	<ul style="list-style-type: none"> • Fisheries cooperative societies and federations 	<ul style="list-style-type: none"> • High harbor charges for domestic migrant fishers • Higher charges for foreign vessels supplying fish for exporters • Inability to migrate to the north and east 	<ul style="list-style-type: none"> • Conflicts among fishers from different regions due to resource scarcity • Lack of coordination between fishers and harbor officials • Lack of regulation for off-shore fishing
Supporting Markets		<ul style="list-style-type: none"> • Poor transport facilities • Limited storage • Limited harbor facilities • Encroachment on harbor areas by displaced people • Reduced access to micro-credit 	<ul style="list-style-type: none"> • Inadequate formal credit • Inadequate insurance • Poor facilities in remote areas • Low quality standards
Firm-level Upgrading	<ul style="list-style-type: none"> • Potential investment of remittances from migrants • Cheap labor due to resettlement • Donor-funded livelihoods support • Processors' knowledge and skill base 	<ul style="list-style-type: none"> • Restricted access to fishing grounds • Restricted off- season migration • Increased fishing population • Destruction of infrastructure • Poor technology 	<ul style="list-style-type: none"> • Limited availability of technology • Exploitative fishing • Outdated equipment and methods

5.1 COMPETITIVENESS IN END MARKETS

Currently end markets themselves are not affected by either the direct armed conflict or indirect governance failures. Rather, it is the impact these two conflicts have on value chain competitiveness in and access to end markets that

undermines the fishery industry's performance in them. All of the conflict impacts on other segments (discussed in the next sections) further impede the position of fishery products in end markets and neither the increased price of fish in the southern market nor the cheap supply of displaced community labor can counterbalance these effects.

High input prices that increase production and processing costs have negatively affected the competitiveness of the sector in both domestic and export end markets. The armed conflict is partly responsible for this as scarcity and high prices in conflict areas induce smuggling of fuel and fishing equipment from the south, resulting in a shortage of supplies there. The armed conflict indirectly exacerbates the impact of soaring oil prices by widening the balance of payments deficit, which prevents the GoSL from cushioning fisheries and other sectors from the rising prices. In addition, the north and east armed conflict has restricted the movement of numerous value chain actors and their products and limited their access to southern markets..

Poor governance in the supporting state institutions is the major internal factor inhibiting competitiveness of the fishery sector in end markets. A bureaucracy that is concerned primarily with rules, regulations, maintenance of the status quo, power relations and rent-seeking cannot provide the private sector with adequate services or support. This results in unreliable supply, low product quality and high input costs, all of which diminish the competitiveness of the sector at both the domestic and export levels. High post-harvest losses (30-40 percent of the total catch) and over-extraction of scarce fishery resources are another effect of substandard state services, which further degrade competitiveness by increasing prices and reducing the supply of quality products.

Despite high demand in export markets, high prices in the domestic market, and occasional cheap labor of internally displaced workers, the Sri Lankan fisheries value chain cannot provide adequate, sustained supply and suffers from declining competitiveness in both markets. This lack of capacity is evident in the rising domestic demand for canned fish that is being met by cheap imports.

5.2 THE ENABLING ENVIRONMENT

The existing comprehensive legislation and network of supporting institutions does not translate into improved functioning of the fisheries value chain. The available facilities include donor-funded support for infrastructure, BOI concessions for fishery exports, and MFAR support for meeting demands facing the sector. These are mostly directed towards export facilitation, but weak targeting and coordination leave only short-term benefits at best, rather than strategic upgrading of the entire chain. As an example, after the Tsunami disaster in 2004, funds for infrastructure development in progressive fishing areas were channeled through government and various NGOs. Poor coordination between these actors meant that many of the funds were not effectively utilized and the benefits did not reach the intended beneficiaries.

The armed conflict has had a direct effect on the enabling environment for fish production by restricting access to the best fishing grounds in the north, east and southern areas through continuous violence and insecurity, limiting fishing opportunities and putting fishermen's lives at risk. There are numerous reported cases of arrests, attacks and killings of local and foreign fishermen in areas under LTTE control. Illegal taxation by these forces places an additional burden on fishers and has a negative impact on the whole sector.

Fishermen's movements and activities, and consequently their daily catch, are restricted by military and security limits on sea boundaries; frequent security checks by both conflicting parties; a special Sri Lankan navy pass system for fishers; restrictions on fishing times; fixed entry and exit points; and limits on engine horsepower. These are purely military and security-related restrictions, not regulatory, and thus do not aim to minimize harmful fishing practices like over exploitation. These restrictions give an unfair advantage to Indian counterparts (and competitors), who can continue operating illegally in Sri Lankan waters. Poor road facilities in the northeast region have made transport difficult and costly, further restricting market access. Exporters are discouraged by the high security and air freight

charges on exports, which increase the cost of production and reduce competitiveness. High government budget spending on security and the ensuing budget deficit, have led to low and geographically unequal investment in the fishery sector, particularly in technology development. In this volatile context, it is not surprising that the fisheries industry has been unable to attract foreign direct investment, especially given the comparatively high costs and risks associated with it.

The armed conflict has also been partly responsible for increasing fuel and electricity prices since the government has been unable to cushion the sector from price shocks, given its war-related expenditures and the resultant toll on its budget. Reduced access to micro-credit is in part another result of the high balance of payment deficit that prevents the state from allocating more funds for development activities, including access to capital and other financial services. In the fisheries sector however, the lack of credit sources is also due to the seasonality, high risk and uncertainty inherent to the industry.

Civil war also results in poor social protections and disrupted life styles and living conditions for fishing communities. The military has targeted and destroyed the infrastructure needed for fisheries and rehabilitation has been very slow. Short of a full resolution of the armed conflict, these disabling conditions can be remedied only if authorities become more responsive to the needs of actors in the sector and assist them in working around these obstacles.

Government trade policy with respect to fish importation acts in contradictory ways in the domestic and export markets. For instance, the fishery sector has severely criticized the recent GoSL decision to facilitate the importation of fresh and canned fish in order to reduce fish prices in the south. On the other hand, facilitating fish imports for processing in Sri Lanka can help fill gaps resulting from low domestic production, especially during the off-season and benefit Sri Lanka's competitiveness in export markets, which relies on continuous supplies.

Despite numerous revisions to sector policies and the restructuring of institutions in recent years, public-sector service delivery remains sluggish and support by different institutions is not harmonized in a way that maximizes their impact throughout the chain. For example, several institutions with overlapping mandates are involved in research and development for the fishery sector, but they are unable to cater to the existing needs of different stakeholders. Those most in need are frequently excluded from accessing available assistance because subsidies are poorly targeted and the efforts of different institutions are not well coordinated. This inefficiency also places yet another burden on the government's budget.

The inequitable allocation of resources for development of general and fishery-specific infrastructure has placed additional burdens on underprivileged fishermen while creating more opportunities for the affluent. Ocean fishery is an open-access resource and the lack of defined property rights has led to numerous conflicts over access to fishing grounds, in particular at the lower levels of the supply chain. A lack of standards for vessels and the poor enforcement of rules and regulations to control illegal practices further contribute to unsustainable harvesting of fishery resources and low sector growth.

5.3 INTER-FIRM COOPERATION

Inter-firm linkages also are affected differently by the two conflicts—both opportunities and constraints are evident. In contrast to the two previous segments, in this element of the value chain the constraints posed by the direct armed conflict are relatively insignificant. Governance failure, on the other hand, has given rise to a number of conflicts among fishermen, and with public and harbor officials. Most of these problems arise from overcrowded and inadequate harbors and other anchorages, resulting in a scarcity of these public goods that are managed by the public sector. This is further exacerbated by the increased number of boats resulting from the uncoordinated influx of aid following the tsunami. Harbors and anchorages are common properties where management must be undertaken by a state authority, a users association or a combination of both. The problem of overcrowded facilities can be overcome

only through increased public investment, equitably spread along the coastline. At present, such facilities are concentrated in relatively more developed areas and remote areas have not received a fair share of the public investment. At the same time, the public sector and producer cooperatives can draw on the effective fisheries cooperative sector for joint management of improved harbor facilities.

5.4 SUPPORTING MARKETS

Informal credit markets where borrowers can obtain capital services without collateral present an opportunity that to some degree counterbalances small-scale fishers' lack of access to formal credit. These types of informal markets offer low-income fishermen, who comprise the majority in the sector, an alternative source of credit for both operational inputs and consumption needs. Needless to say, loans provided on the basis of trust and personal relationships are comparatively less cumbersome to obtain, but more expensive than credit from formal sources.

This informal provision of credit is conditional on the fish catch being sold, in full or in part, to the creditor or another identified buyer. These purchasing arrangements include brokerage services, where the brokers arrange for an easy transaction and charge a commission. Although there may be inefficiencies in this system, the arrangement is a social institution that has found its roots in the value chain.

The list of conflict-caused constraints on supporting markets is long and relates principally to public governance failures. The absence of formal credit facilities for the purchase of capital items without collateral is prominent as is short-term credit to cover operational costs.

There is also widespread dissatisfaction among boat owners over the lack of insurance products for their vessels. Most formal financial services are provided by the public sector, but are not tailored to the needs of individual value chain actors. This results from the high risk and uncertainty inherent in the fisheries sector and financial institutions' inability to modify their services to accommodate the need for tailored financial services. Although the informal credit sector is a positive force, their high rates of interest are a major deterrent. An institutional change in the provision of financial services is needed to deliver the affordable services that fishery industry actors need.

Where harbor facilities exist, the support services they provide are often inadequate. This includes lack of storage facilities, inadequate water and fuel outlets, insufficient security for boats, and a lack of transport agents and buyers. While the private sector provides these services, they suffer from limited and spatially inequitable distribution of capital funds to develop harbors and other infrastructure. This results in support market actors suffering from public-sector failures to provide fishery infrastructure. In addition to inefficiency and poor planning, this shortage of investment funds is further aggravated by the ongoing armed conflict that places restrictions on the government's development budget.

5.5 FIRM-LEVEL UPGRADING

Upgrading refers to improvements made by a firm or group of firms that reduces the constraints that exist in the value chain and increases the chain's competitiveness. Commercialization and adoption of capital-intensive technology continues to an extent in some parts of the country (especially along the western and northwestern coastal belt), and this has led to the unequal development of fishing communities. Remote, especially conflict-affected, areas have not benefitted from similar firm-level upgrading.

Despite existing knowledge, skills and positive attitudes toward improvements, value chain actors in the domestic market often lack incentives to upgrade because of governance failures and the armed conflict. The result is low profitability for small-scale fishers and traders due to the lack of proper technology and infrastructure, exploitative fishing methods and outdated equipment and techniques.

However, some upgrading strategies are found elsewhere, particularly at the processing level and among multi-day boat owners. Although these businesses have a tendency to marginalize certain strata of small players, they generally help improve the whole sector. The dominant form of upgrading is functional, such as when producers go directly to end markets and sell to wholesalers, processors or large-scale retailers. Forming organizations or cooperatives in which fishers act collectively to improve their bargaining power and directly market their produce is another example of functional upgrading. In the north, for example, the Fishermen's Cooperative Federation used to export high-value seafood to the Far East. The business flourished until the early 1980s when it began to decline and finally stopped functioning as the war escalated.

On the other hand, process upgrading to achieve higher productivity and reduce costs through improved technology and product upgrading to enhance product quality—two necessary conditions for building sector competitiveness—are at present largely lacking in the fisheries sector. The investment climate in the fishery sector needs to be improved, especially for introducing modern technology along the chain—from fishers to exporters—and sustainable fishing methods to prevent destructive exploitation should also be introduced and promoted for inclusion in upgrading efforts. This could be achieved through participatory fishery management with government support.

VI. CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

For more than two decades, southern Sri Lanka's ocean fisheries have suffered the consequences of prolonged armed conflict in the north and east and related chronic governance failures of public supporting institutions. Because the situation makes it difficult to determine a reasonable pre-conflict benchmark scenario, the study attempts to construct a model of the conflict-affected value chain to develop recommendations for upgrading and helping the industry redress the repercussions that years of conflict have inflicted. In particular, the study asks how value chain analysis and the value chain framework can assist in identifying and understanding (a) the major opportunities for upgrading and (b) the driving constraints to growth of the fisheries sector, given the context of conflict.

The study finds that value chain analysis can indeed help to identify how different types of conflicts interact with chain structures and dynamics. Traditional methods of analyzing production and marketing segments of a particular industry would treat conflict and other institutional factors as exogenous and, therefore, falling outside the analytical framework. In comparison, value chain analysis has the advantage of specifying actors, activities and relationships as they correspond to the institutional context and the enabling environment. In this broader environment, conflicts can feature as one variable among others. At the same time, applying a conflict lens to the value chain makes it possible to identify tensions and bottlenecks between actors at the micro-level (such as those among fishermen over access to harbor facilities), which a purely economic analysis of the sector would not necessarily yield.

Nevertheless, the study team had to adapt the standard value chain framework to undertake a conflict impact analysis because every conflict is multidimensional and not all dimensions affect all levels or aspects of a chain. Indeed, some aspects of an armed conflict that exist at the macro-level may not affect a given value chain at all. For instance, the study did not find that ethnic tensions affected the chain; in fact it became evident that the chain had the potential to promote inter-ethnic cohesion, given the multi-ethnic make-up of fishery communities and previous fishing migration patterns around the country. While macro-level conflict analyses such as the one presented in Section 3 provide a useful background to understanding the larger conflict context, they do not readily facilitate the identification of conflict impacts on a given chain. The study team found it more useful to focus on the specific conflict dynamics that appeared most relevant to the fisheries value chain and to add an additional step in the analysis—the conflict/value chain interaction matrix (Table 2 and Appendices D and E). The matrix presents observed opportunities and constraints in different value chain segments against different dimensions of the conflict. This additional step can be adapted to different cases, depending on the value chain and conflict context under investigation.

These adaptations enable users to identify different types of response strategies for the various aspects of conflict. Some dimensions such as illegal taxation of fishermen by the LTTE in territories under its control are entirely exogenous to the chain and actors may have no leverage to change them, but simply may have to cope with them and absorb the costs. This inevitably has implications for the competitiveness of the value chain as a whole. Other dimensions, such as conflicts at the micro-level between fishermen, and between fishermen and harbor officials, may be effectively addressed by chain actors through lobbying of relevant authorities for a more effective and equitable allocation of resources or collective management of public goods such as harbor facilities. Many of the governance failure-related impacts require effective and collective policy advocacy by the value chain players they affect. In this case, chain analysis can be a powerful tool for evidence-based advocacy because it can show impacts on a whole sector, rather than just a particular segment or group, which may then be perceived by policymakers or others as partisan lobbying.

6.2 RECOMMENDATIONS

The value chain analysis the study describes provides a clear picture of the structure and functioning of Sri Lanka's fisheries industry. It also shows that the two conflicts do not bring many opportunities to the sector, in fact the only apparent opportunity is the high price for fish in the domestic market, the result of the reduced supply from the north and east regions. Whether this is a real long-term opportunity, however, is not clear from the available information. The same gap in supply is, on the other hand, creating a significant constraint in terms of remaining competitive in end markets, particularly exports, by restricting supply for the expansion of the industry.

The limited supply of fish and increased cost of material and service inputs resulting from the conflicts has raised the cost of production, processing and upgrading. In addition, the inefficiencies rampant in state institutions mandated to provide inputs and services and their lack of responsiveness to both market and social signals from the chain have increased transaction costs. These cumulative effects of both conflicts have contributed to making the southern Sri Lankan fishery industry very expensive. These high costs coupled with the irregular supply and poor quality of product have reduced the industry's competitiveness. Improving chain competitiveness is an immediate priority and a daunting task at every level as the foregoing analysis shows—one that has many constraints and few opportunities. The study makes the following recommendations against this backdrop to address the three main components of competitiveness: price, quality and regularity of supply. While not all opportunities and constraints can necessarily be acted on in the present context, value chain analysis helps identify and delineate the main components of a future road map for the sector once there is peace, a potentially powerful means of advocating for resolution of the conflict.

- In the fish export sector, promotional efforts should focus on broadening the supply of product categories that perform well in growth markets and on identifying niche markets for products performing well in declining markets. Activities should include market and trade-related research to identify and remove bottlenecks that impede dynamic export expansion of underachieving product categories.
- With the support of FOs (or government), fishers can expand their access to local end markets by making more extensive use of supermarket-driven value chains.
- The export policy environment should be strengthened and procedures, taxes and security fees revised to encourage exporters and facilitate value chain functions. There also needs to be a broad, inclusive group of value chain actors to solicit stakeholder suggestions and complaints, evaluate potential benefits, and recommend appropriate changes in state regulations. At present there is no such mechanism and collective lobbying is almost non-existent.
- Chain actors need incentives to introduce and/or adopt modern fishing methods and equipment to reduce post-harvest losses and improve the quality and reliability of supply. They also need to be encouraged and motivated to adopt new technologies and techniques that improve fuel efficiency and cost effectiveness such as multi-day boats with cool room facilities and dual, low-power engines.
- Establishing and enhancing fishery harbors and anchorages with the participation of value chain actors and supporting markets would provide needed facilities (ice, electricity, storage, jetties), enhance production and minimize costs. It is critical to ensure that organizations like fisher cooperatives participate in the management of such resources.
- Investment in infrastructure (road networks, harbors, etc.) in marginalized areas should be a priority—speeding up implementation of plans for a regional airport and highways would offer much needed benefits to fishermen working along the southern coast.

- Satellite technology should be introduced to facilitate detection of fishing grounds and the awareness of fishermen should be improved. This would increase product supply and reduce seasonality, effort and production costs.
- Coordination of institutions undertaking research and development in the fishery sector needs to be improved and they should be closely monitored by a regulating body that includes private-sector actors and provides timely, demand-driven services.
- Fishers and traders need awareness-raising and training in modern fish-handling techniques to minimize wastage.
- Formal credit markets for small-scale fishers to buy fishing gear, boats, etc., should be developed through state banks with alternatives such as formal microfinance also being considered. Fishers also need to be able to insure their fishing boats.
- Local-level state institutions should 1) motivate the formation of inter-firm linkages by providing adequate incentives and 2) encourage and facilitate backward and forward integration to improve competitiveness. These institutions should also promote member organizations such as cooperatives that increase fishers' bargaining power and provide needed services and link research and extension systems with these organizations to promote equitable distribution of innovative technologies.
- Additional research would provide government, donors and development professionals with much-needed information on the impact of recent price hikes in southern areas on value chain actors and consumers; the potential for harnessing trade agreements to develop the fisheries value chain; and the impact of integration and commercialization on small-scale, marginalized groups.

APPENDICES

APPENDIX A. LIST OF INTERVIEWEES

	Name	Position	Company name/ Location	Value chain actor
1.	S. W. Pathirana	Director General	DFAR, Colombo	Support Services/ Government
2.	Mr. H. S. D. Fernando	Director General (Development)	DFAR, Colombo	Support Services/ Government
3.	Ms. Sumana	Economist	DFAR, Colombo	Support Services/ Government
4.	Mr. M. Hemachandra	Assistant Director	DFAR, Negombo	Support Services/ Government
5.	Mr. H. A. Kulatunga	Assistant Director	DFAR, Tangalle	Support Services/ Government
6.	Mr. M.D.R. Weerakoon	Assistant Director	DFAR, Chilaw	Support Services/ Government
7.	Mr. J. A. P. Alwis	Field Officer	DFAR, Colombo	Support Services/ Government
8.	Mr. R. D. Wickramasingha	District Fisheries Inspector	DFAR, Chilaw	Support Services/ Government
9.	Mr. M. G. N. Jayakodi	Fisheries Inspector	DFAR, Negombo	Support Services/ Government
10.	Mr. Gamini	Fisheries Inspector	DFAR, Negombo	Support Services/ Government
11.	Mr. Luxman	Fisheries Inspector	DFAR, Tangalle	Support Services/ Government
12.	Ms. Shyama Darshani	Development Assistant	DFAR, Negombo	Support Services/ Government
13.	Mr. Ranjith Kularathna	Manager	Fisheries Harbour, Negombo	Support Services/ Government
14.	Mrs. Srimathie Narandeniya	Head, Fisheries	EDB, Colombo	Support Services/ Government
15.	Mr. H. S. Hathurusingha	Quality Control Officer	DFAR, Quality Control Division	Support Services/ Government
16.	Mr. Sunanda	Purchasing Officer	CFC, Negombo	Retailer/Support Service
17.	Mr. Murakami	Trainer	Sewalanka/NISVA	Support Services/NGO
18.	Mr. Antony Sebastian Fernando	President	Fathima Eksath Deewara Samithiya, Negombo	Fisherman/FO Leader
19.	Mr. Dammika Muthukuda	Owner	Tropic Ice Factory, Negombo	Input provider
20.	Mr. Kanesius Fernando	Treasurer	Fishermen's Federation, Negombo	Fisherman/FO Leader
21.	W. Maxi Fernando		Negombo	Fisherman/Retail Trader
22.	W. Namal Fernando		Negombo	Trader
23.	W. Joseph Fernando		Negombo	Fisherman/Trader
24.	Mr. Ranga Fernando		Negombo	
25.	Gayan Hemamal	President	Fisheries Organization, Thoduwawa, Chilaw	Fisherman/FO Leader
26.	M. S. Tenison Janaka	Patron	Chilaw	Fisherman (FRP)

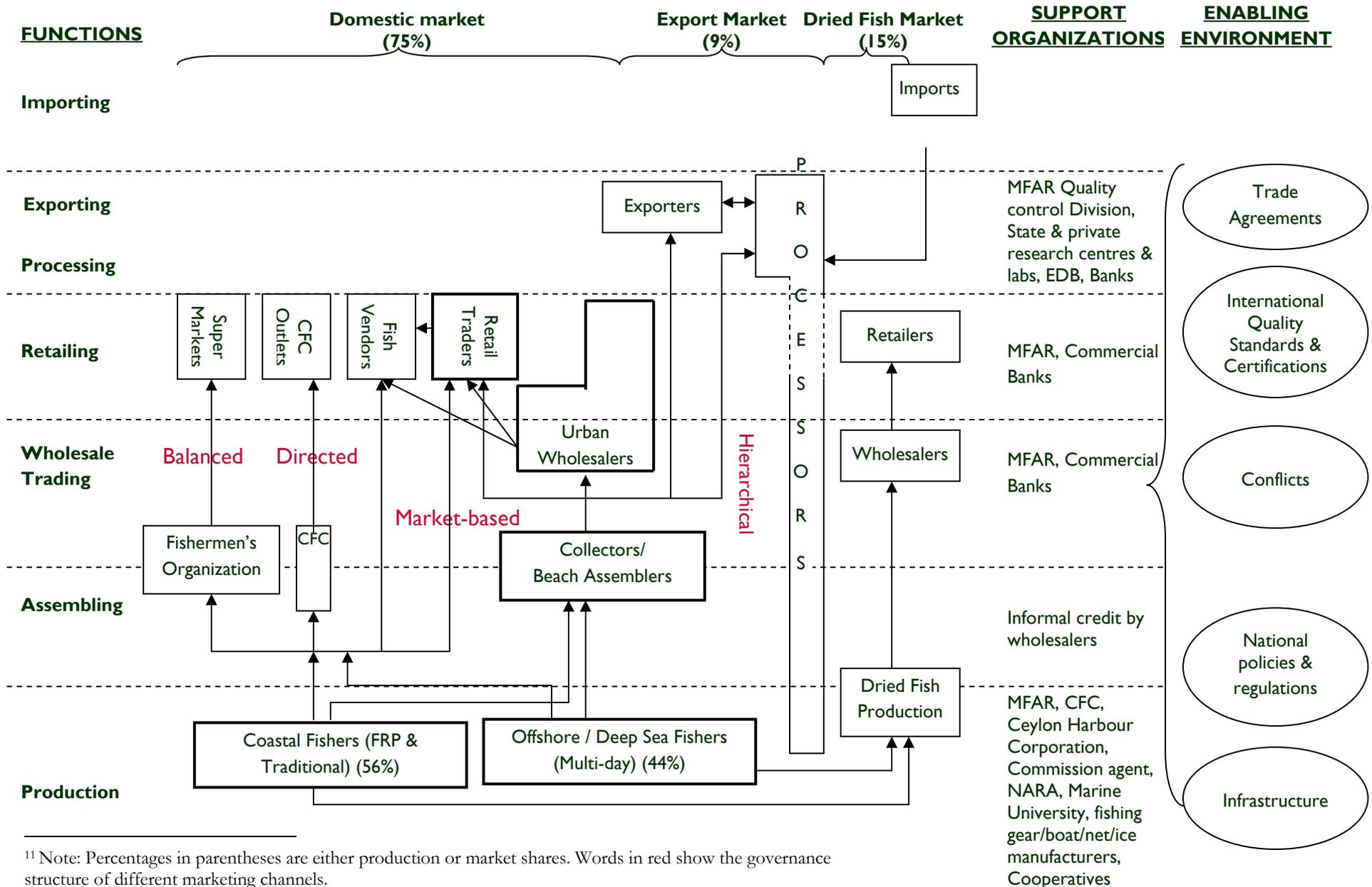
27.	M. Nimal Douglas		Chilaw	Fisherman (FRP)
28.	Suneth Deepamal		Chilaw	Fishermen (Multi-day)
29.	N.W.P. Rohan Nishantha		Chilaw	Fishermen (Traditional)
30.	W. Nalaka Indrajith		Chilaw	Fishermen (Multi-day)
31.	M. Lorance Fernando		Chilaw	Trader
32.	Udayanga Dabarera		Chilaw	Fisherman (FRP)
33.	M. L. Fernando		Chilaw	Fisherman (Traditional)
34.	M. K. Fernando		Chilaw	Fisherman (Traditional)
35.	W. Antony Sarath		Wennappuwa	Fisherman (FRP)
36.	G. Lalith Oska		Wennappuwa	Boat owner (FRP)
37.	Milan Chaminda		Wennappuwa	Fisherman (Multi-day)
38.	W. Sunil Fernando		Wennappuwa	Trader
39.	W. S. Basilika		Wennappuwa	Fisherman (Traditional)
40.	V.D. Nihal Silva		Wennappuwa	Fisherman (FRP)
41.	W. Joshap Fernando		Wennappuwa	Fisherman (Multi-day)
42.	W. Hubert Marcus		Wennappuwa	Fisherman (Traditional)
43.	Priyantha Kumara		Tangalle	Fisherman (FRP)
44.	R.P. Janaka		Tangalle	Fisherman (FRP)
45.	S.D. Vipuladarma		Tangalle	Trader
46.	K.L. Piyasena		Tangalle	Fisherman (FRP)
47.	D.H. Nimalsiri		Tangalle	Fisherman (FRP)
48.	Gallage Ruwan Sameera		Tangalle	Fisherman (FRP)
49.	M.K. Sirisena		Tangalle	Trader
50.	M.S. Niroshan		Tangalle	Fisherman (FRP)
51.	Sajeewa Lakshan		Tangalle	Fisherman (Multi-day)
52.	W. Sampath		Tangalle	Trader
53.	M.S. Kumara		Tangalle	Boat owner(FRP), Fisherman (Multi-day)
54.	W.N. Fernando		Tangalle	Fisherman (FRP)
55.	Mr. P.H. Darmadasa		Tangalle	Fisherman (Multi-day)
56.	Mr. W.P. Keerthi		Tangalle	Trader
57.	Mr. A.P.D. Jayathissa		Tangalle	Fisherman (FRP)
58.	Mr. T.S.H. Ruwan		Tangalle	Fisherman (FRP)
59.	Mr. D.M. Gamini		Tangalle	Fisherman (FRP)
60.	Mr. Stevan		Tangalle	Fisherman (FRP)
61.	Mr. Senevirathna		Tangalle	Fisherman (FRP)
62.	Mr. W. Stevan Fernando		St. John's Fish Market, Colombo	Wholesale Trader
63.	Mr. S. Chandrapala		St. John's Fish Market, Colombo	Wholesale Trader
64.	Mr. L.S. Piyadasa		Lanka Deewara Weladasala, Maharagama	Retail trader
65.	Mr. R.W. Nimal		Fish stall, Kottawa Public Market	Retail trader
66.	Mr. W. Kolvin Perera		Mobile vendor	Bicycle vendor

67.	Mr. Raja Mellow	Factory Manager	Lihini Sea Foods (Pvt.) Ltd., Katuneria	Processor/Exporter/Input provider (ice)
68.	Mr. Jude S. Aloysius	Managing Director	Aloy Expo (Pvt.) Ltd., Wattala	Processor/Exporter
69.	Mr. Jayasena	Managing Director	Jay Sea Foods Processing (pvt.) Ltd.	Processor/Exporter

APPENDIX B. LIST OF APPROVED FISH PROCESSING ESTABLISHMENTS FOR EXPORT

	Factory Name
1.	Tropic Frozen Foods Ltd.
2.	Southern Sea Foods (Pvt.) Ltd.
3.	Skyway Seafoods Specialists (Pvt.) Ltd.
4.	Prawn Ceylon (Pvt.) Ltd.
5.	Alpex Marine (Pvt.) Ltd.
6.	Jay Sea Foods Processing (Pvt.) Ltd.
7.	OLS Foods (Pvt.) Ltd.
8.	Apollo Marine International (Pvt.) Ltd.
9.	Amanda Foods Lanka (Private) Limited
10.	Ceylon Foods (Pvt.) Ltd.
11.	Aqua Gardens (Pvt.) Ltd.
12.	Global Sea Foods (Pvt.) Ltd.
13.	Pearl Island Seafoods (Pvt) Ltd.
14.	J P Fresh Products
15.	Aloy Exports (Pvt.) Ltd.
16.	Lihini Sea Foods (Pvt) Ltd.
17.	Kandy Sea Foods International (Pvt) Ltd.
18.	Jay Sea Foods Processing (Pvt) Ltd.
19.	Foreconns Canneries
20.	Indiwary Aqua (Pvt.) Ltd.
21.	Shinwa Lanka (Pvt.) Ltd.
22.	Yuh Fa Lanka Fisheries (Pvt.) Ltd.
23.	East Globe Lanka Trading (Pvt.) Ltd.
24.	Western Lanka Aquatic (Pvt.) Ltd.
25.	Slic Lanka

APPENDIX C. SRI LANKAN MARINE FISHERIES VALUE CHAIN MAP¹¹



¹¹ Note: Percentages in parentheses are either production or market shares. Words in red show the governance structure of different marketing channels.

APPENDIX D. INTERACTION BETWEEN CONFLICT DIMENSIONS AND FISHERY VALUE CHAIN COMPONENTS—ARMED CONFLICT

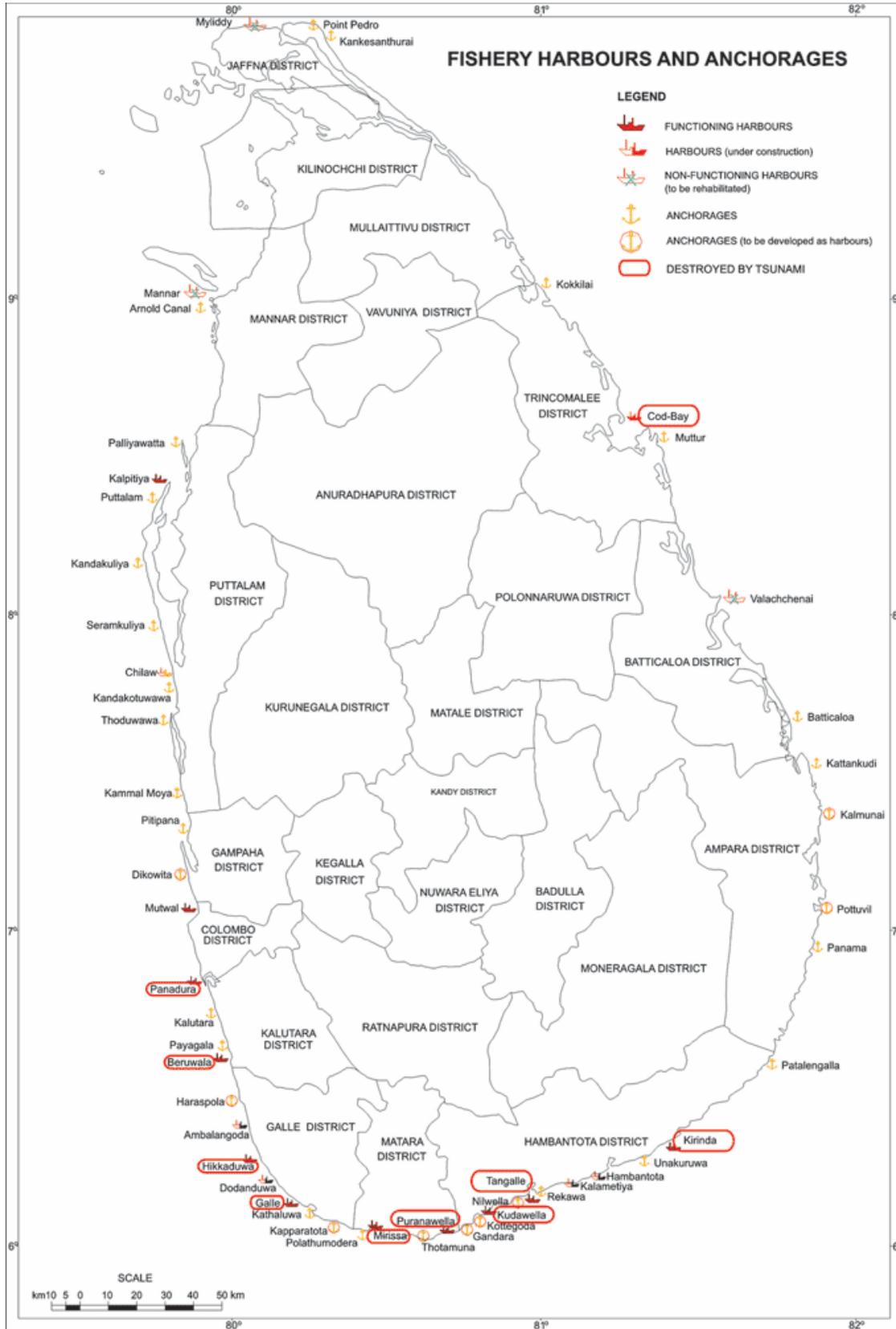
Value Chain Components	ARMED CONFLICT						
	Opportunities	Constraints					Security/Violence
		Ethnic	Economic	NR	Resettlement	Political	
End Markets							
<i>Export</i>			Limited supply due to drop in NE supply				Limited access to fishing grounds
<i>Domestic</i>	High prices due to low supply and high demand		Limited supply due to drop in NE supply				Limited access to fishing grounds Limited fishing during off-season
Enabling environment	Donor-funded support for conflict- affected areas		High port charges for foreign vessels High air freight charges				High aviation security charges Frequent flight delays Destruction of infrastructure
Inter-firm cooperation							
Supporting markets			High input prices				High input prices in NE
Firm-level upgrading	Remittances from migration Donor support for affected livelihoods						Limited off-season migration Limited fishing during off-season—especially small boat owners

APPENDIX E. INTERACTION BETWEEN CONFLICT DIMENSIONS AND FISHERY VALUE CHAIN COMPONENTS—GOVERNANCE FAILURE

Value Chain Dynamics	GOVERNANCE FAILURE						
	Opportunities	Constraints					
		Economic	Ethno-religious	Social	Political	Organizational Inefficiency	Others
End Markets	Fish imports for processing	Use of illegal methods		Postharvest losses/poor fish handling methods by fishers Use of illegal methods	Fish imports for local consumption	Postharvest losses Fish imports for local consumption Use of illegal methods	Lack of property rights except for few traditional fishing methods
Enabling Environment		Inefficient use of available institutions and facilities (CFC)			Inefficient use of available institutions and facilities (CFC) Poorly targeted subsidies Poor R&D coordination between government institutions and fishery industry	Difficulties in obtaining health certificates for urgent orders Delay in refunding VAT for exporters Inefficient use of available institutions and facilities (CFC) Inadequate and poorly targeted R&D, which does not cater to the industry No quality standards imposed on multi-day boat manufacturers	International competition
Inter-firm Cooperation	Fishery cooperative and federation initiatives					Poor coordination among	Lack of property rights and open access to fishery

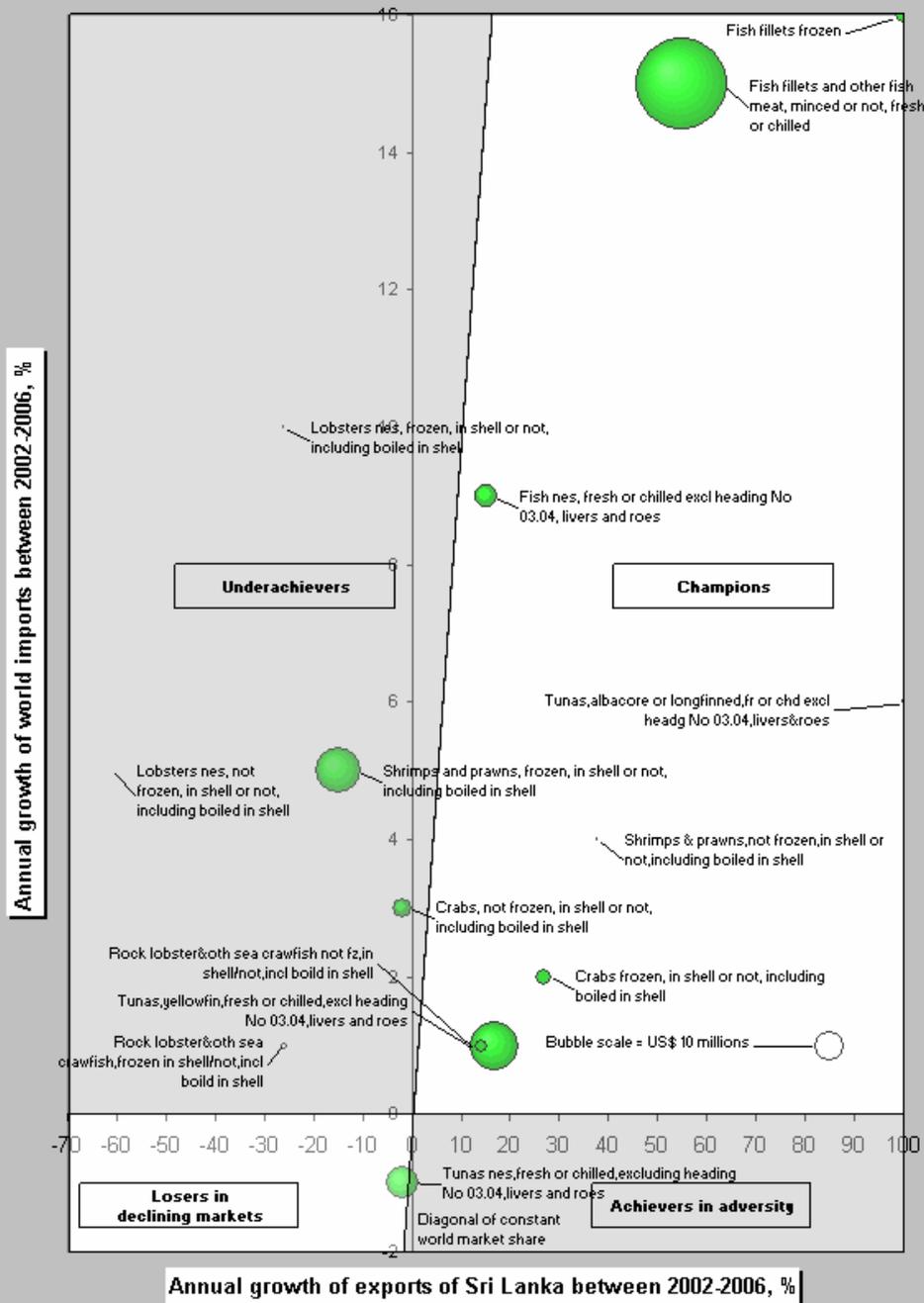
	<ul style="list-style-type: none"> • encourage savings • provide loans for boats, nets and engines • link to supermarket chains • help natural resource management • help conflict management • facilitate collective bargaining (fuel subsidy) • link with NGOs to provide training in clean dry fish production 					<p>government institutions and fishery industry R&D</p> <p>Conflicts among fishers and Fishery officials , private boat yards, and harbour officials</p>	resource
Supporting Markets							
Firm-level Upgrading	Fish imports for processing			Postharvest losses	Fish imports for local consumption	<p>Postharvest losses</p> <p>Fish imports for local consumption</p> <p>Use of destructive fishing methods</p> <p>Use of poor technology in multi-day boats</p> <ul style="list-style-type: none"> ▪ no cool rooms ▪ use tons of ice ▪ inefficient engines 	Lack of property rights except for few traditional fishing methods

APPENDIX F. FISHERIES INFRASTRUCTURE



APPENDIX G. GROWTH OF NATIONAL SUPPLY AND INTERNATIONAL DEMAND FOR FISHERIES EXPORT PRODUCTS OF SRI LANKA IN 2006

Figure 2: Growth of national supply and international demand for fisheries export products of Sri Lanka in 2006



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