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Increasing the contribution of small-scale fisheries to poverty alleviation and food security

Cover photo:
Women in Ghana use the chorkor oven to prepare smoked fish. FAO/18292/P. Cenini.

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Preparation of this document

A first draft of this document served as a background paper for the Expert Consultation on the Role of Small-scale Fisheries in Poverty Alleviation and Food Security, Rome, Italy, 5-8 July 2004. The Consultation was convened to advise on the contents of the FAO Technical Guidelines for Responsible Fisheries No. 10 *Increasing the contribution of small-scale fisheries to poverty alleviation and food security* (FAO, 2005). The Consultation recommended that, appropriately revised and elaborated, the background paper be published in the FAO Fisheries Technical Paper series as a companion document to the Guidelines.

Abstract

The objectives of this Technical Paper are to highlight the contribution that inland and coastal small-scale fisheries can make to poverty alleviation and food security and to make practical suggestions on ways that this contribution can be maximized.

This paper is organized into three main sections. The first section discusses the concepts of poverty, vulnerability and food security, and briefly outlines how these concepts have evolved in recent years within the field of fisheries (in line with the rest of the development literature). The second section reviews the actual and potential contribution of small-scale fisheries to poverty alleviation and food security. It illustrates, through use of examples, the role that small-scale fisheries can play in economic growth at the national level and poverty alleviation and rural development at the local level. The third and main section of the document discusses ways of increasing the contribution of small-scale fisheries to poverty alleviation and food security through nine main entry points. First, the paper revisits conventional fisheries policies and legislation and makes suggestions on how those can be made more pro-poor. Next, the paper emphasizes the importance of capacity building and highlights how cross-sectoral interventions can greatly improve the livelihoods of fish-dependent communities. The paper then proposes a series of broad pro-poor or pro-small-scale fisheries principles, before discussing in greater detail three of the main management instruments adopted in fisheries: (i) property right approaches; (ii) co-management; and (iii) protected areas. The next two sub-sections discuss markets and how to make them work for the poor, and the important issue of pro-poor financing systems and subsidies. The paper highlights the complexity of the issues and reflects the current debate on the ambiguous impacts of markets and trade on poverty alleviation. The last sub-section examines the information, research agenda and communication strategies that are needed to complement or support other interventions and to ensure the contribution of small-scale fisheries to poverty alleviation and food security.

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Acronyms and abbreviations

ACFR	Advisory Committee on Fishery Research
AIDS	acquired immunodeficiency syndrome
ASEAN	Association of South East Asian Nations
CBFM	community-based fisheries management
COFI	Committee on Fisheries
CSR	corporate social responsibility
DAC	Development Action Committee (of OECD)
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization of the United Nations
FIMS	Fishery Information Monitoring System
FS	food security
HIV	human immunodeficiency virus
GDP	gross domestic product
GSP	generalized system of preferences
IUU	illegal, unreported and unregulated (Fishing)
LCB	Lake Chad Basin
LIFDC	low-income food-deficit country
MCS	monitoring, control and surveillance
MPA	marine protected area
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PP	poverty prevention
PR	poverty reduction
PRA	participatory rural appraisal
PRSP	Poverty Reduction Strategy Paper
SADC	Southern African Development Community
SFLP	Sustainable Fisheries Livelihoods Programme
SHG	self-help group
SPS	Agreement on Sanitary and Phytosanitary Measures
TBT	Agreement on Technical Barriers to Trade
UNDP	United Nations Development Programme
WTO	World Trade Organization

Executive summary

FAO, through its Committee on Fisheries (COFI) and Advisory Committee on Fisheries Research (ACFR), has recently re-emphasized the need to better understand and support small-scale fisheries, both inland and coastal, in particular in developing countries. National and international institutions and organizations, including FAO, should give greater attention to this sector, especially with regard to its potential to contribute to poverty alleviation and food security.

This Technical Paper highlights the contribution that inland and coastal small-scale fisheries can make to poverty alleviation and food security. It makes practical suggestions on ways that this contribution can be maximized in line with the recent attention given by the international community to these issues as in the Millennium Development Goals. The paper served as a background document for the Expert Consultation on the Role of Small-Scale Fisheries in Poverty Alleviation and Food Security (5–8 July 2004, FAO, Rome, Italy). The Consultation was convened to advise on the development of guidelines on this topic within the Code of Conduct for Responsible Fisheries technical guidelines series. The preparation of the guidelines was mandated by COFI and they were published in 2005 (FAO 2005).

This document is divided into three main sections. After defining small-scale fisheries in the context of developing countries, the first section discusses the concepts of poverty, vulnerability and food security, and briefly outlines how these concepts have evolved in recent years within the international community and subsequently in the field of fisheries. The section provides an overall synthesis of the different dimensions of poverty alleviation in relation to small-scale fisheries, including the specific issue of vulnerability, and highlights the different levels of occurrence of food insecurity. Building on this conceptual framework, the second section considers the actual and potential contribution of small-scale fisheries to poverty alleviation and food security. It illustrates through concrete examples the role that small-scale fisheries can play in economic growth at the national level and to poverty alleviation and rural development at the local level through mechanisms such as income and employment multipliers, safety net mechanisms and coping strategies.

The third and main section of the document discusses ways of increasing the contribution of small-scale fisheries to poverty alleviation and food security through various *entry points*. The first two entry points considered are policies and legislation. In these domains, the paper briefly revisits conventional fisheries policies and legislation, and discusses them in relation to poverty alleviation and food security. This part of the report also highlights how non-sectoral regulations (e.g. legislation on migration or workers' rights) or non-sectoral policy frameworks (such as national Poverty Reduction Strategy Plans in each country) can have positive impacts and how they can strengthen the contribution of small-scale fisheries to poverty alleviation and food security. The following section considers two generic implementation issues – human capacity development and appropriate levels of funding to support the sector – which, without proper attention, are likely to prevent the successful implementation of the recommendations made throughout the paper. The paper then highlights the need for cross-sectoral interventions and makes some recommendations on areas of required cross-sectoral integration and how to facilitate such coordinated planning and implementation.

Next is the important sub-section on fisheries management in which broad pro-poor or pro-small-scale fisheries principles are first proposed, before turning to a more

detailed discussion on three of the main management instruments increasingly adopted in the world fisheries: (i) property right approaches; (ii) co-management – as a governance reform; and (iii) protected areas – as a tool to control access. For each of these, the paper briefly discusses some of the limitations of these tools from a poverty alleviation perspective. The next two sub-sections discuss markets and making them work for the poor, and the important issue of pro-poor financing systems (micro-credit, subsidies, etc.). The paper highlights the complexity of the issues and reflects the current debate on the impact of markets and trade on poverty alleviation. It is recognized that there are "winners" and "losers" from both domestic and international fish trades, although the poorest – who remain generally excluded from well-functioning market institutions – are still currently likely to be among the losers. This debate reinforces the importance of micro-credit schemes for the poor and raises the question of the conditions under which subsidies may or may not be used to support poverty alleviation programmes. The last subsection examines the information, research agenda and communication strategies that are needed to contribute to increasing the contribution of small-scale fisheries to poverty alleviation and food security. A re-orientation of monitoring and research programmes towards more participatory approaches and better integration of social science and indigenous knowledge systems is proposed.

Overall, the document provides a synthesis of a key emerging policy agenda in fisheries that seeks to place fisheries management in the context of wider development and natural resource management contexts. The importance of small-scale fisheries at a global level is emphasized, together with the need to address poverty alleviation as part of responsible fisheries.

Introduction

BACKGROUND

Fisheries development and background to the Code of Conduct for Responsible Fisheries

Since ancient times, fishing has been a major source of food for humanity and a provider of employment and economic benefits. However, there have been huge changes in the fisheries sector over the last 50 years, initially as a result of fisheries development with a strong emphasis on growth in production. Increases in catches resulted from a strong focus on industrializing and modernizing fishing fleets. But small-scale fisheries also played their part in rising production levels, enabled by developments in fishing gear and motorization, which increased the distance many small-scale fishers can operate from their home landing-sites.

Although fishing is still an important element of locally based economies for a large number of households across the developing world, fisheries have become an increasingly dynamic sector of the world food industry, with many states striving to take advantage of the new opportunities that the sector presents in response to growing international demand for fish and fishery products. Again, the main emphasis has been on export-led growth from industrial fishing, but small-scale fisheries are playing an increasingly important role in the exports of some countries.

With improved knowledge of the impacts of such changes on fish stocks, it has become increasingly clear, however, that living aquatic resources, although renewable, are not infinite and need to be properly managed if their contribution to the nutritional, economic and social well-being of the growing world's population is to be sustained. Over the last two decades, there has therefore been a significant shift away from the production growth approach in the fisheries sector towards efforts aimed at improved fisheries management.

In response to these trends, the Nineteenth Session of the FAO Committee on Fisheries (COFI), held in March 1991, stressed an urgent need for new approaches to fisheries management that embraced both environmental conservation and social and economic considerations. FAO was asked to develop the concept of responsible fisheries and to elaborate a code of conduct to foster its application.

The development of the Code of Conduct for Responsible Fisheries (the Code) was subsequently carried out by FAO in consultation and collaboration with relevant UN Agencies and other international organizations, including non-governmental organizations (NGOs). The Twenty-eighth Session of the FAO Conference adopted the Code on 31 October 1995 in Resolution 4/95 (FAO, 1995). The same Resolution requested FAO *inter alia* to elaborate, as appropriate, a series of technical guidelines in support of the implementation of the Code in collaboration with members and relevant interested organizations.

The Code, which is voluntary, consists of five introductory Articles: Nature and Scope; Objectives; Relationship with Other International Instruments; Implementation, Monitoring and Updating; and Special Requirements of Developing Countries. These introductory articles are followed by an Article on General Principles, which precedes six thematic articles on Fisheries Management, Fishing Operations, Aquaculture Development, Integration of Fisheries into Coastal Area Management, Post-Harvest Practices and Trade, and Fisheries Research.

Small-scale fisheries

Around 90 percent of the 38 million people recorded globally as fishers are classified as small-scale, and an additional more than 100 million people are estimated to be involved in the small-scale post-harvest sector. In addition, there are millions of other rural dwellers involved in seasonal or occasional fishing activities who are not recorded as "fishers" in official statistics. Women are heavily involved in processing and trade of fish and fish products from small-scale fisheries. When numbers of fishers and fishworkers are combined with those involved in activities supplying inputs to fishing and post-harvest activities, and their household dependents, it is likely that several hundred million people worldwide depend in some part on small-scale fisheries for their livelihoods. Many millions of these, especially in Asia and Africa, live in remote rural areas, where there are few other sources of alternative income and employment offering significant potential to contribute to livelihood strategies.

Nutritionally, fish is often an important source of dietary protein, especially where other sources of animal protein are scarce or expensive. Millions of the world's poor in rural and urban areas depend on fish, much of it from small-scale fisheries, as an essential source of protein and micronutrients. Fish provides 19 percent of the protein intake in developing countries, a share that can exceed 25 percent in the poorest countries and reach 90 percent in isolated parts of coastal or inland areas and in small island developing states.

While there is often very little precise information on the real contribution of small-scale fisheries to livelihoods and economies in developing countries, and although many small-scale fishing communities are poor and vulnerable, it is now widely acknowledged that small-scale fisheries can generate significant profits, prove resilient to shocks and crises, and make meaningful contributions to poverty alleviation and food security, in particular for:

- those involved directly with fishing (fishers, and fishworkers in both pre- and post-harvest activities);
- the dependents of those involved directly with fishing (fishing-related households and communities);
- those who buy fish for human consumption (consumers);
- those who benefit from related income and employment through multiplier effects;
- national societies in general and those who benefit indirectly as a result of national export revenues from fisheries, re-distributive taxation and other macro-level mechanisms.

In addition, while it is true that small-scale fisheries can overexploit stocks, harm the environment and may generate only marginal profit levels, it is now recognized that in many cases, small-scale fisheries may have significant comparative advantages over industrial fisheries such as:

- greater economic efficiency;
- fewer negative impacts on the environment;
- the ability to share economic and social benefits more widely by being decentralized and geographically spread out;
- their contribution to cultural heritage, including environmental knowledge.

Recent international developments and commitments

In recent years, there have been significant international developments and commitments related to both poverty reduction and food security, as well a greater recognition of the importance and potential of small-scale fisheries.

The level of poverty remains high, not just in small-scale fishing communities, but also in developing countries in general.[1] While economic growth has helped to reduce

[1] Globally, more than one billion people are estimated to be living on less than one dollar a day; 70 percent of the world's poor are women.

the number of poor people in the world, the positive impacts of growth on poverty have been less than expected, partially because of inequitable distribution of the benefits, population increases, political instability, and in some parts of the world, the devastating effects of the HIV/AIDS epidemic. As a result, there has been a re-focusing on poverty by many NGOs, academics, development practitioners, governments and donor agencies, for example, in the form of national poverty reduction strategies. The United Nations (UN) World Summit on Sustainable Development 2002, the 2000 World Development Report published by the World Bank, the UN Millennium Declaration adopted in 2000,[2] and the 1996 UN World Food Summit all considered poverty alleviation as a central priority.

The re-examination of poverty alleviation strategies is also motivated by broadening the poverty concept, better understanding the causes of poverty, and recognizing the importance of vulnerability. Taken together, this means that new strategies for poverty alleviation are required.

While past development interventions in small-scale fisheries were often implicitly aimed at reducing poverty, most were not explicitly focused on improving the living conditions of the poor; rather, they aimed to accelerate economic growth through technology and infrastructure development and through market-led economic policies. The lack of an explicit focus on poverty and the inequitable distributional impacts of development programmes may explain the ineffectiveness of many fishery development interventions.

With regard to food security, the predicted rises in global population, and corresponding increases in demand for food and fish mean that many of the food security problems present today are likely to persist.[3] The effects of the imbalance between supply and demand are not likely to be evenly felt across the world. Indeed, while many countries and regions have made considerable progress in reducing food energy deficiencies, many others, notably in sub-Saharan Africa, have either experienced a worsening of food security or have only managed to display improvements through a greater reliance on food imports from developed countries. At the International Conference on the Sustainable Contribution of Fish to Food Security Kyoto, Japan, 4-9 December 1995 held in Kyoto, Japan in 1995, the 95 participating states approved a Declaration and a Plan of Action to enhance the contribution of fisheries to human food supply. The 1996 World Food Summit stressed the connection between food security and the need for sustainable management of natural resources. The 2002 World Summit on Sustainable Development also focused on food security as a key issue and reiterated a global commitment to responsible fisheries.

Implications of recent developments for the Code

Although one of the objectives of the Code (Art. 2, para. f) is to: "[p]romote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities", the Code's objectives do not specifically refer to poverty alleviation or to the role that small-scale fisheries can play towards alleviating poverty and ensuring food security. In light of the developments discussed above and the potential contribution by small-scale fisheries, the Twenty-fifth Session of the Committee on Fisheries, (Rome, 24–28 February, 2003) welcomed the suggestion that FAO elaborate, in the context of the Code, technical guidelines for increasing the contribution of small-scale fisheries to food security and poverty alleviation.

In light of the developments discussed above and the potential contribution by small-scale fisheries, the Twenty-fifth Session of the Committee on Fisheries, (Rome,

[2] The Millennium Declaration contains the commitment to halve, by the year 2015, the proportion of the world's population whose income is less than one dollar a day.

[3] Estimates suggest that 840 million people globally remain classified as undernourished.

24–28 February, 2003) welcomed the suggestion that FAO elaborate, in the context of the Code, technical guidelines for increasing the contribution of small-scale fisheries to food security and poverty alleviation.

This suggestion reflects FAO's recognition that small-scale fisheries have not been given due attention, and that there is an urgent need for guidelines to provide information on some important concepts, concrete examples of the extent to which small-scale fisheries can impact positively on the livelihoods of people and the economies of developing countries, and to suggest how these positive impacts can be increased.

This Technical Paper was prepared as a background document for an Expert Consultation on the Role of Small-scale Fisheries in Poverty Alleviation and Food Security (Rome, 5–8 July 2004). It encompasses both marine and inland fisheries and is a companion document to the FAO Fisheries Technical Guidelines for Responsible Fisheries No. 10 *Increasing the Contribution of Small-Scale Fisheries to Poverty Alleviation and Food Security* (FAO 2005a). The guidelines and companion technical paper complement several existing FAO Fisheries Technical Guidelines for Responsible Fisheries, especially those dealing with fisheries management, ecosystem approach to fisheries, inland fisheries and aquaculture development. (FAO 2003; FAO 1997a; FAO 1997b; FAO 1997c).

OBJECTIVES OF THE TECHNICAL PAPER

This Technical Paper is primarily intended to:

- support a special focus on small-scale fisheries;
- elaborate upon the Code with respect to small-scale fisheries, and especially on poverty and food security issues in light of the developments and renewed international focus on these issues;
- stimulate ideas and thoughts among policy-makers by providing illustrations and examples;
- make practical suggestions on ways to ensure that the contribution of small-scale fisheries to poverty reduction and food security is maximized.

Target audience for the Technical Paper

This Technical Paper is directed primarily at fisheries decision-makers, policy actors, and all stakeholders in the policy process. However, it is relevant to all those with an interest in fisheries, and also more generally to development practitioners, given the contribution that small-scale fisheries make and can make to development, poverty reduction and food security. The Technical Paper is therefore also expected to be especially useful for:

- national and local government/ministries in developing countries (in fisheries and other sectors such as rural development, coastal management or environment);
- key decision-makers involved in developing Poverty Reduction Strategy Papers (PRSPs) and national poverty reduction strategies;
- international and bilateral donor and development agencies;
- regional and subregional bodies (both fisheries-focused), but also economic development organizations such as the Southern African Development Community (SADC), the Economic Community of West African States (ECOWAS) and the Association of Southeast Asian Nations (ASEAN);
- research institutes;
- the fishing sector, fisheries leaders and small-scale fisher and fishworker organizations;
- NGOs and civil society organizations involved in local development and/or fishery sector concerns.

STRUCTURE OF THE DOCUMENT

This document is organized into three main sections. After defining small-scale fisheries in the context of developing countries, the first section discusses the concepts of poverty, vulnerability and food security. It briefly outlines how thinking about these concepts has changed in recent years, both within the international community, and more specifically, within the field of fisheries. The second section considers the actual and potential contribution of small-scale fisheries to poverty alleviation and food security. Finally, the third and main section considers ways of increasing the contribution of small-scale fisheries to poverty alleviation and food security. This section starts by placing fisheries in a wider cross-sectoral context, before proceeding to an assessment within the fisheries sector of the following topics:

- Policy in support of the poor.
- Legislation in support of the poor.
- Implementing policy and legislation.
- Cross-sectoral solutions.
- Fisheries management solutions.
- Financing poverty reduction.
- Making markets work for the poor.
- Information and communication.

For each of these topics, or *entry points*, particular effort has been made to provide concrete examples, through the use of boxes, tables and theoretical considerations, of how the contribution of small-scale fisheries to poverty alleviation and food security can be maximized.

1. Definitions and concepts

1.1 CHARACTERIZATION OF SMALL-SCALE FISHERIES

It is difficult to give a precise definition of what "small-scale" fisheries are. It is a relative term (i.e. a small-scale fishery in one country might be considered "industrial" in another) and encompasses a wide variety of fishery types. A few years ago, Platteau noted, "It is unfortunate that in the existing literature there is apparently no consensus on, or even a clear spelling out of what is meant by 'small-scale fisheries'" (1989, p. 567). His viewpoint was that small-scale fisheries should therefore be defined "by default", in opposition to the larger-scale fisheries based on "sophisticated technologies which involve heavy investment outlays which makes them inaccessible except to a new class of capitalists arising from outside the fishermen communities" (Platteau, 1989, p. 568).

From a different perspective, small-scale fisheries have also often been presented in the past as an activity characterized by low productivity and low yield rates (see, for instance, FAO, 1975; Lawson, 1977; Smith, 1979). More recent studies, however, question this perception. West African pirogue fisheries, for example, have been characterized over the last 20 years by "a strong growth of the sector including both the production and the revenues derived by the fishers and other actors involved in the related activities (trade and processing) [and by] a constant increase in the trade and commercialisation, on the domestic markets as well as in the share of the exports to the North" (Chauveau and Jul-Larsen, 2000, p.10).[4] This economic dynamism of the sector was also strongly emphasized during the first International Workshop on Small-scale Fisheries organized in Montpellier, France in 1989 (Durand, Lemoalle and Weber, 1991). Researchers from all continents made it clear that small-scale fisheries can be economically very efficient and are part of an adaptive sector that can adjust rapidly to its changing environment.

One important aspect of this changing environment has been the technological innovation and modernization of small-scale fisheries and in particular, the increasing use of motorized boats, which allowed the activity to move further offshore. This brought fundamental changes in the relationships with the other users, in particular the industrial fleets, but also with the resource itself. Some would argue, however, that small-scale fisheries are more eco-friendly than larger-scale fisheries, a perception that nevertheless has been challenged empirically on many occasions.

Drawing on this background, the experts participating in the FAO Working Group on Small-Scale Fisheries (Bangkok, Thailand, November 2003) agreed that it would be inappropriate to formulate a universally applicable definition for a sector as dynamic and diverse as small-scale fisheries. The Working Group felt that it would be best to describe the sector on the basis of the range of characteristics likely to be found in any particular small-scale fishery. The following working definition was therefore endorsed, which will also be adopted in the present document:

> *Small-scale fisheries can be broadly characterized as a dynamic and evolving sector employing labour intensive harvesting, processing and distribution technologies to exploit marine and inland*

[4] The original quotation is: "*…une croissance sectorielle marchande forte tant du point de vue de la production que du revenu relatif des producteurs et des agents concernés par la filière* [et par] *une croissance soutenue tant par le marché de consommation intérieure que par une importante participation de la production artisanale aux exportations vers les pays du Nord.*»

> *water fishery resources. The activities of this sub-sector, conducted full-time or part-time, or just seasonally, are often targeted on supplying fish and fishery products to local and domestic markets, and for subsistence consumption. Export-oriented production, however, has increased in many small-scale fisheries during the last one to two decades because of greater market integration and globalization. While typically men are engaged in fishing and women in fish processing and marketing, women are also known to engage in near shore harvesting activities and men are known to engage in fish marketing and distribution. Other ancillary activities such as net-making, boat-building, engine repair and maintenance, etc. can provide additional fishery-related employment and income opportunities in marine and inland fishing communities. Small-scale fisheries operate at widely differing organizational levels ranging from self-employed single operators through informal micro-enterprises to formal sector businesses. This sub-sector, therefore, is not homogenous within and across countries and regions and attention to this fact is warranted when formulating strategies and policies for enhancing its contribution to food security and poverty alleviation*
>
> **(FAO, 2004b).**

What is missing in this working definition is the *multi-use, multi-user environment* of small-scale fisheries. Both coastal and inland fisheries compete with other users for the resource base and this multi-use, multi-user dimension is another key characteristic that can greatly affect the livelihoods of fishing communities.

1.2 SMALL-SCALE FISHERIES AND POVERTY

1.2.1 Current understanding of poverty

A useful definition of poverty is to be found in the Development Action Committee's (DAC) Guidelines on Poverty Reduction:

> *Poverty encompasses different dimensions of deprivation that relate to human capabilities including consumption and food security, health, education, rights, voice, security, dignity and decent work*
>
> **(OECD, 2001, p.8).**

This new conceptualization of poverty results from a long evolution in the ways poverty has been perceived, understood and measured. Influenced by the *income-poverty approach* widely used in the 1960s, the concept of poverty was at that time closely associated to low income or consumption. The limitation of the income-poverty model gave rise in the 1970s to the development of the *basic needs model* pioneered by the International Labour Organization (ILO) and the UN Research Institute on Social Development (UNRISD). This model arose from the recognition that poverty is not simply the result of low income, but also reflects a general deprivation of the material requirements to meet minimally acceptable human needs such as health and education, clean water and other services required to sustain livelihoods. This basic needs model, premised on a multi-dimensional definition of poverty, later led to the formulation of the United Nations Development Programme's (UNDP) *Human Development Model*.

The 1980s marked an even more drastic redefinition of the concept of poverty. One instrumental element in this new approach was the work of Amartya Sen (1981) and his concept of "food entitlement", i.e. the recognition that peoples' command over food does not simply depend on its production and availability in the market, but is also governed by a range of social, economic, cultural and political factors. Other influential concepts, such as the role of power, emerged during the same period, either in relation/reaction to Sen's entitlement concept, or independently. Powerlessness – or its counterpart, empowerment – refers to the means by which entitlements (access to resources) are maintained and defended. Chambers (1983) and many others have stressed that the poor usually suffer from a low level of socio-political organization and that their capacity to make their voice heard is consequently weak, resulting in exclusion from political and

decision-making processes. Conjointly with the issue of power, or strongly related to it, the concept of *participation* then emerged in the literature. Underlying this *participatory approach* was the recognition that the involvement of various groups, and in particular the poor, in the planning and decision-making processes was a necessary condition to ensure the empowerment of these groups (Cohen and Uphoff, 1980). Finally, the 1980s were also characterized by the wide recognition of the previously neglected issue of gender-related poverty (e.g. Agarwal, 1985).

In the 1990s, ILO's *basic needs approach*, with its multi-dimensional concept of poverty, was adapted by the UNDP for its *Human Development Index approach*. In This model, which is clearly recognized in the definition above by Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD), seems to have achieved broad consensus in the international community. This multi-dimensionality is, for instance, one of the main features constituting the *Sustainable Livelihood Approach* (SLA) promoted by numerous international NGOs (e.g. CARE: Defending Dignity, Fighting Poverty, Oxfam) and development agencies (e.g. the United Kingdom Department for International Development [DFID], FAO, UNDP).

1.2.2 The evolving understanding of poverty in fisheries

To a certain degree, the evolution and debate that have animated the general international development community over the last 30 years have also been reflected more recently in the fisheries domain. In particular, the multi-dimensional nature of poverty in fishing communities is now widely acknowledged and accepted. Townsley (1998), for instance, points out that "fishing communities are often characterized by overcrowded living conditions and inadequate services, low levels of education and a lack of skills and assets (particularly land) …." In addition, FAO emphasizes that fishers are generally "liv[ing] in remote and isolated communities, are poorly organized and politically voiceless and … often highly exposed to accidents and natural disasters" (FAO, 2000, point 8). These different aspects (inadequate services, low level of education, politically poorly organized communities, vulnerability) are some of the multiple dimensions of poverty now universally recognized.

Poverty in fishery-dependent communities is therefore not necessarily directly or only related to the resource or catch levels. For example, although resource overexploitation may be a major cause of impoverishment for fishing communities, extreme poverty can also be observed in remote fishing camps where fishers catch and trade reasonable volumes of fish but lack access to health and other public services and are politically unrepresented. This progress in our understanding of poverty in fisheries has also been reflected in recent attempts to develop methods of assessing the different dimensions of poverty in fishing-dependent communities (Section 9) that combine measures of incomes, assets and vulnerability context, often carried out under the organizing framework of the *Sustainable Livelihoods Approach*.

More fundamentally, these various observations also help us to realize that the newly defined nature of poverty in fishing communities is not specific to fishing communities *per se*; rather, it reflects the wider issue of rural poverty and the general lack of economic, political and institutional development that affects rural areas in which fishing communities tend to live. Similarly, women in the fisheries sector may be more disadvantaged and vulnerable than men, and certain forms of social marginalization may be gender-specific (Williams *et al.,* 2002). But it should be recognized that the important question of gender inequity transcends the small-scale fisheries sector and may reflect broader gender issues within the whole society.

Nevertheless, it is also extremely important to recognize that some aspects of the multi-dimensional nature of poverty that affect the fishing community, both men and women, are induced, maintained, or even increased by factors or socio-institutional

mechanisms specific to fishing activities. As argued in the next section, for instance, a certain degree of vulnerability characterizing the fishing communities is inherent to the activity. Another important specificity of these fishing communities that may contribute or even increase the households' exposure to poverty is the fact that a large number of them are highly mobile. In Africa – and to a lesser extent in Asia – a significant number of fishing communities consist of groups of migratory individuals who live in temporary or semi-permanent fishing camps. Beyond the poverty aspects related to the frequent lack of infrastructure of these camps (access to water or sanitation) and services (school, health centres), this status of "migrant" also generally augments the likelihood of political under-representation or social marginalization. Fishing communities are frequently neglected if compared with local farming communities in development planning.

1.3 FISHERIES AND POVERTY ALLEVIATION

While major effort has been made recently to better understand the nature and cause(s) of poverty in fishing communities, a more recent focus includes a parallel effort to look at the "other side of the coin" and attempts to understand how small-scale fisheries can also contribute to poverty alleviation. This Technical Paper is part of this effort.

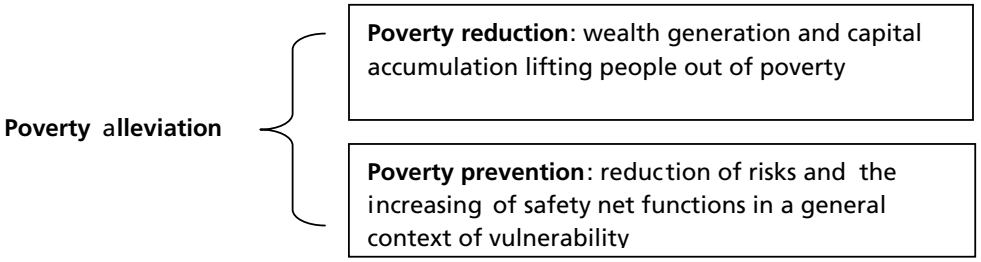
In this new focus on *poverty alleviation*, it is important to distinguish between *poverty prevention* and *poverty reduction*. Failure to make this distinction and to recognize the implications in terms of policy is likely to lead to a muddled debate and possibly to unwanted outcomes and inappropriate policies. In accordance with the rest of the international community, this Technical Paper discusses fisheries' contribution to *poverty reduction* to describe a situation where people are becoming measurably better off over time due to their involvement and/or investment in fisheries activities. Poverty reduction therefore refers to a situation where wealth is generated and capital accumulated through capital and labour investment made in the fishery, and which then helps to lift people out of poverty.

The three economic levels at which poverty reduction can occur – household and intra-household, local and national – depend on different mechanisms and therefore relate to and require different policies. In the rest of this Technical Paper, this distinction is made explicit by categorizing the overall contribution of small-scale fisheries to poverty reduction: (i) *wealth generation* at the household level and its *distribution* within households – to men, women and children; (ii) a *rural development engine* at the community level; and (iii) *economic growth* at the national level. The interdependence between these three levels is complex. A migrant fisherman may earn a significant cash income that is not remitted back to his household, leaving his wife and children in conditions of poverty. A few fishers may become very rich (*wealth generation*) without necessarily making the community within which they live benefit from their wealth. On the other hand, in several of the countries where artisanal fisheries contribute significantly to national economic growth (e.g. Senegal, Ghana), many fisheries communities (and *a fortiori* fishing households) in remote coastal areas are still living at the margins of subsistence and dignity.

In contrast, *poverty prevention* refers to the role of fisheries activities in helping people to maintain a minimum standard of living, even when it is below a given poverty line, which helps them to survive. Poverty prevention thus refers to reducing risks and increasing safety net functions in a general context of *vulnerability*. Vulnerability can be conceptualized (e.g. Adger *et al.*, 2004) as the combinatory result of:

- risk exposure (i.e. the nature and degree to which a household or community is exposed to a certain risk, for example, natural disaster, conflicts, macro-economic changes, etc.);
- sensitivity to this risk – measured for instance through the dependence of the household or community – on the fishing activity for its food security or income generation;

FIGURE 1
The two components of poverty alleviation: poverty reduction and poverty prevention



- the adaptive capacity of the household or community to the risk considered (i.e. the ability or capacity of the household to adapt in order to cope with changes).

In the present context, it is important therefore to note that vulnerability is different from poverty, although the two concepts are intimately related. Vulnerability is in fact part of poverty in that poor people tend to be more vulnerable (more risk exposure plus more sensitivity and less adaptive capacity) than non-poor people, for instance, because they cannot access insurance or good quality services (e.g. health, education), or because they depend highly on the fisheries to ensure their food security. But it is also true that in a given environment, with the same level of income and similar access to public services, some people may still be more vulnerable than others due to the very nature of the activity on which they depend. Experience shows that this is the case for fishing households, as will be discussed in greater detail in section 2.2.4.

Finally, this Technical Paper uses the term *poverty alleviation* as an inclusive term encompassing both *poverty reduction* and *poverty prevention* as well as vulnerability reduction (Figure 1). These different dimensions of poverty alleviation are summarized in Table 1 and discussed in more detail with concrete examples in section 2.

1.4 THE CONCEPT OF FOOD SECURITY

1.4.1 Food and poverty

As pointed out, poverty has various dimensions, of which the food dimension is fundamental; people chronically lacking access to sufficient food are considered poor. Malnutrition negatively affects people's working and learning capacity, and has significant associated costs (see Box 1) and may affect vulnerable groups living just above the poverty threshold, causing them to enter the ranks of the poor. Food security and poverty are therefore closely linked, and eliminating hunger and malnutrition is therefore a precondition for the eradication of poverty.

1.4.2 Food security at the individual level

The 1996 World Food Summit defines food security as "a condition when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."[5]

It is useful to emphasize two important dimensions of food security contained within this definition – the individual and the temporal. Food insecurity may affect people at the individual or household level and may be temporary (transitory) or permanent (chronic).[6]

[5] See www.fao.org/wfs/index_en.htm

[6] As pointed out by Broca (2002), a major flaw of this definition – due to its all-inclusive dimension – is that it does not allow for *changes* in food security. In particular, this makes it inappropriate for measuring *progress* towards food insecurity.

TABLE 1
The different dimensions of poverty alleviation in relation to small-scale fisheries, including the specific issue of vulnerability

	Poverty alleviation				Fisheries as a source of vulnerability
	Poverty reduction: Fisheries contribute to lift people out of poverty		*Poverty and vulnerability prevention*: Fisheries contribute to maintain a minimum standard of living		
Level	**Contribution**	**Mechanisms**	**Contribution**	**Mechanisms**	**Causes**
Individual/intra-household	Livelihood support to other household members, particularly dependents	Fishing income spent on children's' education and building other household assets (e.g. farm inputs, investment in small enterprises for other household members to run)	Household subsistence	Fishing income contributes to household budget – expenditure on food, clothing and health care	Strongly gendered roles and frequent absence of (migrant) male fishers may limit intra-household income distribution. Absence from home and fishing lifestyle may increase vulnerability of partners to HIV infection.
Household level/ sector	Wealth generation	Effective capture of fishery rent (capital accumulation) High level of commercialization Access to effective market mechanisms Fish as cash crop for investment and diversification	Safety net function (transient poverty) Activity of last resort for the poorest (chronic poverty)	Fisheries reduce vulnerability and mitigates poverty effects Fisheries contribute to food security through direct contribution (subsistence), but also fish being an immediate cash crop acts as safety net	High occupational risk Risks of losing physical assets
Local level	Engine for rural development	Increased demand for goods and services Rise in wages and employment opportunities (income and employment multipliers)	Social-redistributive system (welfare)	Fisheries provides alternative sources of income, food and/or employment	Unpredictability of the natural resource availability Natural disaster risk Conflicts
National level	Economic growth	Trickle up to government through taxes and foreign exchange earnings (regional or international trade)	Redistributive	Government expenditure on poverty alleviation measures is drawn from fisheries-related tax and foreign exchange earnings	High susceptibility to macro-economic fluctuations

BOX 1
The costs of undernourishment

At the most basic level it is recognized that "if, over an extended period of time, a person is to convert potential labour power into actual labour power of any specified, physiologically admissible amount, he requires, among other things, nutrition of a corresponding quality and magnitude over that period" (Dasgupta, 1997, p. 6). If this is not the case, or if the person lives in an unhealthy environment, the result is poor nutritional status. In this case, this person suffers an impairment of the ability to do sustained work (Satyanarayana *et al.*, 1977; Spurr, 1990; Bhargava, 1997), which usually results in lower productivity and wages (Strauss, 1986; Deolalikar, 1988; Alderman *et al.*, 1996; Croppenstedt and Muller, 2000). Second, there is evidence that poorer nutritional status leaves people more susceptible to illness – leading eventually to a higher mortality rate (Horton, 1999). Third, there is a risk of intergenerational transmission of poor nutritional status: women who suffer from poor nutrition are more likely to give birth to underweight babies. These babies therefore start out with a nutritional handicap (UNICEF, 1998). Fourth, there is evidence that poor nutrition is associated with poor school performance in school-age children. Because of hunger, children are listless or tired and inattentive, and cannot participate in learning activities. Furthermore, cognitive ability also may be impaired as a result of prolonged and severe malnutrition. Finally, there is some evidence that the macroeconomic performance of an economy may suffer as a result of the cumulative impact of these effects. It has been shown recently that the overall effect may be to reduce a country's rate of economic growth (Horton, 1999).

Note: The references provided here are cited in Broca, 2002

1.4.3 Food security at the national or regional level

Food security is also sometimes considered from a collective or national viewpoint, referring to "national food self-sufficiency". Some would argue that individual food security and national food self-sufficiency are two different and unrelated concepts. Indeed, national self-sufficiency is neither necessary nor sufficient to guarantee food security at the individual level. India, for instance, is self-sufficient, but a large part of its population is not food secure. On the other hand, Hong-Kong and Singapore are not self-sufficient, but their populations are food secure due to the countries' capacity to import food. Food security is therefore brought about by a combination of individual, household, community, national and even international factors. In particular, efficient trickle-down and redistribution mechanisms, and transfer-based entitlements (Sen, 1996) (i.e. individual-based access to these mechanisms) are required in order that national self-sufficiency ensure individual food security.

1.4.4 Direct and indirect contribution to food security

Another aspect of food security needs clarification, especially when focusing on the relation between food (as a commodity) and its potential to contribute to food security (as an economic activity). Producing food such as wheat, cassava or fish through farming or fishing activity can contribute *directly* to individual or national food security through the supply of the food commodity itself (subsistence).[7] But it may

[7] "Subsistence" is defined here as an economic system or activity adopted by households primarily organized around a domestic mode of production that depends heavily on natural resource harvesting (i.e. fishing) and mainly geared towards home consumption, but it may also involve levels of bartering.

TABLE 2
Dimensions of food security and insecurity

Food security	**Contribution**	
Level	**Direct contribution**	**Indirect contribution**
Individual/household level (micro)	Through subsistence. Assumes the ability of the household to utilize the commodity through adequate non-food input, i.e. clean water, sanitation and health care.	Through self-employment or wages
Domestic level (meso, macro)	Direct food self-sufficiency through effective commercialization or redistribution of national surplus.	Indirect food self-sufficiency through foreign exchange earnings (food import).
Global	Limited nature of capture fisheries. Highlights the role that aquaculture and improved fisheries management and utilization will have to play in the future to ensure global fish food security.	
Food insecurity	**Temporal dimension**	
Level	**Transitory insecurity**	**Chronic insecurity**
Individual/household level (micro)	Temporary breakdown in the household's income (e.g. loss of employment, illness).	Insufficient assets (e.g. education, labour, access to credit), lack of access to market opportunities.
Domestic level (meso, macro)	Temporary crisis (e.g. food price fluctuations), local or national crop failure, natural disaster, and armed, temporary or long-term conflicts.	Structural meso- or macro-economic failures (e.g. markets or balance of payment), inappropriate policies, armed conflict.

also contribute *indirectly* to the individual's or household's food security through the revenues generated from production and related processing and marketing activities (whether individuals are self-employed or paid wages), which can be used to purchase food. In other words, fish contribute to food security, directly through subsistence mechanisms with high quality food, including animal protein and some important micro-nutrients (see section 2), and indirectly through incomes and livelihoods to the fishers or the people working in related activities such as processing or trading.

1.4.5 Food security at the global scale

Since the 1990s, a further dimension of the *fish food security* issue has been debated more and more frequently in the literature. This relates to the growing imbalance between fish supply and fish demand at the world level. The current situation of the world's capture fisheries, which have reached a plateau in production of around 100 000 million tonnes per year, contrasts with the still increasing world population and its associated growing demand for food in general as well as for fish. Measured in terms of per capita fish supply, these opposite trends resulted in an aggregate decrease per capita of ten percent in 13 years (from 14.6 kg in 1987 to 13.1 kg in 2000). Under these conditions, the role of fisheries in contributing to food security may be even more crucial. However, the limited nature of wild fisheries emphasizes the increasing role that aquaculture will have to play in the future to compensate for this growing food availability/demand disequilibrium.

Table 2 summarizes the different elements that constitute the various dimensions of the concept of *fish food security* as discussed above. The second part of the table characterizes the issue of food insecurity through its temporal dimension. The table provides an initial framework for a more rigorous assessment of the contribution of small-scale fisheries to food security to be discussed in section 2.

2. Contribution, role and importance of small-scale fisheries in poverty alleviation and food security

2.1 THE CODE, SMALL-SCALE FISHERIES AND POVERTY ALLEVIATION

The importance of small-scale fisheries in poverty alleviation and food security is first acknowledged in the Code under the General Principles (Art. 6) where it is stated as follows:

> *Art. 6.2 Fisheries management should promote the maintenance of the quality, diversity and availability of fisheries resources in sufficient quantities for present and future generations in the context of food security, poverty alleviation and sustainable development.*

This contribution is most clearly acknowledged in Article 6.18:

> *Recognizing the important contributions of artisanal and small-scale fisheries to employment, income and food security, States should appropriately protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to a secure and just livelihood, as well as preferential access, where appropriate, to traditional fishing grounds and resources in the waters under their national jurisdiction.*

2.2 SMALL-SCALE FISHERIES AND POVERTY ALLEVIATION

In this section, the framework provided in Table 1 is used to identify and discuss in a comprehensive manner the different ways that small-scale fisheries can contribute to poverty alleviation. Causes of vulnerability in small-scale fisheries communities are also reviewed.

2.2.1 Contribution of small-scale fisheries to economic growth at the national level

As noted in the introduction, small-scale fisheries may demonstrate significant comparative advantages over industrial fisheries in economic, social, environmental and cultural terms, and can be extremely profitable in some specific circumstances. Their actual and potential capacities to contribute to national economic growth and poverty alleviation are therefore important.

Unfortunately, at the present time, many national statistics do not separate out small-scale and large-scale fisheries data, and information on the contribution made by small-scale fisheries is seldom available. One is therefore usually left to consider the balance of industrial and small-scale fisheries in a particular country concerned and to make certain assumptions. Where small-scale fisheries make up the bulk of overall fishing activity, it is easier to generate estimates of their total contribution.

At the national level, there are three main ways in which small-scale fisheries can contribute:

- multiplier/GDP effects;
- generation of tax revenues;
- generation of foreign exchange.

2.2.1.1 Multiplier/GDP effects

Income multiplier effects (see section 2.2) can potentially trickle up to the national economy, ensuring that small-scale fisheries can support national economic growth by contributions to GDP through indirect and induced impacts (see Box 2).The direct contribution made by the fisheries sector to GDP typically ranges from around 0.5-2.5 percent, but may be as much as seven percent in some countries, as in Senegal in the 1990s where fisheries are a key economic sector compared to other sectors in the national economy. However, indirect and induced multiplier effects of small-scale fishing activity are generally not disaggregated at the national level and are difficult to estimate.

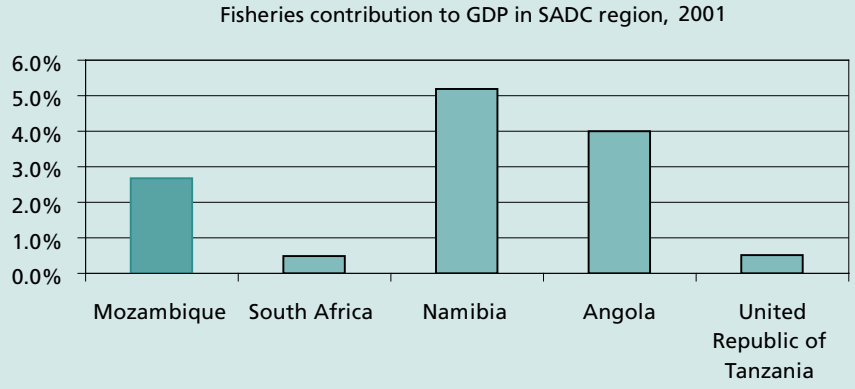
2.2.1.2 Tax generation

Taxes provide the state with an opportunity to assist both poverty reduction and poverty prevention initiatives. In most countries, tax revenues from both large- and small-scale fisheries are not ring-fenced for retention within the fisheries sector, but are deposited into national treasuries, although some countries retain a proportion of user fees for fisheries-specific expenditure, such as research or monitoring control and surveillance activities. Funds available to national treasuries can then be spent on redistributive mechanisms aimed at targeted poverty prevention or on generic social

BOX 2

Contribution of the marine fisheries sector to national GDP in the SADC region

The following graph shows the percentage contribution made by the fisheries sector to GDP in the SADC region in 2001. In all countries but Namibia, the percentage of total employment in small-scale fisheries is high (Mozambique, 91 percent; South Africa, 85 percent; Namibia, around 0 percent; Angola, 68 percent; the United Republic of Tanzania, 99 percent). One cannot simply apply the percentage of small-scale employment to the total value-added generated to estimate the contribution of value-added made by small-scale fisheries, especially given the subsistence nature of some small-scale fisheries, which implies no value-added and the tendency for larger-scale operations to be able to invest more in value-added techniques and processing. Nevertheless, these employment figures, taken together with the graph, provide an indication of the relative importance of small-scale fisheries.[1]



Source: Gamiero and Wilson, 2003

[1] It is worth noting that marine fisheries in Tanzania are minor compared to inland fisheries, so the overall contribution to GDP of fisheries is higher than the marine figure suggests, while for the other countries, fisheries are predominantly marine.

BOX 3
Tax generation in the United Republic of Tanzania

In the mainland of the United Republic of Tanzania, revenues collected for the Central Government in 2002 from the fisheries sector totalled US$6.9 million (mainland only), of which 97 percent was from export taxes. Eighty-five percent of export taxes were collected from the export of Nile perch-related products from Lake Victoria. Decentralized revenue collection is estimated at $US1.5 million per year, of which 99 percent is due to fish levies, 62 percent of which is levied from freshwater fisheries. Total tax burden on the fishery is estimated at 9 percent of landed value, and the sector contributes approximately one percent of total government revenue collection. In the mainland of the United Republic of Tanzania, the Ministry of Finance allows retention of part of earned revenues in the fisheries sector. For the fiscal year 2001/2002, 48 percent of earned revenue was sent back to the Fisheries Department, 6 percent was taken as overhead by the Ministry of Natural Resources and Tourism, and the remaining 46 percent was retained by the Treasury.

In Zanzibar, revenues collected for the Zanzibar Government in 2002 totalled $US0.06 million, of which 73 percent was collected from export taxes. Of export taxes, 84 percent was collected from the export of dried seaweed, produced by extensive small-scale mariculture. Local revenue collection from the fishery is estimated at $US0.22 million. The total tax burden on the fishery is estimated at 2.5 percent of landed value. In Zanzibar, a retention scheme was started in 2003. For the fiscal year 2001/2002, the department spent 170 percent of collected revenue and required net support from the Treasury.

Source: Wilson, 2003

support. But they might also be used to invest in and provide support for infrastructure and services that are vital for economic development but which would be unlikely to be supplied by the private sector. Examples include the construction of transport infrastructure such as roads to facilitate access to markets, and the provision of education and health care facilities. Taxes can, of course, also be used to support sector-specific aid and development programmes, and recurrent budgets in the fisheries sector, which might contribute to both poverty prevention and poverty reduction.

Small-scale fisheries can make national-level contributions to economic growth through the generation of a wide range of taxes. Taxes[8] may have to be paid to government at local, regional or national level (see Box 3) and small-scale fishers and fishworkers may make tax payments in the form of:

- income tax and employment tax such as national insurance contributions;
- tax on company sales or income;
- social employment taxes;
- duties on products used as inputs to business activities;
- customs and excise tax on imports and exports;
- value-added tax;
- vessel registration fees and licences;
- landing fees;
- levies on sales.

Taxes may be paid by all links in the commodity chain and by the suppliers of inputs to each link in the chain, but in many developing countries, collection of taxes from

[8] Taxes may be direct or indirect. Direct taxes are those taxes levied on individuals or businesses, while indirect taxes are all those taxes that are placed on a product or a service.

BOX 4
Foreign exchange earnings

Export earnings from fisheries in some countries can contribute very large proportions of total export earnings, as in Mauritania and Mozambique where fisheries have historically contributed as much as 40 percent and 50 percent, respectively, of national export earnings, although mainly from industrial fishing activity. However, a significant proportion of the increase in exports from many developing countries has been provided by small-scale fisheries, especially to meet an ever-increasing demand for high-quality demersal fish in developed country markets. In Senegal, the fisheries sector as a whole contributed 37 percent of export earnings between 1990 and 2000, with a significant proportion of the value of exports originating from small-scale fisheries. Uganda provides another example, where major export fisheries, based mainly on Nile perch from small-scale fisheries in Lake Victoria, generated fish exports that contributed 17 percent of the total value of exports in 2002, having grown from less than one percent in 1990. Nile perch from small-scale fisheries also play an important role in exports from the United Republic of Tanzania, contributing US$77 million to a total fisheries export value of around US$91 million in 2002.

In some Latin American countries, the links of small-scale fisheries with the exporting sector and their contribution to foreign exchange earnings have diverse features. For instance, in Chile, Argentina, Mexico and Costa Rica, some small-scale fishers directly export their production. In other countries of the region (e.g. Colombia, Ecuador, Honduras and Panama), landings of high value species are sold to processing /exporting firms. In this case, although catches from small-scale fisheries are not registered as destined for exports, they nevertheless contribute to exports.

Source: Wilson, 2003 and C. Beltrán, personal communication, 2004

small-scale fisheries is not well-enforced due to the difficulties related to tax collection and the inability or reluctance of small-scale operators to keep sufficient records on the basis of which tax levels can be calculated or estimated. This characteristic, which is not specific to small-scale fisheries, is nonetheless exacerbated in this specific sector by the frequent geographical remoteness of the area where fishing communities or camps are established, and the high degree of informality of the sector (in capture fisheries but also in related small-scale trading and processing activities).

2.2.1.3 Foreign exchange

In certain cases, small-scale fisheries can also make significant contributions to national economies through the generation of foreign exchange derived from regional and/or international trade (see Box 4). International trade in fish and fishery products has grown rapidly over the last 20 years. Export values have risen from US$15 billion in 1980 to US$56 billion in 2001. In the same period the developing countries' share of total exports has risen from 40 to 50 percent, with net receipts from fish trade by developing countries increasing from less than US$4 billion to almost US$18 billion. Imports are concentrated strongly in the United States, Europe and Japan, with developed countries absorbing 80 percent of total world imports (Lem, 2003).

Export earnings are important for both the private and public sectors because in addition to generating employment and profits on sales, they generate foreign exchange and contribute to the national balance of trade. Both the private and public sectors need foreign exchange to purchase imported products that can be vital factors of production for economic growth.

2.2.2 Contribution of small-scale fisheries to rural development at the local level

Wealth generated through small-scale fishing or related activities such as fish trade may also be a powerful factor in reducing poverty at the local level. Wealth generated by individuals, households or small-scale enterprises can make significant contributions to rural development through income and employment multiplier effects. This is especially the case in fisheries because of the cash crop nature of fish: this is possibly one of the few products in some rural economies that can generate cash to spur and stimulate demand, because other food products may be bartered/exchanged more or consumed within the household.

Multipliers arise because fishing activities use the products of other industries/businesses to produce their own products, and because outputs from fishing become inputs to another industry/business. The main concept of the multiplier is therefore based on the recognition that the various sectors that make up the economy are interdependent. In this respect, small-scale fishing activity may have an impact on businesses both within the fisheries sector and on businesses in other sectors.[9]

The impacts from small-scale fishing activities on rural development can be direct, indirect and/or induced. Direct impacts relate to sales, income and employment effects on the producers themselves, which result from changes in the demand or production of fish products. Indirect impacts relate to the sales, income and employment effects on businesses that supply goods and services to small-scale fish producers, or which market or process their products down the supply chain. Induced impacts are the sales, income and employment effects resulting from changed levels of income and expenditure throughout the local economy as a result of direct and indirect impacts. For example, fishing crew may use their earnings to purchase groceries or household items.

Another way of looking at the indirect impacts – in terms of the income, sales/outputs and resulting employment – is to consider the contributions to poverty reduction that can be made "upstream" and "downstream" of the production activity, through the commodity/supply chain.

Upstream activities are those activities supplying inputs to the fishing operation. Typical inputs for small-scale capture fisheries include: investment costs in vessels and gear; operational costs of fuel, ice, food and bait; labour costs; financial services; and maintenance costs. Many of these inputs are typically provided by small-scale individuals or enterprises located nearby within the local rural area, although some inputs such as fishing gear and fuel may originally be manufactured further away, either nationally or internationally, and supplied locally through local businesses/traders.

Downstream activities are those following product harvesting and requiring inputs. Some examples of the inputs required are: investment in design, construction and equipping processing and marketing facilities; labour; transport of fish from landing sites and to markets; financial services; variable costs such as ice, knives for cutting, wood for smoking, salt for drying, packaging materials and fish boxes; and maintenance costs. As with upstream inputs, small-scale individuals or enterprises typically provide many of the "downstream" inputs and activities within the local rural area, thereby generating sales, income and employment, and contributing to poverty reduction and rural development.

In considering both the upstream and downstream indirect activities as well as the induced impacts, one can easily imagine how small-scale fishing activities can become

[9] These multiplier and inter-industry effects can be modelled through input/output (I/O) models. Models may relate to a single country or region, or may be multi-country (regional) models, and also allow measurement of changes in final demand on the economy and contribution of different sectors to gross domestic product (GDP).

BOX 5
Bagda shrimp production in Bangladesh

A DFID-funded study in 2001 mapped the supply chain for bagda shrimp production in Bangladesh – an activity that is solely small-scale in nature except for the export-orientated processing companies. It was estimated that there were around 50 000 shrimp farms with associated direct employment generated for 166 485 people, and that these farms generated direct value-added/income, i.e. paid labour costs plus net profits of 5.6 billion Tk.[1] The indirect employment benefits/impacts from this production through the supply chain were calculated as an additional 141 642 people, with additional indirect value-added of 1.75 billion Tk. Interestingly, it was shown that for the supply chain as a whole, 265 906 of the total labour estimate of 308 127 were in the "unskilled/poor" category, showing the importance of bagda-related activities for the poor in Bangladesh. Similarly, 61 percent (4.45 billion Tk) of the total value-added/income accrued to the "unskilled/poor", 27 percent to the "semi-skilled/middle-income", and only 12 percent to the "skilled/rich".[2] Using input/output tables, the study also demonstrated that to produce one million Tk of shrimp output, 537 128 Tk of inputs would be required from other sectors, and that the value of the output multiplier was such that for a 1 million Tk expansion of shrimp exports, total output of the economy would increase by 2.153 Tk million through various first- and second-round output adjustments.

Source: Macfadyen and Aeron-Thomas (2001)

[1] US$1 equals approximately 58 taka (Tk) (2001)
[2] The study also estimated the percentage of household income generated from shrimp-related activities, which ranged from 41-90 percent for different links in the supply chain, with an average figure across the supply chain of 60 percent, showing the high dependence on shrimp-related activities.

BOX 6
Nile perch production in Ugandan waters of Lake Victoria

Lake Victoria covers an area of 68 000 km2, and is the second largest lake in the world. The fishery is an important source of animal protein for the densely populated riparian communities of Kenya, the United Republic of Tanzania and Uganda, which share its waters. There are around 600 fish landing sites on the Ugandan shores of the lake, 30 000 fishers operating in its waters, and as many as 700 000 people estimated to be employed in ancillary activities related to the fishing industry. Catches of Nile perch, the main fishery in the lake, were close to 90 000 tonnes in 2000 and represented around 24 percent of total fish landed in Uganda. In 2001, 28 153 tonnes of Nile perch were exported from Uganda with a value of close to US$80 million.

Source: Nsimbe-Bulega and Akankwasa, 2002.

the main driver and engine of poverty reduction in rural locations, with a web of businesses and individuals generating sales, income and employment as a result of the multiplier effects of fishing activity. This is especially the case when considering that the commodity chain itself can be extensive, with all levels in a supply chain requiring inputs. In this way, small-scale fisheries can create wealth within the sector, which may then spread to the non-fishing sector and the whole local community.

Empirical examples of the extent to which small-scale fisheries and fish farming

BOX 7
Fishing as a full-time activity

In coastal areas, people may enrol as crew members on boats for a given part of the year, depending on opportunities or lack thereof in other rural activities. This category of wage-based labourers, however, involves mainly full-time professional fishers– males working all year round on artisanal or semi-industrial vessels (Chaboud and Dème, 1991; Chauveau, Jul-Larsen and Chaboud,. 2000). Their revenues are usually based on a share-contract remuneration system and the activity is mainly undertaken for income generation, although some part of the revenue may be paid in kind. This concerns many men in coastal villages, and even in some urban areas in Africa (e.g. Senegal, Ghana) or in Asia (e.g. Sri Lanka, Philippines, Thailand, Viet Nam). Other members of the household may be involved in fishing-related activities (e.g. fish processing, trading) or other urban or rural activities (farming, home gardening or livestock rearing).

activities contribute to overall rural development in this way are not frequent, but two examples are provided in Box 5 and Box 6.

2.2.3 Contribution of small-scale fisheries to household poverty alleviation

2.2.3.1 Small-scale fisheries as a central element in livelihood strategies

As mentioned, catching/harvesting of fish and associated post-harvest activities (processing and trading) generates livelihoods, employment and income to millions of people around the world, especially in coastal areas (see Box 7). An estimated 90 percent of the 38 million people recorded by the FAO globally as fishers and fish-farmers are classified as small-scale. Assuming a 1:3 ratio for direct upstream and downstream activities, this means that over 100 million people depend on fishing and directly related activities (processing, trading, ancillary services, etc.), 90 percent of whom live in developing countries. Although these jobs may not systematically be synonymous with decent living conditions for these people, this figure of over 100 million means that fishing and related activities contribute to the livelihoods of a very significant number of households in developing countries, the bulk of whom are found in rural areas.

Not included in these estimates, however, are the other hundreds of millions of people engaged in temporary fishing activities, either in marine areas, but more typically in rivers, creeks, small lakes and reservoirs, seasonal or temporary ponds, wetlands and floodplains.[11] In these cases, fishing is not a full-time occupation, but is part of a multi-activity livelihood strategy developed by the individuals and households. Within these strategies, fishing may appear among activities involving low human and financial capital, and are occasionally undertaken by household members (see Box 9), or at the other end of the spectrum, may represents a more prominent – but still seasonal – activity that is strongly integrated into the household's yearly planned livelihood strategies (see Box 8).

The few studies that have attempted to estimate the contribution of fishing in these multi-activity based livelihoods have demonstrated that it can play a major role. In the Zambezi Basin, for example, a recent study showed that inland fisheries, through their contribution to the household's cash income, generate more cash than cattle and sometimes more than crops (Turpie *et al*., 1999) (Table 3).

[11] Because fishing is not, in most of these cases, perceived as the household's main activity (which is more frequently recorded in governments' statistics as "farmers"), the contribution of fisheries is seldom recognized and accounted for, and is usually ignored by planners and policy-makers.

BOX 8
Seasonal or part-time fishing

Seasonal or part-time fishing is usually characterized by a higher labour and financial involvement than occasional fishing. It is also conducted by different members of the household: part-time fishers are males who get involved in fishing activities as part of a wider, multi-activity livelihood strategy. Broadly speaking, two main types of seasonal fishers can be distinguished: the sedentary (local) fishers and the migrant fishers. The sedentary fishers usually use relatively cheap and simple fishing gears (e.g. traps, gillnets, hooklines), although some more sophisticated gear or techniques (e.g. fences or barriers) may be used as well. This type of activity can last from a few weeks to several months during the season, depending on the combination of activities undertaken by the households and the availability of labour and resources. The catch is used for subsistence purposes or/and sold in local markets. In Africa, along rivers or in the vicinity of water bodies such as ponds or reservoirs, the active males may get involved in this type of seasonal fishing activity between cropping seasons or when other agricultural activities are low (Thomas and Adams, 1999; Sana, 2000). In the Tonle Sap Lake area in the Mekong Basin, hundreds of thousands of households share their time between fishing activity, operated on the open water of the lake and the fringing floodplains during the rainy season, and the cultivation of rice paddy and other subsistence and cash crops during the rest of the year (Ahmed *et al.*, 1998). The second major type of seasonal fishers is migrant fishers. They are generally young men who undertake regional or even pan-continent migrations (along the coasts or from one river basin to another). They are usually very skilful and use relatively sophisticated and very effective fishing gears and techniques. They are in fact one of the major sources of technical innovation in small-scale fisheries and the introduction of new fishing techniques or gears in a river basin or region is usually the result of *technological transfer* by migrant fishers from another regions. Their presence in one area may range from a few weeks to several years. They usually act on an opportunistic basis, which can raise managerial problems and conflict issues with the local fishing communities.

TABLE 3
Contribution of fisheries to households' cash income (US$/household/year) in different parts of the Zambezi Basin, compared to other activities [percentage of total household income]

	Barotse floodplain	Caprivi-Chobe wetlands	Lower Shire wetlands	Zambezi Delta
Cattle	120	422	31	0
Crops	91	219	298	121
Fish	180 [43%]	324 [28%]	56 [13%]	100 [39%]
Wild animals	6	49	1	0.4
Wild plants	24	121	48	29
Wild foods	0	11	7	4
Clay	2	0	8	0.1

Source: Turpie *et al.*, 1999

Other studies also emphasize how in floodplain areas, fishing fits within a flexible matrix of various activities that constitute the basis of a diversified livelihood strategy on which households rely in order to spread risks between various economic activities in an uncertain environment and to create synergy between the inputs and outputs of these activities, thereby enhancing capital accumulation and income opportunities (see Box 10). Fishing as a secondary or complementary activity is therefore essential for rural households both in terms of income and food security.

Where fisheries constitute the primary (full-time) activity, costs and earnings studies can demonstrate the value-added (i.e. crew earnings and net profit) made from small-

BOX 9
Occasional fishing

Occasional fishing strategies involve low human involvement and low capital investment and are undertaken by a very large number of households in developing countries, essentially for subsistence purposes. This strategy involves cheap and simple fishing gear (e.g. baited fishing lines) and is frequently carried out by non-leading members of the household (children or elders, or women in male-headed households) in addition to the other domestic activities. This type of fishing is usually conducted on the margins of water bodies located in the vicinity of the house/village. In floodplain areas of the Indian subcontinent, this type of activity may involve up to 70-80 percent of the households during the flood season (Thompson and Hossain, 1998; Hoggarth *et al*., 1999). Occasional (morning and/or evening) fishing, conducted in association with other activities such as farming, household or agricultural commitments occupying the rest of the day, is very common in West African villages on the coast, or in the vicinity of rivers (e.g. Cameroon, Burkina Faso) or lagoons (e.g. Benin, Côte d'Ivoire) (Horemans and Jallow, 1997; Williams and Awoyomi, 1998).

BOX 10
Fishing as part of a livelihood strategy

Recent research in the Lake Chad Basin illustrates how fishing can constitute a powerful engine for capital accumulation and a central element in livelihood support. Fish provides a source of cash to be re-invested in various fishing or non-fishing activities (Neiland *et al.*, 2000; Béné *et al.*, 2003a). In particular, better-off households in these regions use a large part of the income generated by fish catches to purchase farming inputs such as fertilizers and seeds and to hire farm labour. The ability to hire extra labour is a critical advantage in the Sahelian region where it is not so much land but rather labour that is the major constraint to farming production. The results also show how additional investment in fishing inputs (through new fishing gear or more labour allocated to this activity) can generate an instantaneous income surplus, in contrast to farming activities, where several months (until harvest time) have to pass before any benefit is obtained from the investment. Given the high environmental and political uncertainty that characterizes the Sahelian regions, the capacity of fishing activities to generate instantaneous gains represents an enormous advantage over farming.

scale fishing activities. Such studies (for example, Tietze, Groenewold and Marcoux, 2000) are more prevalent for catching operations than for processing and marketing activities (although still not very widely published), and can be used to demonstrate the income made by individuals engaged in fishing activities. In some cases, these earnings can be quite substantial as vividly illustrated by the success stories of "Big Men" along the Senegalese or Ghanaian coastlines, suggesting that small-scale fisheries are not always or systematically a last-resort activity, but on the contrary can be a "first resort activity" (e.g. Nguinguiri, 2000). But few of these success stories have been adequately reported. What has received much more attention in the literature so far is the contribution of small-scale fisheries to poverty prevention, and in particular, their role as a safety net or activity of last resort for the poor.

2.2.3.2 Fishing and fish-trading as a safety net activity for the poor

Although small-scale fisheries may contribute to poverty reduction at the household level, it should be recognized that at the present time the most important contribution of small-scale fisheries to poverty alleviation (at least in terms of number of fisherfolk involved) is probably through their role in poverty prevention. Experience suggests that for the large majority of households involved in fishing activities (full-time, temporary or occasional fishers) in developing countries, fishing and related activities do not generate high economic returns, but instead help them to sustain their livelihoods and prevent them from falling deeper into deprivation. The literature, which emphasizes how important this role is for rural populations, usually refers to mechanisms such as "fisheries as a safety net" or as an "activity of last resort". [12]

Although these poverty prevention mechanisms are perhaps less attractive from a purely economic point of view – in the sense that no significant surplus rent is generated by the activities – the role of small-scale fisheries as a livelihood support for the rural poor is crucial from a social point of view, especially in remote areas where alternative employment may be scarce and social security programmes either minimal or non-existent. Fisheries can play a critical role in these areas as a welfare or redistributive system, which would otherwise have to be provided through other forms of social support by local or central government (e.g. through food-for-work or unemployment benefit programmes).

In situations of economically or institutionally restricted access to other capital (i.e. financial capital such as credit) or production factors (such as private land), the allegedly relatively easy and/or free access to fishing grounds allows poor people to rely more heavily on the local commons resources to obtain/extract the goods and services they need to sustain their livelihoods. Inland fisheries are particularly important in this context. Widely dispersed and easily accessible to poor and/or isolated communities, these fisheries provide an important alternative source of income and food when other livelihoods are insufficient. This safety net dimension of fisheries is obviously of greater importance and relevance to poor and marginalized households, since the latter are generally those with limited access to land and/or other resources.[13]

Small-scale fisheries can also provide a critical safety net for vulnerable households (even those who were not previously poor) when they face a sudden decline in their income. This can occur, for instance, when the head of a household loses his or her job, farm crops fail, or on a larger scale, when the local or even national economy deteriorates. Recurrent civil wars or military conflicts, population displacement and natural disasters – all frequent in developing countries, especially in the African context – also create circumstances where those affected turn to fisheries as additional or alternative sources of income, food or employment (see Box 11), especially given the open-access nature and/or poor management of many fish resources.

The reliance on fisheries to provide income for the poorest does not only concern fisheries activities per se, but applies also to processing and trading activities. This aspect adds an important gender dimension to the discussion, given that women are

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[12] For the sake of simplicity, these two mechanisms, safety net function and activity of last resort, are presented here as equivalent. It has been shown elsewhere that they are based on different mechanisms, may concern different households, and occur in different circumstances; the distinction therefore has important consequences in terms of poverty alleviation policy. For instance, the safety net function refers more to transient (short-term) poverty, while the activity of last resort is more associated with chronic (long-term) poverty. See Béné, 2004, pp. 21-26), and in particular Table 5, for a detailed discussion on this point.

[13] In this respect, a dimension of this last resort is comparable to the role that other common pool resources (CPRs) are recognized to play in livelihoods of the poor. Beck and Nesmith (2001), for instance, provide evidence of the importance of CPRs such as forests, rangeland, bushland, fallow fields, inland waterways, wetlands and seasonal ponds for the poor in India and Africa. As part of these CPRs, fisheries therefore play an important role for poor people.

BOX 11
Small-scale fisheries as a safety net activity for the poor

The role of small-scale fisheries as a safety net for the poor in developing countries has been observed and described worldwide. In Southern Africa, for instance, the Lake Kariba fishery has been shown to have fulfilled this role at least twice over the last 30 years (Jul-Larsen, 2003). First, in the mid-1970s several thousand miners working in the Copperbelt in Zambia lost their jobs and migrated to the Lake region, where they undertook fishing as an alternative support for their livelihoods. Second, a few years later during the Zimbabwean Independence War, several hundreds of families moved to the Lake region for security reasons and entered the fishery to ensure minimum revenues until the political situation in their region of origin had improved. At a global scale, one may even wonder to what extent the doubling of the total number of fishers in the world since the 1970s (FAO, 1997) may indeed reflect the specific capacities of small-scale fisheries to absorb surplus labour and play this crucial role as a safety net for the poor.

usually the main participants in these related sectors. For example, Gordon (2003) describes the case of fish trading associated with the Chisense fishery on Lake Mweru (Zambia-Congo border) during the mid-1980s . Most of the women involved in the trading activity were poor and generally lacking the financial support of their husbands. They had to look for other activities to meet their daily needs in a context where the traditional female activity – cassava farming – was becoming increasingly difficult due to land scarcity and unprofitable prices (ibid, p. 173). Under these circumstances, fish trading provided the activity of last resort for these poor women.

The last point that needs to be highlighted in relation to this safety net dimension is the issue of open access or semi-open access that characterizes small-scale fisheries in developing countries. From a policy point of view, and in particular from a poverty prevention point of view, it is important to realize that open access is the key mechanism that permits the safety valve of the fisheries to function, thus allowing people to engage in the sector. This raises important questions concerning the trade-off that may need to be made if one wishes to maintain the capacity of small-scale fisheries to play their safety net role (poverty prevention), while at the same time, trying to restrict or at least control access to these resources for sustainability reasons and to increase their wealth-generating potential (poverty reduction). This is where the core of the debate is likely to take place.

Indeed, it can be argued that regulated access to small-scale fisheries could contribute to environmental sustainability in the medium to long term, and thus improve food security conditions of present and future generations. It may, however, do little for poverty prevention and food security in the short term. Furthermore, the argument is based on the fact that the sustainability of the resource is the pre-condition to ensure food security. As discussed in section 1, Sen (1981) and many others (Mearns, Leach and Sconnes, 1998; Leach, Mearns and Sconnes, 1999) have shown that this assumption – which was the justification for the support of productivist approaches to fisheries development in the 1960s–1980s – has its limits. Conditions for pro-poor food security are by no means achieved simply through higher productivity, although sustainability of the resource appears to be a necessary condition in the long run for small-scale fisheries to play its role of poverty alleviation.

2.2.4 Vulnerability in small-scale fisheries

Poverty is a very dynamic phenomenon. Despite the existence of poverty traps within fishing communities, people can move rapidly in and out of poverty, as well as

become poorer or less poor, and it is very important to specifically consider issues of vulnerability.

2.2.4.1 Why are small-scale fisheries especially vulnerable?

Fishing households in general, and poor fishers in small-scale fisheries in particular, are prone to very high levels of vulnerability, which are closely related to their fishing activity and the type of livelihoods associated with it. This vulnerability affects them through various sources of risk.

Fishing is by nature an unpredictable activity. Although there is undoubtedly a "loose" relationship between capital investment and returns on that investment, this relationship is particularly uncertain and variable in small-scale marine and inland capture fisheries, both in the short and longer term. The yield (and therefore the revenue, notwithstanding price fluctuations) that fishers derive from fishing is not simply a function of the number of nets or the time spent at sea or at other water bodies. It also depends on exogenous factors, and in particular on the availability/catchability of the resource, which fluctuates on a daily, monthly and annual basis. This represents a major difference between capture fisheries and agricultural activities, even if some would argue that farming activities are also unpredictable (see, for example, Eldin and Milleville, 1989).[14] It is important to note that the uncertainty affecting capture activities is also transferred – perhaps to a lesser extent – to fisheries-related activities (processing, trading), thus affecting other members of the same community and sometimes of the same households.

Other factors within the fisheries sector itself that increase the vulnerability of fishers and fishworkers include high occupational risk (from accidents), a lack of strong and effective organizations, and the strongly gendered nature of fishing activities.

More broadly, there are many other factors that contribute to vulnerability in small-scale fisheries, including: high exposure to natural disasters (e.g. floods, hurricanes); high exposure to changes in macro-economic factors (e.g. fuel and other input prices, fish prices[15]); powerlessness and social, economic and political marginalization; increasingly high exposure to conflicts with other users (including industrial fishing fleets, but also other coastal zone land and sea users) due to increased competition for resources; and most recently to HIV/AIDS, especially in Africa and Southeast Asia.

For all these reasons, it is recognized that fishing-related communities are probably among the most vulnerable socio-economic working groups, in particular in developing countries where both institutional and human capacities to address the inherent uncertainty of fishing activity are lower than in developed countries. These issues are considered further in the following sections, keeping in mind the three main elements that contribute to vulnerability – risk exposure, sensitivity and adaptive capacity as discussed earlier in section 1.3.

2.2.4.2 Is vulnerability in small-scale fisheries increasing?

Some fishing communities may be less vulnerable now than in the past due to developments and ongoing improvements to education, housing, social or community organization, communications (e.g. mobile phones) and technological developments. These technologies and services may serve to reduce *risk exposure* (e.g. the use of mobile phones to get market price information, access weather forecasts or even facilitate rescue) and reduce sensitivity (e.g. provision of the means to diversify and

[14] The fact that farmers in agriculture control the entire cycle of production dramatically improves the predictability of the relationship between investment and returns on investment and therefore represents an important advantage in comparison to capture fisheries. Nevertheless, this implies that aquaculture risk may be comparable to agriculture risk.

[15] It is generally recognized that fishers – especially individual, small-scale – are price takers.

reduce fishery dependence through education) and increase *adaptive capacity* (e.g. the provision of social and financial safety nets by community organizations that allow households to survive episodic shocks). However, access to such improvements is not even: the poor are known to be generally slower in adopting new technologies, and when adopted, it can also have negative impacts in terms of increasing indebtedness. While fishing communities are often relatively cash rich compared to farming communities, as noted above, they remain vulnerable to sudden changes/loss of earnings due to generally low levels of access to social services and political structures and processes.

As suggested in some of the literature (e.g. Geheb and Binns, 1997; Andersson and Ngazi, 1998; Sarch and Allison, 2001), there are a number of reasons why vulnerability in fishing communities may be increasing, some of which include:

- **Reduced fish stock levels as a result of overfishing in an increasing number of world's fisheries.** At the present time, few of the world's fisheries are not fully exploited or overexploited (FAO, 2004a). Overfishing by industrial and small-scale fisheries may be the result of overcapacity, or changing uses of fish catch. For example, in some regions, much of the catch is now landed as trash fish or as feed for aquaculture or livestock feed. Worsening stock status has an impact on vulnerability by increasing competition for fewer resources, and thereby requiring small-scale fishers to fish further offshore or spend longer at sea. This in turn increases costs, the likelihood of accidents at sea, and arrests if vessels stray into the waters of neighbouring countries (i.e. increased risk exposure and sensitivity).
- **Greater pressure on water resource use.** Construction of hydropower dams and increasing use of water for irrigated agriculture has led to a significant increase in competition for inland water in many countries, impacting on riverine ecosystems and the associated fishing communities. At the same time, many coastal seas and inland waters bodies have become increasingly polluted with greater urbanization and industrialization, resulting in deteriorating water quality and a subsequent impact on resource productivity (increased risk exposure and reduced adaptive capacity).
- **Climatic change.** With global warming, climatic fluctuations are increasing, with fisherfolk potentially exposed to greater variability and extremes in rainfall, flooding and drought, inter alia (see Box 12). In addition, overall increases in temperature have different impacts on vulnerability in different regions: small islands states are especially at risk from flooding and rising sea levels, whereas countries with important inland fisheries may be hard hit by reduced average rainfall levels reducing river flows, lake levels and floodplain areas.
- **Increasing prevalence of HIV/AIDS in fishery communities.** Fishing communities are among the most severely affected by the HIV/AIDS epidemic in many parts of the world. The general reasons for this situation are thought to lie

BOX 12

Migration/resettlement in response to fluctuating lake levels

Lake levels can fluctuate significantly, with considerable impacts on, and responses by, fishing communities. Fishing communities of Lake Chad moved eastwards during the 1970s and 1980s, in some cases more than once, as the lake levels dropped and the maximum extent reached by the lake each year receded eastwards. Moreover, lake drying in Lake Chilwa in Malawi in 1967–1968 resulted in around 200 fishers migrating to nearby Lake Malombe and others to Lake Malawi.

Sources: Sarch and Birkett, 2000; Sarch and Allison, 2001.

BOX 13

The impact of HIV/AIDS in fishing communities and potential impacts on the small-scale fishery sector

Fishing communities are among the most severely affected by the HIV/AIDS epidemic in many parts of the world. Eastern and southern Africa are particularly affected. In Uganda, for instance, the Uganda Participatory Poverty Process (undertaken in 60 communities in 12 districts) identified HIV/AIDS as the main cause of poverty in one-third of the study sites including conflict areas, fish landing sites as well as a few pastoralist and peri-urban communities. The high prevalence of the pandemic and its impacts can be assessed through three entry points: (i) high susceptibility to HIV infection; (ii) high vulnerability of HIV-positive persons to AIDS due to limited access to health care and poor nutrition; and (iii) limited capacity of households to adapt (in terms of the social reproduction of the household) to the impact of a family member becoming ill with AIDS.

Susceptibility to HIV infection

The lifestyle associated with fishing livelihoods in Uganda – mobility and absence from home, daily cash income, high alcohol consumption, the ready availability of commercial sex at fish landing stations, a masculine culture that condones or encourages casual sexual encounters and women's lack of agency and their frequent involvement in transactional sex – all combine to increase the likelihood that a proportion of the community is exposed to HIV infection though unprotected sex with multiple partners. Among those at risk are hired fishing crew, poor fishers and fishworkers, all of whom are predominantly men; fish processors and bar tenders, who are usually women; and the wives of the fishers. Potential mechanisms to prevent contraction of the disease are almost universally absent in fishing communities. There is generally limited access to health care due to a weak health services infrastructure, limited access to HIV/AIDS information and condoms, lack of access to treatment for sexually transmitted infections (STIs), and an absence of any guidance and support for behavioural change.

Vulnerability to the impacts of AIDS

Not only do people's lifestyles influence their susceptibility to becoming infected with HIV, but they are also a major determinant of their vulnerability to the impacts of AIDS. Among the most immediately vulnerable are those whose livelihood depends on their physical well-being, such as the fishing crew and fishworkers who cycle considerable distances to market. Other members of the community may continue with their businesses but the fear of stigmatization and discrimination once their sickness becomes apparent may force them to withdraw from daily life and even retreat from the community.

Sources: Tanzarn and Bishop-Sambrook, 2003; Allison and Seeley, 2004.

in the demographics, the mobility, the cash-oriented economy and the high-risk life style of fishers, together with lack of access to HIV prevention measures and AIDS mitigation therapies (see Box 13).

- **Increasing pressure on land and coastal resource use.** Associated impacts are being felt in terms of rising conflict among fishers, fishworkers, and other land and coastal users; externalities in other sectors are being absorbed by the fisheries sector as people begin fisheries activities as a last resort.
- **Marginalization.** Small-scale fisheries are often at the point of geographic, social, economic and political exclusion. In many countries, economic and political developments on a country basis are not evenly distributed, with the gap growing

between the rich and the poor, and levels of marginalization becoming ever greater.

- **Globalization and greater involvement in market economies.** Greater involvement in market economies can increase the importance of power relations, disproportionately benefiting the more wealthy/powerful, and can also make producers more vulnerable to the impact of market price fluctuations. Market changes may also increase prices and reduce vulnerability, but recent changes and developments in marketing and trade (see section 3.7) mean that small-scale fishers and fishworkers need to be more dynamic and adaptive, and some are more able to respond than others. The benefits of international trade may therefore not be equally shared. Significant distributional and locational changes can increase, and are increasing, vulnerabilities for many poor fishers in the absence of necessary planning and mitigating measures. Globalization is also resulting in declining support from the extended family, with trends towards more nuclear households in many countries that have weakened family obligations, leaving households more exposed to shocks and crises.

2.2.4.3 Coping strategies

The variety and number of coping strategies used to deal with vulnerabilities are significant and testament to the considerable ingenuity of the poor and potentially poor, in both fishing and non-fishing communities. Strategies are complex and diverse, and vary by region, community, social group, household, gender, age, season and historical time period. Coping mechanisms to deal with vulnerability and uncertainties can be divided into those that are ex-ante risk management measures, i.e. pro-active initiatives in advance, and those that are ex-post coping mechanisms that attempt to facilitate a move back out of poverty, i.e. reactive initiatives following some unforeseen shock/crisis to the household strategy.

Ex-ante and *ex-post* mechanisms are summarized in Table 4. It is interesting to note that in general, risk management mechanisms display positive characteristics, while many of the measures taken after a shock or crisis have more negative social and environmental implications. (The importance of small-scale fisheries as a safety net and as an activity of last resort has already been discussed in section 2.2.3.2.) The following table thus focuses on strategies employed by fishing and fisheries-related households to deal with vulnerability, and divides possible strategies into those that take place within the fishing sector and those that involve activities outside of it.

The diversified livelihoods of many fisherfolk are indicators that they are able to engage in different activities when possible, but not all diversification is positive and accumulative. The unskilled may find themselves in *poverty traps* where they diversify into a range of marginal activities in order to piece together a livelihood (Ellis, 2000). "Poor endowments of productive, non-labour assets such as land, livestock [or fishing boats] commonly force members of poorer households to hire themselves out to work others' fields, herd others' animals [or fish on others' boats] for low wages" (Barrett *et al.*, 2001, p. 370).

2.3 FISH AND FOOD SECURITY

2.3.1 Nutritional contribution of fish to food security

Protein-intake. Nutritionally, fish is often presented as one important source of protein, especially where other sources of animal protein are scarce or expensive. FAO (2002) has recently estimated that fish provides 19 percent of the protein intake in developing countries. This figure, however, represents an average at the global level and does not reflect the very large heterogeneity at the national, or even more importantly, at the local level. The share of fish in animal protein supply can, for instance, exceed 25 percent in the poorest countries (see Box 15) and reach 90 percent in isolated parts

TABLE 4
Coping mechanisms used in fishing-related communities/households to deal with vulnerability

Type of coping mechanism	Within the fisheries sector	Outside of the fisheries sector
Ex-ante risk management	Storage of fish	Investment in livestock
	Diversification of fisheries assets	Storage of non-fish food items
	Early warning systems and advice on how to prepare vessels and gear for minimum losses, e.G. For hurricanes (see Box 14)	Additional cultivation
		Use of different cropping patterns
	Development of patron-client relationships to minimize transaction costs in the absence of insurance	Diversification of assets
		Remittances by family members working away from the household
	Credit and improved market information	Expenditure of surpluses on assets that appear to be non-productive, e.G. Housing, education, health, since such assets may be beneficial from a preventative point of view in reducing vulnerability
Ex-post coping mechanism	Debt/credit/loans	Debt/credit/loans
	Expansion of fishing effort in terms of hours and/or areas fished	Additional cultivation
		Employment off-water
	Mortgaging and selling of fisheries related assets	Exploiting other common property resources, e.G. Wild foods
	Illegal fishing activity and non-compliance with gear, area and effort regulations	Mortgaging and selling of non-fisheries assets
		Migration and resettlement to non-fishing areas
	Migration and resettlement to other fishing areas (see Box 12)	Reduced consumption of non-fish items
	Reduced consumption of fish	Deferring of medical treatment
	Sale of products into different markets[1]	Mutual support through community and kinship ties
	Participation of other household members (typically women and children) in the labour force	Participation of other household members in the labour force
		Extended family support

[1] Analysis of the marketing chain in the United Republic of Tanzania showed that traders overcome seasonal over-supply in the rainy season by selling to markets for poultry feed and exporting to the Democratic Republic of the Congo (Gibbon, 1997).

BOX 14

Hurricane preparedness for the fisheries sector in the Caribbean Islands

Hurricanes can cause significant impacts, especially on Small Island Developing States (SIDS) where vulnerability is accentuated by their smallness. Chakallal (1999) presents estimated damages to the fisheries sector in some Caribbean SIDS by recent Atlantic hurricanes. In SaintKitts and Nevis in 1995, for example, a hurricane resulted in the destruction and loss of vessels and gear, affected 350 fishers, and caused US$82 million of damage to the fisheries sector. In the Caribbean islands, each island country has a national coordinating agency for disaster preparedness. Fisheries departments and divisions liaise with the meteorological services and other agencies in the co-ordinatingagencies network, and communicate preparedness information to the fisheries sector through call-in radio programmes, hurricane supplements in newspapers, lectures, informative spots on television, and activities of extension officers.

Source: Chakallal, 1999.

of coastal or inland areas. As an illustration, in the Upper Amazon Basin, based on household surveys, fish are reported to provide most of the animal protein consumed by the households, which consume more than 200 kg of fish per year per person[17] (Batista,Inhamunsm and Maneschy, 1998).

[17] This figure is based on a consumption survey (Batista, Inhamunsm and Maneschy, 1998).

BOX 15
Fish as a source of protein

Fish proteins are essential and critical in the diets of some densely populated countries where the total protein intake level may be low and is very important in the diets of many other countries. For instance, in West Africa, the proportion of animal protein consumed that is derived from marine products is 48 percent in Senegal, 62 percent, in Gambia and 63 percent in Sierra Leone and Ghana (Anon 2000). In other parts of the world where small-scale fisheries are also prevalent, such as Bangladesh, Indonesia and Cambodia, fish contributes close to 50 percent or more of total animal protein.

Fish's contribution to energy supply is modest. Fish may contribute up to 180 calories per person per day, but reaches such levels only in a few countries where there is a lack of alternative locally produced protein and/or where a preference for fish has been developed and maintained. More generally, fish provides on average 20 to 30 calories per day. These contributions of fish, especially in terms of protein supplies, have been recognized for many years. More recently, there has been greater acknowledgement of the vital role played by fish in human nutrition through its richness in micronutrients.

Micronutrient supply. In low-income countries, staples such as rice, wheat, maize and cassava make up the bulk of the food consumed by people, supplying most of the energy and nutrients. However, there are some essential nutrients that are not found in these staples or found only in small quantities, for example, iron, iodine, zinc, calcium, vitamin A and vitamin C. These nutrients must be supplied by other foods such as fish – which are particularly rich in them – or vegetables. Fish also contribute fatty acids that are necessary for the development of the brain and body. The importance of fish as a crucial element in the diet of a population is therefore now highly recognized, especially for the diets of young children, infants and pregnant and lactating women (Kurien 2005).

Whereas big and small fish of the same species contain the same amount of protein per unit weight, small fish provide relatively higher amounts of minerals in diets since they are consumed whole, including the bones (Table 5). Some small fish species also contain larger amounts of vitamin A. The contribution of small fish to food and nutrition security is therefore especially important, taking into account the magnitude of micronutrient deficiencies: more than two billion people in the world suffer from iron deficiency (FAO, 2003c). It should also be noted, however, that fish alone cannot ensure a complete supply for all the nutritional elements necessary for human food security. In other words, subsistence-fishing households cannot maintain their food security exclusively from their catch. There is a strong economic need to trade, that is, to barter, sell or exchange part or all of their catch to maintain food security (Kurien 2005).[18]

2.4 SMALL-SCALE FISHERIES AND FOOD SECURITY

Using the framework provided in Table 2, the role of small-scale fisheries to food security can be divided into five main contributions: (i) direct contributions to household food security; (ii) indirect contributions to household food security; (iii) direct contributions to domestic markets (local and national levels); (iv) indirect contributions to domestic markets (local and national levels); and (v) contributions to

[18] This strong economic necessity to trade is, however, not specific to fisheries; it is also associated with all mono-culture farming or livestock activities as well.

TABLE 5
Vitamin A, calcium and iron content in small and big fish (exploited in Bangladesh) per 100 g raw edible parts

Fish species	Vitamin A (mg)	Calcium (mg)	Iron (mg)
Small fish, whole			
Mola (*Amblypharyngodon mola*)	1,960	1,071	7
Darkina (*Esomus dancirus*)	1,457	–	–
Dhela (*Rohtee cotio*)	937	1,260	–
Chanda (*Chanda* sp.)	341	1,162	–
Kashi (*Corica soborna*)	93	–	–
Puti (*Puntius* sp.)	37	1,059	–
Big fish, adult			
Hilsa (*Hilsa ilisha*)	69	126	3
Rui (*Laboe rohita*)	27	317	–
Siver carp (*Hypophtalmichthys molitrix*)	17	268	–
Big fish, whole juvenile			
Tilapia (*Oreochromis niloticus*)	19	–	5
Siver carp (*Hypophtalmichthys molitrix*)	13	–	-

Legend: – not measured
Source: Thilsted and Roos, 1999.

international (worldwide) food security. It should be noted, however, that although these different types of contributions are differentiated in this section for analytical purposes, in reality it is their combined impacts (some positive, some negative, some both positive and negative), that eventually determine the overall effect of fish and small-scale fishing activities on the daily life of the poor in terms of food security.

2.4.1 The world fish supply and its impact on fish food security

At the global level, consumption of fish as food has doubled since 1973 and the developing world has been responsible for over 90 percent of this growth. The FAO (1999) reports that growth of fish consumption in the poorer countries has increased rapidly in recent decades. In particular, the consumption of freshwater fish has grown massively, primarily in East Asia. Even if China is excluded, per capita supply in low-income food-deficit countries (LIFDCs) has increased from 5.0 to 8.3 kg since 1960 – an annual growth rate of 1.3 percent.

Despite these encouraging figures, it should be noted that since the late 1980s, population growth (outside China) has outpaced the growth of total food fish supply, resulting in a decrease in per capita fish supply, from 14.6 kg in 1987 to 13.1 kg in 2000 (FAO, 2002). The predicted rise in global population and corresponding increases in demand for food, including fish, mean that the current food security problems are likely to remain (FAO, 2003c). Furthermore, the status of natural stocks [19] is also likely to further threaten access to food, income and livelihoods of the small-scale fishers through indirect mechanisms. As demand for fish and competition for access to supplies continue to increase, lower income groups are likely to be the ones who will be marginalized, to be replaced by more powerful groups with growing interests in these scarcer natural resources.

2.4.2 Contribution of small-scale fisheries to food security at the national level: the issue of trade

At the national level, a combination of macro- and micro-mechanisms determine the capacity of fisheries to contribute to food self-sufficiency. Although very little research has been carried out in this respect to identify the different mechanisms that link small-scale fisheries to national self-sufficiency, it seems that, in particular, the productive capacity of a country to exploit its own small-scale fisheries resources is not a sufficient

[19] It is estimated that 47-50 percent of marine fish stocks are fully exploited, 15–18 percent overexploited, and 9-10 percent have been depleted or are recovering from depletion (FAO, 2002)

BOX 16
Food security in Cambodia

Cambodia ranks fourth among the world's top freshwater capture fisheries with an annual production of 300 000 to 400 000 tonnes. However, a recent study pointed out that food availability from this source fell by 29 percent between 1994 and 1999 in the country (Gill *et al.*, 2003) and 30 percent of communes in rural Cambodia face chronic food shortages (Royal Government of Cambodia, 2002). In Cambodia, the poverty line is officially defined as the level of expenditure required to ensure consumption of 2 100 kcal per person per day. According to the United Nations, 30 percent of the population is below this poverty line (UNDP, 2002).

condition to ensure the effective contribution of fish to national food security. For example, several countries have abundant fish but still continue to have large numbers of undernourished adults and children. A striking example is Cambodia (see Box 16). In other countries, such as Nicaragua, fish is also available in great quantity, but the consumption rates of the local population remain relatively low for cultural reasons (C. Beltrán, personal communication, July 2004).

The second major aspect regarding fish and food security at the national level is the current importance given to trade, particularly regional and global, and its potential contribution to the national food security of countries. Analysis of food trade shows, for instance, that in 2000, the value of fish exports in the LIFDCs corresponded to 50 percent of their import bill for food. Similarly, the Asian countries as a group earned enough foreign exchange from fish to finance 34 percent of their food imports in 2000 (FAO, 2001). Field experience suggests, however, that looking at aggregate levels of fish imports and exports may be slightly misleading. More in-depth analysis of past and projected trade trends indicates that developing countries as a whole have been and are projected to remain large net importers of low-value food fish, but exporters of high-value finfish (Delgado et al, 2003). At present, however, there is great uncertainty about how these opposite trends will impact on the poor (both producers and consumers) in terms of food security: low-value fish have traditionally accounted for a higher share of the animal protein consumption by the poor in developing countries, but the swelling ranks of the middle class will increasingly demand and be able to pay for local high-value fisheries items themselves. What is certain is that the effects of fish trade on the price of fish is likely to be a key factor affecting the nutrition of the urban and rural poor in the future.

As illustrated above, one of the questions frequently associated with this issue of food security at the national level is the balance or imbalance between fish exports and fish imports, with the underlying assumption that a positive balance would imply a positive contribution to national food security. Much of the debate, however, has tended to focus on the apparent opposition between national food security (supply) and international trade (export), focusing implicitly on the direct contribution of fish to food security. Consequently, the discussion has been primarily on how exports reduce fish availability for domestic consumption, and in particular for the poor (see Kent, 1997). In actual fact, the relationship between balance of trade and food security is much more complex, partly due to the indirect contribution through wages and employment. Production for exports can substantially enhance the incomes of poor fishers or poor women labourers working in processing factories, raise their economic purchasing power, and thus ensure greater food security at the household level.

But the fate of the small-scale, poor producers is not the only one at stake here. Important also is the issue of consumers' food security and the distinction between producers (fishers) and consumers needs to be emphasized and borne in mind.

Similarly, it is critical to recognize that local rural consumers and urban poor and non-poor consumers are distinct groups, and that their respective priorities or constraints can be different or even antagonistic, therefore requiring quite different approaches and interventions.

2.4.3 Direct contribution at the individual/household level

The most direct contribution of fishing activity to food security at the household level is through consumption of the household's catch, i.e. self-consumption. Empirical studies have shown that the proportion of fish kept by households for personal consumption, gift or barter varies widely – even within one household – from a few fish to the entire catch. It is classically assumed that this proportion (or symmetrically, the share of catch that is commercialized) depends to a large extent on the degree of commercialization of the fishery in which the household is operating. It is also generally assumed – based on experience from farming systems research – that the poor usually rely more heavily on subsistence than the better-off households who sell a larger share of their catches. Empirical research suggests, however, that this perception may not always reflect reality. Recent field research in the Lake Chad area, for instance, showed that the poorest households in these areas in fact consume a lower proportion of their catch than the better-off households and instead sell most of their fish in order to be able to purchase cheaper foodstuffs (in this case, essentially millet) (Béné et al., 2003a). The direct contribution of fish to food security for the poorest households may therefore be lower than generally thought, preventing these households from accessing the whole nutritional benefits that fish offers. At the same time this raises the question about the implications of these household strategies, especially with regard to the risk of micro-nutrient deficiency.

2.4.4 Indirect contribution at the individual/household level

If fish as a subsistence product for fishing households is potentially an important source of direct food security, its contribution through the generation of incomes derived from labour-wages and fish commercialization can also make it an important source of indirect food security. This is what is called the "food security through the income security". Harvesting, processing and marketing fish generates livelihoods, employment and income for millions of people around the world. Although employment cannot be taken as the firm assurance of food security for these people, it should be emphasized that in a significant number of cases, small-scale fisheries activities take place in rural areas[20] where alternative employment opportunities may be scarce or even non-existent. In these circumstances, access to harvesting of fishery resources and their associated processing and trade may represent the only option available to make a living and maintain their food-purchasing power, hence strengthening the role of small-scale fisheries in food security.

However, although fish is undoubtedly an important source of direct and indirect food and may, in this respect, support food security, it would be incorrect to conclude that fishery-dependent communities are less likely to suffer from food shortage or under-nourishment than any other segment of the rural population. In fact, food insecurity had been identified long ago as one of the main problems affecting fishing communities. FAO, for instance, observed 30 years ago that, "the people engaged in these activities and their families continue, with few exceptions, to live at the margin of subsistence and human dignity" (FAO, 1974, quoted in Copes, 1989, p. 6). More recently, poverty profiles conducted in Côte d'Ivoire showed that food insecurity is endemic among artisanal fishers in terms of availability and quality of food, and diversification of diets (Pittaluga, 2002, p.3).

[20] It is recognized, however, that a growing part of small-scale fisheries is now taking place in peri-urban or even urban zones.

3. Enhancing the role of small-scale fisheries in contributing to poverty alleviation and food security

3.1 INTRODUCTION

While the Code has a general scope and therefore does not focus in detail on the characteristics and constraints of small-scale fisheries, one Article in the General Principles section of the Code makes specific reference to small-scale fisheries and their role as providers of food, employment and income:

> **Art. 6.18** *Recognizing the important contributions of artisanal and small-scale fisheries to employment, income, and food security, States should appropriately protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries, to secure a just livelihood, as well as preferential access, where appropriate, to traditional fishing grounds and resources in the water under national jurisdiction.*

The FAO's Advisory Committee on Fishery Research (ACFR) Working Group on small-scale fisheries recently provided a vision statement for small-scale fisheries that should be supported by all States. It proposed that (FAO, 2004b, pp.3-4):

The vision for small-scale fisheries is one in which their contribution to sustainable development is fully realised. It is a vision where:

- Small-scale fisheries are not marginalized and their contribution to national economies and food security is recognized, valued and enhanced;
- Fishers, fishworkers and other stakeholder have the ability to participate in decision-making, are empowered to do so, and have increased capability and human capacity; thereby achieving dignity and respect; and
- Poverty and food insecurity do not persist; and where the social, economic and ecological systems are managed in an integrated and sustainable manner, thereby reducing conflict.

Section 3 of this Technical Paper provides some ideas about how this vision could be realized and how the contribution of small-scale fisheries to poverty alleviation and food security can be enhanced.

3.2 POLICY IN SUPPORT OF THE POOR

Fisheries policy sets out objectives and should guide actions and decisions related to the sector in order to implement what are often but not necessarily long-term strategic goals and objectives. In order to ensure that policy maximizes the potential of small-scale fisheries to contribute to poverty alleviation and food security, a number of important issues must be considered:

- the process used for policy development;
- the specification of appropriate policy objectives in the fisheries sector;
- policy in other sectors that impacts on fisheries;

- the explicit recognition of certain conflicts and resulting policy trade-offs that may need to be made.

These issues are discussed in the following sections, but first some relevant Articles of the Code are provided for reference.

3.2.1 The Code

The Code mentions the need to include all stakeholders in the policy-making process:

> **Article 6.13:** *States should, to the extent permitted by national laws and regulations, ensure that decision making processes are transparent and achieve timely solutions to urgent matters. States, in accordance with appropriate procedures, should facilitate consultation and the effective participation of industry, fishworkers, environmental and other interested organizations in decision-making with respect to the laws and policies related to fisheries management, development, international lending and aid.*

> **Article 6.16:** *States…should ensure that fishers and fishfarmers are involved in the policy formulation and implementation process, also with a view to facilitating the implementation of the Code.*

3.2.2 Policy processes

The way that policy content is defined (i.e. the policy process) may affect how issues of poverty and food insecurity are addressed. In particular, including poor and food-insecure fishers and fishworkers in the policy process is likely to improve the contents and outcomes of pro-poor policy.

Policies and policy processes are often referred to as either *formal* or *informal*. In the case of governmental policy, formal policy is usually contained in published fisheries planning and policy documents, often produced at regular intervals (e.g. every five years), which are then intended to guide the management and development of the sector. Other policy actors may also have their own formal written policy documents. Informal policy is the evolving basis on which management and development actually takes place, and can differ substantially from formal policy. Informal policy can be reflected in written or spoken statements by policy actors or may not be explicitly stated at all and only revealed through actions.

Formal policy is often mistakenly thought to be more important than informal policy and based on a clear process of review of existing policy, consultation on necessary amendments in light of a careful assessment of priorities, and subsequent development of a new policy. In reality, however, the formal policy development process is seldom fully transparent and consultative, and informal policy often takes precedent. Both forms of policy, but especially informal policy, are often determined more by short-term political expediency and developed without due consultation or sufficient information to assess the likely impacts. Because of the marginalization of poor small-scale fisheries, this reality means that they are less likely to be involved in policy processes.

Some countries, for example, Cameroon, Congo, Malawi, Mauritania, Nigeria, South Africa, Morocco, Oman, Philippines, Papua New Guinea, El Salvador and the Russian Federation, either have institutions/structures in place to involve small-scale fishers in the formal policy formation and decision-making process, or informally seek the involvement of small-scale fisheries interests. There is also, for example, extensive involvement of small-scale fishers in policy formation and management action in Japan in the form of co-management and community-based management.

But in many other countries, the failure to involve small-scale fisheries interests can be the result of quickly defined policies (following brief consultation only with small-scale fisheries stakeholders). A lack of small-scale fisher involvement may also be the result of:

- *weak institutional capacity of small-scale fisheries organizations, and resulting poor representation of small-scale fishers and fishworkers*;
- *low levels of educational status in fishing communities, coupled with modern-day concepts involving sophisticated terminology such as biodiversity, ecosystem based management, precautionary approach to fisheries decision making, globalization, etc*. The terminology used by scientists, researchers and top-level state officials is often not easily comprehensible to ordinary fisherfolk without careful explanation and assistance requiring time and expertise;
- *lack of recognition of the importance of small-scale fisheries*. This lack of willingness to include small-scale fishers in the policy process may stem from a number of causes including:
  - greater political support for industrial fishing due to the sector's ability to earn high levels of foreign exchange;
  - political support to those in power provided by industrial fishing interests;
  - lack of information to demonstrate the importance of small-scale fisheries;
  - an often hostile reaction by small-scale fishers themselves to government officials and politicians, due to generally adversarial relationships with authority and the widespread perception that government has done little to combat the pervasiveness of poverty and poor infrastructure facilities, and has privileged industrial fisheries interests;
- *physical geography and numbers of people.* In some small island countries such as those in the Pacific, the low population levels and concentration of people on particular islands means that even upper levels of government are often in close communication with ordinary people. By contrast, in large countries with significant small-scale fisheries populations, consultation and involvement of small-scale fishers is often hampered by large geographical distances to be covered, with time, logistical and cost implications.

Policy processes can be improved through:

- greater emphasis on analysis of policy stakeholders and specific issues of governance;
- legislation and/or formalization of processes to ensure appropriate involvement by small-scale fisheries interests;
- careful planning to allow sufficient time and budgets for wide stakeholder involvement to become a reality;
- working with small-scale fisheries organizations to strengthen their representatives' ability to participate meaningfully;
- adaptation of workshop tools to cater to different educational levels and experience of technical issues, and to encourage contributions by small-scale fishers at policy meetings;
- making specific use of the knowledge and experience of small-scale fishers and fishworkers;
- formalization of methods to ensure transparency, i.e. full disclosure of information on the extent of the involvement by different parties and reasons for inclusion and exclusion of particular issues in policy documents, the selection of key priorities and the processes used;
- decentralization of policy processes, which increases both the potential for stakeholder involvement, as well as accountability by bringing decision-making closer to the people;
- regular review of policies;
- analysis of policy processes;
- review of implementation strategies.

3.2.3 Policy objectives

Fisheries policy content must provide a long-term vision, rather than just a short-term development plan, through the clear specification of key objectives, sub-objectives and the policy tools to achieve these objectives. It should ideally contain policy statements relating to all the subsections in section 3 of this Technical Paper. Policy statements should cover and provide support for four broad types of key policy objectives that should be considered for inclusion in fisheries policy. They are shown in Table 6, together with some examples, not exhaustive, of sub-objectives, and the link that these are likely to have on increasing the contribution of small-scale fisheries to poverty reduction (PR), poverty prevention (PP) and food security (FS), concepts/definitions discussed and defined in section 1.

If policy is indeed going to be successful in increasing the contribution made by small-scale fisheries, then actors in the policy process must carefully consider the main emphasis and/or result of each "sub-objective". Policies have distributional impacts, so each policy objective should be assessed in terms of its impacts on the poor – noting direct and indirect impacts within fisheries and on other sectors – and any potential conflicts. Indeed, dealing with and avoiding conflicts could itself be considered an over-arching policy objective (see section 3.2.5).

Policy-makers must also consider whether objectives need to be specified for small-scale fisheries in particular, or for the sector as a whole, thereby allowing and facilitating small-scale fisheries' contributions. While policy focusing specifically on small-scale fisheries may benefit the poor (since many small-scale fishers and fishworkers are poor), it may also be necessary to articulate policies specifically for the poor, rather than for small-scale fisheries as a whole.

Box 17 suggests that social and equity objectives are more commonly articulated than economic objectives for small-scale fisheries.

Finally, in relation to Table 6, it should be noted that the four main categories of objectives are not watertight and there may be overlapping policy sub-objectives; for instance, gender issues can be both social and equity objectives.

BOX 17

The extent of policy objectives supporting small-scale fisheries

Some countries have well-defined social and equity objectives relating to small-scale fisheries, e.g. Burkina Faso, Congo, Oman, Senegal, Mali, Bangladesh, the United Republic of Tanzania, Papua New Guinea, Philippines, Cameroon, the West Indies and Uganda, either explicitly or insofar as statements relating to social and equity issues can be assumed to imply a benefit or impact on small-scale fisheries and coastal communities. However, aspects relating to the working conditions of fishing labour are generally less well-covered in policy, with labour law generally not considered applicable or not enforced in the fishing sector in many countries. In addition, policy statements relating to economic objectives are more often general statements about contributions to GDP or increasing export earnings, for example, and less frequently relate to specific objectives for small-scale fisheries. Indeed, economic objectives are more often specified for industrial fisheries. Economic objectives in small-scale fisheries are, however, sometimes dealt with specifically, for example, in terms of utilizing artisanal fisheries to alleviate poverty in coastal communities (the Republic of the Congo) and in relation to financing and/or modernization of artisanal fisheries (Senegal). In addition, some countries may have and benefit from specific policies on small-scale fisheries.

Source: Macfadyen, 2003.

TABLE 6
Policy objectives

Key policy objectives	Policy "sub-objectives"	Main emphasis on poverty reduction (PR), poverty prevention (PP) and/or food security (FS)
1. Environmental / sustainability objectives	Rational exploitation of resources	Indirect emphasis/impact on PR and FS (and on PP to a lesser extent) through maintenance of resources for long-term exploitation
	Provision/restriction of access rights	
	Appropriate/good data collection	
	Management of ecosystems	
	Compliance with international conventions	
	Effective monitoring, control and surveillance (MCS)	
2. Economic objectives	Increased value-added	PR
	Promotion of export earnings	PR
	Improved marketing arrangements	PR, FS
	Technological provision and modernization of fishing methods (maximizing sectoral efficiency)	PR
	Credit provision	PR, PP
	Provision of subsidies	PP
	Maximizing resource rent collected by government	PR, PP (through national redistribution)
	Economic diversification	
	Increased incomes for rural fishing populations	PP, PR
	Exploitation of under-utilized resources	PR
	Minimization of management costs (withdrawal of the state)	PR
		PP (through diversion of state expenditure to other sectors)
3. Social objectives	Maximization of employment	PP
	Ensured food security	FS
	Participation by local people in fisheries	PP, FS
	Support for fishing organizations	PP, PR
	Capacity development and education	PP, PR
4. Equity objectives	Provision of access in certain areas or at certain times for certain groups (e.g. small-scale fishers, locals vs. foreigners)	PP, FS
	Assessment and consideration of customary rights	PP, FS
	Utilization/landing of bycatch	PR, PP, FS
	Issues relating to gender	PP, PR

3.2.4 Policies in other sectors

In addition to policy contained within the fisheries sector, there are cross-sectoral policies at the national level; policies in other sectors; and local policies, all of which can impact on small-scale fisheries. Further, those wishing to support the contribution of small-scale fisheries to poverty alleviation and food security should thus strive to engage in policy processes in other sectors. Some important examples include:

- national policies relating to public sector reform and decentralization that may be supportive of co-management, and devolution of policy formation and management responsibilities to small-scale fisheries communities;
- national policies on poverty contained in national poverty reduction strategies and PRSPs that may include reference to or impact on small-scale fisheries, poverty reduction in coastal communities, and gender and equity issues;
- national policies on trade that may affect the ability of small-scale fisheries to export fisheries products;
- national policies on finance and credit that may hinder or support the activities of poor small-scale fishers and fishworkers;
- national level policy on migration with special relevance to small-scale fisheries given the importance of migration within the sector;

- national policy/regulations on co-operatives and organizations with which organizations in small-scale fisheries must comply, which can be a support and/or a hindrance;
- sectoral environmental policy that may have implications on the sustainability of stocks, or water policy that may have implications on water levels in inland water bodies;
- sectoral policy on forestry relating to mangroves that may support or endanger the sustainability of fish stocks;
- local policies on planning and infrastructure provision that can act as a catalyst for small-scale fisheries if they facilitate business activity and do not disproportionately benefit the better off.

Cross-sectoral integrated planning and policy processes may be very powerful in raising the profile of small-scale fisheries in national or regional policy arenas. Too often, small-scale fisheries are left out of national planning mechanisms and decision-making process. One direct consequence is that small-scale fisheries, despite their very important potential as an entry point for poverty alleviation, are very often neglected in rural development or poverty reduction initiatives. Based on an 11-African country survey, a recent FAO/DFID/SFLP report concluded, "*small-scale fisheries are rarely taken into account in PRSP formulation*" (FAO/DFID/SFLP, 2003, p.ii).

There is an urgent need, therefore, for those supporting small-scale fisheries to engage in the policy process in other sectors such as environment, agriculture, or in more cross-sectoral initiatives such as National Poverty Reduction Planning. For this, better communication strategies are essential in order to improve the information related to small-scale fisheries and their contribution to poverty alleviation, rural development and food security (see section 3.2). One illustration of how powerful this approach can be is the recent integration of fisheries issues into the draft National Food Security and Nutrition Policy in Malawi (2004) (see Box 18).

At the lower levels of decision-making, such as provincial or local governments, cross-sectoral policies developed in a more integrated way may be easier to formulate and implement. At these levels, planning processes are often more integrated and less segmented than at the higher national levels (between ministries). Further, due to their ground experience and their greater involvement in the implementation process, decision-makers and planners are usually much more aware of the need to adopt an integrated planning approach. In this sense, decentralization reforms may be a way to strengthen – or improve – the integration of small-scale fisheries into the decision-making process.

3.2.5 Policy conflicts and trade-offs

Fisheries have economic, social, cultural, technical, political, biological and ecological components, and the presence of such an array can often lead to conflicts in policy. Issues of policy conflicts can take the form of (i) conflicts between objectives (environmental/sustainability, economic, social, and equity as presented in Table 6); (ii) conflicts within sectors (e.g. large- and small-scale fishers); or (iii) conflicts between sectors (e.g. between fisheries and other sectors).

Examples of some of the types of contradictions and trade-offs in objectives that need to be considered through transparent decision-making mechanisms at the planning stage, include:

i) ***Equity versus efficiency***. Some policies may support management regimes that directly trade off efficiency against equity. For example, policy may support open access or poorly regulated commons to allow access to resources by many, i.e. equity rather than systems of regulated common property or private property that would result in access for fewer people but greater overall economic efficiency in terms of generation of profits.

BOX 18

Integrating fish into the draft National Food Security and Nutrition Policy in Malawi

In August 2003, the Government of Malawi instituted a Task Force to draft a National Food Security and Nutrition Policy. In carrying out its work, the Task Force followed a schedule of consultations with relevant stakeholders in government and beyond, and commissioned a series of studies on key aspects of food security and nutrition. While many of these studies touched lightly on issues concerning fisheries and aquaculture, none of them clearly articulated the contributions of these sectors to food and nutrition security in the country. Similarly, the consultation process bypassed the fisheries stakeholders including the Department of Fisheries within the Ministry of Natural Resources and Environment. One reason may have been that the Task Force works closely through the Ministry of Agriculture, and at that time had not developed links with the Ministry of Natural Resources. The first step towards bringing fisheries onto the agenda was taken when the Department of Fisheries, together with WorldFish Center, approached a number of bilateral donors. The Department of Fisheries became aware of the work of the Task Force through these consultations. Subsequent visits with the Task Force coordinator and review of the commissioned studies made it clear that there was urgent need to include fisheries in the draft policy document. Two steps were agreed on to facilitate this process. First, the Department of Fisheries commented on the situation analysis papers and submitted additional information for inclusion in final drafts of these papers. Second, the Department of Fisheries held a National Workshop on Fish and Food & Nutrition Security in April 2004 in Lilongwe, with support from the WorldFish Center. The workshop provided the Task Force with an opportunity for an accelerated consultation with the key stakeholders from the fisheries sector in Malawi. The workshop included a presentation by the Task Force on the process and methods of drafting the National Policy. It was therefore possible during the workshop to develop specific policy recommendations on fisheries in the format and level of detail that permitted their direct integration into the draft policy framework. When developing an Action Plan for implementation of the National Policy in the future, these recommendations will be further specified and prioritized so that they can serve as a guideline for future investments in support of fisheries and food security.

Source: S. Heck, WorldFish Center, personal communication, 2004.

(ii) ***Support for exports as opposed to production for the national market***. Increasing exports to increase revenues and enhance foreign exchange earnings may lead to a decrease in availability of fish for sale in local markets. Such a trade-off would emphasize wealth generation for fish producers over food security for fish consumers. However, this may be viewed as nationally acceptable if it increases foreign exchange that can be used for import costs, and if it generates taxes that are then effectively redistributed through national poverty reduction programmes.

(iii) ***Short-term versus long-term objectives.*** Short-term objectives of reducing poverty, maximizing employment and/or improving food security may be felt to be politically necessary, but may have a negative impact on long-term sustainability of the resource and/or economic efficiency of the sector. For example, small-scale fisheries might be supported through credit provision or subsidies in an attempt to increase food security and earnings, but could ultimately result in overexploitation, falling catches and declining profitability.

Two main types of *user conflicts* are also important to consider – conflict between fishers and those operating in other sectors; and conflict within the fishing sector between users of with in a number of countries.

Within fisheries, conflicts arise not only between the interests of industrial and small-scale fisheries, but also among different small-scale gear users exploiting the same resource, i.e. beach-seine fishers vs canoe fishers operating in coastal waters, or small-scale fishers fishing for reef fish vs divers collecting ornamental fish.

In fisheries and other sectors, conflict is perhaps most common over land use, and to a lesser extent, access to inshore coastal waters. Such resources in coastal zones are often in high demand by fishers, tourism and other uses and forms of development, and require careful management and planning if conflict is to be avoided. This is especially so given the low priority of the fisheries sector, which means that fishers are often the "losers" in such conflicts. This requires policy-makers in the fisheries sector to be aware of and where possible involved in policy processes in other sectors if other policies are not to negatively impact on the potential of small-scale fisheries to contribute to poverty alleviation and food security.

Many fisheries policy documents comprise vague statements with bland introductions, followed by detailed sub-sectoral policies for research, extension, law enforcement, planning, *inter alia,* that correspond to institutional subdivisions. While some policy

BOX 19

Examples of how user conflict is dealt with

Some countries have tackled user conflicts *within fisheries* explicitly. In the United Republic of Tanzania, policy specifically mentions assistance in resolving conflicts. Similarly, a large number of countries (*inter alia*, Indonesia, Qatar, Philippines, Thailand, Bahrain, Iran, Kuwait, India) have seasonal or area trawl bans in place, specifically with a social or a sustainability objective in mind in terms of assisting small-scale fisheries or protecting the stock, respectively. Many of the bans have come about directly as a result of conflict between small-scale fisheries and industrial interests. In Latin America, there are also defined areas of exclusive use for small-scale fisheries in order to reduce conflicts with industrial fishing. This approach is common in countries such as Colombia, Ecuador, El Salvador, Costa Rica, Mexico and Nicaragua where they have had conflicts in the shrimp fishery because of trawlers fishing in the inshore zone, and governments have established management measures to solve this problem in favour of small-scale fishers. Another example in Latin America is the agreement made directly by the fishers from Colombia, Brazil and Peru, who fish in the bordering area of the three countries in the Amazonia (the Amazonas and Putumayo Rivers), to fish by turns or in specific areas. These agreements have been made without the intervention of the governments.

A good example of how conflicts among stakeholders *in different sectors* are dealt with at the planning and policy-making stage is also found in the Special Area Management (SAM) process, which is now being implemented in many parts of Sri Lanka. This deals with conflict both within the fisheries sector, and between fisheries and other sectors. When conflicts among stakeholders are likely to lead to resource depletion/degradation in environmentally sensitive areas, these areas are identified first as areas needing special management measures in the legislation. Management of such resources is then carried out by a SAM Committee consisting of representatives of all stakeholders. This has worked quite well in Sri Lanka with two such management sites in the Hikkaduwa and the Rekawa coastal areas.

Source: Macfadyen, 2003.

documents refer directly to resolving conflicts, the real substance and details of what should be contained within a fisheries policy – fundamental objectives, trade-offs between small- and large-scale fishing, export earnings vs national nutrition, etc. – are often absent. There is a common failure to explicitly address conflicts in the planning and policy process. This results in confusion in the implementation of management, with management actions often being guided more by the priority of the day and political influence, rather than by any overall framework recognizing possible trade-offs in advance. Explicit recognition enables mitigating measures to be put in place to deal with the costs/impacts of such trade-offs.

Attempts should be made during the policy process to assess the costs and benefits in social, economic and environmental terms of trade-offs that might have implications for poverty reduction, poverty prevention and food security, and the relative contribution of small-scale fisheries. This may involve both quantifiable and non-quantifiable elements, which can make such an assessment difficult. Explicitly recognizing and confronting trade-offs and conflicts at the planning/policy stage is, however, a key first step towards ensuring significant contributions by small-scale fisheries to poverty alleviation and food security.

Whether a country is or even tries to be successful in alleviating poverty and improving food security depends largely on the quality of its policies and their subsequent implementation. Large changes to established policy may often require legislative support if they are to be successfully implemented. Legislation in support of the poor is discussed in the next section before considering key issues related to implementation.

3.3 LEGISLATION IN SUPPORT OF THE POOR

3.3.1 The Code

Two of the Code's ten core objectives listed in Article 2 deal specifically with legislation, although not with small-scale fisheries:

> *Art. 2(a): establish principles, in accordance with the relevant rules of international law, for responsible fishing and fisheries activities, taking into account all their relevant biological, technological, economic, social, environmental and commercial aspects.*

> *Art. 2(c): serve as an instrument of reference to help States to establish or to improve the legal and institutional framework required for the exercise of responsible fisheries and in the formulation and implementation of appropriate measures.*

Article 3 also refers to the Code's relationship with other international instruments (e.g. United Nations Convention on the Law of the Sea [UNCLOS]). The Article is intended to relate the Code to other international fisheries management and environmental instruments and declarations. Given that the Code was developed prior to the international declarations and commitments on poverty alleviation and food security mentioned in the introduction of this paper, the Article was certainly not developed with such issues or small-scale fisheries in mind. Importantly, it also stresses, however, that the Code should be interpreted and applied "in accordance with other applicable rules of international law, including the respective obligations of States pursuant to international agreements to which they are party" (Art 3.2, para. b) and "in light of the 1992 Declaration of Cancun, …and other relevant declarations and international instruments" (Art. 3.2, para. c). Article 3 implies that the Code should be interpreted and applied as such international declarations and international instruments evolve, and that the Code should therefore be seen in relation to recent commitments on poverty alleviation and food security.

Article 6.13 of the Code is also important and states that:

> *…States…should facilitate consultation and the effective participation of industry, fishworkers, environmental and other interested organizations in decision making with respect to the development of laws and policies related to fisheries management, development, international lending and aid.*

Other relevant Articles of the Code relating to legislative issues include: Articles 7.1.1, 7.6.6, 7.7.1, 8.3.1, 9.1.1, 10.1.1, 10.1.3 and 10.2.5. Article 11.3 also has eight sub-articles on laws and regulations relating to fish trade, all of which have implications for small-scale fisheries.

3.3.2 Legislation in support of the poor

Legislation embraces all instruments having the force of law, such as acts, regulations, decrees, orders and local by-laws. It provides the legal framework to support policy through the details specified in such instruments, and through powers relating to enforcement and sanctions for those infringing the law.

The poor are frequently unable to induce changes that would benefit them due to their economic, social and political marginalization. The low level of their assets and entrenched power structures and economic relationships working against them conspire to ensure that without protection and special assistance, the poor are likely to remain so.

Not all such assistance needs to be hardwired into formal legislation if, for example, there are well-established informal rules and norms within village council frameworks that tend to support the poor. Some pro-poor support may also be best achieved through other means, for example, by the use of economic instruments, or support and/or promotion and ad hoc programmes that do not necessarily require enforcement by the rule of law. However, legislation is often crucial in ensuring that certain *rights* are enshrined for small-scale fishers and fishworkers that cannot be eroded through social, economic and political marginalization. Formal legislation is therefore often very important when the intended results relate to exclusion of certain groups (e.g. industrial fishers), civil rights and/or access rights.

As with policy, it is crucially important that small-scale fishers and fishworkers are incorporated into the *process* of developing legislation (both within fisheries and in other sectors), even if the process is long. Only by doing so can it be hoped that conflicts will be minimized, and that legislation will truly address the needs and potentials of poor small-scale fishers and fishworkers and have a measure of legitimacy. Processes for legislative development are different in all countries, but better compliance can be fostered by legislation that involves all stakeholders in its development as stakeholders can then claim ownership over such laws.

Legislation has the potential to marginalize and create conflict, as well as to provide a framework for managing conflict issues. Importantly, legislation is often not neutral in its impact on different socio-economic groups, and regulatory frameworks and legislation may not favour the poor unless legislation is specifically pro-poor in its definition and implementation. This raises the importance of ensuring that legislation is carefully tailored to the needs and conditions in individual countries and situations. It may also be appropriate at the country level to have an overriding national framework/legislation as well as local community management norms/rules to reflect different situations.

3.3.3 Fisheries legislation to support small-scale fisheries

Legislation on small-scale fisheries is unlikely to exist in isolation of general fisheries legislation. However, there may be specific regulations or orders, *inter alia,* focusing on

small-scale fisheries, and small-scale fisheries issues can be included in overall fisheries legislation. Given that many small-scale fishers and fishworkers are poor, legislation to support small-scale fisheries is very often by implication pro-poor.

But *how* fishers are defined in legislation is also important and has possible gender impacts. In Chile, for example, the definition of artisanal fisheries does not include those who bait longlines, who are all women. Their work is therefore not formally recognized, with implications for accessing financial assistance and membership of unions, etc. It is also important that fisheries legislation that specifically defines fishworkers/fisheries include processing and marketing activities in addition to capture fisheries, thereby ensuring that shore-based work where typically women are more active is not excluded from legislation.

Legislation to benefit small-scale fisheries may cover a wide range of issues. Legislation and policy supporting the following should be considered for its appropriateness:

- Priority access by small-scale fishers to coastal land and near-shore areas of sea.
- Security of rights to resources more generally (see Section 5). This is especially important for the poor, whose rights are often easily eroded in the absence of such legislation.
- Community-based fisheries management (CBFM) (see Box 20).
- Management measures specifying seasonal or area restrictions for foreign/domestic industrial activity (see Box 21).
- Involvement of small-scale fishers in policy, legislation and management processes, i.e. legislation that supports co-management (see Section 3.5).
- The ability to make local bylaws that can support particular local circumstances (see Box 22).
- Movement of migratory fishers and access to fish resources (although care needs to be taken concerning migratory rights coming into conflict with indigenous fishing rights).
- Social security and labour rights issues in small-scale fisheries.
- Bycatch utilization in industrial fisheries, support for the small-scale post-harvest sector and ensuring access to catch by small-scale processors and traders (see Box 44).
- Safety at sea.[21]
- Rights of small-scale fishers to access straddling stocks, recognizing the fact that in many countries small-scale fishers now operate far offshore.
- A redress process for small-scale fishers and fishworkers, such as the appeals process.

Some examples of specific legislation supporting small-scale fisheries are provided in the Appendix.

3.3.4 Non-fisheries specific legislation supporting small-scale fisheries

At the national level, ensuring support for poor small-scale fishers and fishworkers requires consideration of the extent to which legislation affecting small-scale fisheries needs to be contained in fisheries law as opposed to in legislation relating to other sectors, as well as an assessment of the influence of legislation in other sectors on small-scale fisheries. There is much non-fisheries-specific legislation that can support small-scale fisheries; some important issues are discussed below.

[21] Small-scale fishers may be especially at risk to accidents where low levels of profits hinder appropriate maintenance of vessels and the purchase of sea safety equipment; hence legislation should focus specifically on safety at sea issues in small-scale fisheries.

BOX 20

Legislation in support of community-based fisheries management (CBFM)

Community-based fisheries management (CBFM) is widely seen as being able to provide significant benefits to the poor. However, for CBFM to be sustainable, the legal framework must be carefully considered in terms of rights, participation by the local community, devolution of management powers and/or implementation powers, and the constitutionality of such issues and support from subsidiary legislation. The requirements for CBFM are site-specific. Given the above, any law that is enacted for establishing CBFM should preferably be a framework law. The framework law must primarily enable the use of CBFM through its provisions that ensure security, exclusivity and permanence for any rights that may be allocated. However, the legal framework should also, as a minimum, ensure that powers are vested, or entities designated, to invoke CBFM when the need arises. The provisions of any framework law that provide for these must allow:

- the designation of communities that will be involved in CBFM and that such communities may be allocated rights and responsibilities in fishing and fisheries management;
- choices in the manner in which designation of communities will be effected;
- choice in demarcation of areas for CBFM;
- choices in the institutional or organizational framework for CBFM.

Above all, the legal framework for CBFM must be practical and flexible to respond to changing needs and priorities.

In the Philippines, the 1987 Constitution provides for CBFM through decentralization and a tier of local governments that, under a code for local government, are granted powers, responsibilities and resources relating to the organization and operation of local government units.

In Tonga, the legislative provisions in the principal act (the Fisheries Management Act 2002) vest powers to establish CBFM and facilitate future detailed regulation. The provisions concerning CBFM are as follows:

Section 4 (l) - Principle of practicable, broad and accountable participation (conducive to CBFM) to be taken into account in the exercise of management powers under the Fisheries Management Act.

- Section 7 – Consultation with "coastal communities" in preparation and review of fisheries management plans.
- Section 13 – Creation of Special Management Areas (SMA). An SMA or part thereof can be allocated to be under the management responsibility of coastal communities.
- Section 14 – Designation of coastal communities ("coastal community" is not defined so as to allow use of existing community organizations, inclusion of non-coastal communities, or a change to a prevailing definition of "coastal community"). Consultation is also required in the designation of coastal communities.
- Section 15 – Regulations can be made for management of a specific SMA or part thereof which is allocated and designated to a coastal community.
- Section 16 – Any authorization (e.g. licence) for fishing in an SMA that has been designated to a coastal community is issued only after prior consultation with the coastal community concerned.
- Section 101 (b) – Regulations for administering CBFM (i.e. that relate to the general administration of coastal communities, etc.) can be promulgated in the future.

Source: Kuemlangan and Teigene, 2003; Kuemlangan, 2004.

3.3.4.1 Legislation on human rights

International commitments contain references to many basic human rights. The Universal Declaration of Human Rights of 1948 asserts in Article 25(1) that "everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food …." In 1999, the UN Committee on Economic, Social and

BOX 21

Legislation on industrial fishing impacting on small-scale fisheries

Legislation pertaining to industrial fisheries may have a significant benefit on small-scale fisheries, reflecting the linkages between the two sectors and providing potential mechanisms for assisting small-scale fisheries. Developing and middle-income countries such as Indonesia, Qatar, Philippines, Thailand, Bahrain, Iran, Kuwait and India all make extensive use of area and seasonal closures to reduce finfish bycatch from shrimp trawlers. This legislation, while often primarily in support of a policy objective of optimal and sustainable use of resources, is focused on semi-industrial and industrial fisheries, but has a significant bearing on ensuring social objectives for small-scale fisheries given competition for inshore resources between industrial and small-scale fisheries sectors.

BOX 22

Local bylaws for management of Lake George Fisheries, Uganda

Uganda has several large lakes that support a diversity of fisheries, which may have divergent management needs and objectives. The Local Government Act of 1997 allows local governments to form associations that have managerial responsibility and the power to enforce local bylaws that take these local differences into account. The Lake George Basin Integrated Management Organisation (LAGBIMO) brings together different stakeholders in local government with village-level fishery management organizations (Beach Management Units) to pass local-level legislation. Since legal ratification, LAGBIMO has been able to take control of Lake George's fishery licensing system from the Central Government and change the way licences are allocated and retain the licence revenues in the local districts for development project expenditures. LAGBIMO includes representation from fishing communities and has been able to administer fisheries in ways that benefit the poor, such as set allocations of licences for poorer members and inclusion of women in administrative and decision-making structures.

Source: Musinguzi, Nunan and Scullion, 2003.

Cultural Rights released its General Comment 12 on the human right to adequate food, which makes it obligatory for governments to respect and protect the human right to adequate food and facilitate people's access to food. However, with respect to Article 3 of the Code, it is worth noting that a state need only legislate for an international commitment (e.g. to reduce poverty or food insecurity) if the commitment is in a binding international agreement or part of international law. States can, of course, also refer to international agreements that they are not party to as well as to voluntary instruments or practices to help them develop legislation. Once enacted, legislation becomes binding in the jurisdiction of the state and on state subjects (individuals) according to its terms.

Legislation is about ensuring that rights are granted fairly and protected. National legislation can give effect to basic human rights, such as the right to food, the right to earn a living, the right not to be discriminated against, and the right to education, through specific legislation on issues that will support such rights. For example, in Colombia, the government has given special importance to the rights of women; a specific law (Law 731) was enacted in 2002 to accelerate the justness between rural men and women, with fishing activity included within the definition of rural activities.

BOX 23

Legislation relating to migration and welfare/social rights

The Association of Southeast Asian Nations (ASEAN) was formed in 1967 with the aim of promoting regional peace and stability and moving towards greater economic integration in the region, as indicated by the more recent signing of the Asian Free Trade Agreement (AFTA). Labour mobility has never been a prominent part of ASEAN policy, however, and with the ASEAN countries tending to be divided into labour providers (e.g. Myanmar, Cambodia) and labour recipients (e.g. Malaysia, Thailand), no regional agreement of immigration policy has been reached. For this reason, much of the international migration within the region is unofficial or illegal, including the migration of fisherfolk. With no legal rights in the country in which they work, migrant fishworkers are prey to exploitative working conditions and have very limited access to health and social services in the countries where they work. This situation persists despite widespread recognition that fast-growing economies need labour from other countries and remittances from migrants are a major contributor to the economies of their country of origin.

A similar situation prevails in West Africa where, despite moves towards greater economic integration and the existence of regional bodies such as the Common Market for Eastern and Southern Africa (COMESA) and Economic Community of West African States (ECOWAS) that have protocols, articles or objectives in their treaties supporting the free movement of people and rights of residence and establishment, labour movements continue to be restricted and much migration remains illegal. Although ECOWAS has abolished entry visas for citizens of member states, people can only reside in other states for 90 days and must obtain permission to stay longer. Instability and lack of political commitment to labour mobility agreements hamper true freedom of movement. Once again, migrant fisherfolk are liable to be evicted without recourse to legal redress, should it become politically expedient to do so.

Fishers in several parts of the world, as in West Africa and in the Indian Ocean region, have traditionally migrated to waters of neighbouring countries to follow fish migration. With technological changes, such migration has become more common. Over the past few years, however, thousands of fishers of various nationalities have been arrested and detained for illegal fishing or for just accidentally straying into the territorial waters of neighbouring countries. There are numerous instances of, for example, fishers from Indonesia, Thailand, Myanmar, Indian, Pakistan, Sri Lanka, Egypt, Yemen, the Philippines, Peru, Costa Rica and Trinidad being arrested and placed in prison. In some cases, due to tardy procedures, fishers end up spending years in the jails of neighbouring countries.

Recognizing traditional fishing regimes and developing bilateral or regional legal mechanisms to share fish stocks can go far in resolving current problems. Costa Rica and Nicaragua, for example, have declared a "sea of tolerance" straddling their respective maritime boundaries. Local authorities alert fishers and allow them to return safely home if they sail past these boundaries.

Another example is the 1998 International Court of Justice Award of the Eritrea-Yemen Arbitration Tribunal over the Zuqar-Hanish and Zubayr groups of islands in the Red Sea. While upholding the territorial sovereignty claim of Yemen over these island groups, the Tribunal found that "sovereignty entails the perpetuation of the traditional fishing regime in the region, including free access and enjoyment for the fishers of both Eritrea and Yemen."

Source: Adapted from SAMUDRA Report No. 29, August 2001.

Alternatively, national legislation can enshrine the above rights in constitutions, to which all national legislation is subsidiary. Legislation supporting such rights can be expected to benefit poor small-scale fishers given that anyone lacking such rights can be considered poor under the recent broadening of the poverty concept.

BOX 24
Fishers and the social welfare system in Brazil

The official social security system of Brazil, the Regime for General Social Security (RGPS), began to include fishers and fishworkers in its remit at the start of the 1990s. Previously, until the end of the 1980s, the rural sector was covered by a separate social security regime, which provided fewer benefits at lower rates. The new constitution of 1988 and the subsequent laws regulating the RGPS ended the rural-urban divide. The minimum value of welfare benefits for every category of beneficiary was fixed at the minimum wage level, which was around US$86 per month on 1 May 2004.

From 1991 onwards, both Law 8.212 (the Organic Law of Social Security) and Law 8.213 (establishing the goals and main principles of social security in Brazil) define the different occupational categories covered by the system. One category is that of the "special insured", where small-scale fishworkers and peasants are included. This category covers rural producers, sharecroppers, part-owners, tenants, artisanal fishers, and those who work in a family economy (even with outside help), as well as their partners (wives or husbands) and children aged 14 and over. In 1998, the minimum working age was increased from 14 to 16 years old by Constitutional Amendment No. 20.

The legal definition of a family economy regime is clearly expressed in Law No. 10.779 of 25 November 2003. This law shifted some of the unemployment insurance benefits to artisanal fishworkers. According to it, the family economy regime is "the work of the members of the same family, necessary for their subsistence, and exercised in mutual dependence, without employees". The use of external labour (workers from outside the family) does not disqualify from the status of a family economy regime, as long as it is temporary and does not lead to permanent employment. Significantly, women rural workers and women fishworkers became eligible for welfare rights as individuals, regardless of whether their husbands were already beneficiaries themselves or whether they were widow pensioners. Children over 16 have also achieved the right of subscribing to the social welfare system as long as they work in similar conditions. In the past, women would be entitled to the benefits only if they were heads of the family.

An artisanal fisher is defined as an individual or in member of a family economy regime whose main occupation or source of livelihood is fishing; if he or she uses a boat, it should not be more than ten tonnes in capacity. Further, he/she should not rely primarily on employees, although eventually he/she can count on external labour. For the purpose of welfare benefits, the shellfish collector is considered similar to the artisanal fisherman. Wives and husbands can apply for the "special insured" status, as well as children over 16 who are members of the family and work in the same conditions. Thus, the members of the fisherman's family were no longer viewed as his dependents. Unemployment insurance, available for fishworkers who are in the "special insured" category, is a special temporary allowance given annually when the fishing season is closed (the period called *defeso*), to allow for conservation and rejuvenation of stocks. Those entitled to this benefit receive the minimum wage for each month of the closed season. Around 20 percent of the beneficiaries are women.

Source: Excerpted from Lourenço, Henkel and Maneschy, 2004.

3.3.4.2 Migration, transboundary issues, social security and workers rights

Non-fisheries specific legislation on issues of migration are important in many small-scale fisheries, especially in Africa where migration of fishers and fishworkers is common (Chauveau, Jul-Larsenand and Chaboud, 2000; Jul-Larsen and Kassibo, 2003), but also in other regions. Fishers and fishworkers may need or want to migrate as a coping mechanism following a crisis or shock to household or individual livelihoods or to reduce vulnerability to natural factors such as stock variations. Migration may also be used as a pro-active strategy to accumulate capital. The legal ability to migrate is important in enabling livelihood strategies to be fulfilled and in ensuring that when operating in an area or country that is not their own, fishers and fishworkers are

afforded rights of access to social support, health care and education. Of course, in some cases illegal migrants may become de facto legal and/or accepted, while in others, even if there is labour mobility legislation, there may still be large numbers of illegal migrants working in the fisheries sector (without proper representation or social security coverage) so as to avoid the requirements associated with legal movement. Some examples of the importance of legislation allowing for migration are shown in Box 23.

Issues of access to social security need not, and indeed should not, be confined to migratory fishers. Considerable changes have been made in Brazil in recent years as shown in Box 24.

The issue of workers' rights and labour law is an area usually dealt with outside of fisheries legislation. It is important for those working in processing factories, usually poor women, as well as for men in capture fisheries, because in keeping with the application and enforcement of the law, fisheries are often considered a special case given the nature of the work in terms of its working hours and conditions.

3.3.4.3 Decentralization and participatory governance

The increasing importance of decentralization in many regions of the world in bringing decision-making closer to the poor, and therefore increasing the likelihood of success of pro-poor policies and programmes, is highlighted elsewhere in this Technical Paper (section 3.6). It is also important for CBFM mentioned above. Decentralization can be underpinned by legislation supporting local entities in decentralization reforms, through appropriate powers (see Box 25).

In many developing countries, legislation supporting decentralization is already in place. It is equally important to ensure that such legislation can be backed up and implemented through appropriate decentralized governance structures. Local government must be accountable not only to national government, but also to local communities; in other words, there is a need for downward accountability as well as upward accountability. In devolving power, careful assessment is needed of hierarchical structures and existing mandates of different groups/levels. Decentralization requires good local coordination, and can result in coordination problems due to conflicts of interest, and insufficient human capacity requirements and skills (see Box 25).

3.4 IMPLEMENTATION ISSUES

As alluded to in the previous sections, both policy and legislation are only as good as the extent to which they are implemented and enforced. This section considers some of the generic requirements for such implementation.

3.4.1 Human capacity development for poverty reduction

3.4.4.1 The Code

The Code makes particular reference to the ability of developing countries to implement its recommendations in Article 5.1:

> *The capacity of developing countries to implement the recommendations of this Code should be duly taken into account.*

Article 5.2 goes on to state that:

> *…States, relevant intergovernmental and non-governmental organizations and financial institutions should work for the adoption of measures to address the needs of developing, especially in the areas of financial and technical assistance, technology transfer, training and scientific cooperation and in enhancing their ability to develop their own fisheries, as well as to participate in high seas fisheries, including access to such fisheries.*

BOX 25
Decentralization and fisheries management in Indonesia

In Indonesia, the process of decentralization in fisheries management was set into motion by the enactment of UU 22/1999 on local government (the Local Autonomy Law) and PP 25/2000, a government regulation for the implementation of this law. Prior to 1999, the government policy under the New Order (1966–1998) was highly centralized, with all fisheries management functions vested in the Central Government. However, as the Central Government lacked adequate resources for implementation, marine fisheries were characterized by de facto open access conditions, leading to resource depletion and conflicts among fishers. According to the recent Local Autonomy Law, the 4-12 mile zone is under the provincial government, while the 0-4 mile zone is under the authority of the local or district government. The Law specifies that they will have authority over the following: (i) exploration, exploitation, conservation and marine resources management within the authorized water area; (ii) administrative management; (iii) zone management; and (iv) law enforcement of local regulation or Central Government regulations that are decentralized to local government. While the policy of decentralization has yielded some positive results, such as the revival of traditional management institution (*awig awig*) in Lombok Barat Regency in Nusatenggara Barat, it has also led to some conflicts, including between fishers, to the extent that public opinion has veered towards questioning the law. The problems are due to various issues, including limited human resources and capacity for fisheries management at the level of local government, attempts by local governments to maximize economic returns from natural resources, and limited availability of information and data on marine resources.

Source: Satria and Matsuda, 2004.

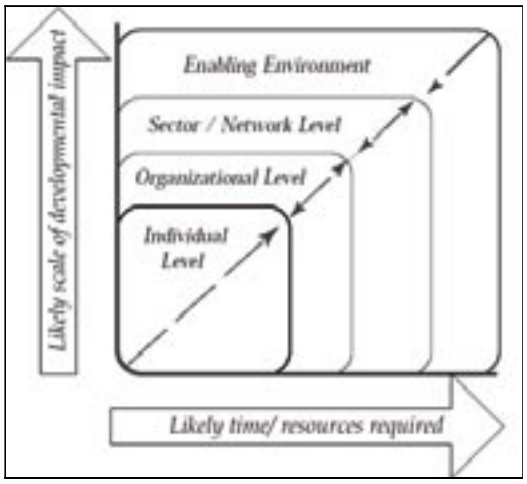
3.4.1.2 Human capacity development requirements and strategies

Human capacity development is a crucial aspect of ensuring that fisheries policy, legislation and all related initiatives aimed at assisting small-scale fisheries and the poor can be implemented and enforced. While the development problems that *capacity development* tries to tackle are not new, the concept itself is a relatively recent one and was articulated in the 1980s and early 1990s. As part of an FAO Strategy for Human Capacity Development (ACFR/WP/HCB/I/3) prepared by an FAO Working Party on Human Capacity Development in Fisheries (2004), UNDP's definition (1997) was adapted to consider human capacity development as: "*the process by which individuals, groups, organizations, institutions, and societies develop their abilities – both individually and collectively – to set and achieve objectives, perform functions, solve problems and to develop the means and conditions required to enable this process*".

The definition serves to highlight two important attributes of capacity development: first, that it requires consideration at *four levels* (see Figure 2), each of which represents a level of analysis, and importantly, a possible entry point for initiatives aimed at capacity development; and second, that it is a *process* and not a passive state. In order to build capacity, a *process* must take place for individuals whether they are carrying out and controlling their own activities, or as part of institutions, sectors and/or the overall societal/enabling environment.

The *enabling environment* represents the societal context in which development processes take place. Capacity may be reflected in the form of good economic policies, high levels of commitment, a lack of conflict, or methods to resolve conflict, all of which would support an enabling environment. On the other hand, low accountability, high levels of corruption, and a lack of political will, *inter alia,* may serve to minimize the

FIGURE 2
The four levels of capacity development



enabling environment. Initiatives to develop capacity at this level need to focus strongly on issues of good governance, and especially on empowerment, participation and increasing the capabilities of small-scale fishers and fishworkers to work with fisheries administrations and policy-makers.

The *sector/network* level represents the need for coherent sector policies and strategies, as well as coordination across sectors (see section 3.5). Initiatives may focus on issues such as policy reform or service delivery as a way of increasing capacity at the sector level. The *organizational* level of capacity focuses on organizational structures, processes, resources and management issues, and has been a key concern of much donor assistance in the form of technical assistance or budgetary support. The *individual* level in the capacity framework refers to the individuals operating within the other three levels or affected by them.

The four levels of capacity development help to emphasize that capacity may be developed in individuals, but that to ensure poverty alleviation and food security, initiatives at any level must take a holistic/systemic view of the overall context in which such individuals operate in order to enable individuals or institutions to implement and utilize newly acquired capacity.

Especially important at the organizational and individual levels is the need for: (i) more fisheries experts specializing in small-scale fisheries in fisheries departments and ministries, donor agencies, and NGOs; (ii) a greater emphasis on social, economic, and livelihoods skills in such organizations; and (iii) enhanced capacity in organizations representing and working for small-scale fisheries. Such organizations can be categorized into four main types.

a. *Technical* – local fisheries management organizations, e.g. fisher councils, village-based organizations with the capacities and knowledge to regulate fishing activity, or groupings of those with similar interests. There are many thousands of local management organizations throughout the world and increasing interest in their establishment and support as a method of effecting community management and co-management (Dyer and McGoodwin, 1994).
b. *Social welfare* – locally-based organizations providing social benefits (e.g. rescue at sea, financial assistance during ill-health etc) that contribute to human and social assets, and thus assist with poverty reduction. In many small-scale fishing communities, social, religious, caste and cultural groups, e.g. youth groups, women's groups and religious groupings, *inter alia*, while not necessarily made up entirely of fishers or fishworkers, may nevertheless provide significant social benefits to those involved with fishing or related activities. The importance of such organizations is thought to be considerable (Lenselink and Cacaud, 2002; Archari, 1994).
c. *Economic and marketing* – organizations focusing on economic/financial issues, e.g. credit, marketing, support for new business initiatives, and provision of capital inputs (e.g. cooperatives, associations, local savings groups).
d. *Political* – organizations (e.g. artisanal fisher organizations, labour unions) concentrating on political negotiation or lobbying (e.g. on historical fishing rights, fair prices, labour conditions, bans on trawling due to its impacts on small-scale fisheries) to deliver policy changes at the regional or national level. The International Collective in Support of Fisherworkers is an interesting

BOX 26

Examples of small-scale management organizations benefiting small-scale fishers

At the local level, Bort (1987) provides a good example of how fishers at El Charco in Panama agreed through informal discussions to ban the use of trawl nets soon after they witnessed the impact of their use on shrimp catches. Shrimp catches began to recover soon after the cessation of trawling.

Bavinck (1996) also describes the evolution of such an initiative by a string of fisher councils along the Coromandel Coast in India, which decided to ban the use of snail nets.. It was perceived that the nets would benefit a small number of people in the short term, but would bring about the decline of other fish stocks. The ban was therefore motivated by beliefs about ecological interdependence and social justice.

The work of the Yadfon (meaning raindrop) Association, based in Trang Province of Southern Thailand, is another interesting example of participatory community action. Started in 1986 and following the development of an inter-village network, many acres of mangrove forest have now been designated by the Forest Department as "community-managed mangrove forest". Following the successful mangrove replantation initiatives, the communities set out to protect corals and seagrass beds. The boundaries of the beds were demarcated with coconut tree trunks until the Fisheries Department contributed buoys. With the tacit backing of the provincial officials, the area was designated by the community as a no-go area for boats with destructive push nets. The rewards of such actions were immediate and obvious. Fish, shellfish, squid and turtles returned. Fishers needed to travel less far out to sea, thus saving fuel and travelling time daily. Women and children were able to catch crabs in the seagrass or mangroves and could earn 300 baht (US$8) in an afternoon – an amount they once earned from a day of cutting mangrove trees. Perhaps the most important result of community action was the return of the dugong, which has been good for tourism and has helped to secure another long-standing request of the village people to enhance the trawler-free zone in the coastal waters.

Source: Adapted from Bort, 1987 and Bavernick, 1996 and Jim Enright, Yadfon Association, personal communication, 2004.

example of an international NGO that works towards the establishment of equitable, gender-just, self-reliant and sustainable fisheries, particularly in the small-scale, artisanal sector (www.icsf.net).

Some key lessons for capacity development initiatives aimed at assisting small-scale fisheries organizations are the following (Macfadyen and Corcoran, 2002):

- Strong leadership is important for their success, which requires institutional strengthening through support for key individuals.
- Support to locally-based organizations should not ignore or underestimate the impacts of wider social, economic and political factors that can serve to undermine both organizations sustainability, but also the benefits to the poor created by such organizations (see Box 27);
- Such organizations often benefit influential people in the community more than the vulnerable.
- Capacity development initiatives that aim to support organizations as a way of alleviating poverty must ensure that such organizations evolve from the needs and aspirations of the poor themselves.
- Organizations must be provided with appropriate but not restrictive support by the state.

BOX 27
Did political organization in Kerala benefit poor fishers?

During the 1980s, the Kerala Independent Fishworkers Federation mobilized against trawling by using fasts, roadblocks and staging large demonstrations; however, political forces throughout the 1980s undermined the Federation. The impact on poverty is questionable despite their activities resulting in the Kerala Marine Fisheries Regulation Act in the early 1980s, the use of artificial reefs that interfered with trawling, and the introduction of a monsoon ban on trawling in 1988 (Kurien, 1992). The Fisheries Regulation Act was not well enforced: motorization of the artisanal fleet during the 1980s drastically increased fishing effort thereby dissipating rent.. In addition, following the three-month monsoon ban on trawling, it is "unlikely that [the increased] harvest had a commensurate positive effect on incomes of fishers" because increased landings resulted in depressed shore prices. Nonetheless, it did reduce the cost of fish for poor people and therefore assisted with food security.

Source: Kurien, 1992.

In addition to the different *levels* of capacity described above, there are also different *areas* of capacity development that may require support in ensuring implementation and enforcement of policy and legislation, and a successful drive to alleviate poverty and ensure food security in small-scale fisheries.. These may relate to fisheries-specific issues of research or sector management, such as community-based monitoring, control and surveillance (MCS), or as highlighted above, the enhancement of specific small-scale fisheries skills. But they may also relate to wider societal skills such as community mobilization, management and administration (e.g. leadership and planning), conflict management, good governance, and information and communication technologies and systems. Indeed, information is of special importance in ensuring implementation and enforcement of policy and legislation, as discussed in section 3.9.

3.4.2 Need for appropriate funding

Funding is a key problem in implementing policy, legislation and management in general, as well in implementing specific strategies aimed at supporting small-scale fisheries and the poor and food-insecure. This problem may take the form of insufficient funding levels, and/or funding not being spent as wisely as it should be.

Clearly, donor agencies can play a role in providing funds for general institutional and human capacity developments, as well as for specific projects. But it is also essential for fisheries ministries and departments, as well as ministries of finance and national treasuries to ensure that sufficient and specific budget allocations are made to allow support for small-scale fisheries. This can take the form of allocations under operational budgets (e.g. for sufficient staff numbers working on small-scale fisheries issues) or under development budgets for small-scale fisheries initiatives/projects. Moreover, they must carefully and effectively prioritize between competing funding needs to maximize the impacts/benefits of funding allocations. The resulting benefits (as described in Section 2) will be sustainable only if countries themselves spend money wisely and prioritize small-scale fisheries in their funding allocations.

Where financial retentions schemes are in evidence, they can be important in ensuring that sufficient funds remain in the sector to assist both specifically small-scale fisheries and generally the move towards responsible fishing (see Box 28). However, it is more often the case for governmental regulations to stipulate that all monies generated from the fisheries sector must flow into the national treasury.

BOX 28

Retention of funds in the fisheries sector in the SADC region

In Angola, the Ministry of Fisheries is permitted to retain all earned revenues (including those from fisheries access agreements) within the sector. These include €15.5 million/year from the EU fisheries partnership agreement, of which €0.775 million/year should be spent on monitoring and surveillance. In addition, the Ministry benefits from licence fees and penalties. However, the current scheme is reported to be near a close, and from 2005, all revenues should revert to the Ministry of Finance and the Ministry of Fisheries will depend once more on the normal state budget. Also, in the SADC region, the fisheries sector in Mozambique benefits from a funding scheme, under which the Ministry of Finance allows the sector to retain 60 percent of licence fees, and Namibia also has a specific retention fund used primarily to finance a school that trains fishworkers.

Source: Banks, Macfadyen and Wilson, 2004.

From 2005, all revenues were supposed to revert to the ministry of finance and the ministry of fisheries now depends once more on the normal state budget.

In providing funds to support small-scale fisheries, it is also necessary to look outside of fisheries sector budgets. Support for small-scale fisheries can be provided indirectly at the local level, for example, through support/finance for commune councils or NGOs working in fisheries, and more generally, in rural development. Decentralized management of funds may also help to enhance their effectiveness in supporting the small-scale sector.

At the national level, ensuring the inclusion of small-scale fisheries in national poverty reduction strategies can help access poverty-related funding. In eastern and southern Africa, policy reforms funded by donors and influenced by the Code have initiated a process leading to formulation of new fisheries legislation and the creation of a Master Plan for policy implementation (Allison and Badjeck, 2004). Latterly, fisheries sector Master Plans have been competing for funds in Medium Term Expenditure Frameworks (MTEFs), necessitating some re-working to fit with PRSP objectives. The process is analogous to the evolution of sector-wide approaches (SWAPs) and agricultural sector investment plans (ASIPs), and is similarly challenged by the cross-sectoral nature of rural livelihoods (Gillings *et al*., 2001).

Although there are many synergies between poverty reduction strategies and fishery policy objectives, fisheries issues have a very limited profile in PRSP documents. In West Africa, the sector was mentioned in only two out of 23 interim and full PRSPs, despite the economic and social importance of fisheries, particularly along the coast and around Lake Chad and the Niger Inland Delta (SFLP, 2002). Lack of coverage of the fisheries sector in national poverty data collection is an important reason for this absence. Poverty assessments are used to derive policy priorities, which are then allocated funds through either MTEFs or Poverty Action Funds (PAFs).

The integration of fisheries development with broader poverty-focused development programmes, and the ensuing ability to generate greater levels of funding support would result from:

- maintaining a sufficient profile in national poverty reduction strategies to ensure that the sector receives funding commensurate with its potential contributions to pro-poor economic growth;
- adopting a more critical and politically engaged approach to promoting community-based fisheries management;

- ensuring that subsectoral studies that highlight the contribution of fisheries to national and local economies are disseminated widely among opinion formers in the policy domain;
- explicitly incorporating fishing households in national poverty surveys.

3.5 CROSS-SECTORAL INTERVENTIONS

3.5.1 The Code

Although the "Code is global in scope" (Art. 1.2), it is first and foremost a document focusing on fisheries from a sectoral perspective. However, cross-sectoral issues may affect or reinforce the level of vulnerability and/or poverty for those individuals, households or communities dependent on fishing. While not covering in general terms cross-sectoral aspects, in Article 10 the Code addresses issues relating to the integration of fisheries into coastal area management. It includes provisions, inter alia, for the setting-up of an institutional framework and appropriate policy measures that can be taken to avoid or mitigate cross-sectoral conflicts in coastal areas. Similar provisions could apply equally to integrated rural development. Examples are given below:

> *Article 10.1.1 States should ensure that an appropriate policy, legal and institutional framework is adopted to achieve the sustainable and integrated use of the resource, taking into account the fragility of coastal ecosystems and the finite nature of their natural resources and the needs of coastal communities.*

> *Article 10.1.2 In view of the multiple uses of the coastal area, States should ensure that representatives of the fisheries sector and fishing communities are consulted in the decision-making processes and involved in other activities related to coastal area management planning and development*

3.5.2 Recognizing the rural poverty context

Seventy percent of the world's poor live in rural areas, and a large majority of small-scale fishers and fishworkers are rural dwellers. As a consequence, fishers and fishworkers are affected by geographical isolation and low or poor provision of public infrastructure and services (lack of roads, hospitals, market facilities, etc.). As an illustration, small-scale fishers living in remote temporary fishing camps are very likely to be poor, not because of their income level, which can be substantial and sometimes higher than for farmers, but because of their lack of access to basic public services such as health, education and running water. It is conceivable that such fishers could live well above the one dollar per day poverty line, but still face destitute living conditions due to their geographic isolation.

It should be noted, however, that not all poor and vulnerable fishing communities are located in rural areas. Poor and marginalized small-scale fishers and fishworkers can also be found in or on the edge of many urban or peri-urban areas, and may be susceptible to displacement as urban areas develop and expand, as illustrated in the case of the peri-urban fishing communities of Chennai in India (see Box 29).

3.5.3 The multi-use nature of the resources

In addition to this rural poverty context, it is also important to recall the point made earlier in Section 1.1, that small-scale fishers, both in coastal and inland areas, usually compete with other users for the resource itself (e.g. with industrial large-scale fisheries), but also very frequently for the water from which the resource is extracted. They may compete, for example, with irrigation schemes and hydropower dams in the case of inland fisheries, and marine parks, tourism activities and general coastal development (i.e. the transformation of mangrove in shrimp farming ponds as shown in Box 30) in the case of inshore fisheries. This multi-use, multi-user characteristic is

BOX 29

The plight of fishing communities in urban areas: the case of Chennai, Tamil Nadu

The role of fishing communities in town planning and coastal zone management planning continues to be a neglected area. Town planning in Tamil Nadu State, southern India, is the subject matter of the *Tamil Nadu Town and Country Planning Act, 1971*. Although seemingly wide, there is little guidance in the Act to imbue the planning exercise with any sensitivity regarding the cultural aspects of town planning, specifically with reference to the lifestyle and livelihood patterns of fishing communities, which are separate and distinct from those of a migrant population that usually characterize cities in India. An example is the eight fishing villages along the Marina, possibly predating Chennai in Tamil Nadu State, which have been subjected to enormous pressures. Although these fishing communities have been resident along the coast for centuries, their right over these coastal lands is not recognized. The State usually considers them encroachers and slum dwellers. Their struggle for a livelihood is made more difficult as a result of other developments as well. Fishing along the city's waterways, such as the Adyar and Cooum Rivers and Buckingham Canal, have almost come to a standstill because these water bodies have become virtual cesspools of domestic and industrial effluents. Thermal plants that discharge hot water into Chennai's coastal waters and a phalanx of chemical industrial complexes have also seriously impacted fisheries. There has also been large-scale salinization of coastal aquifers due to excessive extraction for industrial and urban purposes along Chennai's coast.

Source: Mohan, 2003.

another key factor greatly affecting the livelihoods of fishing communities, through increasing competition for water and/or coastal resources.

Coastal small-scale fisheries have suffered from these cross-sectoral interactions in recent decades. But their status has been, at least to some degree, increasingly acknowledged by those engaged in integrated coastal area management, and as illustrated by the presence of Art. 10.1.1 and 10.1.2. of the Code mentioned above. The status of inland full-time and other seasonal or occasional fishers who probably represent more than 100 million of people in the world (although the exact number is unknown), should also be considered in the Code and in inland water management plans, especially with respect to the question of multiple uses of and competition for inland water resources.

3.5.4 Improving the livelihoods of fishers through non-fishing initiatives

It is possible to improve the livelihoods of fisheries-dependent individuals, households and communities through initiatives that address issues completely outside the sector and the usual areas of intervention in fisheries development. A good example is the literacy programme initiated recently in the State of Mato Grosso in Brazil, where about 45 percent of professional fishers are illiterate. The idea of this programme (*Pescados Letras*), which started in 2003, is to provide literacy training to fishers during the closed fishing season. The project was launched by Secretaria Especial de Aqüicultura e Pesca de la Presidência da República (Special Secretariat of Fisheries and Aquaculture attached to the Presidency of the Republic) (SEAP) and the Ministério da Educação (Minister of Education) (MEC) with the intention of involving various institutions in nation-wide implementation. In 1995, the project was effective in the State of Mato Grosso and it was expected to be implemented soon after that in three

BOX 30

Mangrove degradation impacting coastal small-scale fishing communities

Mangrove habitats support large inshore fisheries in the Mekong and Red River Deltas, the forest providing refuges, feeding and nursery sites for many species of major economic importance (fish, shellfish, crabs and shrimp). A positive relationship exists between the mangrove coverage and marine production. It has been estimated, for instance, that one hectare of mangrove forest in the Mekong Delta supports a marine catch of about 450 kg/yr (de Graaf and Xuan, 1998). In Malaysia, Naylor and co-authors estimate that from each hectare of mangrove, 600 kg of finfish and shellfish are produced annually, while in Southeast Asia as a whole, mangrove-dependent species account for roughly one-third of yearly wild fish landing (excluding bycatch) (Naylor *et al*., 2000). Urban development and agriculture activities, including shrimp farming, have strongly impacted on mangrove forests in Asia and Latin America and have had tremendous negative impact on coastal small-scale fishing communities, directly through the decrease of the fishing yield, and indirectly through the degradation of the environment, including water quality (see, for example, Box 29). In the Gulf of Fonseca in Honduras, the destruction of mangrove related to the large expansion of shrimp ponds has been associated with a substantial decline in catch per unit of effort (CPUE) in the local small-scale fisheries, and fishers who once were able to make a respectable living were then reported to be engaged in cutting mangrove for firewood or other economic activities in order to survive (De Walt, Vergne and Hardin, 1996). Similarly, in the Tumaco inlet in Colombia, poor profitability of shrimp cultivation resulted in many producers abandoning ponds and switching to activities related to firewood and coal production.

Source: Beltrán, 1994.

other states: Santa Catarina, Rio Grande and Rio de Janeiro. In Mato Grosso, it was estimated to already be benefiting about 3 500 fishers.

Taking an even wider perspective, integrated rural development initiatives aimed at creating or strengthening cross-linkages between literacy, housing, social security, health, infrastructure, *inter alia*, can also have significant positive impact on the livelihoods of small-scale fishers, without necessarily directly addressing resource management issues. A good example of this type of approach is a FAO-funded project in Cox's Bazaar, Bangladesh, where the villages along the coast have been empowered to improve their well-being by first dealing with sanitation and health problems, then improving educational facilities and developing saving schemes, and as a last step, addressing fishery resource management and safety-at-sea issues (D. Staples, personal communication, 2004). This type of holistic rural development approach helps to overcome the dilemma of how to conserve resources in the longer term when the obvious immediate imperative is to alleviate poverty and reduce the vulnerability of fishworkers and their families.

3.5.5 The need for livelihoods diversification

Another important area of cross-sectoral initiatives is livelihoods diversification through the support for non-fishing activities as part of household and community livelihood strategies. In fact, the promotion of alternative livelihoods has recently become a common feature of fisheries programmes, in tandem with other more conventional policy and management measures. Two main kinds of approaches can be distinguished: those aimed at creating supplementary livelihoods, rather than alternative ones, to reduce dependence on fishing; and those aimed at creating

BOX 31
The impact of irrigation schemes on inland fisheries

In the Yaéré floodplain in Cameroon, the local population has developed a complex livelihood strategy where fishing plays an important role both in terms of food security and generation of income. In 1979, however, a national irrigated rice-growing project was undertaken under the management of the state-controlled company Rice Culture Expansion and Modernization Authority (SEMRY). The objective of the project was to control flooding of the adjoining floodplain and to allow the culture of irrigated rice through the construction of 28 km of embankments, and some 80 km of dykes along the Logone River. These irrigation schemes seriously modified the hydrological regime in the entire floodplain, leading to an acceleration of the degradation of the environment, which was initially caused by the 1970s–1980s Sahelian drought. In particular, these modifications eliminated the flooding of some 59 000 ha of floodplain and seriously reduced it in another 150 000 ha that were important breeding and nursery areas for fish.

Source: Béné *et al.*, 2003b

alternative livelihood opportunities outside the fishing sector, which thus encourage people to withdraw from fishing activities. Both approaches are not totally exclusive, for the first alternative can also be seen as an initial step towards the creation and accumulation of sufficient capital and assets for a definitive withdrawal from the sector in the longer run.

Ecotourism is an example of cross-sectoral diversification by fishing communities. In this respect, Community-based Eco-tourism Management (CBEM) is particularly attractive because it ensures that the benefits generated by the new activity are not captured by external operators but remain within the community. The example of the CBEM of the village of Ventanilla along the Pacific coast of Mexico is encouraging (see Box 32).

3.5.6 Mitigating the impacts of other sectors through projects

Initiatives to mitigate the impacts induced by other sectors and their activities may help to alleviate poverty and food insecurity in fishing communities. For inland fisheries, for instance, the negative impacts of dams and irrigation schemes on river and floodplain ecosystems and fisheries have been extensively documented (WCD, 2002).

In Cameroon, the case of the Maga Dam is one example among many others across Africa and Asia of an irrigation scheme that has considerably impacted the floodplain ecosystem and jeopardized livelihoods in the local fishing community (see Box 31). Taking into consideration the catch losses induced by the flood reduction, it has been estimated that the Maga Dam induced a direct loss of US$120 million (first sale value) for the local community over the 21 years during which the flooding pattern was significantly affected (1979–2000) (Neiland and Béné, 2006). In 1993, IUCN started a rehabilitation project in the area. The main objective was the restoration of the flooding area to return it to a level close to the pre-dam conditions. This was to be achieved by the opening of the dyke at two different locations in 2000. Recent estimates suggest that the restoration of 90 percent of the floodplain is expected to create benefits of approximately US$2.75 million per year (IUCN, 2004).

In coastal areas, mangrove rehabilitation projects can also have very positive impacts on fishery-dependent communities directly through the re-covering of the fishery resource, but also indirectly through the improvement of the overall social and ecological environment. Rehabilitation projects may even be used as community empowerment tools (see Box 33).

BOX 32
Ecotourism as a diversification strategy

Generally, Community-based Eco-tourism Management (CBEM) projects are based on initiatives managed by the local communities relying on ecosystem goods and services to improve their socio-economic status. Case studies on successful CBEM projects show that the main challenges are minimization of impacts, benefit-sharing equity and integrated national policies for rural development. In a recent study, Foucat (2000) assessed the sustainability of the CBEM project of the village of Ventanilla South Pacific coast of Mexico. The households of this poor rural community, which used to make their living from the exploitation of sea turtles, were heavily impacted by the turtle hunting ban imposed in 1992 by the Federal Government. The community was then forced to search for new sources of incomes. With the initial help of a local NGO, followed by the collaboration of governmental organizations (including one university, the Ministry of Environment and the Mexican Marine Turtle Center, the local community successfully developed a series of ecotourism activities within an appropriate local institutional framework – a cooperative to manage the benefits of the activities. The case study shows how these collaborations ensured the economic and social viability of the project. The CBEM project now generates the largest part of the income of the households belonging to the cooperative, which supplements their revenues with subsistence agriculture and fishing.

Source: Foucat, 2000.

3.6 FISHERIES MANAGEMENT ISSUES

3.6.1 The Code, fisheries management and poverty

Article 7 of the Code deals explicitly with fisheries management. Social objectives (such as employment creation), poverty alleviation and food security are not mentioned here except indirectly in sub-Article 7.2.2, where it is stated that "the interests of fishers, including those engaged in subsistence, small-scale and artisanal fisheries [should be] taken into account." Instead, the core objective of fisheries management as identified in the current form of the Code is the conservation of the resource and the sustainable use of the fisheries. The first article claims:

> Art. 7.1.1 States and all those engaged in fisheries management should, through an appropriate policy, legal and institutional framework, adopt measures for the *long-term conservation and sustainable use of fisheries resources*. Conservation and management measures […] ensure the long-term sustainability of fishery resource at levels, which promote the objective of their optimum utilization and maintain their availability for present and future generations …(emphasis added).

This point is reinforced by the specific article on management objectives:

> Art. 7.2.1 Recognizing that *long-term sustainable use of fisheries resource is the overriding objective of conservation and management,* States and sub-regional or regional fisheries management organizations and arrangements should inter alia adopt appropriate measures … which are designed *to maintain or restore stocks at levels capable of producing maximum sustainable yield,* as qualified by relevant *environmental* and *economic* factors (emphasis added).

BOX 33
A community-led mangrove rehabilitation project

The Hua Khao fishing community in Songkhla Province, Thailand used to be enriched by mangrove habitats. Since the early 1980s, however, pressure by population and coastal development led to increasing mangrove deforestation. Subsistence and commercial fishing activities were greatly affected and increasing conflicts within the community were disturbing the social community dynamics. In 1996, a community-led mangrove rehabilitation project was launched. Initially conducted under the supervision of the Coastal Resource Institute (CORIN), the management of the project was then passed over to the Community Mangrove Rehabilitation Club, which took full operational responsibility. Apart from technical support from government agencies (e.g. the Royal Forest Department), the project also involved a process of public awareness (Children's Day, a mangrove conservation exhibition, long-tail boat racing festivals) and community empowerment initiatives in order to help the community members undertake their own development and manage their own resources. After two years and four reforestation campaigns, a significant increase in the mangrove habitat has been achieved and the Fishery Department even approached the community organizers to designate the surrounding mangrove as a new fish sanctuary! Not only has the fishery been recovering, but the overall living conditions of the community have also been drastically improved.

Source: Boromthanarat *et al.*, 1999.

3.6.2 Fisheries management and poverty alleviation

3.6.2.1 Long-term objectives versus short-term priorities

One of major challenges fisheries managers face when attempting to take into account development and poverty alleviation priorities and not simply consider issues related to resource management or conservation is the difficult trade-off between short-term priorities and long-term objectives. As familiarly expressed through the adage "the poor cannot always afford to wait until tomorrow", development and poverty issues including food security may bring some additional pressure on the resource, which essentially results in short-term constraints in the management process. A good illustration is the creation of protected areas. While protected areas have been shown under some conditions to improve the long-term sustainability of the resource and thus positively impact on the livelihood of the local population that depend on it, in the short term the creation of these protected areas may be done at the expense of some marginalized or vulnerable groups who may be denied access to the fishing grounds on which they had relied to maintain their livelihoods. The case of protected areas is in this respect a good illustration of a wider debate in development: the time scale at which the outcomes are considered (Moseley, 2001; Kanbur, 2001). This issue of time scale (short-term vs long-term) is a clear example of where compromises in management objectives have to be discussed. At the present time, however, such compromises are not well recognized in the fisheries management arena. Assessing the distributional impacts of protected areas, and considering the extent to which they should allow poor fishers and/or certain types of small-scale gear to extract resources from them, should therefore remain one primary consideration in the creation of protected areas. Given that many such areas are often specified unilaterally by environmental ministries and departments, this requires fisheries departments to engage with other organizations so that such issues are fully assessed. Ultimately, there are no reasons why properly designed protected areas could not become fully integrated fishery management instruments (FAO, 2005a).

3.6.2.2 Broad principles on pro-poor fisheries management

Although a very wide variety of tools and approaches are currently used in fisheries management, not all of them are specifically supportive of small-scale fisheries, nor are they all pro-poor-oriented. As a starting point in this section, it might be useful to tease out some very broad pro-poor or pro-small-scale fisheries principles.

A pro-poor small-scale fisheries management regime (or policy environment) would be one having one or more of the following characteristics:

- **Preferential access for small-scale fishers.**[22] Where the resource is accessible to the small-scale fishers (e.g. inshore zone), excluding access of large-scale/industrial fleets, for instance through zoning, would be an important pro-small-scale and pro-poor component of management. It would favour and protect access to the resource by the small-scale fishers, among whom the poorest are likely to be found. One of the first examples of this principle was the trawl ban imposed in Java and Sumatra by the Indonesian Government in 1980 (Bailey, 1987). This decision has kept the Java Sea fisheries as the preserve of relatively small-scale fishers, thereby enhancing rural employment and wealth redistribution. Under the scenario of an overexploited resource and/or increasing competition for the access to the resource (privatization, enclosure), preferential allocation of fishing rights targeting small-scale fishers (e.g. through a targeted licensing system) may ensure that these small-scale fishers are not further marginalized or excluded from access to the resource. These initiatives, however, will need strong support and formal backup through legislation.
- **Decentralized management responsibilities.** Where local capacities are present (e.g. through existing local professional organizations and committees supported by local government), devolution of management responsibilities to the local level (the principle of subsidiarity) can improve the representativeness and the accountability of the management system, thereby enhancing the chances of local poor fishers to see their needs and priorities integrated into the decision-making process. This can have substantial positive outcomes on local communities, which are usually geographically and politically marginalized if compared to urban-based larger-scale entrepreneurs. This principle of decentralized management, however, needs to be accompanied and supported by an equally transparent and effective decentralized financial system.[23] It is naïve, however, to think that devolving management to local level will be sufficient to ensure that the interests of the poor are adequately represented. Communities are usually stratified by wealth and power, with local elites and decentralized governments potentially colluding to exclude the less powerful. Civil society organizations (including fishers' cooperatives, NGOs and media, *inter alia*) often champion the role of the poor, and fisheries development programmes now typically examine ways in which traditional leadership, local government and civil society can work together to ensure that the interest of poorer and marginalized groups are taken into account in decentralized resource management.
- **Improved post-harvest and local marketing capacities**. A very important part of pro-poor improvement in small-scale fisheries can be done at the post-harvest sector level (i.e. processing and trading activities). In many parts of the developing world, lack of adequate infrastructures (road, landing sites facilities, cold-chain facilities), but also lack of access to credit, dramatically reduce the market values of the small-scale fish products. In some sub-Sahara African countries, post-harvest losses average 30 percent of the total catch volumes and may reach 80 percent in

[22] The importance of preserving preferential access of traditional fishing grounds for small-scale fisheries is emphasized in Art. 6.16 of the Code.

[23] This financial local independence can be partially achieved by retaining a share of the revenue generated by the sector at the administrative level at which managerial responsibilities are exercised.

some very remote areas or during particular times of the year. Local public and private investments are urgently needed in this domain to support small-scale marketing initiatives. Such initiatives would dramatically improve both producers and the food and nutritional security of rural and urban consumers – through better income for the former and better quality and more quantity for the latter – and at the same time would greatly contribute to rural development and women's economic empowerment.

- **Small-scale local processing and value-added products**. Where infrastructure and labour are available, encouraging local (decentralized) small-scale, labour-intensive fish processing is a very powerful way to increase the economic contribution of the small-scale fisheries sector to the local economy. Recent studies have revealed that the net additional income from fish sales, if retained in the local area, can be over 100 percent. In other words, if fish can be produced and processed locally, the net income benefit to the area may be more than twice the value of the fish sales (Delgado *et al*., 2003). To be effective and have redistributional impacts, these employment and income multiplier effects need to be backed up by strong labour rights legislation and pro-active policies (focusing on access to credit) supporting local as opposed to foreign investment in processing and trading facilities.
- **Recognizing, granting and protecting rights of settlement and ownership to land.** Many fisherfolk live in conditions of poverty because they do not have legally recognized tenure to the land on which they settle. With insecure tenure, fishing communities are often found in temporary housing because they have no incentive to invest in improving their housing conditions. Living conditions in these unofficial settlements also lack access to basic state-provided infrastructure, schools, clinics, water drainage and sanitation, etc. (An excellent example is provided in Box 29). Coastal and inland zone planning that legally designates zones for fishing households to settle and that protects traditional landing sites from alternative development will favour the marginalized and the poor, and improve living conditions in fishing settlements. These are cross-sectoral issues that highlight the need for integrated planning and rural/coastal development.

The above approaches are by no means the only ones through which fisheries management can be used as a tool for poverty alleviation. Nevertheless, they outline the basic premises that can ensure that the rights of the poor are favoured or protected.

The institutional reforms taking place in fisheries management at the present time are discussed in greater detail in the rest of this section. These centre around four main instruments: (i) property rights-based approaches as the overarching governance framework where the decisions focus on who has rights and what sort of access rights to the resources (e.g. usufruct rights only, or as in individual transferable quotas (ITQs), rights to transfer or sell usufruct rights as well); (ii) co-management as an institutional reform promoting a decentralized approach to fisheries management and as a way of specifying who determines decision-making over the allocation of rights; (iii) protected areas (fishing reserves) as a tool to control access, where the parties who make the decisions over allocation of rights – either governments, communities or both – have decided that all rights of access to that particular area should be denied (or controlled in a stricter way to surrounding areas; and (iv) the control of illegal, unreported or unregulated fishing, either through strengthening the above three approaches, or through additional state and international regulatory and enforcement mechanisms.

Market regulation can also be an important form of fishery management (considered further in the section on marketing, in section 3.7).

3.6.2.3 Rights-based management and poverty alleviation

While there is a general agreement that open access to ocean and lakes induced by the lack of enforceable use rights have generally led to overfishing, restricting the access to

the resource means that some people will be excluded from fishing. Many countries, particularly but not exclusively developing countries (see, for instance, the EU in the 1990s), have therefore been relatively reticent to limit access because of the anticipated social and political costs that would have to be borne in the transition to better fisheries management. It is widely accepted, however, that unless effective and enforceable use rights (e.g. property rights) are established, the situation may eventually lead to a Malthusian scenario (Pauly, 1997) where the overexploited fishery becomes a poverty trap for the fishers (Gordon, 1954).

- A management system that allocates rights to a share in the fishery can take many forms. In developed countries, there have been several attempts to grant rights of access and harvest to individuals or firms, for example, through individual transferable quotas (Shotton, 2000), while in the small-scale fisheries of developing countries, access and harvest rates are typically devolved to communities (Willmann, 2000; Kurien, 2000). Territorial use rights in fisheries (TURFs) are an example of allocation of property rights to a geographically defined group (FAO, 1982).

By restricting access to the resources to a well-identified group, community property rights help to reduce the risks of overfishing, thus preventing the fishers from falling into the downward spiral of poverty and resource overexploitation associated with open access regimes (see Box 34). At the same time, the fact that these property rights are granted to groups rather than to individuals may ensure a certain level of equity within the community by allowing all members (including the poorest) to access the fishing grounds and therefore to rely on fishing to sustain their livelihoods. The concept of community property rights is therefore particularly attractive from a poverty alleviation perspective in the context of small-scale fisheries in developing countries, where it has been further argued that the introduction of private property rights would likely increase conflicts and inequality, and decrease access for the poor (Viswanathan, 2000).

BOX 34

Property rights-based management in some countries of Latin America

Many experiences worldwide concerning small-scale fisheries indicate that allocation of rights to fishers and their strong participation in management processes may render good results to fisheries sustainability. The main experiences in this regard in the Latin American region can be found in Chile, Cuba and Mexico. Chile has legally established "exclusive management areas" allocated to fishers organizations to exploit benthonic coastal resources. In Cuba, lobster capture fisheries are carried out under concessions allocated to fisher groups in well-defined areas. Mexico also has established rights allocations for the exploitation of certain coastal resources to fisher cooperatives. In all of these cases, the target species are benthonic and demersal of restricted or null migratory movements; in the inland fisheries environment, the allocation of rights to small-scale fisheries occurs mainly in reservoirs. It is worth noting that in Brazil, Colombia, Ecuador, Mexico and Peru, geographical areas are reserved for the exclusive use of indigenous communities that exploit fishery and other natural resources inside their jurisdiction.

The passage from free access to the allocation of individual or community fishing rights of any kind is extremely challenging for government as well as fishers. Many observers associate the difficulties encountered in the allocation of fishing rights to small-scale fishers to patterns found in agrarian reform processes.

Source: Beltrán, 2001.

Where communities are easily defined, as in the Pacific Islands for instance, the enforcement of community property rights is a powerful tool likely to contribute to the improvement of fishing households' livelihoods (see Box 35). In other regions of the world, however, fishing communities may be much more diffuse entities, both temporally and spatially:

- *temporally*, because, contrary to the widely accepted perception, people do not necessarily get trapped or locked into fisheries. They may choose to enter fisheries, as confirmed by the survey in Asia by Pollnac, Pomeroy and Harkes, (2001), or more generally, they move in and out as an strategy to adopt to changes imposed by the evolving micro or macro socio-economic environment. In the case of the Lake Kariba, the number of fishers in the Zambian inshore fisheries increased from a few hundred to more than 2 000 between the mid-1960s and mid-1990s, but then dropped dramatically by 1 000 in less than ten years (Kolding, Musando and Songore, 2003). Similar dynamic patterns have been observed in many small-scale fisheries across the world.
- *spatially*, because fishing communities are not static local entities. Fishers migrate in West and southern Africa, for instance, but also in Asia (cf. the Bajau "sea gypsies" in Indonesia) (see, for example, Chauveau, Jul-Larsen and Chaboud, 2000; Jul-Larsen and Kassibo, 2003). As a result, two different types of fishers usually share the same resources: the local fishers who are resident in the areas, and the migrant fishers, who sometimes come from other regions within the same country, or even from other countries and stay in the area for few months or

BOX 35

Community property rights as a way to improve fishers' livelihoods

In the Pacific Islands, and in Fiji in particular, traditional coastal communities are formally empowered to play a major role in the local fisheries management process. For instance, although commercial fishing is subject to licensing by the Fisheries Division, a licence will not be issued unless the applicant produces a district administration permit to fish in certain customary fishing right areas, and the district administration will not issue such a permit without the written permission of the registered customary fishing rights holders. This procedure confers de facto control over the local resource to the community who holds the fishing rights. In 1990, after concerns expressed at local community meetings about the state of coastal fin fisheries, the chiefs of several major fishing rights areas decided not to issue any permission at all for commercial gillnetting. Three years after the initial ban, fisheries staff reported seeing fish species in subsistence catch that had not been noted for decades, and subsequent socio-economic surveys found that the local fishing economy had improved substantially since the ban was imposed. Instead of relying on near-coastal gillnetting, commercial boats had been forced by the imposition of the ban to fish by hook-and-line over a much larger area, but the resulting high-quality catch, coupled with better private-sector organization of distribution and marketing, caused the sector to thrive. At the same time, it was reported that the subsistence fishery, operating mostly without boats, was able to obtain sufficient catch to support families either in a shorter time, or closer to home than was previously the case. This was of great benefit to the women who carry out most of this fishing. As far as could be determined from licensing figures and market throughput, the total fishing pressure and the total volume of catch did not appear to be greater than before the bans, but every subsector appeared to be at least as satisfied as before.

Sources: Adams, 1998; Ledua *et al*., 1996.

several years. In these circumstances, who should be the legitimate recipient of the community property rights?

Issues of community membership and legitimacy are paramount in considering how rights are allocated and defended among user groups. Consultative and partnership arrangements for decision-making, grouped under the banner of cooperative or "co-management" are now widely promoted and adopted in small-scale fisheries. The following section considers how fisheries co-management arrangements may affect poverty alleviation.

3.6.2.4 Co-management and poverty alleviation

Co-management in fisheries – where defined as "the sharing of responsibility and authority between the government and the community of local fishers to manage a fishery" (Pomeroy and Berkes, 1997, p. 466) – has so far been promoted essentially as a governance reform aiming at improving the efficiency and the sustainability of the sector. Arguments in favour of co-management are not only based on considerations of economic and efficiency or ecological sustainability; but on expectations that it will promote improvements in public accountability and foster empowerment of poor and vulnerable groups (see Box 36).

As pointed out by an increasing number of reviews and field surveys (e.g. Sverdrup-Jensen and Nielsen, 1998; Jul-Larsen *et al*., 2003), the establishment of co-management arrangements does not always ensure an equal sharing of power. In fact, the relationship between co-management and increased representation and democracy is far from systematic. Drawing on their experience in southern African lake fisheries, Jul-Larsen *et al*. (2003), for instance, concluded:

> The experiences of setting up co-management in the region have not been very encouraging up till now. Most arrangements have tended to exclude user groups from the decision-making process and from influencing who should participate in the making of operational rules for the fisheries (ibid, p. 92).

It is still to be demonstrated whether the experiences of co-management carried out so far have significantly contributed to poverty alleviation beyond isolated, local projects, such as the CBFM project in Bangladesh (Thompson *et al.*, 2004) or the

BOX 36

Co-management and empowerment of the poor

Improving access to fisheries by the poor or socially marginalized has been a clear goal of some recent co-management projects. The CBFM project in Bangladesh, with a management plan that clearly stated their pro-poor approach, has aimed to develop and test models for sustainable and equitable fishery management that specifically addresses existing inequitable distribution of rights (Thompson *et al*, 2004). Partner NGOs specifically targeted poor fishing households, providing them with training (including literacy programmes), credit and support to organize themselves. Another example is the Kainji Lakes fishery community-based project (Nigeria). One of the outputs of this project, the enforcement of a licensing system by the communities, was reported to empower the fishers (Ayeni and Mdaihli, 1998). Prior to this licensing system, fishers were not recognized by the government as valid representatives in discussions on fisheries management. The community-based licensing enforcement system gave status to fishers and their leaders, and facilitated access to alternative income opportunities, loans and revenue to invest in village infrastructure

YadFon Association in southern Thailand (Kurien, 2003). In the absence of convincing evidence established at a larger scale, one must rely on the current rhetoric and hope that future co-management projects will focus more specifically on this issue of equity. Drawing on a series of recent reviews on co-management experiences (Pomeroy, Katon and Harbes, 2001; Jul-Larsen *et al*., 2003; Béné and Neiland, 2004, 2006; Allison and Badjeck, 2004, Viswanathan *et al*., 2003), a list of necessary but not always sufficient conditions to improve the chance of success of co-management reforms can be identified. By supporting the principle of "decentralized management" highlighted earlier, they may also have positive impacts on the poor.

- **Enabling policies and legislation**. If co-management initiatives are to be successful, basic issues of government action to establish supportive legislation, policies, enforcement of rights and authority structures must be addressed (see Box 37). Policies and legislation need to spell out jurisdiction and control, provide legitimacy to property rights and decision-making arrangements, define and clarify local responsibility and authority, support local enforcement and accountability mechanisms, and provide fisher groups or organizations the legal right to organize and make arrangements related to their needs.
- **Political support**. Political support from central government is critical. Legislative and policy support is only the first step, however. If there is little political will and incentive for central government in general, and fisheries department in particular, to relinquish control over resource management, then project interventions will not result in sustainable outcomes. In theory, decentralization initiatives should be politically supportive of co-management initiatives. In reality, however, they are often conceived in technocratic rather than political terms as a means of improving the efficiency of government service delivery and tax revenue collection, rather than as a means of giving citizens a stronger voice in government and making government more accountable for their actions.
- **Preventing elite capture**. When self-interested, non-representative, or autocratic institutions such as interest groups, NGOs or customary authorities are chosen to receive the newly devolved management responsibilities in the absence of overseeing representative bodies, there is a risk of strengthening their autocracy and weakening democracy (see Box 39). Pluralism without representation favours the most organized and powerful groups. It favours elite capture and undermines the equity and poverty reduction goals of co-management programmes.
- **Ensuring financial sustainability**. Financing co-management beyond donor- or government-assisted transition periods can be difficult. Successful donor-funded co-management projects have tended to require commitments of typically six to 12 years before being judged as self-sustaining. As emphasized in footnote 25,

BOX 37

Supporting co-management through appropriate legislation

In the Philippines, the enactment of the Local Government Code of 1991 (LGC) ushered in the formal devolution of powers and responsibilities from the Central Government to the local government units and people's organizations. The changed administrative arrangements resulting from the LGC have created a supportive environment for co-management to prosper (Katon *et al*., 1997). An administrative power shift placed local governments at the forefront of coastal resource management. At the local level, the passage of complementary ordinances and the integration of sustainable resource management in local policies and plans have further enhanced co-management efforts. The Fisheries Code of 1998 further defined and strengthened these authorities and responsibilities.

one possible way to ensure the financial sustainability of the co-management is by retaining a share of the revenue at each of the administrative levels at which managerial responsibilities are exercised.

- **Co-management objectives**. Defining objectives should be done by stakeholders, not imposed by others, such as donor agencies. However, it should be ensured that trade-offs between achieving equity, efficiency and sustainability are clearly identified, understood and discussed by all stakeholders. These objectives should also be compatible with government policy (national fisheries policy, PRSP, etc.) to ensure that national interests (for example, in poverty eradication and resource conservation) prevail over local elites personal interests.
- **Strong central government capacities**. Co-management cannot be successful without strong central and local government capacities, within and outside fisheries. Too often, co-management is seen by central authorities or donor agencies as a way to cut government costs and reduce the size of the central bureaucracy. Experience suggests, however, that reducing the capacities of the governmental agencies as part of decentralization reforms is a recipe for disaster (Ribot, 2003; Crook and Sverrisson, 2001; Manor 1999). Co-management reforms call for mutually supportive democratic central and local governance. Strong central government agencies are necessary for establishing national objectives, a legal framework to enable civil organizing, representation and recourse, but also support to the decentralized government and the local communities' initiatives at the local level.
- **Co-management and local political power**. Cooperation of and support by local government and the local political elite are crucial to co-management success. There must be an incentive for the local politicians to support co-management. There must also be political willingness to share the benefits, costs, responsibility and authority for co-management with the community members. Co-management will not flourish if the local political power structure is opposed in any way to the co-management arrangements. This also applies for the local traditional authorities. While traditional leaders may not be the appropriate recipients of the newly devolved power (see the elite capture issue above), bypassing or denying the authority of these local leaders may curtail the co-management project from potential supporters or even lead to a situation where the latter will resist, either openly or secretly, and undermine the project. In addition to the political elite, local government staff must endorse and actively participate in the co-management process. Local government can provide a variety of technical and financial services and assistance to support local co-management arrangements such as police, conflict management, appeal mechanism and approval of local ordinances.
- **Capacity building and social preparation**. Building community capacity and supporting local government agencies (see point above) are critical. At the community level, capacity building should be implemented through educational programmes and training efforts that raise the level of knowledge and information of actors in the co-management process. Indeed, capacity building must not only address technical and managerial issues, but also attitudes and behavioural patterns. Often, the inability to sustain co-management is related to the insufficient time allocated to social preparation, rapport building and value formation in the community. Contrary to the romanticized perception of community, experience suggests that villagers may not always have a tradition of collective action. Consequently, co-management often requires a conscious effort to develop and strengthen the capability of the local partners for collective action, cooperation, power sharing, dialogue, and leadership, together with sustainable resource management.
- **Political process rather than technical assistance**. Co-management is a political project that involves the redistribution of power together with the reallocation of use rights and control over resources. This reallocation of power and responsibilities

is likely to produce new winners and losers. When the political dimension of co-management is not explicitly recognized, unexpected outcomes can occur, such as new conflicts or the exacerbation of existing ones (e.g. Hartman and Campelo, 1998).

- **Co-management and gender issues**. The co-management process needs to adopt a gender-balanced perspective, and must acknowledge the position of women both within the community and within the sector. Women should be given the opportunity to develop themselves and actively participate in the co-management process.
- **Grassroots groups and NGOs**. These groups are usually expected to play a major role in rural development and in decentralization and governance reforms as facilitators, power-brokers or mediators between communities and government agencies, or between communities and other actors (e.g. private sector). In many cases, their influence and impact have been positive or even crucial, essentially through networking with communities and government, but also among themselves. However, the role, actions and influences of these organizations should not be idealized. Many international NGOs and the national or local counterpart they support are "inspired by a particular vision of the society they wish to develop" (Tandon, 1994, p. 53). Their involvements are usually not value-neutral: their primary motivations are beliefs about what is right and wrong. Possibly more importantly with respect to the issue of decentralization and governance reforms, these organizations may also not be accountable to or representative of local people in a systematic manner.
- **Community inequity**. Although community homogeneity is presented as a condition that improves the chances of co-management success (e.g. Pomeroy *et al*., 2001), this homogeneity is the exception rather than the rule. The fact that not everyone in a community will have the same interests and the same capabilities should be recognized rather than overlooked or silenced. Like poverty, inequality is a multi-dimensional phenomenon (political, economic, social). By ignoring its existence – due to a lack of local knowledge or for political reasons – fundamental mechanisms entrenching and maintaining local poverty and inequity are likely to be overlooked.[24]

Unless these questions are raised and given full attention, creating and enforcing common property rights may increase – rather than decrease – the vulnerability of some "sub-groups" within the communities. Experience suggests also that these sub-groups are usually those who are already economically or politically marginalized. These groups may therefore also be excluded from a particular management tool – marine protected areas – that explicitly uses spatial exclusion as a means to improve fishery sustainability.

3.6.2.5 The use of protected areas as a tool for poverty alleviation

Over the last decades, the old concept of protected areas – variously referred to as "fish sanctuaries", "fishery reserves", "no-take areas", and "protected (marine) areas" – has gained wide recognition among both scholars and practitioners as a powerful tool for resource conservation and fisheries management (Hall, 1998; Hasting and Botsford, 1999; Roberts and Hawkins, 2003). Although there are still some technical debates on their implementation, the ecological effects of protected areas are now well established (see Box 38).

These protected areas may be particularly useful in tropical (marine) ecosystems – representing a large proportion of the small-scale fisheries in developing countries –

[24] This point does not mean, however, that co-management projects cannot succeed in socio-economically and culturally heterogeneous communities. Pomeroy, Katon and Harbes (2001) report that in the Oxbow lakes of Bangladesh, Muslim and Hindu fishers were able to work together on lake fisheries teams. In the village of San Salvador in Zambales, Philippines, successful co-management occurred despite marked differences in ethnicity and fishing gear (Katon *et al*., 1997).

BOX 38
The ecological mechanisms of marine protected areas (MPAs)

One primary objective of marine protected areas (MPAs) is to ensure that a continuous supply of recruitment of commercially targeted species is made available to fished areas via protection of a critical minimum spawning stock biomass. The two mechanisms by which this critical minimum spawning stock biomass is expected to help maintain fishing operations in the adjacent fished areas are: (a) the export of individuals through migration of the target species from the protected to the fished areas (the spillover effect) and (b) the production of eggs resulting from reproductive activity within the reserve and dispersal of larvae over areas outside the reserve (the recruitment effect). In both cases, the underlying concept is that organisms will migrate or diffuse from the protected area to the fished area.

BOX 39
The issue of elite recapture

In countries such as Ghana, Mali or Niger where decentralization is just being implemented, some practitioners and researchers already doubt the appropriateness or accountability of the new institutional fisheries arrangements (see, for example, Breuil, 2000; Kassibo, 2000; Lenselink and Cacaud, 2002). In particular, they draw attention to the central role played by the traditional local institutions – usually crystallized around the authorities of the traditional local leaders – and question the real empowerment capacities of the decentralization reform. Central to the issue is the "re-appropriation" of the newly devolved power by these local leaders (village heads, district heads, chief fishers, etc.). In the case of the Malian decentralization in the High Diaka region, Brehima Kassibo reports:

> **...** *the non-resident fishers have been excluded totally from the fisheries committees by the local fishers influenced by the traditional leaders. These traditional leaders (…) used the legitimate authority delegated [by the central government] through the decentralization process to appropriate all the top-positions in these committees (Kassibo, 2000, p.86).*

where conventional management methods (species-by-species restrictions on catch and effort) are difficult to enforce under conditions complicated by many species, gears and landing sites (Roberts and Hawkins, 2001). Theoretical and empirical studies confirm that if appropriately sited, protected areas promote the build-up in biomass of commercially exploitable fish species. In coral reef areas, for instance, the effect of the creation of reserves can result in a significant increase in catch and income for the fishers (e.g. McClanahan *et al.,* 1999). A recent review reveals, however, that for fisheries that target highly mobile single species with little or no by-catch or habitat impact, marine reserves provide few benefits compared to conventional fishery management tools. On the other hand, for fisheries that are multi-species or on more sedentary stocks, or for which broader ecological impacts of fishing are an issue, marine reserves have some potential advantages (Hilborn *et al*., 2004). Successful protected areas can also foster the local tourism- and eco-tourism-based economy, creating local employment and increasing incomes. As such, protected areas can contribute to long-run poverty alleviation through the improvement of the resource base on which fishers and the rest of the community rely for their livelihoods.

BOX 40

Involvement of the fishers in management planning and action plan through Technology of Participation (ToP) methodology

In Barbados, there is a small but important fishery for the roe of the white-sea urchin (*Tripneustes ventricosus*), known as sea eggs, which is a traditional delicacy. This fishery has been carried out for over a hundred years. The collapse of the fishery in the late 1980s led to a two-year moratorium on sea egg fishing from 1987–1989. During that period, the resource showed some signs of recovery, but was quickly depleted again once the fishery reopened, even though the open season was for only four months each year. The fishery remained open with very low catches until August 1998, when a three-year moratorium came into effect, and it became illegal to use scuba gear to harvest sea urchins. In the project, described in Mahon *et al.* (2003), the overall approach was to work with stakeholders, primarily the fishers, to establish a co-management mechanism that could be operated by the fishers themselves with technical and advisory support from the Fisheries Division. The stages of fishers' involvement included: stakeholder analysis; identification of groups of fishers and a contact person for the group; dialogue with individuals and the small groups; discussion in larger groups to derive approaches to management; and full group action to reach consensus regarding the most appropriate approach to management. At all stages, the project used the Technology of Participation (ToP) methodology developed by the Institute of Cultural Affairs (ICA). The ToP methods used included: the Focused Conversation Method, the Workshop Method, Action Planning and Participatory Strategic Planning. Key persons identified in communities helped organize meetings to discuss the sea urchin fishery. Individuals were selected from these community meetings to take part in the strategic planning. Two vision meetings with separate groups of fishers produced similar results. These groups were combined at a planning meeting, where fishers examined the blocks to achieving the vision, developed strategies to overcome the blocks, and an action plan to implement the strategies. Fishers and government officials concluded that the methodology had successfully facilitated the input of both parties and produced a workable, consensual approach.

Source: Mahon *et al.*, 2003.

Although local community perceptions of the state of the environment or resource may not always accord with scientific assessments and their priorities may differ from those of government and NGO environmental managers, encouraging community participation in the decision-making process and in the formulation of the objectives may be a good starting point for including some dimensions of these trade-offs, and in particular, to make sure that the food security and other priorities of the poorest are considered. Various techniques can be adopted for this, such as the *Technology of Participation* (ToP) used by Mahon and his colleagues in Barbados, based on focused conversation and participatory strategic planning (see Box 40) or the more sophisticated Trade-off Analysis adopted by Brown *et al.* (2001) based on a participatory multi-criteria framework (see Box 41).

3.6.2.6 Addressing illegal, unreported and unregulated (IUU) fishing

Finally, it is important to recall that illegal, unreported und unregulated (IUU) fishing and fleet overcapacities are issues that also affect the sustainability and economic efficiency of small-scale fisheries (and not simply industrial fleets), reducing or even jeopardizing their capacity to contribute to poverty alleviation. One important point needs to be made in this regard: due to the very specific nature of small-scale fishery

BOX 41
Integrating ecological social and economic criteria in trade-off analysis

Brown *et al*. (2001) outline an approach to natural resource management that incorporates multiple objectives for protected area management within a decision-making framework. Both regulators and other major stakeholders were directly incorporated into the approach to enhance decision-making processes. The approach (called *trade-off analysis*) uses a framework based on multi-criteria analysis (MCA), but involves stakeholders at all stages. This approach seems especially appropriate for multiple uses, complex systems such as marine protected areas (MPAs) where many different users are apparently in conflict and where linkages and feedbacks between different aspects of the ecosystem and economy exist. The present example refers to Buccoo Reef Marine Park (BRMP) in Tobago. Stakeholder analysis was performed and social, economic and ecological criteria identified. The impacts of four different development scenarios were then evaluated for these criteria. Stakeholders were asked to weight different criteria and then the outcomes of different stakeholder weightings in the MCA were used to explore different management options. The MCA suggested consensus on development options characterized as limited tourism development for the area surrounding the park in association with the implementation of complementary environmental management. The approach has been used to enhance stakeholder involvement in decision-making and develop consensus-based approaches to MPA management.

Source: Brown *et al.*, 2001

activities (as part of a multi-activity livelihood strategy) and therefore the need to preserve a certain degree of flexibility (to adapt to seasonality of other economic alternatives, for instance), reducing overall overcapacity in small-scale fisheries (e.g. through the total number of fish nets) may not be particularly relevant and may unnecessarily hurt poor fishers. On the other hand, since operational costs are usually the limiting factor in small-scale fisheries, controlling subsidies on these operational costs such as fuel, rather than on initial (fixed) investments/costs, may be a critical entry point to manage fishing effort.

This section has already made reference to the fact that market regulation can also be an important form of fishery management. The following section considers issues of marketing in more detail.

3.7 MAKING MARKETS WORK FOR THE POOR

3.7.1 The Code

While not specifically mentioning the poor or small-scale fisheries in this context, the Code pays considerable attention to post-harvest practices and trade. It has many Articles that, if appropriately implemented, would by inference enable positive benefits by and for small-scale fishers and fishworkers in terms of both poverty alleviation and food security.

> *Art. 6.7 The harvesting, handling, processing and distribution of fish and fishery products should be carried out in a manner which will maintain the nutritional value, quality and safety of the products, reduce waste and minimise negative impacts on the environment.*

> *Art. 6.14 International trade in fish and fishery products should be conducted in accordance with the principles, rights and obligations established in the World Trade Organization (WTO) Agreement and other relevant*

international agreements. States should ensure that their policies, programmes and practices related to trade in fish and fishery products do not result in obstacles to trade, environmental degradation or negative social, including nutritional, impacts.

Art. 8.4.4 States should promote the adoption of appropriate technology, taking into account economic conditions, for the best use and care of retained catch.

All of Article 11 (Post-harvest practices and trade) relates to post-harvest practices and trade. There are 12 Articles relating to responsible fish utilization (under Art. 11.1), 15 articles relating to responsible international trade (under Art. 11.2), and eight articles relating to laws and regulations relating to fish trade (under Art. 11.3), all of which have implications for small-scale fisheries.

3.7.2 Trends in macro-level market reforms and their impacts

The "Washington consensus" of market-friendly reforms refers to the following ten objectives of policy (Williamson, 1993): (i) fiscal discipline; (ii) reorientation of public expenditure toward education, health and infrastructure investment; tax reform – broadening the tax base and cutting marginal tax rates; (iv) interest rates that are market-determined and positive (but moderate) in real terms; (v) competitive exchange rates; (vi) trade liberalization – replacement of quantitative restrictions with low and uniform tariffs; (vii) openness to foreign direct investment; (viii) privatization of state enterprises; (ix) deregulation – abolishment of regulations that impede entry or restrict competition, except for those justified on safety, environmental and consumer protection grounds, and prudential oversight of financial institutions; (x) and legal security for property rights. Many developing countries have taken steps in recent decades to bring about such reforms.

A large empirical literature has documented that while reform in some countries has failed drastically, on average countries with market-friendly policies such as openness to international trade, disciplined monetary and fiscal policy, and well-developed financial markets enjoy better growth performance than countries where such policies are absent. However, even when market-friendly reforms have succeeded in delivering growth, the effects on the incomes of poor people have varied. It is imperative that special care be taken to assess and mitigate the impacts of such macro-level reforms on the poor at the micro-local level.

This section will now focus more closely on trade and post-harvest issues in fisheries, and describe recent trends and some measures that can be taken within the fisheries sector to support the poor. However, it should be noted that input markets and more general market issues mentioned above, must also be made to work for poor small-scale fishers and traders. This can be achieved through some of the means discussed in section 3.8.4 on financial markets by addressing issues of credit, and in section 3.3.4 on legislation enabling migration to address issues of labour market requirements. Other input markets need to be carefully monitored to assess their impacts on small-scale fisheries, with logistical, and in some cases legal, interventions ensuring easy and equitable access to the inputs needed. An example includes encouraging competition between companies that may be supplying small-scale fishers and fish traders by lightening and simplifying the regulatory burden on businesses.

3.7.3 Emerging trends in fish trade and their impacts on small-scale fisheries

Trade has become an extremely contentious issue in recent years. However, there is little doubt that both domestic and international trade have the potential to generate enormous direct and indirect benefits, and offer huge potential for small-scale fisheries to contribute to poverty alleviation and food security at both the macro and micro-

level, as discussed in section 2, and also as highlighted in recent FAO publications on fish trade and food security FAO 2003b; FAO 2003c; Kurien 2005; 2003). It is increasingly recognized, however, that there are "winners" and "losers" from both domestic and international trade.

The poor rely heavily on being part of the post-harvest sector, both for poverty reduction and poverty prevention, partially as a result of low barriers to entry. There are often few obstacles to low-skilled people with few assets becoming engaged in trade or processing in some capacity. This means that there are often minimal infrastructure needs and considerable use of locally acceptable, low-cost processing techniques.

Furthermore, a critical point on the post-harvest sector is that it provides significant income and employment opportunities for women who may otherwise have limited options available to them, especially in remote rural locations. Women in fishing communities have traditionally been heavily involved in fish vending, processing and trading. Ward (2000), in his study in Andhra Pradesh, India, for example, estimated that approximately 95 percent of an estimated total of 50 000 small-scale processors in the state were women (Ward, 2000). Given that 70 percent of the world's poor are women, the post-harvest fisheries sector offers very obvious potential for contributing to poverty alleviation. Despite this, however, the role and importance of women in post-harvest activities have not been well recorded in national statistics.

3.7.3.1 Demand and supply

Over the last 30 years, marine fish capture production of developing countries has grown rapidly. Whereas developed country production from wild fisheries exceeded developing country production by 6.6 million tonnes in 1973, by 1997 developing countries were producing twice as much as the developed countries (Delgado *et al*., 2003). Equally important for the increasing dominance of developing countries has been the steady growth of inland fish capture production and the major growth of aquaculture: between 1961 and 2001, the former rose from 2.3 million tonnes to 8.1 million metric tonnes, and the latter from just around 1 million tonnes to 44 million tonnes (Kurien, 2005).

Global demand has also been increasing rapidly. In the past 30 years the global appetite for fish has doubled, with total fish consumption rising from 45 million tonnes in 1973 to more than 91 million tonnes in 1997. Interestingly, demand in volume terms in developed countries has stagnated since 1997, and current increases in demand are being driven by developing countries as a result of increases in both population and average capital consumption of fish (Delgado *et al*., 2003).

These changes in demand and supply have combined to result in significant increases in trade, driven by exports from and imports to developing countries. Indeed, in the coming years, international trade is likely to become increasingly south-south, rather than south-north in orientation (Delgado *et al*, 2003). The renewed emphasis on exports by many developing and indebted countries is being driven by the ability to earn good levels of foreign exchange as global fish prices rise, and as increases in fish supplies begin to fail to meet increases in population. The net receipts of foreign exchange by developing countries (i.e. deducting their imports from the total value of their exports) increased from US$3.7 billion in 1980 to US$18.0 billion in 2000 – a 2.5-fold increase in real terms (corrected for inflation). In 2000, they increased by nearly ten percent at current values compared with 1999, after several years of stability at about US$16 billion (FAO, 2002).

However, there are some very important caveats to these apparent benefits. In many countries or regions, declining catch rates associated with falling stock levels have recently reduced supply (and increased its variability) to the post-harvest sector. While offsetting any declines from the capture sector at the national level, increases in inland capture fisheries, almost all small-scale, and aquaculture have also caused significant

locational shifts in post-harvest activities where aquaculture activities are located in different areas to traditional capture fisheries activities.

Some countries such as India are also experiencing changing fishing practices, with greater levels of investment and technology in the catching sector, resulting in a concentration of ownership in fewer hands, landings in fewer landing centres, and again *locational* and *distributional* impacts on the availability of fish to the post-harvest sector and to consumers (IMM, 2003). Hapke (1996), in her study of women fish vendors and traders in Kerala, India, notes that motorization and mechanization has changed the geography of fish production from a situation where landings used to be decentralized and beach-based towards greater centralization of landings in particular places. This is true of several other parts of the developing world.

With centralized landings, especially of high-value export species, the situation at landing centres is highly competitive. It is those with greater access to capital, credit and infrastructure – export agents, commission agents, traders and merchants – who are able buy up the higher-value species meant for export and upmarket domestic consumption. The smaller players, with access to meagre capital (see section 3.8), including men and women vendors and headloaders, processors and cycle vendors, often only get access to low-value fish for local consumption, with correspondingly lower profit margins. Nayak (1993) has also noted, again in Kerala, that fish auctions are increasingly being conducted on a ready-cash basis. This, she observes, adversely affects the position of smaller processors and vendors who lack sufficient capital or storage infrastructure and are therefore unable to participate in auctions when landings are large.

These changes may therefore also have *gender* impacts, with women especially impacted by a concentration of ownership where traditionally they had gained access to supplies of fish from husbands working in the catching sector, or by paying for fish once they had sold it. In Sendou, Senegal, for example, it used to be common to take fish on credit from fishers and pay for it after was sold. However, this situation has changed with reduced catch levels and greater competition for fish, so that now all fish has to be paid for when procured, and fish is sold on a first-come first-serve basis against cash payment (Nayak, 2002).

3.7.3.2 Processing and product forms

In terms of processing and product forms, there have also been some important global trends in recent years towards more fish and fish products being sold in fresh chilled or frozen form, as opposed to traditional forms of preservation in developing countries of salting or drying. This is partly the result of greater availability of ice and cold storage facilities in developing countries, but also due to the increased demand for frozen/fresh imports in both developing and developed countries. The availability of cheap traditional sources of wood for smoking and salt for drying is also in decline. These factors combined have important implications for traditional processors and suppliers of inputs to such activities, such as fuelwood and traditional packaging materials, etc. The greater use of ice together with improved transport links have also improved external buyers' ability to access fresh fish from remote landing centres, increasing competition with traditional traders and processors who often lose out if external buyers are able to pay more due to higher prices paid by their clients.

The conclusion from 11 case studies recently completed as part of a study on food security (Kurien, 2005) was that significant employment has been created in modern fish processing activity, mainly for women, as a result of international trade, generally with good physical working conditions due to the harmonized standards of Hazard Analysis and Critical Control Point (HACCP) processing plants. The change in quality control measures in the main importing countries towards a preventive HACCP-based strategy is itself an important trend because it places the emphasis for food safety and hygiene firmly on the exporting country, with significant associated

costs. Without these employment opportunities provided at the fish processing plants, the alternate employment and income avenues for these workers are likely to be worse. This is particularly evident in the case of migrant workers who often come from the poorer, rural regions of the countries.

But this employment generation has been at a cost. As already noted, the vast majority of workers in the traditional processing sector are also women – generally middle-aged and with little education. While many of them have been and continue to be associated with different forms of regional trade in traditionally processed products, and the remainder are employed in fish processing for domestic markets, the case studies showed that increases in export of fishery products have resulted in a significant decline in the quantity of fish available, and also higher processing costs to these women.

3.7.3.3 Corporate social responsibility, certification and traceability

Recent years have seen increasing consumer concern about social, environmental and health issues. These concerns are being reflected by businesses in the development of what is known as corporate social responsibility (CSR), and by the increasing use of certification schemes and codes of practice. There are a wide range of certification schemes and initiatives related to standards in various states of readiness – some dealing with social issues, some focusing on health, and others concentrating more on sustainability and the environment (FAO 2003a; FAO 2005b). Some seek to provide accreditation (with or without the use of labels), while some merely seek to establish recommendations on best practices or codes of practice. Both CSR and certification are part of a growing trend and contribution towards greater traceability. Indeed, it should be noted that issues of traceability are likely to be more important to small-scale fisheries producers than certification schemes per se, given that the market size for such certification schemes, especially in relation to products produced by, or competing with, developing country producers is still very limited.

While initiatives *may* offer the opportunity in some cases of higher prices and access to niche markets, many people have concerns about, but little evidence of, the possible negative impacts on developing country producers. Concerns are based on a number of issues, as highlighted in many studies, but in the literature they focus most strongly on environmental certification and labelling rather than other types of initiatives, and are grouped in a recent study by Gardiner and Viswanathan (2004) into issues relating to:

- *Legitimacy and credibility*. Many initiatives in both capture fisheries and aquaculture have largely been driven by large-scale producers and retailers in developed country markets, with a lack of real participation of small-scale and poor producers;
- *A mismatch between certification requirements and the reality of tropical small-scale fisheries*. The process of certification is felt by many to be far more relevant to developed Northern countries, often with single species fisheries, than to developing country tropical fisheries. Concerns also relate to the limited data available in many developing country contexts and the fact that community-based fisheries may rely on local traditional knowledge in their management rather than on conventional Western scientific methods.
- *Potential distortions to existing practices and livelihoods*. Domestic markets in developing countries tend to be more sensitive to prices than export markets due to lower incomes of local populations. Further, if eco-labelling results in or requires price increases to make it justifiable to producers, increased sales to exports markets may reduce the availability of fish for local consumption.[25]

[25] Of course, whether this is truly relevant to the food security of the poor in developing countries depends on the primary species being consumed in developing countries, by whom, and which fisheries are the potential subject of certification.

- *Equity and feasibility*. It may be harder for smaller enterprises in developing countries, exploiting lower value fisheries, to participate in initiatives, especially given the relatively high costs of certification. In addition, ensuring increased sustainability of resource exploitation is, in many cases, likely to require limiting access, often to those vulnerable and poor groups who most rely on fisheries for subsistence and income-generating activities.
- *Perceived barriers to trade*. Certification could potentially be used by some countries/buyers deliberately as a barrier to trade, thereby restricting market access. However, it seems most unlikely that, under WTO rules, developed countries will or indeed would be able to ban any imports of a product unless it was certified under a particular scheme, although such a scenario has not been tested.

3.7.3.4 Regulatory frameworks for trade

National, regional and international regulatory frameworks have a huge impact on who receives the benefits of international trade in fish and fishery products. The most important are perhaps the regulations and agreements of the World Trade Organization (WTO). Key agreements are summarized in Box 42, with some indication of how they can potentially affect small-scale producers and traders.

Another important framework for trade is ISO 14000,[26] the current environmental management system of the International Organization of Standardization, which is capable of addressing many of the necessary conditions for "green chain" certification from production to disposal. Principles for environmental standards can be drawn from existing governance mechanisms, such as the Code, and applied to individual firms involved in fishing, or to a whole fishery through fisheries associations (Sproul, 1998).

3.7.4 What can be done?

Ensuring that small-scale fishworkers and/or traders can adapt or mobilize to minimize any potential negative impacts of global and national trends, and respond to marketing and trade opportunities demands special attention on methods to support small-scale post-harvest activities, especially by women and the poor. It should also be noted that due to their marginal circumstances, lack of information, attitudes to risk, *inter alia*, the poor are often not early adopters of technology (FAO, 1999; Donaldson, 1980), therefore, post-harvest initiatives must specifically assist them to ensure that benefits do not accrue to the better off only.

3.7.4.1 Raising awareness of the importance of the small-scale post-harvest sector

As noted above, both domestic and international markets can offer huge benefits for small-scale fisheries. A starting point for making markets work for the poor is therefore to recognize and address the small-scale fisheries post-harvest sector and other sectoral policies and programmes, as well as its important gender component.

It is often presumed that the ratio between fishers and post-harvest employment is in the order of 1 to 3. In recent decades, however, scant attention has been paid to the small-scale post-harvest sector in the policies, programmes and research activities of many states, donor agencies and researchers. Certainly, there has been focus on building up the fish export industries in developing countries, and the success in yielding much needed hard foreign currency has greatly influenced national fishery development plans and specific projects towards export orientation of the fish economy. But this emphasis has completely neglected the existing small-scale artisanal fisheries sector and its potential (Kurien, 2004).

The lack of historical emphasis on the small-scale post-harvest fisheries sector in particular and, to some extent, the post-harvest sector in general, has been exacerbated

[26] Unlike the WTO, which is binding on its members, ISO 14000 is a voluntary system.

BOX 42
The World Trade Organization (WTO)

Tariff schedules. After the completion of the Uruguay Round, average weighted import tariffs on fish products in developed countries were reduced to around 4.5 percent (Lem, 2003), and the global trend is towards declining tariff levels. However, the tariff rates escalate with the level of processing, meaning that import duties in developed countries continue to present a barrier to processing and development of value-added products in many developing countries.

Generalized System of Preference (GSP). Many fish products are given favourable treatment by several countries. The Generalized System of Preference (GSP)[1] and other preferential trade arrangements cover about 20 percent of the total international fish trade.

The Agreement on Sanitary and Phytosanitary Measures (SPS). The SPS agreement was set up to avoid sanitary standards, such as HACCP, being used as a barrier to trade by importing countries. In 2001, for example, the EU decided to examine all shrimp products imported from China, Thailand, Viet Nam, Indonesia and other countries because they discovered residual antibiotics chloramphenicol (CAP) and nitrofurans (NF) in some products. The issue of residual antibiotics in shrimp continues to be a cause for concern for exporting countries. Dey *et al.* (2003) report that the EU ban on imports of shrimp from Bangladesh in 1997 and the United Republic of Tanzania and Uganda in 1999 had huge effects on export revenues and on employment. The ban remained effective for five months in Bangladesh, affecting about a million people related to shrimp culture in different stages of the production process.

The Agreement on Technical Barriers to Trade (TBT). Technical regulations and standards are used extensively for fish trade and could constitute obstacles to trade. The TBT agreement is intended to ensure that requirements such as quality, labelling and methods of analysis applied to internationally traded goods do not mislead the consumer or discriminate in favour of domestic producers or goods of different origin.

The Agreement on Anti-Dumping Measures. In contrast to the SPS and TBT measures, the anti-dumping measures have not been used extensively in international fish trade, although the recent dispute between the United States of America and Viet Nam over catfish is an exception, resulting in taxes of 35-60 percent imposed on Vietnamese catfish when imported into the United States. The catfish farming industry in Viet Nam has an extensive social footprint that stretches to several tens of thousands of people, including some very poor women and men. These include poor people involved in catching fish for food, catching fry, fish hatching and nursing, and growing feed ingredients; women employed in seafood processing, processing and marketing off-cuts; small- and large-scale farmers, traders, and others. The anti-dumping case is likely to have a significant effect on the people in the Mekong Delta, and probably some of the poorest people involved in the trade.

[1] The GSP accords non-reciprocal tariff agreements to developing countries.

because the post-harvest sector is more integrated with other non-fisheries sectors such as transport and general trade, making the boundary between this sector and the rest of the economy less clear than for capture fisheries. This in turn complicates the ability to record accurate data on numbers involved and value-added created, *inter alia*. And yet, the sector and its small-scale component makes significant contributions to both rural and national development through multiplier effects, and in some cases, through the generation of taxes and foreign exchange, as indicated in sections 2.2.2 and.2.2.1.

A wider recognition of the importance of small-scale fisheries would help, for example, in ensuring that international trade regulations and agreements are more carefully structured so as to provide benefits to small-scale fisheries rather than resulting in their marginalization.

3.7.4.2 Thinking at different levels and considering trade-offs

In many small-scale fisheries, a large proportion of the resource rent is captured by a few people, usually traders in a position of wealth and power rather than poorer traders and the many fishers who supply them with fish. This issue of concentration of benefits in the post-harvest sector is discussed in section 3.7.2 above. Certainly, better market mechanisms and explicit recognition of the distribution of benefits would help to alleviate such problems. Thus, initiatives could and should be focused on and tailored to ways of: (i) increasing wealth generation by the poor engaged in the sector, i.e. poverty reduction; (ii) ensuring that the poor can engage in fish trading/processing as a safety net activity in times of crisis/shocks, i.e. poverty prevention; (iii) ensuring that the sector maximizes the availability of fish to the food insecure, both in terms of affordability and availability, i.e. food security at the individual and local levels; and/or (iv) maximizing the re-distributive potential of wealth generation from exports. Making markets work for the poor will also benefit not only those involved in the post-harvest sector, but also the catching sector by providing an outlet for its catch and potentially by improving prices.

Section 2.5 highlighted certain policy trade-offs that might need to be made, which may apply as much to the post-harvest sector as to the catching sector. Ways of increasing wealth generation for those engaged in post-harvest trade and processing through greater levels of exports may therefore come at a price of reducing food security for local consumers through reducing the availability of fish. In theory, in implementing the Code, exports should not come at this price as suggested by the last sentence of Art. 6.14: "States should ensure that their policies, programmes and practices related to trade in fish and fishery products do not result in obstacles to this trade, environmental degradation or negative social, including nutritional, impacts". But this is where the important distinction between direct and indirect food security is relevant in reducing the apparent trade-off between exports and domestic food security: if the financial benefits of the export-industry are appropriately distributed, there need not be negative food security impacts.

3.7.4.3 Improved information and advice

The need for and benefits of better information and marketing advice apply to both domestic and international markets. Indeed, it may be the case for the very poor that special assistance is needed to improve domestic marketing since traders/processors involved with very small amounts of product are always going to face certain impediments to engaging in international trade. Better information can play an especially important role in empowering small-scale producers, traders and processors within domestic marketing chains.

Improved marketing advice on market segmentation, buyer requirements and other characteristics of potential markets can be used to enhance market penetration. In addition, improvements in information systems, for example, on prices or changes in demand can increase the bargaining power of small-scale producers and traders. Generic advertising on the health benefits of fish consumption can also be used to benefit both consumers (through resulting health benefits) and producers/traders (by increasing demand and prices for products).

Improved information on changes to the regulatory mechanisms governing fish trade can be significant in ensuring that the poor can prepare for and adapt to, rather than be marginalized by, such changes. The need to carefully monitor the evolving nature of the fish trade is associated with this information.

Improved information can also assist in reducing market imperfections, for example, if forms of price fixing and/or monopolies or oligopolies of trade are identified and publicized. It should be noted, however, that such imperfections may also need to be legislated against, with appropriate mechanisms put in place to investigate and act on claims of price collusion.

3.7.4.4 Technological improvements

Initiatives in support of appropriate technologies in processing, preservation, transport (see Box 45), and storage can all help to increase value added, improve quality and reduce fish spoilage and wastage. The issue of post-harvest losses in particular is critical in terms of its impact on reducing incomes for both fishers (resulting from poor handling and preservation of catch onboard) and traders/processors. It is also important in terms of its impact on food security, with post-harvest losses reducing the availability of fish for human consumption. Post-harvest losses in many small-scale fisheries are typically around 20-25 percent, but may be as much as 50 percent or more (Ames, Clucas and Paul, 1991).

Assistance in the form of skills training and/or micro-finance (see section 3.8.4) for those involved in more traditional forms of trade and processing can assist with the switch to new product forms or to alternative livelihoods, or mitigation of any negative locational, distributional and gender impacts of trends.

States should also assist small-scale fishers and fishworkers with access to communications technology. Technology such as radio, television, mobile phones and computers can play an important part in ensuring better market information and in general efforts at education, reducing marginalization and increasing empowerment by providing a voice for poor fishers and fishworkers, and the opportunity to increase linkages and networks outside of their own locale.

3.7.4.5 Organizational improvements and workers' welfare

Significant benefits for poor producers and traders can be realized by engaging in organizational efforts at marketing (as evidenced by the experience of marketing co-operatives in Japan), which can be used to jointly harvest, market and price products. This may require assistance to establish and/or foster organizations through increased human capacity (see section 3.4.1.2). Greater volumes of product for sale increase market/bargaining power and help to ensure reliability of supply, which can be an important determinant of price.

As Kurien notes:

> *[T]he revival of appropriate forms of producer organizations needs more attention. Earlier initiatives … have traditionally focused on input delivery systems – supply of credit, boats and nets and welfare measures. The need of the times is for organizing control over the first sale transaction. Supportive legal measures to strengthen this process – for example "a right of first sale" legislation as part of overall domestic market regulation may be desirable*
>
> **(Kurien, 2004).**

But organizational efforts should also focus on issues outside of those designed to increase prices by providing wider services to women workers. Examples include issues of credit, savings, pensions and social security, as discussed in section3.8.4, providing education and skills development, and helping migrant workers maintain contact with their families.

Wider issues of organizational development and networking can also be of considerable benefit, as described in Box 43, by fostering support and information exchange.

BOX 43

The Latin American Network of Women of the Fishing and Aquaculture Sector

In Latin America, with the support of the Centre for Marketing Information and Advisory Services for Fishery Products in Latin America and the Caribbean (INFOPESCA) and FAO, the *Latin American Network of Women of the Fishing and Aquaculture Sector* (the Network) was formed in 2000 as an effort to help women involved in the sector. There are early studies in some countries such as Argentina, Nicaragua and Brazil to formulate projects of national and/or regional impact, and to profile the fisherwomen of Colombia, Venezuela, Uruguay, Argentina, Chile, Ecuador, Peru, Brazil, Cuba and Dominican Republic. The main objectives of the Network are to: (i) identify all the needs of the women linked to the sector; (ii) provide information and training to facilitate their participation in the sector; (iii) detect, support and guide cooperation sources; and (iv) help and encourage the creation of local networks directly associated with the Network.

Source: Objectives and Statutes of the Latin American Network of Women of the Fishing and Aquaculture Sector, defined and signed during the first meeting of the Network. Montevideo, Uruguay. 5–6 October 2000.

3.7.4.6 Responding to trends in corporate social responsibility (CSR), certification and traceability

In dealing with trends in corporate social responsibility (CSR), certification and traceability, a number of concrete steps can be taken to ensure that poor small-scale producers can benefit from, rather than be disadvantaged by, ongoing developments:

- Draw on lessons from existing non-fisheries initiatives and the CSR agenda in identifying ways to minimize the potential marginalization of the poor through mitigating measures and to maximize their ability to engage in such schemes.
- Investigate ways of bringing down the costs of certification and compliance with different initiatives, provide support to cover such costs in particular fisheries and/or provide credit to small-scale producers who may not otherwise have sufficient access to capital.
- Develop regional co-operation to work on harmonization of initiatives.
- Use advocacy to increase the relevance of existing initiatives to developing country producers, perhaps by allowing for greater flexibility and more work on community certification.[27]

3.7.4.7 Other issues relating to improving access to both fish and markets

Ensuring reliable access to both fish and markets is essential in reducing vulnerabilities of processors and traders by minimizing fluctuations in sales and purchase prices, and for consumers by reducing fluctuations in the availability and affordability of fish.

Access to fish

Given rises in developing country production noted in 3.7.3.1, and even given increasing developing country exports, at the macro-level at least, recent evidence suggests that there have been positive impacts on the availability of fish to developing countries. Over the course of the 1990s, the net impact of changes in production, non-food use, imports and exports on domestic supply of fish in the LIFDCs other than China resulted in a small increase of 5 percent (but from a very low base of 7.4 kg/person/yr)

[27] The World Wildlife Fund (WWF) is currently attempting to test certification methodologies for small-scale fisheries at a number of sites, and the programme is working on certification in Brazil, the Philippines, Indonesia, Thailand and the Galapagos Islands.

BOX 44
Bycatch utilization

Bycatch utilization is based on three main approaches: legislation to ensure landings of bycatch; product development; and collection of bycatch at sea.

Legislation is in place in many countries to specify proportions of bycatch that must be landed or amounts of finfish landings as part of shrimp trawl operations. These countries include Sierra Leone, Senegal, Sao Tome and Principe, Cuba, Nicaragua, Madagascar, Guatemala, Guinea-Bissau, Guinea, Guyana, Bangladesh, Nigeria and Mauritius. Levels of poverty in many countries, allied to rising population levels and increasing pressure on target species, suggest that markets for bycatch are increasing, thereby helping to make bycatch utilization increasingly economically feasible. Shrimp trawl vessel owners are more and more interested in developing bycatch markets due to falling profitability from shrimp trawl operations, and seasonal fluctuations in shrimp catches that allow for retention of finfish at certain times without any impact on storage capabilities of shrimp.

A huge amount of research has been carried out on product development in recent decades. Uptake of value-added products such as fish balls from bycatches has been particularly successful in Southeast Asia, but less so in other countries in Africa and South America. This has demonstrated that attempts to increase bycatch utilization in this way must be market-driven rather than technology-driven.

Bycatch collection at sea by small-scale fishers for onward local processing and trade occurs in many countries, such as Nigeria, Iran, Mozambique, India, Madagascar, the United Republic of Tanzania, Ghana, Gambia, El Salvador, Cameroon, Thailand, Senegal and Ecuador. While obstacles to greater use of bycatch from at-sea collection may relate to financial and technical issues, it is also likely that institutional obstacles pose at least as much of a problem to attempts to increase such practices.

Source: Macfadyen and Huntington, 2003a.

(Kurien, 2005). Further, given the large proportion of catches in developing countries that come from small-scale fisheries, it is fair to assume that availability of fish to the post-harvest sector, as well as to consumers in these countries (when taken together as a group) has increased.

However, one must question both the longer-term implications of global trends as increases in demand outpace increases in supply, and the distributional impacts of these changes. Over the past 30 years, fish has become more expensive relative to other food items; while the price of meat is half what it was in the early 1970s, the real prices of fish have not fallen. Moreover, it is possible that the increasing globalization of fisheries and the rise of high-priced fish exports from poor countries place upward pressure on low-value food fish prices as producers switch focus to high-value export commodities. The rising cost of low-value food fish to the poor at present and the potential for further rises in the future are real policy concerns (Delgado *et al.*, 2003). These changes are likely to mean that the ability of both poor consumers and poor traders and/or processors to access fish will become increasingly problematic over time.

Access to fish by poor small-scale traders and processors can be enhanced through support for sustainable resource exploitation, which is a *sine qua non* of ensuring access to fish. But sustainable exploitation must be coupled with support for distributional issues of access to catches by small-scale fishers and to fish purchases by small-scale traders/processors.

Access to fish can also be enhanced through greater levels of bycatch utilization from industrial fisheries, as discussed in Box 44, through mechanisms including: legislation

to ensure landings of bycatch, product development, and collection of bycatch at sea by small-scale fishers.

Another very concrete step to increase access to fish by traders/processors is to understand and then address the constraints faced by small-scale traders and processors, particularly women, at harbours/landing centres. Appropriate facilities at harbours and landing centres where fish can be purchased are known to be important in increasing access to fish by small-scale traders and processors, particularly women. Such facilities include running water, storage, sanitation and toilets, and night shelters , given that harbours are often far from the areas where traders and/or processors live, who may have to spend the night at landing sites to receive fish when landed. It should also be noted, however, that some infrastructure developments in the past have actually marginalized the very poor, so there is a special need to take care of the distributional aspects of access to such facilities.

Access to markets

The free movement of fish without harassment at checkpoints and borders is a key issue for many small-scale traders, especially in Africa. It is known that corruption disproportionately affects the poor. Payment in cash or in fish by traders to ensure onward movement of their product can significantly erode profitability of trading operations (and/or increase end-prices paid by consumers), while delays in getting product to markets may reduce both its quality and therefore price, but also its availability to consumers as a result of increased wastage. Such problems should be highlighted and publicized, and subsequently dealt with by local and national authorities. Other issues of transport as discussed in Box 45.

Provision of appropriate facilities at market sites for traders is also important in ensuring access to markets. Examples include facilities such as toilets, running water, childcare facilities, and market stalls at low rentals.

3.8 FINANCING POVERTY ALLEVIATION

3.8.1 The Code

Financial issues are mentioned in Article 5.2 of the Code on the special requirements of developing countries:

> *… States, relevant intergovernmental and non-governmental organizations and financial institutions should work for the adoption of measures to address the needs of developing countries, especially in the areas of financial and technical assistance.*

3.8.2 Financing the transition to responsible fisheries

Financial aspects of fisheries are gaining increasing recognition. There are moves towards greater market discipline in the sector as a way of contributing towards a transition to responsible fisheries, as evidenced by recent focus on issues such as:

- withdrawal of subsidies;
- strengthening of use rights;
- substitution of grants with loans;
- cost recovery programmes and greater emphasis on capture of resource rents (see Box 46), although this may be less relevant for small-scale fisheries than for industrial fisheries.

In many cases, the move to responsible fishing will have significant impacts on many poor small-scale fishers and fishworkers. As a result, targeted assistance for the poor may be necessary to ease the impacts of this transition.

3.8.3 Use of subsidies

The initial philosophy of subsidies was social welfare-oriented, with subsidies to specific groups used as redistributive tool, but the use of subsidies in fisheries in

BOX 45
The importance of transport

Several countries in the developing world have taken up initiatives to support the work of women fish processors and vendors. In Kerala, India, for example, Matsyafed, the Kerala State Co-operative Federation for Fisheries Development Ltd., the Apex Federation of 654 primary fisherman co-operative societies spread over ten districts of Kerala, operates mini-buses at nominal rates for transporting fisherwomen (fish vendors) in Thiruvananthapuram and Kollam Districts of Kerala State. The fisherwomen are picked from selected landing centres and transported to and from the various market places. These buses are operated as a welfare service for the fisherwomen who are normally denied access to public transport due to the "smelly" nature of the produce they carry. This facility was provided in response to fisherwomen's demands and struggles in the state for the provision of transport facilities. In addition, in Sri Lanka, a number of interventions in recent years have supported the activities of bicycle traders within Colombo and other urban areas through the provision of chill boxes.

Appropriate technologies for intra-regional trade may involve low-cost traditional smoking and drying techniques to enable access of inland markets. At the international level, on the other hand, ensuring reliable and rapid air connections to developed country markets with as few break-of-bulk points as possible is crucial if small-scale fisheries are to export high-value products. In the Maldives, for example, the presence of an international airport in Malé enables small-scale fishers fishing close to the capital to export pole-and-line-caught yellowfin tuna to Europe, but small-scale fishers in the north of the country are prevented from accessing such markets due to the lack of comparable air transport facilities and connections from northern atolls.

Source: Matsyafed website: www.kerala.gov.in/dept_fisheries/matsyafed/activities.htm

their many forms has certainly contributed to overcapacity of many fishing fleets and subsequent overfishing (see Box 47). While subsidies and wider incentives (in fisheries and other sectors) that lead to overexploitation should, of course, be guarded against, incentives and subsidies should be considered where appropriate. Careful justification and specification of the period for which they are to be used is required, as well as careful management to ensure that the benefit diversion for the poor of the limited financial resources does not go to unexpected beneficiaries (For example, fuel subsidies intended to benefit the poor fishers may in fact disproportionately benefit those with larger engines, that is, the better off). Subsidies may be appropriate if they:

- enhance or diversify livelihoods without leading to increased fishing capacity or trade distortions;
- are used to facilitate a structural change if enforced and/or used to assist the poor with the move towards responsible fishing, for instance, inshore to offshore and to different fishing gears.

3.8.4 The importance of credit and savings for the small-scale sector

The lack of access to affordable credit and the inability to generate savings are major constraints for many poor small fishers and fishworkers who, in contrast to larger-scale entrepreneurs, often do not have easy access to credit or savings mechanisms.

There are numerous reasons for the inability of the poor to access savings institutions and credit that should be tackled in programmes to improve access, including:

- few organizational mechanisms to absorb savings;
- cultural and sector-specific issues of willingness and/or ability to save;

BOX 46
Cost recovery programmes

Fisherfolk in many countries are now being asked to pay for the costs of management and other government services that could be regarded as subsidies, and as a consequence of the global economic liberalization agenda that seeks cost recovery for provision of government services[?]. Attempts by many governments to institute cost recovery programmes associated with fisheries management has meant transferring the costs of management to fisherfolk themselves through CBFM arrangements, or charging for the provision of government services (as in Uganda's agricultural extension services). Cost recovery and revenue generation from fisheries are generally carried out through taxation-based systems that target points of landing and sale. These kinds of commodity and trade-based taxes tend to stifle enterprises and diversification by the poor, without maximizing the potential to generate revenue from the better-off fishers through taxes on capital assets such as fishing boats.

Source: Wallis and Flaaten, 2000; World Humanity Action Trust (WHAT), 2000.

BOX 47
Use of subsidies in Sri Lanka and other countries

Sri Lanka provides an example to illustrate how powerful a subsidized credit scheme can be on the development of small-scale fisheries. The drive for craft mechanization in the late 1950s was implemented using a high rate of subsidization of crafts (of up to 50 percent) and small-scale fishers benefitted significantly from this move. Subsidies were channelled through fisheries credit cooperatives to ensure that they reached those who needed them most. But eventually they led to overcapacity and inshore subsidies were withdrawn; however, they were provided for offshore multi-day fishing. Other forms of subsidies have commonly included subsidized fishing inputs in the form of import-tax exemptions (for example, in Burkina Faso, Nigeria, many Gulf states, the United Republic of Tanzania and the West Indies).

Source: Macfadyen, 2003.

- geographic and economic marginalization;
- lack of information;
- a lack of bank accounts needed to get credit with banks;
- poor education;
- illiteracy;
- a lack of initial assets to use as collateral;
- while many small-scale fishers and fishworkers live in rural areas, banks are often biased towards urban activities and are not sufficiently decentralized, being mainly located in towns and cities.

The reasons may apply to differing degrees to both informal and formal savings and credit mechanisms. But all these factors combine to make the inability to save and the lack of access to formal credit a tremendous barrier for the poor in generating wealth – no micro-enterprise can start off without access to credit or seed capital.

Informal credit and savings mechanisms have both advantages and disadvantages for the poor, which may be characteristic of developing countries where the formal sector is absent or where the poor are usually excluded from it, rather than specific to small-scale fisheries *per se*.

Partly as a result of the difficulties in accessing formal credit and savings mechanisms, informal savings schemes and credit markets are widely developed in rural areas in developing countries where the largest number of small-scale fishers and fishworkers operate, and may have positive attributes in terms of providing access to capital or assets because they are "closer" to the users, more flexible, and more adapted to their needs (see Box 48). Creating an enabling environment for small-scale fishers may therefore need to build on the strengths of informal mechanisms through the support for traditional and/or informal savings and credit schemes, and establishment of appropriate new informal organizational saving mechanisms.

The widespread use of informal credit markets and savings, however, may be as much a function of the lack of alternative options for the poor as of people choosing such sources *per se*. In the absence of schemes run on a collective basis, informal credit mechanisms, for example, tend to lack transparency and accountability, and money-lenders typically charge high interest rates. In the case of coastal fishing communities in Asia, for instance, 8-12 percent per month is quite common, amounting to 96-144 percent per year. The rural poor may often enter into exploitive relationships, inhibiting them from investing in production and income-generating activities. Such relationships may include credit with catch-sale bondage, credit on high interest, or renting fishing boats from non-operating owners in return for a large share of the catch (Shetty, 2003). De-linking credit from the marketing of catch may therefore be an especially effective way to generate savings and enable the poor to accumulate wealth from their investments.

Governments have typically responded to these problems with support from donor agencies, by establishing rural credit and savings institutions in the form of cooperatives, or by forcing or encouraging commercial banks to provide cheap/subsidized credit to fisheries and other sectors. In the absence of such encouragement, bank interest rates can also be high, as much as 50 percent or more, as is currently the case for some bank lending in Zambia. However, such figures are not necessarily the norm everywhere, and a recent survey among agricultural development banks and nationalized commercial banks in Asia found that 14 percent is the highest annual rate of interest charged to small-scale fishermen/women by these institutions when providing short-term (one year or less) or medium-term loans (three to five years).

As with informal savings and credit mechanisms, such initiatives have their benefits, and there is certainly a need to increase access to general credit and savings institutions, as well as to fisheries-specific institutions. However, evidence from evaluations suggests that such formal credit programmes are often not successful, both in terms of the viability of lending institutions and the ability of intended beneficiaries to access credit (Shetty, 2003). Some reasons for these failures include:

- borrower-unfriendly products and procedures;
- inflexibilities and delays;
- insufficient levels of collateral held by the poor;
- high transaction costs compared to interest rates (both legal and illegal);
- high rates of non-repayment and the fact that fishers may be less likely to pay state institutions.

The problems of informal credit markets and rural credit institutions have led to a growing recognition of the importance of microfinance as a crucial development tool for poverty alleviation. Microfinance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers and insurance, and is characterized most commonly by small loans. Based on whether there is a legal infrastructure that provides recourse to lenders and protection to depositors, microfinance providers may be formal financial institutions (e.g. public and private development banks and commercial banks), semi-formal institutions (NGOs, credit unions and cooperatives) or informal providers (i.e. entities operating outside the structure of government regulation and supervision).

BOX 48

The example of the South Indian Federation of Fishermen Societies

The South Indian Federation of Fishermen Societies (SIFSS) is a non-governmental apex organization of village- and district-level fish marketing societies of small-scale artisanal fishworkers of South India, said to be the largest network of small-scale fisher organizations in the world. With over 8 000 fisher members spread over a 1 200-km coastline in South India, SIFFS has been making crucial contributions to strengthening the small-scale artisanal fisheries sector. SIFFS makes available a range of services to its members as well as to non-member fishers. The fish marketing societies run by SIFFS are founded on a member-based, marketing-oriented model, with membership open only to active fishers. The three core activities of the model are marketing fish caught by members, providing credit for renewal of fishing equipment and promoting savings. Marketing members' fish catch constitutes the most important activity of the society.

Credit is an extremely important service provided by these societies. Bank credit is tapped by the societies and routed to members, and repayment is made through deductions in the range of 5-15 percent of the member's daily sales value. Further, societies also implement savings schemes in which 2 percent of the daily sales value is deposited in the member's name within the society. The accumulated amount can be withdrawn at a later date under stipulated rules. The credit programmes under the SIFFS network (SIFFS, district federations and primary societies) cover the following requirements: purchase and renewal of fishing equipment, repair and maintenance of fishing equipment, post-harvest activities (fish vending, fish processing), food credit, employment diversification and other consumption credit.

It is worth noting that the credit programme takes into account the unpredictable nature of returns from fishing activities. Loan repayment is generally based on a percentage of fish catches and not on a fixed instalment – 5-15 percent, depending on the quantum of loan. However, the system is flexible where other methods of repayment are also encouraged. In cases where fishers tend to migrate and part of their fish sales is not through the society, monthly lump sum repayments during the migration period is insisted on.

Source: SIFFS Web site: www.siffs.org.

Microfinance has inherent limitations in terms of financing levels; for larger investment and credit needs within small-scale fisheries, larger-scale revolving loan funds and credit programmes may be appropriate. Further, it should also be noted that many of the general reasons for the inability of the poor to access savings and credit schemes, as provided above, may also apply to microfinance. However, this Technical Paper chooses to emphasize the importance of microfinance because of its special potential to assist the very poor. Microfinance provides financial service products that can be accessed by a vast majority of the population, particularly women, youth and small-scale producers and fishworkers, with significant benefits (see Box 49). Globally, women constitute the majority of microfinance clients, primarily because of their better repayment records. This also makes them a particular target group for microfinance activities in fishing communities, given their important role in the post-harvest sector.

FAO published *Microfinance in fisheries and aquaculture: guidelines and case studies* (Tietze and Villareal, 2003). The paper provides a contextualization of microfinance and examines the use of lending models such as self-help groups (SHGs) as a financial intermediary; groups as guarantors of loans; and lending to individuals in solidarity groups. It also reviews lending policies in the form of target group selection, interest rates and loan pricing, loan size and purpose, and loan terms and repayment periods. Finally, it considers savings and deposit services to help manage risk and vulnerability. An overall

conclusion is that because of the diversity of the demand for and suppliers of microfinance services, it is not possible to prescribe or subscribe to a particular methodology or an institutional mechanism. Lending methodologies and procedures must be carefully tailored so that they appropriately serve the financial needs of the fishing, trading and fish farming communities concerned. Case studies of success stories (see Villareal and Upare, 2003 for examples) may therefore be useful as attempts to provide specific guidelines or examples of best practice. Other key lessons may be:

- There are considerable benefits of involving groups in providing microfinance, and benefits of and opportunities for such groups to provide functions outside of financial assistance only, for example, promoting family planning awareness and knowledge, including family welfare and other health-related concerns. Social and economic components must both be given emphasis as they are mutually supporting.
- Credit provided to finance micro-enterprises is a critical input in increasing incomes, especially for women. Independent earnings contribute to increased self-confidence, mobility, a higher value in the family and improved decision-making, all of which reinforce each other to generally improve women's status.
- It is essential to provide training to individuals and groups in financial aspects of micro-enterprise development, preparation of project proposals, team building, organizational skills and other aspects of micro-enterprise development;
- Access to credit is a key factor in group sustainability. Groups that have continuous access tend to be more active since they have a reason to meet regularly.
- Apart from market and technical factors, considerations on women's time constraints must be taken into account, since they prevent expansion of small-business activities in many cases.
- Banks working through SHGs must be fully committed to the microfinance activities concerned. Credit performance is greatly affected by the nature and therefore the mandate of the banks involved, and the attitude and performance of individual bank staff can be crucial.

Four other key principles of financially viable lending to poor entrepreneurs, also highlighted in the Technical Paper, are shown below (Rhyne and Holt, 1993, as cited in Ledgerwood, 1999):

- Services must be carefully tailored to meet the preferences of poor entrepreneurs.
- Operations should be streamlined wherever possible to reduce unit costs.
- Special attention must be paid to ways to motivate clients to repay loans.
- Full-cost interest rates and fees should be charged wherever possible.

3.8.5 Pensions and social security nets

Finally, on the issue of financing, both access to insurance and social security schemes, and the ability to save for them are clearly vital in minimizing the risk and/or vulnerability of the poor to sudden changes in income, and are worthy of a special mention.

At the macro-level, it may be necessary to make changes to the way that pensions and social security are funded, and who is eligible. (See Boxes 24 and 49), which discuss how, in a formal context, legislation including fishworkers in Brazil in the "special insurance" category for pensions and social security has been a major development.)

Microfinance can also include issues of insurance and social safety nets, and for poor small-scale fishers and traders operating in remote rural areas, local-level initiatives may be at least as important as macro-level ones. Social security functions can be provided effectively through formal micro-level activities, as well as through informal group support and savings mechanisms, and assistance should be provided to establishing sustainable mechanisms and increasing education about their importance.

BOX 49

Microfinance programmes in India and the Philippines

The National Bank for Agriculture and Rural Development (NABARD) in India runs what is probably the largest microfinance programme in the world. The highlights of NABARD's programme as of March 2002 are as follows.

- Over 7.8 million poor in agriculture and other allied sectors, including fisheries and aquaculture households, are accessing banking services and micro-credits through 458 000 self-help groups (SHGs). Over 2 000 NGOs and 17 000 branches of 444 banks are associated with the programme.
- Considering the need to upscale microfinance interventions in the country, a microfinance Development Fund has been set up in NABARD through initial contributions of approximately US$20 million from the Reserve Bank of India, public sector commercial banks, and NABARD.
- Cumulative bank loans disbursed to SHGs as of 31 March 2002 stood at US$205 million.
- Cumulative refinance by banks from NABARD for financing SHGs stood at US$163 million as of 31 March 2002.
- More than 90 percent of SHGs have exclusively women members.
- Repayment of bank loans on time was above 95 percent from SHG members.

In Pangasinan, the Philippines, the Amalbalan Women's Association (AWA) was organized in 1990 with only ten members. The women were involved with salt production/trading and fish vending. Their first loan of 80 000 pesos was used as capital for these activities. This loan was followed by seven more rounds of lending with the loan size increasing to 270 000 pesos by 1997, and membership increasing slightly to 22. Some women then used the loan to buy inputs for milkfish pond production such as fingerlings, fertilizers and feeds. In October 1997, the AWA was formally registered as a co-operative (AWMC), with an increased membership of 75. As a cooperative, the women were given a bigger credit line and they have taken advantage of this to increase the volume of commodities they are trading and purchase more fish pond inputs. In September 2000, AWMC took out the biggest loan since becoming a cooperative, amounting to 614 200 pesos. Successful repayment rates allowed them to have continuous loans, and total loans extended to the group from 1991 to 2000 amounted to 3.3 million pesos. The bigger loans have enabled the women to increase the volume of their trading activities and venture out of the province to new markets. This was helped in great measure by the "entrepreneurial "skills developed and enhanced by the project.

Source: Tietze and Villareal, 2003.

3.9 APPROPRIATE INFORMATION, RESEARCH AND COMMUNICATION SYSTEMS

Understanding poverty and vulnerability, and their associated factors and underlying causes is the overarching information priority for small-scale fisheries policy and management. This information is required to complement the existing focus on production data (catches by species).

Rather than force the use of standardized methods for poverty and vulnerability monitoring and research, it may be more useful to propose the inclusion of fisherfolk in national poverty surveys in countries where fisheries are significant. A poverty monitoring system exists in all countries that receive debt relief under the Highly Indebted Poor Countries Initiative; they are part of the Poverty Reduction Strategy Process. This will allow comparison of poverty measures between households engaged

BOX 50
Social security nets for marine fisheries in Kerala, India

Social security measures were an important demand of the militant agitation in 1984 of fishworkers in Kerala. One of the major joint struggles undertaken in 1985 pertained to the issue of the provision of old-age pensions. Even though the government did not approve the demand for a trawl ban during the monsoon, most of the social security demands were approved to placate the agitating fishers. Two important achievements on the social security front resulted from the 1984 agitation – the introduction of an educational benefit scheme for students from fishing communities, and the old-age pension for fishworkers.

Schemes operated by the Department of Fisheries include saving-cum-relief schemes (a contributory unemployment benefit scheme that provides fishers with financial assistance during lean months of fishing), schemes for housing and electrification of homes, and schemes to provide sanitation, dispensaries, fisheries schools, training centres and educational grants.

The various schemes of the Kerala Fishermen's Welfare Fund Board (known as Matsyaboard) cover most of the social security benefits prescribed by ILO Convention 102. According to this Convention, social security is addressed to provide protective measures in case of nine specific contingencies: (i) medical care and benefits; (ii) sickness; (iii) unemployment; (iv) old age; (v) employment injury; (vi) large family; (vii) maternity; (viii) invalidity; and (ix) widowhood. The old-age pension is the most popular of the schemes of the *Matsyaboard*, having the largest number of beneficiaries.

Source: Adapted from an article by J. Kurien, 2004.

in fishing and those in the same area that are not. These poverty surveys typically have both a qualitative and quantitative component, and can therefore ensure that both comparative and context-specific understanding is generated to inform local, national and international fisheries policy.

It should be stressed, however, that one does not need perfect information in order to take concrete steps to increase the contribution of small-scale fisheries to poverty alleviation and food security. The information compiled in this report provides a first step in making accessible what is already known, in order to inform immediate decision-making and action. However, it is also true that better information and communication systems, and additional research are required on which to base future actions.

The purpose of this section is to examine the information, research and communication systems and appropriate indicators ideally needed in small-scale fisheries within the general context of this document, *i.e.* with reference to poverty alleviation and food security. To some extent the recent comments made by Coates based in the Southeast Asia inland experience on the current estimates of the numbers of fishers in Asia (Coates, 2002) (see Box 51) sets the context of this section and highlights one fundamental issue – that the exact contribution of small-scale fisheries to poverty alleviation and food security, but more broadly to rural development and national economic growth, will not be appropriately recognized by decision-makers and planners unless better information is generated on the various dimensions of these contributions.

Of particular importance is the recognition that the current conventional typology used by many national statistical departments (based on the nomenclature also used by FAO – "full-time", "part-time", "occasional" fishers) and the conventional valuation indicator (the market value of the fish) do not provide an adequate framework to capture the real numbers of people whose livelihood depends on fish, nor the real contribution of fisheries to the local and national economies. As pointed out by Coates (2002) "the relevance of

fishing to a person's livelihood is not directly or simply related to the total amount caught or whether fishing is the main occupation of the household members (p. 20)".

In both developed and developing countries, small-scale coastal or inland fisheries are often only one among a diversified portfolio of activities operated by the different members of the household (Allison and Ellis, 2001). Moreover, it is the interaction and synergy between these activities (e.g. through the re-investment of cash generated by one activity to purchase input for another activity) that permits the household to maintain a minimum living standard. As an illustration, the income made through occasional fishing may represent only 25 percent of the total household income or even less, but it may be earned at the very crucial period of the year where the household needs cash to buy input such as labour, fertilizer or seeds to grow the crop on which the whole household's food security will depend for the entire upcoming year. Utilizing the current typology used in most statistical national and/or international systems, the household would be identified at best as an occasional fisher, if at all. However, it is much more likely that the household would be defined as a farmer, even if the few dozen kilos – unlikely to be recorded – caught during these three or four weeks are the crucial element that ensures the survival of the entire family. Can this reality be truly reflected through the value (a few dollars) of these fish on the local market? Certainly not.

3.9.1 Information issues and research priorities identified in the Code

By their nature and main characteristics (multi-landing sites, remote areas, partially subsistence-based activity, etc.), small-scale fisheries raise a certain number of challenges in terms of information collection and use (Mahon, 1997; Berkes *et al.*, 2001, chap. 4).

BOX 51

The issue of underestimates in small-scale inland fisheries

According to FAO's 1999 report, *Numbers of fishers 1970-1996*, globally there are 28.5 million people fishing or involved in aquaculture. Of these, 15 million are marine fishers, 9 million are fish farmers (freshwater and marine combined) and only 4.5 million are inland fishers. The latter number, however, is exceeded among the countries reviewed in this FAO report – Thailand, Cambodia, Laos, Viet Nam, Indonesia, the Philippines, Myanmar and Malaysia) The figures above also suggest that at least for Southeast Asia, as opposed to the rest of the world, the numbers of inland fishers may at least equal or exceed the number of marine fishers and certainly surpasses involvement in aquaculture by a significant margin. It is unlikely that the countries reviewed are unique in these respects, although the prominence of lowland rice farming in Asia, which includes rice field fisheries, significantly increases involvement in fishing. The FAO (1999) report also suggests that globally 41 percent of fishers are full-time (*i.e.* those receiving at least 90 percent of their livelihood from fishing), 35 percent are part-time (deriving between 30-89 percent of their income from fishing) and only 6.5 million people (23 percent) are occasional fishers who derive only less than 30 percent of income from fishing. The latter figure is ludicrous in the extreme. The problem with these FAO figures on fishers, of course, is that they are based on a survey of reports from countries, most of which do not have figures for numbers of fishers; those that do, usually cover full-time professional fishers (generally only for marine) and fish farmers. It is hardly surprising, therefore, that the reports bias perspectives. This is yet another illustration of the danger of summarizing the fisheries sector based on incomplete, inaccurate and in many cases, prejudiced reporting.

Source: Coates, 2002.

Guidance on meeting information needs relating to social issues in small-scale fisheries are not explicitly addressed or recognized in Section 7.4 of the Code ("Data gathering and management advice"). This section envisages that fisheries data should be generated and managed by 'States' (Arts. 7.4.4, and 7.4.6) and the "subregional or regional fisheries management organizations" (Art. 7.4.7). No reference is made to local communities, and their potential role in data collection and management. However, these issues are mentioned elsewhere in the Code. The General Principles are in line with the current position adopted by the majority of the international community and stipulate that States "should facilitate consultation and the effective participation of industry, fishworkers, environmental and other interested organizations in the decision-making" (Art 6.13) and "should ensure that fishers and fish-farmers are involved in the policy formulation and implementation process" (Art. 6.16).

Similarly only the "best scientific evidence" (Art. 7.4.1), "reliable statistics … in accordance to international standards" (Art. 7.4.4) and "scientific data" (Art. 7.4.6) are envisaged as providing valuable information for management advice, while no reference is made to "traditional" or "indigenous knowledge", although its importance is recognized in Article 12 in the context of research priorities.

One of the objectives of the Code (Art. 2, para. i) is to "promote research on fisheries as well as on associated ecosystems and relevant environmental factors". While the growing research emphasis on ecosystems and environment is thus foreseen and supported by the Code, there is a less explicit mandate to promote research into the economic, social, cultural and political factors that influence the development of the fishery sector, levels of poverty and food security, and the conservation of fish stocks. These issues are clearly articulated in the General Principles but they are not always adequately reflected in the relevant technical sections elaborating on those principles. The technical guidelines to the Code are designed to help give greater prominence to these aspects.

Article 12 of the Code specifically addresses Fisheries Research and establishes that "responsible fisheries requires the availability of a sound scientific basis to assist fisheries managers and other interested parties in making decisions." An interdisciplinary interpretation of "science" that includes the social sciences is incorporated. The Code emphasizes State responsibilities for the funding, implementation and dissemination of appropriate research, often with specific reference to developing-country needs. Article 12.12 provides the most specific reference to the small-scale sector:

> *States should investigate and document traditional fisheries knowledge and technologies, in particular those applied to small-scale fisheries, in order to assess their application to sustainable fisheries conservation, management and development.*

The Code also tends to emphasize operational research issues such as provision of data to monitor the state of the stocks, monitoring human food supplies, and ensuring that food quality and safety standards are assessed.

Among the 20 Articles related to research in the Code – most of which are concerned with States' general responsibilities for research and issues of research process – the specific subject-related research priorities identified are:

- Status of fisheries and ecosystems, including data on bycatch, discards and waste (Art. 12.4);
- Ecosystem changes resulting from fishing pressure, pollution or habitat alteration (Art. 12.5);
- The effects of climate or environment change on fish stocks and aquatic ecosystems (Art. 12.5);
- Fish product quality and environmental health issues around fish consumption (Art. 12.8);

- Selectivity of fishing gear, the environmental impact of fishing gear on target and non-target species and the effects of introduction of new gear types (Arts. 12.10 and 12.11);
- The potential application of traditional fisheries knowledge for management, particularly in small-scale fisheries (Art. 12.12).

These research priorities are a mix of operational and strategic areas. Economic, social, marketing and institutional issues in fisheries tend to be less well specified as research topics (see Art. 12.9), and organizational and institutional issues, in particular, are treated as research process issues rather than as subjects for research per se. The remainder of this section builds on the Code's existing provision for information issues and research recommendations, but also identifies areas that have emerged as information needs and research priorities since the Code was drafted.

3.9.2 A need to reconsider information and research priorities in fisheries

In relation to the above remarks and the conclusions emphasized by the previous sections of this report, it is necessary to recognize that the current policy shift towards decentralization of management responsibilities and the importance of small-scale fisheries in poverty alleviation and food security requires a reconsideration of the type of data and information necessary for fisheries management and the way these data are collected, used and disseminated. At least five major areas of improvement can be identified:

- Integration of indigenous knowledge and participatory research in the co-management of small-scale fisheries;
- Development of information systems that are low on data requirements;
- Adoption of information systems that allow evaluation and monitoring of poverty/vulnerability in fishing communities;
- Elaboration of assessment methodologies that allow a better understanding and documentation of the true contribution of small-scale fisheries in the livelihoods of fishing communities;
- Information systems on the pro-poor impact of decentralization reforms.

3.9.2.1 Indigenous knowledge and participatory monitoring

The failure to manage small-scale fisheries is not a new phenomenon, and development policies to address this and other failures continue to evolve. These evolving policies are stimulating institutional changes at the national and local levels, which are placing increasing emphasis on community involvement in the management of small-scale fisheries. In this context of local government reform and decentralization, adaptive co-management systems are often seen as a tool that could ensure better provision of more relevant information. Co-management – as a sharing of managerial and decision-making responsibility – can make maximum use of indigenous knowledge. Co-management programmes now place emphasis on participation of fisherfolk, not just in implementing and enforcing management decisions, but in collecting the information that informs decision-making and in monitoring the impacts of management reforms (see, for example, Obura, 2001, on reef fisheries in Kenya).

3.9.2.2 Systems of information low in data requirements

It is well recognized that accurate and up-to-date statistics and information should form the basis of decisions taken by fishery managers and policy-makers within an effective fisheries management system organized by national government. However, for many tropical inland fisheries, this information is not available. One of the main explanations for this situation is the difficulty of applying conventional methodologies from fisheries science (e.g. stock assessments and bio-economic modelling approaches based on catch assessment surveys and

BOX 52

The Fishery Information Monitoring System: the successful example of the Lake Chad Basin fisheries

The Lake Chad Basin (LCB), which is shared by five major riparian countries – Cameroon, Central African Republic (CAR), Chad, Nigeria and Niger, contains some of the largest and most productive inland fisheries in Africa. The fisheries underpin the livelihoods of thousands of rural households in each country, providing employment, income and fish for food and trade. The whole area is extremely isolated and difficult to access, however, and the local staff of the respective departments of fisheries of the riparian countries are understaffed. Over the past ten years, a series of international fisheries research projects have collaborated with national counterpart organizations in the development of a fisheries information monitoring system (FIMS), which could address some of these issues of data collection. Based on simple and well-coordinated market surveys in each country, the FIMS provides information on quantity, value, origin and destination of fish produced. Based on this information, the FIMS was able to determine that the annual landings of fish in the Lake Chad Basin (LCB) for 2000 were 60 000 tonnes, worth US$25 million (first sale value). These statistics have proved to be important in raising awareness of the importance of the LCB fisheries among national policy-makers. The FIMS presents a certain number of advantages:

(a) *The information is relatively easy to collect*: Compared to conventional fisheries statistics (e.g. catch and effort statistics), by focusing on marketed fish products, large quantities of diverse fish products can be documented quickly and at a low cost using experienced enumerators.

(b) The information can be processed quickly and standardized for a global analysis: This can be done manually or by using a simple computer spreadsheet programme.

(c) The FIMS is financially sustainable. Initially supported through a series of research projects funded by DFID, the EU, and more recently FAO-Sustainable Fisheries Livelihoods Programme (SFLP), the FIMS is now supported directly by the Nigeria Institute of Freshwater Fisheries Research (NIFFR) in Nigeria and the Department of Fisheries in Cameroon.

(d) *Transferability*. The establishment and the success of the FIMS of the Lake Chad Basin Commission (LCBC) depends on stringent conditions, however. In particular, the selection of monitoring locations for FIMS in each country must be done carefully. The monitoring requires the ability to establish and delimit (or map) the major characteristics of the fisheries system. Most importantly, the *nodal points* (or centres) of activity of the fishery system need to be identified. These nodal points are the main fishery centres, fish resource concentrations, key markets and key fishing villages, towns and landing sites. In addition, the major roads and trade routes that link these nodal points need to be identified. It is clear that the specific situation of the Lake Chad Basin, especially the fact that there are only very few roads useable by the trucks transporting the fish, was a key element of the success of this initiative. This may not be replicable everywhere.

Source: Jolley *et al*., 2002.

comprehensive macro- or micro-economic data) to the study and monitoring of complex, dynamic, multispecies and multigear tropical fisheries, often in situations of limited institutional and financial capacity.

One alternative to address these issues specific to small-scale fisheries in developing countries is to develop systems that are low in data requirements. The example of the Fishery Information Monitoring System developed and tested in the Lake Chad Basin is an excellent illustration of how very simple – and inexpensive – data recording systems based on the collection of only three of four indicators can provide essential information for the understanding of the fisheries (see Box 52).

BOX 53
Methodology to evaluate poverty: the poverty profile

The basic structure of information contained in a poverty profile reflects the factors that influence livelihoods and the poverty situation of those being profiled. Such factors include:

- the variety of assets controlled by the household or to which the household has access;
- mediating factors such as laws, policies, and regulations directly affecting the household, development programmes and projects operating in the area, and local attitudes and beliefs;
- external factors, such as demographic trends, the conditions of the natural resource base and macroeconomic data;
- the probability of shocks, such as falling commodity prices, drought, conflict or large-scale illnesses.

By looking at the synergies between these factors and at the processes in which the communities are embedded, a poverty profile allows to understand the poverty context at large and the specific traits that characterize poor artisanal fishers' households, and to identify the major factors generating or aggravating their poverty.

Source: Pittaluga, Corcoran and Senahoun, 2004.

3.9.2.3 Information systems to evaluate and monitor poverty/vulnerability in fishing communities

The Sustainable Fisheries Livelihoods Programme (SFLP) launched in 1999 in 25 countries of West Africa explicitly recognizes poverty in general, and poverty in the fishing community in particular, to be a multi-dimensional and complex phenomenon, difficult to reduce to a single or a few indices for its measurement and representation. As part of their activities, the SFLP have developed a methodology, *poverty profiling*, in an attempt to describe and better understand the typologies, depth and the various dimensions of poverty situations (see Box 53).

A poverty profile consists of the characterization, localization, enumeration and description of groups of poor people. One of the underlying precepts of the development of these poverty profiles is that knowing how many people are poor in a given context or area (e.g. poverty map) is not sufficient to design appropriate actions to alleviate their poverty. Given that poverty is often a structural phenomenon, the nature of the measures needed to eradicate it must address problems at the same structural level. Thus, poverty profiles go beyond the enumeration of poor people per administrative unit (such as a head count) and focus on the reasons why people are poor, which are often discernible in their livelihood systems. As such, poverty profiles are intended to provide relevant information for policy-making, planning, beneficiary targeting, and monitoring processes, among others. Examples of livelihood-based groups of poor people analysed in the course of pilot testing activities conducted in Benin and in Guatemala showed that while poverty of fishing communities may in some cases be related to low catch rates, additional or more efficient gears (in an attempt to increase these catch rates) are not always the solution to improve the livelihood of these fishers (see Box 54).

3.9.2.4 Information systems on pro-poor impact of decentralization reforms: the social impact of co-management

A review of the significant number of reports and articles that have been published on co-management experiences since the early 1990s reveals that most are descriptive in

BOX 54
Understanding poverty in fishing communities

Because livelihood systems also entail opportunities for alleviating poverty, the profile below highlights not only the causal factors of poverty and the constraints that people face, but also potential options that may be available within or outside the fisheries sector for breaking out of the cycle of poverty. If such options exist, they should be as sustainable as possible. The fieldwork conducted among communities of artisanal fishers on the Atlantic coast of Guatemala, for example, showed that an improvement in artisanal fishers' access to better technology, with a consequent increase in fish catch, was not an option. Further, it was not a desirable solution for artisanal fishers themselves for their poverty status, who were deeply conscious of the impact of a steady human population growth on the natural resource base of the area. Given the constant reduction in fish stocks available, and the inadequacy of most of the coastal areas for small-scale agriculture, options for the improvement of their livelihood conditions consisted in the possibility of employment outside the fisheries' sector, or migration to other areas of the country.

Source: Pittlauga, Corcoran and Senahoun, 2004.

nature. They either report the legislative and managerial re-organization induced by the co-management reform, with a large proportion discussing in particular what the new role of the state and/or the managerial responsibilities/tasks of fisher organizations should be, or discuss the issues of resource management and conservation and the potential and current role and capabilities of the communities in this respect. In contrast, very little has been conducted on the poverty reduction and/or redistributive impacts of these reforms. One of the few research projects that attempts to address the pro-poor impact of co-management through a comprehensive and rigorous methodology (i.e. design of a conceptual framework and then use of this framework to assess the progress in equity induced by the change in governance arrangements) is the ongoing CBFM programme in Bangladesh (see Box 55).

In their framework, Thompson and his collaborators considered two dimensions of equity – empowerment and equity *per se*, and then used six different criteria to assess the changes in these two dimensions (Table 7). Using qualitative methods (cardinal ranking of a ten-point scale), the project's team was then able to monitor and quantify the impacts of the co-management programme. They concluded, "In general significant changes in indicators of empowerment (participation and influence) and institutional efficiency (ease of decision-making) were reported in the beels [semi-enclosed lakes]… but the pattern of changes was less clear in the river …." (Thompson, Sultana and Islam, 2002, p. 11).

To be able to reach these conclusions, however, a conceptual effort has to be made first to identify which dimensions of equity are relevant, expected or aspired to by

TABLE 7
Equity criteria used in the community-based fisheries management (CBFM) project

Equity dimension	Assessment criteria
Empowerment	Greater participation of fishers in fishery management greater influence by stakeholders over decisions
Equity	Representation of range of interest (stakeholders) process clarity – transparent management process homogeneous expectations among participants regarding management distributional equity: benefits in proportion to costs, or perceived as fair by community members

Source: Thompson, Sultana and Islam, 2000.

BOX 55

The example of the Community-based Fisheries Management (CBFM) Programme in Bangladesh

The Community-based Fisheries Management (CBFM) programme is a co-management programme based on a partnership between the Department of Fisheries (DoF), five local NGOs, the WorldFish Center and the local communities of 19 water bodies in Bangladesh. The project's main objective is to develop institutional arrangements and foster capacity for devolving responsibilities for managing fisheries to the user communities. The key features of this action research project includes capacity building and empowerment for fishing communities through:

- involvement of both a government agency and NGOs as partners with assistance from the WorldFish Center;
- an attempt led by the DoF to secure access rights to water bodies for fishing communities;
- provision of training and credit for the fishing communities by the NGOs;
- the establishment of local fishery management bodies or committees, which prepared plans and undertook actions to better manage their fisheries;
- monitoring and research by DoF and WorldFish to document and assess the impacts of these changes.

Despite the difficult social and political context of Bangladesh, the programme has already generated some encouraging results. In Goakhola-Hatiara, one of the open beels, for instance, self-assessments using the framework presented (see Table 7) indicated significant increases between 1997 and 2001 in perceived levels of participation, influence, decision-making, fishery access and benefits for both project participants and other members of the community. The gains for project participants in fisheries influence, decision-making and control over resources were also significantly higher than for non-participants. Thompson and his co-authors conclude: "[T]his indicates that CBFM has in some sites had a wider benefit of empowering poorer fishing households within local fishery management institutions" (Thompson et al., 2003, p. 314-315).

Source: Thompson *et al.*, 2002, 2004

[1] Beels are depressions in the deeper parts of the floodplains.

the stakeholders who may not necessarily wish to achieve economic equity but are expecting endowment equity. How to evaluate these different dimensions of equity must then be considered. Careful project planning is also necessary. In particular, a pre-programme assessment needs to be undertaken so that it can then be used as a baseline against which the changes induced by the co-management reform can be compared.

3.9.3 Research priorities

The great diversity of small-scale fisheries and their context-specificity means that information and research requirements at the operational level are similarly diverse and thus unamenable to prescription. General guidelines on operational-level information are given in Section 12 of the Code and many of the informational needs for pro-poor fisheries development and management are provided in Section 3.9.2 above. This sub-section therefore emphasizes strategic research issues based on identified gaps in knowledge and understanding of the dynamics of the small-scale fisheries sector and its interaction with the wider socio-economy. Particular attention is paid to ways in which the gap between research and action can be bridged.

BOX 56
Changes in fisheries research in Bangladeshi universities

Five of Bangladesh's major public universities have teaching and research programmes in fisheries and related subject areas. They supply graduates to middle- and senior-level positions in government fisheries agencies and other research and advisory service providers such as NGOs and development agencies. An analysis of 568 publications produced between 1989 and 1999 by 103 university faculty members involved in fisheries teaching and research indicated that only 5 percent of these publications were related to the small-scale fisheries and aquaculture sectors in Bangladesh. An institutional change programme – the DFID-funded Support for University Fisheries Education and Research (SUFER) project – has been working with the fisheries' higher education sector to update curricula and research programmes to make them more relevant to the needs of the rural poor engaged in fisheries and aquaculture in the country. The project has facilitated important changes in research practice among Bangladeshi fisheries researchers, drawing on the example of the regions' world-class research institutes such as the Asian Institute of Technology in Bangkok, Thailand, and the Institute of Development Studies in Trivandrum, India. Ongoing research programmes in Bangladeshi universities are now more interdisciplinary, more needs-focused, and are more often conducted in partnership with small-scale fisherfolk.

Source: Allison and McBride, 2003.

3.9.3.1 Recent changes in fisheries governance and their implications for fisheries research

The perceived crisis in fisheries has precipitated a search for alternative models of fisheries management and a re-examination of the knowledge base on which management decisions are made. For centuries, fisheries were managed by de facto arrangements worked out within and between fishing communities (Johannes *et al.*, 2000). Until in the early 20th century in Europe and North America, governments assumed responsibility for management. Government-led fishery management was driven by the fish stock assessments used to set target levels of fishing, defined by biological and economic reference points such as the maximum sustainable yield (MSY) and maximum economic yield (MEY).

Management based on annual stock assessments makes considerable demands on scientific, administrative and enforcement capabilities, and is more appropriate for the large single-species stocks exploited by many temperate zone and industrial-scale offshore fisheries than for the species-diverse small-scale inshore and inland fisheries (Mahon, 1997). Entire institutional research and monitoring programmes have historically been structured around this failed approach to fisheries management. Further, it remains prominent in most fisheries science education curricula and research programme priorities, while it is clear that the study of fisheries systems additionally requires analysis of property rights, structure of formal and informal management institutions, possible conflict resolution mechanisms, and the social and economic impact of different management options (Charles, 2001).

It is now also widely recognized that resource users – not just scientists and government management advisors – can and should decide on the objectives of management, and on how these objectives might be achieved (Dyer and McGoodwin, 1994). Together with the current focus on ecosystem-based approaches to fisheries management (Code Guidelines No. 4, Suppl. 2, 2003), this new interdisciplinary and participatory approach to management implies reformulation of both models

and management structures in fisheries and other natural resource areas. These new requirements require new skills and new research emphases.

Fisheries development activities have also evolved. Development activities from the 1950s to the 1980s typically involved provision of improved technology for catching, storage and transport of products, product development and marketing (Cycon, 1986). Fisheries development activities, particularly in the developing world, are beginning to change from this narrow production focus and now typically claim to address poverty reduction, support for sustainable livelihood strategies, and empowerment of fishing communities through increased participation in management (Payne, 2000) These changing development priorities and governance arrangements in fisheries imply far-reaching transformation in both the subject-orientation and the process of research. This in turn implies institutional change in the organizations that conduct fisheries research, such as government research services and universities. The fundamental institutional changes required are only just beginning. An ongoing programme illustrating this is given in Box 56, and a new agenda for fisheries research is suggested in Section 3.9.3.2 – an agenda that puts interdisciplinary understanding of fisheries at its centre and emphasizes small-scale fisheries as an integral part of the rural socio-economy.

3.9.3.2 Priority research areas for small-scale fisheries in developing countries

Research effort and resources in the fisheries sector have for a long time been directed most strongly towards the large-scale sector. At the same time, research on rural development issues has tended to ignore the fisheries sector and to concentrate on agriculture, rangelands and forestry issues. Only in environmental research has the state of fish resources and the aquatic environment received a high profile, which has inevitably portrayed fisherfolk as one of the main threats to marine ecosystems, rather than seeing fishing-dependent people, particularly those engaged in small-scale fishing, as an integral part of aquatic ecosystems.

Awareness of the importance of the small-scale fisheries sector in fisheries management, rural development and resource conservation has been growing, due to the combined efforts of individual fisheries social science researchers and advocates, NGOs such as the International Collective in Support of Fishworkers (ICSF), and international research organizations such as ICLARM (now the WorldFish Center) that have supported fisheries social science research since the late 1970s (Smith, 1979). Recent key FAO publications also emphasize the importance of research on poverty, livelihoods and social, institutional and cultural contexts (McGoodwin, 2002; Macfadyen and Corcoran, 2002).

With the importance of the small-scale sector in sustaining livelihoods in developing countries now being more fully recognized, there is an opportunity to significantly change the research agenda to reflect the concerns of the fisheries that involve most of the world's fisherfolk. In making recommendations for research, it must also be borne in mind that emphasis on participation includes the need to allow fisherfolk to set their own research priorities, rather than have the research agenda solely dictated by external agents (Campbell and Salagrama, 2000; see Box 58). With this important caveat in mind, some of the major information gaps and priority areas for research on small-scale fisheries are presented below. They are grouped into five principal research areas, as seen from the perspective of those involved in providing fishery advisory services in development. These are not exhaustive, and are intended to prompt thought and ideas on new research directions.

As emphasized in Box 57, participatory research is crucial in this new agenda. Participatory research involves the people of the community working with the researchers in the collection, analysis and validation of the outputs as well as the choice of research topic. Participatory research can be conducted using a mix of scientific and participatory or rapid appraisal methods (e.g. Strengths Weaknesses Opportunities and Threats

BOX 57

New approaches to participation in fisheries research

A vital part of the development process is the generation and use of new knowledge, which has generally been taken to mean knowledge produced by formal scientific research. However, much literature now exists on traditional (indigenous) knowledge systems and their efficacy in tackling the necessities of rural communities. The capacity of the poor to manage their environment and achieve sustainable livelihoods has been increasingly recognized and there is a growing acceptance of the relevance of their knowledge systems in poverty alleviation and sustainable livelihoods programmes. Indigenous knowledge systems are also seen as contributing to empowerment as part of development. Fishers thus have their own valid research, and if new approaches to participation in research are to be explored, it is necessary to give due credit to the past efforts of the fishers in creating their own store of knowledge.

An approach is needed that involves a greater balance and quality of participation at different stages of the research cycle. Potential benefits of such an approach include: (i) a research process able to call on and combine existing knowledge from two parallel knowledge systems relatively quickly and cost effectively; (ii) research that can combine fishers' localized and practical knowledge and skills with professional researchers' theoretical, systematic and rigorous skills to make research more relevant and reliable; (iii) research results generated that are more appropriate to the needs of the fishers, more closely linked to their aspirations and capacities, and validated by them during the research process; (iv) faster uptake and quicker impact of the research results as a result of the joint validation process; and (v) more relevant information passing from research into the policy process, thus generating greater appreciation of the value of the research and increasing the possibility of improved research funding.

Source: Campbell and Salagrama, 2000.

[SWOT] analysis) and includes the collection of traditional and indigenous knowledge. This approach is central to the success of small-scale fisheries co-management.

Research Area 1. Poverty and vulnerability in small-scale fisheries

This Technical Paper has pointed out that the multiple dimensions of poverty and vulnerability among small-scale fisherfolk are poorly understood. Although considerable recent research effort has focused on understanding the poverty status of fisherfolk and the underlying reasons for it, more work on poverty and vulnerability is required to provide policy-makers with information required to support pro-poor fisheries development and management.

There can be no standard recipe-style methodology for poverty and vulnerability assessment in small-scale fisheries, as the methodology must be adapted to fit the research questions asked and the available research capacity. Nevertheless, it is suggested that any analysis of poverty consider including the following components:

Studies of income, expenditure and asset values. Both relative and absolute poverty assessments require some quantitative measure of incomes and expenditure, while livelihoods perspectives emphasize the importance of valuing key assets, such as land holdings and fishing gear ownership. Standard household survey techniques can be used, but it is important not to focus solely on earnings and expenditure in the fisheries sector, since many small-scale fishing households have multiple income sources and

may not separate fishing finances from general household budgets. In assessing incomes and expenditure, it is also important to value home consumption since there may still be a relatively high degree of subsistence-orientation in parts of the economic system within which fishers and farmers in developing countries are involved. Household- and community-level research provides a useful complement to the traditional fishery research focus on the fleet or the post-harvest sector.

It is also important to look at intra-household income and expenditure patterns since households may not function as an economic unit. Men's and women's incomes may be used differently, for example, and responsibilities for household and productive asset expenditures may be apportioned on the basis of gender. The household as a social unit can also be difficult to work with, particularly as many fishing households are spatially dispersed – mobile or migrant fishers and fishworkers may be socially and economically linked to households distant from their current place of work.

Livelihoods-type surveys also include analysis of asset values and have proved particularly useful in differentiating the poor from the non-poor in fishing communities on the basis of, for example, ownership of fishing-related assets. Quantifying households' access to, or ability to draw on, social and human capital or public goods such as roads and health clinics is not often necessary or useful, and the capital assets framework in the livelihoods approach should not be taken too literally. It serves as a checklist and conceptual framework, not a quantifiable system model. As such, it is a useful means to probe into the determinants of poverty, and not just focus on its measurement.

In conducting livelihoods-type surveys, it is vital not to forget the contribution of non-natural resource (NR)-based activities, such as wage labour (on farm, non-farm and off-farm) and self-employment in small businesses (e.g. brewing, selling food and drink, renting accommodation, repairing boats and nets, running a small shop and business interests in trading centres and towns). This rural non-NR "forgotten" sector (Fisher, Mahajan and Singha, 1997) is becoming increasingly important in the context of decreasing reliance on agricultural productivity among many developing-country households (Bryceson, Kay and Mooij, 2000) and is likely to be significant in all but the most remote and subsistence-orientated context.

Access to assets, property rights, and power relations. Much contemporary discussion of poverty in the fisheries sector revolves around rights of access by the poor to fishery resources in the context of changing property rights regimes in fisheries (Kurien, 2003; Béné, 2003). An important research question is to find out what it is in practice that limits access to fishery resources by disadvantaged groups. Cultural norms restrict the access of women to fish-catching opportunities in many countries, for example, and there may be de facto barriers to access to fisheries for certain ethnic groups. In many cases, the poor cannot access fishing opportunities because they lack access to capital (including credit) for the purchase of the necessary assets – a boat and fishing gear. Understanding the nature of access regimes and barriers to access is a critical part of the design of pro-poor fisheries management systems that seek to balance facilitation of access with the need to conserve the resource. These are fundamentally questions of resource entitlement and allocation – in this case, attempting to prioritize the rights of the poor. Crucial to access issues is the question of property rights. Careful research is required to elucidate context-specific meanings of property rights and how they are acquired, allocated, transferred and defended. The concept of environmental entitlements (Leach, Mearns and Scoones, 1999) provides a useful framework through which to look at property rights issues.

Research on access and rights issues for fisherfolk should not be restricted to access, use rights and ownership claims over fishery resources. Often, fisherfolk's mobility and occupational characteristics give them restricted access to services such as as

health clinics and schools, or their lack of land rights makes their settlements illegal or unofficial, and therefore ineligible for government support and provision of social and environmental services. Absence at sea may also make it difficult for fishers to benefit from the social and political organizations available to those engaged in land-based activities. Under these circumstances, labour rights, citizens' rights and basic human rights of fisherfolk may be liable to violation.

Vulnerability. The Code identifies research on the effects of climate change or environmental change on fish stocks as a priority. The effects of climate change on fisherfolk could be added to this, which might be felt indirectly as a result of changes in the fish stocks, or directly, in the form of increased vulnerability to floods, storm surges, hurricanes or droughts.

Research on vulnerability of fisherfolk should not, however, be confined to the impacts of natural or environmental hazards. Vulnerability encompasses many of the impacts of social and political marginalization discussed above. In particular, fisherfolk are vulnerable to economic and other factors that disrupt trade in their perishable product. Like other rural dwellers, they are vulnerable to breakdown in internal security – theft of boats, engines and fishing gear is cited increasingly as a major problem for fisherfolk – to civil strife and to corruption and other governance weaknesses. Additional vulnerability comes from the hazardous nature of fishing as an occupation and from norms of social behaviour (perhaps associated with risk-rationalisation) that lead to high risk of exposure to HIV/AIDS in some fishing communities (see Box 13). Research on fisherfolk's risk-coping responses and risk-managing strategies is important for targeting development interventions that build on strengths in existing risk-coping and management practice, and that help to develop strategies to reduce exposure to risks.

Psycho-social impacts of poverty and marginalization. The concept of *well-being* is not often considered in analyses of poverty in fisherfolk. Poverty studies tend to focus more on the measuring the material experience of poverty, but subjective feelings such as self-worth, emotional stability, sense of personal safety, a sense of belonging and a positive future outlook are key elements in mobilizing commitment to, for example, community-level resource stewardship. The World Bank's *The voices of the poor* study (Narayan *et al*., 2000) attempted to record and understand these non-material elements of poverty, but the study did not specifically include fisherfolk; this could be addressed.

Research Area 2. Demographic, economic, social and cultural issues among fisherfolk

Although there have been a number of studies on fisherfolk's livelihoods, culture and society, many of these have been "snapshots". There are few longitudinal studies such as those for small-scale farming communities that use "panel data" – repeat visits over a period of years to record demographic, economic, social and cultural change. It would be useful to follow up some of the recent livelihoods studies with repeat exercises designed to assess the key changes in small-scale fisheries in more detail than is possible from recall surveys on perceived change. Studies of change and its implications for fisheries management and development might include the following topics:

Basic demographic research is important to address the question of whether fisheries are under increasing or decreasing population pressure. The conventional wisdom is that fishing, with its relatively weak barriers to entry, provides a means of livelihood to an increasing number of landless and destitute people, and that the number of fisherfolk is therefore likely to increase as population in general increases. The limited research in this area suggests, however, that the number of people fishing may be

stabilizing or decreasing, despite overall population increases (Tietze, Groenewold and Marcoux, 2000). In general, rural populations in developing countries are now decreasing, as urbanization gathers pace. This does not mean fishing effort will decrease, but the structure of ownership and the scale of operations may change, or the people who fish may change – so-called "non-traditional" fishers may enter the sector. As well as monitoring demographic variables in fishing communities (i.e. the number of fisherfolk and their population age structures, birth and mortality rates), there is a need for information on people's motivations for entering or leaving the fishery in order to inform efforts to manage fishing capacity and to devolve fishery management appropriately (Jul-Larsen *et al*., 2003).

Gender issues in fisheries have belatedly become a major part of the development and management agenda. Research has tended to focus on the gender division of labour and on what women in fishing communities do. This may be because gender is often equated with "women in development", or because fisheries research has tended to focus on men's fishing activities. However, gender studies are more commonly concerned with the relationships between men and women, in terms of rights, powers and responsibilities, as well as task allocation in productive and reproductive roles. In order to understand gender issues in fisheries, it is therefore important not to forget or marginalize men in gender research.

Gender issues need to be mainstreamed rather than considered a separate topic. Thus, when a research project wishes, for example, to study the impact of technological change on fishing incomes and poverty, it should ensure that its research design allows analysis of the differential impacts on men and women (e.g. Box 58). Several analytical frameworks for gender analysis are available, many of which are summarized in March, Smith and Mukhopadhyay, 1999).

Community-level analysis is required to inform the ongoing shift towards co-management in fisheries. Communities may include people who differ in wealth and

BOX 58

Gendered analysis of technological change in Indian fishing communities

Women from fishing households in West Bengal, India, lost their net-making jobs, which supplied nearly 90 percent of their income, when as a result of mechanization to prawn trawling, they were forced to take up less lucrative occupations such as rice-husking, resulting in a loss of financial independence and status. Their choice of new income-generating opportunities was constrained by men's preferences that the income-generating activities of female householders be home-based. As a result of the loss of women's contribution to household income and the rising capital costs of fishing gear, fishing communities became more divided by class than they had been before fishing became mechanized, with ownership of fishing assets strongly differentiating the poor and non-poor.

By contrast, many Goan Catholic fisherwomen have made an economically successful transition from 'barefoot, headload peddlers" to market entrepreneurs working in small cooperative groups. Complementary and egalitarian gender relations of fishing groups represent a reversal of the dominant patriarchal norms of Indian society, as well as challenging the global view that women in fishing communities are particularly disadvantaged by masculine fishing cultures.

Sources: Pramanik, 1994; Rubinoff, 1999.

power, residency status or ethnicity. Understanding the nature of communities and how informal institutions, cooperatives and collectives function at the local level provides important information for efforts to establish formal organizations for local-level fisheries management and to support local-level development initiatives.

Traditional or indigenous knowledge of fish and the aquatic environment and its relevance for management is seen as a research priority in the Code. The role of traditional or local knowledge in conservation is increasingly appreciated, but ethical dilemmas over the appropriation of such knowledge by formal institutions or its commercialization need to be taken into account (Maurstad, 2002). The use of traditional knowledge for management decision-making is an operational necessity in participatory management, and a general understanding of the role of different forms of knowledge should inform all fisheries research programmes.

Migration and livelihood diversification. It is now recognized that many fisherfolk are mobile and/or occupationally diverse. What is less well-known are the dynamics of these processes, despite some interesting recent research in this field (Jul-Larsen and Kassibo, 2001). Migration and occupational mobility (movement in and out of fisheries) can be driven either by *push factors*, such as the collapse of local fishery resources or of other economic sectors, or population growth that limits access to other resources such as land, or by *pull factors;* fishing may represent a more attractive business opportunity than the available alternatives, or fisherfolk may simply be mobile to accommodate for seasonal migrations of fish and interannual fluctuations in the stocks. Understanding whether people are diversifying into or out of fishing and the reasons for their decisions needs to inform any attempt to develop policy that facilitates or impedes migration and diversification into or out of fishing. Knowledge of the relationship between migrants, residents and the local socio-economy will allow recommendations to be made for allocation of access rights, resolution of migrant-resident conflicts and the development of multi-stakeholder, pro-poor local resource management systems. Disaggregation and analysis by gender, ethnicity and wealth status should be conducted whenever possible.

Research Area 3. The role and contribution of small-scale fisheries in rural and peri-urban economies in developing countries

There is little knowledge or consensus on what role small-scale fisheries play in the economy. The conventional wisdom that fisherfolk are the poorest of the poor and that small-scale fisheries are the occupation of last resort is gradually being replaced by the recognition that there is a more complex and context-specific picture. Research that does not depend on assumptions about the social and economic role of fisheries is required. A number of research approaches can be proposed to understand the role of fisheries in the wider socio-economy and how this is influenced by policy change, both inside and outside the fisheries sector. Three key research approaches to understanding the contribution of fisheries and the impacts of policy on that contribution are briefly outlined here:

Value chain analysis (VCA) has proven useful in understanding the role of particular sectors in global, regional and national economies. The value chain describes the full range of activities that are required to bring a product or service from conception, through the different phases of production. It is important to mention that it attempts not only to describe the chain, but also to map out value-added, that is, net profits plus wage earnings. Value-chain research can identify entry points for development intervention (e.g. in adding value to exports or creating enabling environments for ancillary industries such as boat-building to flourish). It can also provide a more accurate assessment of existing and potential contribution of the fishery sector to the economy.

BOX 59

The economic importance of products extracted from Amazonian floodplain forests

A study near Iquitos, Peru, valued all extracted products from forests, rivers and lakes, and all cultivated products from formerly forested floodplain areas that had been converted to agricultural land during a one-year period. Values were based on local prices at the village level. The study found that the value to the local economy of products extracted from rivers and lakes (fish, alligators, turtles and their eggs) exceeded the value of game and plant resources extracted from forests. They also calculated that each household required access to 113 ha of forested floodplain to sustain their livelihood system, and used this figure to argue that restricting flooded forest conversion to other uses (e.g. cattle grazing) and maintaining communal access by local people were vital in sustaining livelihoods of those living near or on the floodplain.

Source: Gram, Kvist and Caseras, 2001.

Value-chain analysis has no single methodology, but a comprehensive review of theory, tools and techniques has been produced (Kaplinsky and Morris, 2001). A value-chain analysis for three of the main fish species in the United Kingdom has recently been produced by the UK Seafish Industry Authority (KPMG AS and SEAFISH, 2004). This concentrates on the linear links between producer and consumer, and does not consider the secondary chains, such as links into sectors including tourism and the wider coastal economy. The combination of value-chain analysis with livelihoods analysis is a way to ensure that linkages and multipliers are taken into account at the micro-level (Bostock, Greenhalgh and Kleih, 2004).

Environmental valuation studies of various types are becoming increasingly used as a means of supporting decision-making in environmental management, including fisheries, wetland and ocean and coastal management. These are complementary to commodity-focused approaches such as value-chain analysis, and intend to capture elements of the multiple contribution that environmental resources make to the economy. They have been extensively used to evaluate trade-offs between different uses of coastal zones such as mangrove conservation and shrimp farming (Ronnback, 1999) and to highlight the contributions of aquatic resources to local production and livelihood systems (e.g. Box 59).

Fisheries policy analysis has become a much more prominent part of the research agenda in recent years. Understanding the policy and institutional environment and identifying the impact of policy change on poverty in small-scale fisheries is an important research priority for many regional and international fisheries research centres (e.g. Ahmed, Delgado and Sverdrup-Jensen, 1997). Policy and institutional analysis can help to determine, for example, the impact of changes in fisheries legislation or property rights regimes. A new area of research that requires greater emphasis is the role of non-fishery sector policy change on fisheries, such as global trade-liberalization, environmental policy and poverty reduction strategies. Guidance on policy analysis methodology can be found in Pasteur (2001).

Research Area 4. Effectiveness of the changing fisheries governance regime

Although fisheries governance systems have changed appreciably in the last 20 years, it is proving difficult to evaluate the effectiveness of many of these changes, partly

because they are relatively recent compared to the length of data series required to demonstrate success, and because they take place simultaneously with wider social, economic and policy changes in an uncontrolled experiment.

Several features of the evolving fisheries governance regime can be identified as key areas for increasing our knowledge of their consequences:

Factors associated with successful co-management. *Design principles* for successful co-management are often mentioned in the literature, but experience with the application of such principles is little documented and comparative analysis of their generalizability is lacking (Agrawal, 2001). Common frameworks for analysis of co-management success are available (see, for example, Box 57 and Table 7) and can be used to evaluate whether the transition to self-management is bringing the expected benefits in terms of empowering fisherfolk and leading to improved generation, maintenance and distribution of the stream of livelihood benefits from fishery resources.

The role of local and central government. Political decentralization is taking place in many countries as part of efforts to make government more democratically accountable and responsive to local development needs. Many central government functions are therefore now being carried out at the local level. There is a need for research that evaluates and informs the way in which these changes impact, either beneficially or detrimentally, on fisheries governance and poverty. Policy research that links macro-, meso- and micro-level outcomes is recommended. In particular, the impacts of devolved licensing and taxation schemes, their implications for poverty, vulnerability, management and compliance, and livelihood strategies in fisherfolk are not well understood.

The impact of regional and international agreements on poverty in small-scale fisheries is seldom addressed. This leaves policy-makers unable to provide strategic advice on the direction of future international governance instruments. There is some indication that voluntary standards and non-binding agreements (e.g. the Code) may have greater influence, through their indirect effects on national laws, than the host of non-binding or weak global treaties and international laws (Allison, 2001).

More research is required to identify ways of making regional and global governance of fisheries more effective for small-scale fishers around the world, including, once again, governance instruments that transcend the fishery sector, such as trade agreements (Kurien, 2005).

Underlying the new governance regime is the need to understand and develop ***methods to enhance compliance with regulations, resolve conflicts, and monitor outcomes*** of development and management initiatives in the small-scale sector.

Research Area 5. Small-scale fisheries, resource and environmental conservation

Concern over the state of the aquatic environment increasingly drives the agenda in fisheries governance. The crisis narrative prevalent in recent years first identified fisherfolk as among those to blame for resource degradation, but increasingly considers small-scale fishers as those most disadvantaged by, and least able to prevent, overfishing and habitat degradation. Environmental NGOs have formed alliances with small-scale fisherfolk to protect marine resources and livelihoods. An evaluation of the successes or failures of these alliances and the lessons that can be learnt from them is overdue. This research can be informed by wider critical analysis on the successes and failures of integrated conservation and development programmes.

Critical areas for research include:

Small-scale fisherfolk, poverty and the management of marine protected areas – studies of modes of participation, costs and benefits and livelihood impacts of no-take zones, marine parks, habitat reserves and other forms of restrictions on use.

Small-scale fisherfolk as conservationists. Views on the relationship of fisherfolk and the resources they utilize vary from the cynical to the romantic. Small-scale fisherfolk are seen, on the one hand, as short-sighted, greedy or desperate (or some combination of these), and on the other, as stewards of the sea, with a spiritual and cultural connection with the sea and its biodiversity. In practice, recognition of the need for conservation can co-exist with short-time horizons, particularly under conditions of institutional, economic and climatic uncertainty. Understanding the conditions under which fisherfolk create institutions for conservation and those under which such institutions break down is important if small-scale fisherfolk are to be involved as partners in integrated conservation and development programmes that seek to trade-off local economic gains with global environmental ones (e.g. Baland and Platteau, 1996.

3.9.4 A need to develop better communication strategies

In addition to more appropriate (pro-poor-oriented) information and research (sections 3.9.2 and 3.9.3 above), there is also a need to develop better communication strategies to improve the flow and dissemination of information related to small-scale fisheries and their contribution to poverty alleviation, rural development and food security. Generating appropriate information is not sufficient. More attention must be devoted to identify the target audiences, tailor messages to reach those audiences and define media strategies to reach the intended targets. During the Working Party on Small-scale Fisheries that convened in Rome in November 2003, the experts identified a series of actions that should be considered as elements for a more elaborated communication plan:

- Informative workshops aimed at facilitating the exchange of information between planners and fisheries stakeholders. This would in particular address the current lack of representativeness of the fishery sector in national-level poverty reduction strategies;
- Organization and coordination of fisheries forums at different levels (local, district, national and international) to foster stakeholder participation in the decision-making process and institutional development of the sub-sector, and to raise awareness of their importance;
- Working with the fisheries departments as key-message carriers through to ministers;
- Influencing the major donor agencies (in particular, the World Bank due to its large influence on national policies) to ensure that small-scale fisheries are part of their own agenda (e.g. World Bank Green Books);
- Considering the potential role of pressure groups, i.e. International NGOs, civil society, world forums, etc. in influencing the agenda setting and the policy process of national governments.

3.9.5 Recommendations on bridging research, policy and action

As well as the shift in emphasis to include some of the research problems and needs outlined above, improved links between research and policy are needed. Some of the recommendations for improving these links, derived from a recent Advisory Committee on Fisheries Research (ACFR) meeting on small-scale fisheries (FAO, 2004b) can be summarized as follows:

- Research plays an important role, not just to inform policy, but in empowerment, advocacy and mobilization of resources.

- Research delivery time-scales need to be relevant to policy needs, with a balance between operational, strategic and more fundamental research needing careful consideration.
- Research findings and policy implications need to be clearly communicated to their target audiences.
- By including more stakeholders in research, especially end-users such as fishers and fishworkers, research would become more demand-led and ownership would increase, thereby ensuring that results are more likely to feed back into action.
- In targeting research to policy-makers, it should be recalled that policy-makers are not just those in government, but also those making informal policy in the private sector.
- Research will be most effective if imbedded in a review and planning process ensuring that it is more action-orientated.
- Research capacity building is often required in developing countries, but is only sustainable if incentives for retaining that capacity can be addressed.

These are the challenges that fishery sector stakeholders must consider in aiming to increase the contribution of small-scale fisheries to poverty alleviation and food security.

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APPENDIX

Examples of national and international legal instruments supporting small-scale fisheries

(Compiled by International Collective in Support of Fishworkers [ICSF])

I. EXCERPTS FROM CONSTITUTIONS

Small-scale fishworkers and communities are specifically mentioned in the constitutions of the following countries:

THE PHILIPPINES

The Philippines Constitution 1987

"The State shall protect the rights of subsistence fishermen, especially of local communities, to the preferential use of the local marine and fishing resources, both inland and offshore. It shall provide support to such fishermen through appropriate technology and research, adequate financial, production, and marketing assistance, and other services. The State shall also protect, develop, and conserve such resources. The protection shall extend to offshore fishing grounds of subsistence fishermen against foreign intrusion. Fishworkers shall receive a just share from their labor in the utilization of marine and fishing resources." (Section 7, under Art. XIII on Social Justice and Human Rights).

Source: http://www.gov.ph/aboutphil/a13.asp)

VENEZUELA

Constitución de la República Bolivariana de Venezuela
PUBLICADA EN GACETA OFICIAL DEL JUEVES 30 DE DICIEMBRE DE 1999, N° 36.860

Artículo 305.

El Estado promoverá la agricultura sustentable como base estratégica del desarrollo rural integral a fin de garantizar la seguridad alimentaria de la población; entendida como la disponibilidad suficiente y estable de alimentos en el ámbito nacional y el acceso oportuno y permanente a éstos por parte del público consumidor. La seguridad alimentaria se alcanzará desarrollando y privilegiando la producción agropecuaria interna, entendiéndose como tal la proveniente de las actividades agrícola, pecuaria, pesquera y acuícola. La producción de alimentos es de interés nacional y fundamental para el desarrollo económico y social de la Nación. A tales fines, el Estado dictará las medidas de orden financiero, comercial, transferencia tecnológica, tenencia de la tierra, infraestructura, capacitación de mano de obra y otras que fueren necesarias para alcanzar niveles estratégicos de autoabastecimiento. Además, promoverá las acciones en el marco de la economía nacional e internacional para compensar las desventajas propias de la actividad agrícola.

El Estado protegerá los asentamientos y comunidades de pescadores o pescadoras artesanales, así como sus caladeros de pesca en aguas continentales y los próximos a la línea de costa definidos en la ley.

Source: http://www.constitucion.ve/

Unofficial translation

The State shall promote sustainable agriculture as the strategic basis for overall rural development to ensure the population's food security;, defined as the sufficient and stable food availability at the national level and the access to it at all times by the consumers. Food security will be achieved by developing and prioritizing domestic agricultural and livestock production, understood as the production originating from agriculture, livestock, fisheries and aquaculture activities. Food production is in the national interest and is fundamental to the economic and social development of the Nation. To this end, the State shall promulgate such financial, commercial, technological transfer, land tenancy, infrastructure, manpower training and other measures as may be necessary to achieve strategic levels of self-sufficiency. In addition, it shall promote actions in the national and international economic context to compensate for the disadvantages inherent to agricultural activity.

The State shall protect the settlement and communities of artisanal fishers, as well as their fishing grounds in continental and coastal waters, as defined by law.

FIJI

Fiji Constitution Amendment Act 1997

Customary laws and customary rights

186. -(1) The Parliament must make provision for the application of customary laws and for dispute resolution in accordance with traditional Fijian processes.

(2) In doing so, the Parliament must have regard to the customs, traditions, usages, values and aspirations of the Fijian and Rotuman people.

(3) The Parliament must make provision granting to the owners of land or of registered customary fishing rights an equitable share of royalties or other moneys paid to the State in respect of the grant by the State of rights to extract minerals from the land or the seabed.

Source: http://www.unescap.org/esid/psis/population/database/poplaws/law_fiji/fiji_004.htm

MARSHALL ISLANDS

Marine Resources Act, 1997

Art. 28. Protection and promotion of artisanal fisheries.

The Authority may, in the implementation of this Act and after consultation with the appropriate Local Government Council, take such action as it deems necessary to protect and promote artisanal fisheries, including:

- exempting indefinitely, or for such period of time as it may specify, such fisheries from any requirement concerning licensing and the payment of fees under this Act;
- promoting the establishment and development of fishing, processing or marketing cooperative societies;
- establishing reserved areas for artisanal fishing;
- giving priority to artisanal fisheries in the allocation of fishing licences or quotas; and
- such other action as it deems necessary for the protection and promotion of such fisheries.

Source: http://faolex.fao.org/faolex/index.htm; http://faolex.fao.org/docs/pdf/mas24915.pdf

ZANZIBAR (UNITED REPUBLIC OF TANZANIA0

The Fisheries Act 1988

(An Act to repeal certain laws related to fishing and to enact better provisions related to the management and development of fisheries in the territorial waters of Zanzibar and matters connected therewith and incidental thereto.)

Art. 8. Protection of traditional fisheries:
The Minister shall in co-operation with the other agencies of Government, promote the development of traditional and industrial fisheries and related activities in Zanzibar. He shall ensure that development of industrial fisheries does not unduly damage traditional fisheries, through such means as reserving areas for different kinds of fishing.
Source: http://faolex.fao.org/docs/pdf/tan40116.pdf

SOLOMON ISLANDS

Fisheries Act 1998

Management and Development of Fisheries
3. (2) The objective of fisheries management and development in Solomon Islands shall be to ensure the long-term conservation and the sustainable utilisation of the fishery resources of Solomon Islands for the benefit of the people of Solomon Islands.

Contents etc. of fisheries management and development plans
8. (1) A fisheries management and development plan shall [inter alia]
(paragraph f) take into account any relevant traditional fishing methods or principles.
Source: http://faolex.fao.org/docs/texts/sol16127.doc

NEW ZEALAND

Treaty of Waitangi (Fisheries Claims) Settlement Act (No. 121 Of 1992)
An Act –
To give effect to the settlement of claims relating to Maori fishing rights;
To make better provision for Maori non-commercial traditional and customary fishing rights and interests; and
To make better provision for Maori participation in the management and conservation of New Zealand's fisheries.
Source: http://www.legislation.govt.nz/libraries/contents/om_isapi.dll?clientID=174807&infobase=pal_statutes.nfo&jump=a1992-121&softpage=DOC

New Zealand Fisheries Act, 1988 as amended in 2004:
Part 9: Taiapure-local fisheries and customary fishing
174. Object—
The object of sections 175 to 185 of this Act is to make, in relation to areas of New Zealand fisheries waters (being estuarine or littoral coastal waters) that have customarily been of special significance to any *iwi* or *hapu* either—
(a) As a source of food; or
(b) For spiritual or cultural reasons,
—better provision for the recognition of *rangatiratanga* and of the right secured in relation to fisheries by Article II of the Treaty of Waitangi.
Source: http://www.legislation.govt.nz/libraries/contents/om_isapi.dll?clientID=174979&infobase=pal_statutes.nfo&jump=a1996-088&softpage=DOC

GHANA

The Ghana Fisheries Act, 2002

Part I- Fisheries Commission
Object and functions of the commission
2. (2) without prejudice to the general effect of sub-section (1), the commission shall in relation to fisheries perform the following functions:
(g) promote co-operation among local fishermen and advance development of artisanal fishing;

(o) in collaboration with District Assemblies with fishing communities, ensure the enforcement of the fishery laws including bye-laws made by the relevant District Assemblies.

Part IV- Fisheries Management and Development
Sub-Part-III – Artisanal Fishing, Aquaculture and Recreational Fishing
Development of artisanal fishing
51. (1) The Commission shall in the implementation of its functions under this Act take such action as it considers necessary to protect and promote artisanal and semi-industrial fishing including the following:
(a) the provision of extension and training services
(b) the registration of artisanal fishing vessels and any class of related fishing gear
(c) the exemption for such period as it may recommend to the Minister of such fisheries activities as it may determine from any requirement concerning licensing and the payment of fees under this Act;
(d) the promotion of the establishment and development of fishing processing and marketing co-operative societies;
(e) promotion of the development of artisanal fishing landing facilities
(f) the establishment of reserved areas for fishing activities of artisanal and semi-industrial fishing vessels
(g) the giving of priority to artisanal and semi-industrial fishing in the allocation of fishing licences or quotas;
(h) the promotion of joint ventures arrangements, technology transfer agreements and transfer of technology and experience.
Source: http://faolex.fao.org/docs/pdf/gha34737.pdf

Protocol on fisheries of the Southern African Development Community (SADC)

Article 3: Objective
The objective of this Protocol is to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties in order to:
a) promote and enhance food security and human health;
b) safeguard the livelihood of fishing communities;
c) generate economic opportunities for nationals in the Region;
d) ensure that future generations benefit from these renewable resources; and
e) alleviate poverty with the ultimate objective of its eradication.

Article 7: Management of Shared Resources
6. State Parties shall develop, implement and enforce management plans, towards the development and management of shared inland water bodies, by balancing the needs of industrial enterprises, artisanal fishers, subsistence fishers, recreational fishers, and aquaculture practitioners, in a politically, environmentally and economically sustainable manner.

Article 12: Artisanal, Subsistence Fisheries and Small-scale Commercial Fisheries
1.State Parties shall seek a rational and equitable balance between social and economic objectives in the exploitation of living aquatic resources accessible to artisanal and subsistence fishers by:
a) instituting legal, administrative and enforcement measures necessary for the protection of artisanal and subsistence fishing rights, tenure and fishing grounds; and

b) taking particular account of the needs of socially and economically disadvantaged fishers.

2. State Parties agree to develop and nurture small-scale commercial fisheries taking particular account of the need to optimise the economic and social benefits of such fisheries.

3. State Parties shall take measures to facilitate the provision of physical and social infrastructure and support services for the development of artisanal, subsistence and small-scale commercial fisheries.

4. As part of an integrated economic strategy, State Parties agree to promote the development of structured programmes related to optimising the potential economic benefits arising from artisanal, subsistence and small-scale commercial fisheries.

5. State Parties shall work towards the development, acquisition and dissemination of tested means and methods of promoting education, empowerment and upliftment of artisanal and subsistence fisheries communities.

6. State Parties shall facilitate broad based and equitable participatory processes to involve artisanal and subsistence fishers in the control and management of their fishing and related activities.

7. State Parties shall work towards harmonising their national legislation on appropriate traditional resource management systems, taking due account of indigenous knowledge and practice.

8. State Parties shall, subject to Article 16 of this Protocol, adopt equitable arrangements whereby artisanal, subsistence and small-scale commercial fishers who are traditionally part of a transboundary fishery may continue to fish and trade in goods and services.

Source: http://www.sadc.int/english/documents/legal/protocols/fisheries.php

This paper highlights the contribution that inland and coastal small-scale fisheries can make to poverty alleviation and food security and provides guidance on ways that this contribution can be maximized. Starting from a discussion of the concepts of poverty, vulnerability and food security, it illustrates the role that small-scale fisheries can play in economic growth at the national level and to poverty alleviation and rural development at the local level. The paper identifies nine main entry points to increase the contribution of small-scale fisheries to poverty alleviation and food security. These include pro-poor reforms to fisheries sector policies and legislation, promotion of cross-sectoral coordination and policy interventions, pro-poor fisheries management, making markets and trade work for the poor, pro-poor financing, capacity building, and information, research and communication that are needed to complement or support other interventions and to ensure the contribution of small-scale fisheries to poverty alleviation and food security.

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