

## HUMAN CAPACITY DEVELOPMENT IN FISHERIES



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## **HUMAN CAPACITY DEVELOPMENT IN FISHERIES**

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## PREPARATION OF THIS DOCUMENT

The Advisory Committee on Fisheries Research (ACFR) Working Party on Human Capacity Development in Fisheries held its first session in FAO Headquarters, Rome, from 19 to 22 April 2004. This FAO Fisheries Circular is the edited version of the discussion document presented at the session and incorporates the suggestions made by the Working Party. The administrative report of the meeting was published in the FAO Fisheries Report series with No. 745.

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### ABSTRACT

Human capacity development in fisheries is increasingly recognized as a high priority, especially as regards to meeting the targets set by the World Summit on Sustainable Development in the areas of global reporting and assessment of the state of the environment by 2004, implementing recent International Plans of Action (e.g. on fishing capacity by 2005, and on Illegal, Unreported and Unregulated (IUU) Fishing by 2004), applying the ecosystem approach by 2012 and maintaining or restoring fish stocks by 2015. A special focus on human capacity development is particularly important now, partly because of new approaches to fisheries management and also because of changes in the international development context driven by the failure of many previous development initiatives and the realization of the key role that capacity development must play in supporting sustainable development.

This discussion paper first presents conceptual ideas on capacity development, then examines capacity development needs in fisheries, past approaches to capacity development (both in fisheries and other sectors) and key lessons that can be drawn from them. A review of current approaches assesses ongoing initiatives, leading to a discussion on the wide range of possible delivery mechanisms. Finally, a strategy for human capacity development in fisheries is introduced, along with related actions and models followed by some key recommendations on research topics.



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## LIST OF ACRONYMS

ACFR	Advisory Committee on Fisheries Research
CCRF	Code of Conduct for Responsible Fisheries
CIDA	Canadian International Development Agency
COFI	Committee on Fisheries
DACUM	Developing a Curriculum
DFID	Department for International Development (UK)
EAF	Ecosystem Approach to Fisheries
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
FAO PBEE	FAO Evaluation Service
GIS	Geographical Information Systems
HACCP	Hazard Analysis and Critical Control Point
HCD	Human Capacity Development
HRM	Human Resource Management
ICAM	Integrated Coastal Area Management
IICD	International Institute for Communication and Development
ICT	Information and Communication Technology
IPOA	International Plan of Action
IUU	Illegal, Unreported and Unregulated (Fishing)
JICA	Japan International Cooperation Agency
KASA	Knowledge, Attitude, Skills and Ability
MCS	Monitoring, Control and Surveillance
MPA	Marine Protected Area
NGO	Non governmental Organization
NPOA	National Plan of Action
PC	Personal Computer
PCD	Participatory Curriculum Development
PRSP	Poverty Reduction Strategy Paper
RBM	Results-based Management
RFO	Regional Fisheries Organization
SIFAR	Support Unit for International Fisheries and Aquatic Research
SLA	Sustainable Livelihood Approach
SPS	Sanitary and Phyto-sanitary
SUFER	Support for University Fisheries Education and Research
T&V	Training and visit
TNA	Training Needs Analysis
ToT	Training of Trainers
UNDP	United Nations Development Programme
WRI	World Resources Institute
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization



## EXECUTIVE SUMMARY

This discussion paper has been prepared on behalf of the Advisory Committee on Fisheries Research (ACFR) of the Food and Agriculture Organization (FAO) of the United Nations. Human capacity development in fisheries is increasingly recognized as a high priority, especially with respect to meeting the targets set by the World Summit on Sustainable Development in (i) the areas of global reporting and assessment of the state of the environment by 2004, (ii) elaborating National Plans of Action (NPOAs) for combating illegal, unreported and unregulated (IUU) fishing by 2004 and for reduction of fishing capacity by 2005, (iii) applying the ecosystem approach by 2012 and (iv) maintaining or restoring fish stocks by 2015. A special focus on human capacity development is also important because of new approaches to fisheries management, such as the ecosystems approach and a more inclusive management process, which require levels of capacity which were not previously necessary. It is also important because of changes in the international development context driven by the failure of many previous development initiatives and the realization of the key role that capacity development must play in supporting sustainable development.

The paper first presents some conceptual ideas about what capacity development is. It is suggested that capacity exists, and needs to be strengthened at, *four levels*: in individuals, in organizations/institutions, in sectors and networks, and in the overall environment in which the first three function. Initiatives must take a holistic/systemic view of the context in which individuals operate. Capacity development is also a *process*, whereby individual development becomes embedded in a sustainable shift in performance and collective behaviour.

While recognizing that capacity development needs will be case/initiative specific, it is possible to identify a range of capacity development areas that might require support. These can be grouped into three “pillars” depending on whether they relate to: fisheries science, research and development; fisheries sector management; or wider non-fisheries specific societal skills and knowledge as part of the enabling environment.

Past approaches to capacity development (both in fisheries and other sectors) have tended to focus primarily on technical support through training to individuals/institutions in science, research and development, and on the institutional capacity of government recipients of aid where institutional weakness was seen to threaten overall project success. Less attention was paid to non-sector specific skills and knowledge such as management, business administration, governance etc. A number of key lessons are drawn from previous activities. Most important are that:

- Capacity development initiatives must be participatory in design, implementation and monitoring. Initiatives must build on core-capacities and be a two-way process of knowledge transfer.
- Initiatives must provide for flexible and suitable learning pathways.
- Approaches must take greater cognizance of the overall societal/political context in which initiatives operate.
- There is need for much better integration of initiatives based on regional/geographical, intrasectoral, intersectoral, and vertical linkages.
- Appropriate incentives must be built into capacity development initiatives.
- Those delivering capacity development may themselves require capacity development for effective delivery.

A review of current development approaches suggests that in fisheries greater emphasis is now being placed on capacity development in areas such as the ecosystems approach to fisheries, the Sustainable Livelihoods Approach (SLA), poverty assessments, and on issues of governance and wider generic, non-fisheries specific skills and knowledge. Other sectors are also now concentrating more on the overall enabling environment.

There are a wide range of possible delivery mechanisms that can be used for capacity development, and which can be usefully categorized into face-to-face mechanisms and remote mechanisms. Face-to-face mechanisms include: classroom-based training, seminars, conferences and workshops, research programmes, exchange programmes, demonstration trials, on-the-job training. Remote mechanisms include budget/programme support, publications, manuals/training material, radio, mentoring, distance-based training/learning, and mechanisms based on information and communication technology (ICT). Almost all are being used in the fisheries sector, with increasing emphasis on remote, internet-based approaches as demonstrated by some interesting examples. However, it is argued that traditional mechanisms remain vital, even if the way they are structured and delivered requires some change, especially with regards to more participation by beneficiaries. It is increasingly recognized that mixed use of mechanisms may be appropriate, and that mechanisms may need to be delivered through partnerships of service providers.

A strategic framework for capacity development in fisheries is then presented for consideration by the ACFR. It is based on certain key principles and conceptual models about what capacity development is. Eight strategies are presented in support of an overall objective defined as “*to improve the ability to manage the sustainable exploitation of aquatic living resources for the benefit of all mankind*”. Strategies are based on capacity development efforts concentrating on the four levels of capacity defined, and on the three pillars/groupings of capacity development areas. They also include a) extensive use of partnerships and linkages between donors, beneficiaries, and service providers, b) careful selection of mechanisms and providers to meet capacity development needs, c) increased measurability of the initiatives, and d) better strengthening of capacity development approaches. The paper specifies a number of actions to support each strategy, as well as a practical checklist of aspects to be considered by any capacity development initiative. The potential role of FAO within the overall strategy is assessed, and it is considered that FAO could play a key role in supporting a number of the strategies.

Finally the paper makes some recommendations on research topics related to capacity development in fisheries.

## 1. INTRODUCTION AND BACKGROUND

### 1.1 Introduction

At its Fourth Session in December 2002, the FAO Advisory Committee on Fisheries Research (ACFR) identified human capacity as a high priority issue, especially with respect to meeting the targets set by the World Summit on Sustainable Development (WSSD) in (i) the areas of global reporting and assessment of the state of the environment by 2004, (ii) elaborating National Plans of Action (NPOAs) for combating illegal, unreported and unregulated (IUU) fishing by 2004 and for reduction of fishing capacity by 2005, (iii) applying the ecosystem approach by 2012 and (iv) maintaining or restoring fish stocks by 2015. The Committee felt that past models for delivering on these needs (i.e. formal training provided by experts from developed countries to developing countries) would also need to change to accommodate the newer approaches to fisheries management. It would need to be based on a more mutual learning process, so that information and knowledge could be shared more efficiently and effectively by all involved. Human capacity would need to be built not just for science but also for management and the needs of other stakeholders. The Terms of Reference for this paper can be found in Appendix A.

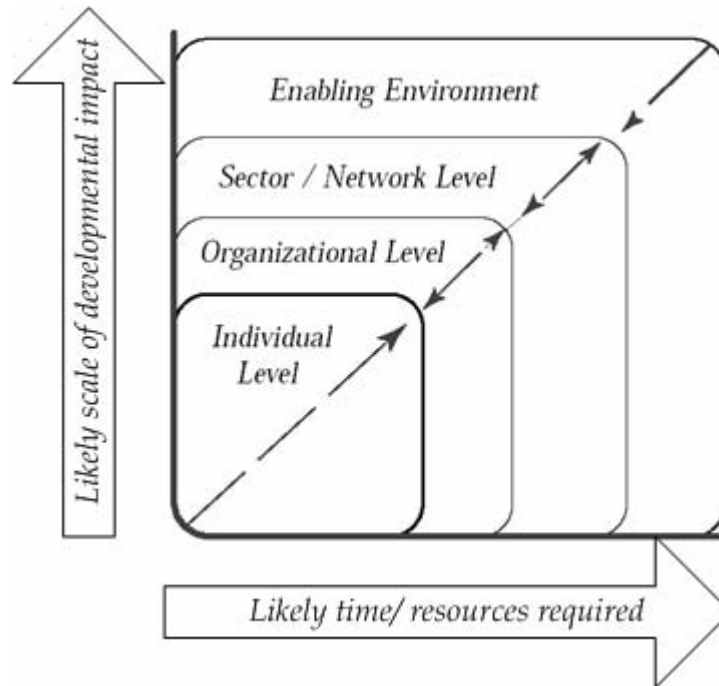
The methodology employed in preparing this paper has encompassed an extensive literature review coupled with interviews with development practitioners engaged in capacity development initiative. In particular we have sought to learn widely from activities and lessons outside the fisheries sector, as well as within it.

This paper has been updated as a result of the Working Party (herein after referred to as “the Working Party”) to discuss both this report and a subsequent draft “Strategic Framework for Human Capacity Development in Fisheries” (ACFR/WP/HCB/I/3) held in FAO Headquarters in Rome from 19 to 22 April 2004.

### 1.2 Explanation of terms

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 1980’s and early 1990s. While extensively used now by many development practitioners there is still considerable confusion over its definition. This is largely because it has subsumed a number of other concepts and initiatives. These include: institutional building and strengthening, organizational development, training, community strengthening, human resource development, and development management/administration.

If discussion about capacity development is to be meaningful and constructive, it is first important to define what we mean by human capacity development. While there are many different definitions of **capacity development** that have been proposed in the development literature (see Lusthaus *et al.* 1999), the Working Party adapted a UNDP (1997) definition to consider 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. Firstly that it requires a consideration of capacity development at *four levels* as shown in Figure 1-1 overleaf. Each level represents a level of analysis, and importantly, a possible entry point for initiatives aimed at capacity development. And secondly that it is a *process* and not a passive state and must build on existing core capacities.

**Figure 1-1: The four levels of capacity development**

Source: Adapted from Bolger, 2000

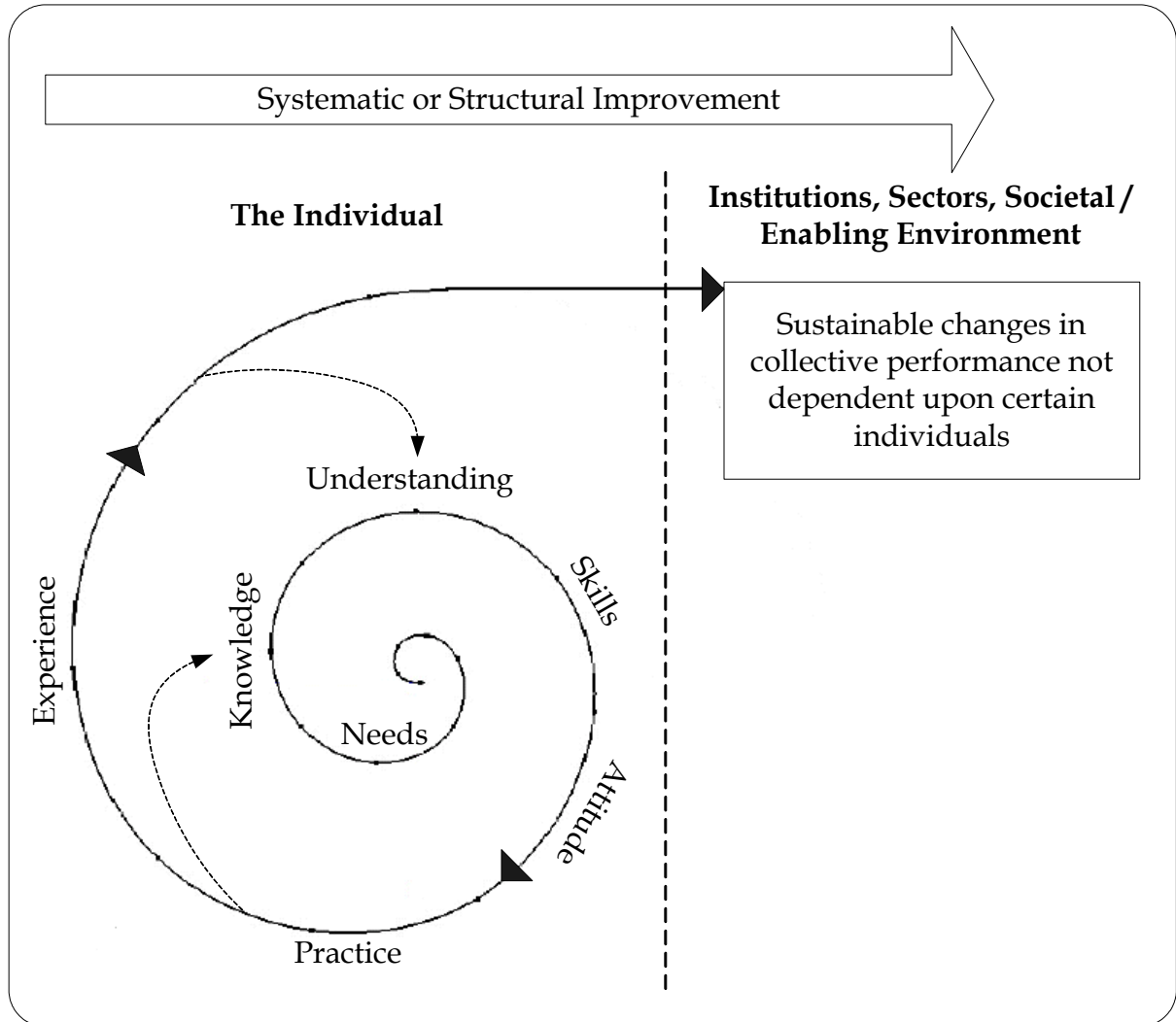
The “*enabling environment*” represents the societal context in which development processes take place. Capacity may be reflected in the form of good economic policies, high levels of commitment, a lack of conflict or methods to resolve it, etc., which support an enabling environment, whereas low accountability, high levels of corruption, etc may serve to minimize the enabling environment. Initiatives to develop capacity at this level tend to focus on issues of good governance (see Box 2 on page 21). The “*sector/network*” level represents the need for coherent sector policies and strategies, as well as co-ordination across sectors. Initiatives may focus on issues such as policy reform or service delivery as a way of increasing capacity at the sector level. The “*organizational/institutional*” 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, budgetary or infrastructure support, or support for institutional linkages. The “*individual*” level in the capacity framework refers to the individuals operating within the other three levels, or being affected by them. Overall capacity is therefore not just the sum of individual/institutional/sector capacities, but also the opportunities and incentives for people to use and extend their skills and knowledge within an enabling environment. Capacity development takes place not just within individuals, but also between them and in the institutions and networks they create. The four levels of capacity development help to emphasize that capacity may be developed in individuals, but that initiatives at any level must take a holistic/systemic view of the overall context in which such individuals operate, to enable individuals or institutions to implement and utilize newly acquired capacity (Montero, 2002; Bolger, 2000; Morgan, 1997).

In order to build capacity, a *process* must take place for individuals whether they are acting at and influencing just their own activities, or as part of institutions, sectors and/or the overall societal/enabling environment. This process is not linear/mechanistic and individual capacity development may require individuals to loop-back into the spiral shown in Figure 1-2 overleaf, constantly building on existing core skills and capacities. New learning and abilities of individuals eventually feed into, and become embedded in a collective unit i.e. they are more than the property of individuals and indicate some sort of systemic or structural improvement – an institutional, sectoral or societal change takes place that supports a new level of performance with collective behaviour

forming new patterns. These new behaviours must then remain in some form even when particular individuals leave or certain organizations are disbanded i.e. a sense of permanence or sustainability is achieved.

The Working Party recognized that this is a not a simple linear process and that capacity cannot be solely developed from the outside but should be acquired over time, with external support facilitating the process. It was also recognized that this is a two-way process whereby an individual's capacity-development needs, knowledge and experience will closely reflect the requirements of the institution – be it an organization or a household – in which they operate.

**Figure 1-2: Capacity development as a process**



The process nature of capacity development means that there are seldom quick-fix solutions to capacity development needs that can be delivered solely from the outside. Capacity must be acquired over time by those engaged in the development process, with external support assisting in facilitating such development and building on core capacities. This means that ownership and definition of capacity development requirements by those requiring/requesting assistance is of paramount importance. The fact that capacity development is a process may also mean that it produces relatively intangible and uncertain results that are not easily measurable, and that development cooperation must recognize this rather than seeking to provide support that generates quick, predictable and easily measurable results.

### 1.3 Why revisit capacity development objectives now?

Capacity development has featured in many FAO and donor initiatives for some time now. However a special focus on human capacity development is important now, partly because of an increasing number of new approaches to fisheries management, and partly because of changes in the international development context driven by the only partial success of many previous development initiatives and the realization of the key role that capacity development must play in supporting sustainable development. This means that attempts to discuss more appropriate methods, and develop models of approaches, must consider both a) what are the new requirements that are so particular to recent developments, and b) why have previous human capacity development initiatives not been more successful, and what needs to be changed to make them more so.

Some key aspects of the changing emphasis of donor assistance and the development context in response to these problems, have been:

- global trends in approaches to public management towards decentralization, strengthening relationships between government and civil society, privatization, deregulation, etc.;
- increasing emphasis on good governance – e.g. participation, accountability, transparency, etc.;
- greater emphasis on the cost-effectiveness of donor initiatives, and the introduction of results-based management;
- wider recognition of the need for donor initiatives to be demand driven, with more emphasis on “partnership”;
- the information and communications revolution, with the internet transforming the way
- increasing creativity and innovation from the “south”;
- people and organizations can communicate, learn, lobby, etc.;
- greater awareness of the need for integration at all levels of development;
- greater emphasis on sustainability and the environment<sup>1</sup>, as reflected in the targets set by the World Summit on Sustainable Development.

All these factors have implications in terms of which aspects of human capacity i.e. who should be assisted, in what, and how.

Many of the changes in the general development context are increasingly being reflected in the fisheries sector. This follows the failure of much fisheries management based purely on fish stock assessment science, often with insufficient consultation with fishing communities or analysis of the social, economic and political forces that interact to affect levels of compliance. “Fisheries managers” are defined more broadly now with greater recognition of the importance of participation by fishing communities and resource users themselves in management, through co-management approaches (Dyer and McGoodwin, 1994). This requires fishing communities to acquire new levels of capacity to meaningfully participate in this management process and to define objectives of management and how these objectives might be achieved (Brown and Pomeroy, 1999; Mulekom, 1999). Indeed the capabilities and aspirations of users itself plays a part in determining the type of co-management regime (Sen and Nielsen, 1996).

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<sup>1</sup> In 1987 the World Commission on Environment and Development (better known as the Brundtland Commission) proposed a broad definition of **sustainable development**: “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs*”. This definition incorporates three important elements of sustainable development. Firstly, the environmental dimension emphasizes not just natural resources (e.g. minerals, forestry, fisheries) but also environmental resources (i.e. the services which sustain the biological basis for human life). Secondly the economic dimension, with a greater emphasis not just on quantitative economic aspects of development, but also on qualitative aspects. And thirdly, the social dimension which stresses the need for a) enhancement of capabilities and the enlargement of choices, and b) aspects of equity.



The new interdisciplinary and participatory approach to management implies reformulation of both models and management structures in fisheries and other natural resource areas (Allison and McBride, 2003). Traditional management structures based around annual stock assessments, allocation of quotas and enforcement must now be broadened so that fisheries systems include analysis of property rights, the structure of formal and informal management institutions, possible conflict resolution mechanisms, and the social and economic impact of different management options (Charles, 2001). Importantly, fisheries management (especially in the developing world) is increasingly focusing not just on production issues, but also on aspects relating to poverty. This requires capacity development to better define and understand poverty processes and solutions.

Likewise, the increasing emphasis on sustainability and the environment has resulted in increasing recognition of the importance of implementing the **Code of Conduct for Responsible Fisheries (CCRF)** and of adopting an ecosystems approach to fisheries (EAF). While the CCRF was developed almost ten years ago and adoption of the EAF is more recent<sup>2</sup>, the two have much in common. Indeed, the Executive Summary to the recently published CCRF Technical Guidelines on the ecosystems approach to fisheries (FAO, 2003) starts by saying that “*the broad principles and approach for effective and responsible fisheries management are contained in the FAO CCRF, many of which relate to an ecosystem approach to fisheries (EAF).*” Both the CCRF and the EAF include a strong emphasis on sustainability and a precautionary approach. Adoption of the CCRF, and especially of an EAF, requires some special attention to human capacity needs associated with the extra dimensions they demand compared to forms of traditional fisheries management focussing purely on stock levels. These extra dimensions include taking a more systemic approach to fisheries management so that fisheries do not alter the structure, biodiversity and productivity of marine ecosystems. An EAF also requires a wider consideration of the multiple needs and desires of societies, rather than just of fishers themselves, and of setting economic and social objectives. It requires capacity development in certain technical areas that require more emphasis on understanding of ecosystem structures, habitat restoration, MPAs, and bycatch reduction devices. It requires different and greater information needs. It necessitates greater participation and improved institutional linkages of fisheries management with coastal/ocean planning and integrated coastal zone management. In order to operationalize an EAF, capacity must be developed to translate its underlying principles into policy goals, and then into operational objectives that can be achieved by applying management measures.

The development of aquaculture over the last 30 years has been driven by research developments related to production efficiencies and an emphasis on production increases, through issues such as disease control, feed conversion, fish nutrition, optimal growing conditions etc. As with capture fisheries, recent years have seen an increasing concern over issues of social and environmental sustainability. New levels of capacity are therefore required to address solutions to such concerns.

Greater international co-ordination is also a result of a number of important **International Plans of Action (IPOAs)** and a requirement for their successful implementation – these are briefly reviewed in Table 2-1 with an outline assessment of their related capacity-building needs and implications. A review on their implementation has already indicated concerns over institutional limitations citing “*inadequate institutional and technical capacity, inadequate funding, lack of information and inadequate access to information, including public education programmes, under-utilization of the media, as well as inadequate participation of all stakeholders, inappropriate legislative framework, the socio-economic implications of reducing fishing effort and the difficulties of implementing such concepts as the precautionary approach in the context of reduced human and financial resources in developing countries, as major preoccupations and the principal constraints in most developing countries*”<sup>3</sup>.

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<sup>2</sup> International recognition of the ecosystem approach to fisheries management was essentially achieved at the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem in October 2001.

<sup>3</sup> FAO Committee on Fisheries (26 February – 2 March 2001): Progress in the Implementation of the Code of Conduct for Responsible Fisheries and Related International Plans of Action, Rome, Italy.

The suggested solutions included the need for more educational outreach, the active involvement of stakeholders through the adoption of participatory approaches in fisheries management, an emphasis on training and capacity development at all levels, improvement in the legislative framework by incorporating provisions of the Code, the translation of the Code into more local languages, and the increased use of audiovisual aids.

All these changes of emphasis and understanding therefore represent the background against which a special focus on capacity development is required.

## 2. IDENTIFICATION OF NEEDS

### 2.1 Important factors in determining needs

Later sections of this paper develop some strategies for capacity development in fisheries. The first step in this process is to identify capacity development needs. This raises a number of important questions, all of which are likely to influence the type of capacity development required, and ultimately the appropriate delivery mechanism for any particular initiative:

**What are the key problems, and which aspects of capacity development are most needed to solve these problems?** The need for capacity development will be determined by perceptions about the current problems in any given context and the extent to which these can be solved through capacity development. In one instance, the most pressing problem might be perceived to be a lack of sufficient fisheries management causing overexploitation, and capacity development might therefore be most urgently required in the field MCS and other management-related fields. In another instance, fish may be being caught sustainably but with profits to local populations being limited because of a insufficient awareness or ability to access different and more lucrative markets. In such a situation, capacity might be developed through support to individuals or marketing/processing organizations in product development, marketing and distribution.

**Who defines the needs for capacity development?** Assessing what are the key problems and associated capacity development needs to solve them, raises the question as to what extent the specification of such needs should be demand-driven, and what are the best ways to involve target individuals or groups in this definition process? Certainly lessons from previous projects suggest that the failure of many initiatives has been because recipients of initiatives have not been sufficiently involved in the definition of problems and capacity development needs. This has led to the introduction of participatory mechanisms for problem identification e.g. the Logical Framework Analysis by development agencies by such as DFID, GTZ and NORAD (Gabriella Bianchi, pers. comm.). However, it should also be recognized that the ability of target populations to identify priority needs may itself be constrained and defined by the current level of their own capacity development; insufficient awareness of developments in topics and approaches may result in target populations requesting outdated training and skills.

**What is it realistic to expect can be achieved through capacity development initiatives?** As presented in Figure 1-2, capacity development should strive to bring about changes in understanding, knowledge, attitudes, behaviours, practices and skills. Different capacity development needs will result in a focus on different levels of this capacity development process. For example if the need is primarily to acquire/provide basic knowledge or improve understanding, then appropriate tools may include training or information provision. If needs are more pressing in terms of changing attitudes and providing practical experience, field-based support may be more appropriate. However it must also be recognized that there are other factors that may be outside the realm of a fisheries capacity development initiative. Examples include: shortages of funds; high turnovers of staff; external macro-economic factors; natural/environmental factors; national-level policies or actions in other sectors impacting on fisheries. Any capacity development initiative must be cognisant of these external factors and the overall context in which the initiative is to operate.

**Table 2-1: IPOA implementation capacity development needs**

IPOA title and description	Capacity development needs areas <sup>4</sup>		
	<i>Fisheries Science R&amp;D</i>	<i>Sector Management</i>	<i>Societal Skills</i>
<b>IPOA for the Management of Fishing Capacity:</b> the objective is for States and Regional Fisheries Organizations (RFOs) to achieve by 2005 an efficient, equitable and transparent management of fishing capacity. Where fishing capacity is undermining achievement of long-term sustainability outcomes it should be limited at present levels and progressively reduced for affected fisheries. The focus is upon (i) assessments of fishing capacity and improvement of the human capability for monitoring fishing capacity; (ii) the national plans to effectively manage fishing capacity and of immediate actions for coastal fisheries requiring urgent measures; (iii) strengthening of RFOs to manage fishing capacity at regional and global levels; and (iv) immediate actions for major transboundary, straddling, highly migratory and high seas fisheries requiring urgent measures.	<ul style="list-style-type: none"> <li>• Measurement of fishing capacity</li> <li>• Registration database development</li> <li>• Capacity monitoring systems</li> <li>• Transboundary stock assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Develop alternative livelihood options</li> <li>• Fleet structure option cost/benefit analysis</li> <li>• Economic-impact analysis</li> <li>• Rationalization of economic instruments</li> <li>• Capacity withdrawal processes</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness building of fishers and coastal communities</li> <li>• Development of informed, rational fisher representation</li> </ul>
<b>IPOA to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing:</b> This is a voluntary instrument that applies to all States and entities and to all fishers. Following the IPOA's introduction, the nature and scope of IUU fishing is addressed - this is followed by the IPOA's objective and principles and the implementation of measures to prevent, deter and eliminate IUU fishing. These measures focus on all State responsibilities, flag State responsibilities, coastal State measures, port State measures, internationally agreed market-related measures, research and regional fisheries management organizations.	<ul style="list-style-type: none"> <li>• Appropriate VMS and other surveillance technology</li> <li>• Communication and GIS support</li> <li>• Reporting systems</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen regulatory structure</li> <li>• Upgrade legal process &amp; capacity</li> <li>• Enhance MCS capacity</li> <li>• RFO planning and policy development</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness building of fishers and Producer Organizations</li> <li>• Development of civil governance mechanisms</li> <li>• Certification and traceability</li> </ul>
<b>IPOA for Reducing Incidental Catch of Seabirds in Longline Fisheries:</b> This is to be implemented through an assessment of relevant problems as national fisheries jurisdictional level followed by a programme providing (i) prescription of mitigation measures, (ii) research and development, (iii) education, training and publicity and (iv) data collection.	<ul style="list-style-type: none"> <li>• Data collection &amp; monitoring needs</li> <li>• Gear &amp; vessel design</li> </ul>	<ul style="list-style-type: none"> <li>• Management mechanisms e.g. seasonal/area closures</li> <li>• Fisher training in gear/vessel use</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness building via outreach programmes</li> </ul>
<b>IPOA for the Conservation and Management of Sharks:</b> This recognizes the vulnerability of sharks and rays to certain fisheries, the restricted abilities of fish to respond to fishing mortality and the low level of utilization of bycatch and consequential high degree of discarding. All countries which have endorsed the international plan are required to prepare a National Plan of Action and Shark Assessment Reports to identify those species of shark that require actions to ensure their conservation. The main elements of the 'shark plan' are to (i) minimize waste and discards of shark catches and (ii) encourage full use of dead sharks.	<ul style="list-style-type: none"> <li>• Stock assessment</li> <li>• Data collection &amp; monitoring needs</li> <li>• Development of technical measures</li> <li>• Product development</li> </ul>	<ul style="list-style-type: none"> <li>• Management mechanisms e.g. seasonal/area closures</li> <li>• Species identification</li> <li>• Management mechanisms (esp. for multi-species fisheries)</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness building via outreach programmes</li> <li>• Trade measures</li> </ul>

<sup>4</sup> Capacity development needs, and their division into these three conceptual categories are explored in more detail in Figure 2-1 on page 11

**Which level of capacity is the focus of assistance?** With reference to Figure 1-1, capacity development needs, appropriate initiatives, and the likely time and resources required may be vastly different depending on whether capacity development is focused on individuals or groups of individuals, institutions, sector support, or efforts to create an enabling social environment. As the Figure explains, creating an enabling social environment is likely to require a longer period of initiative, whereas provision of specific skills and knowledge to individuals may be achieved quickly and at a relatively low cost.

**What are the current capacity levels, and who is the target group(s) within each capacity level, so that core capacities can be built on?** The changing development context described in Section 1.3 means that many institutions need to radically alter the content and style of their management/research/teaching to reflect issues of interdisciplinarity, participation, etc (Allison and McBride, 2003). Benchmarking the current approaches used by management, research and training institutions is necessary to compare such approaches with new developments and approaches gaining wider recognition. Likewise for individuals, what are the roles and responsibilities of the target group(s), and what knowledge, skills, attitudes and behaviours are they expected to have to be able to fulfil those roles? Are they required to have specialist technical skills, or general management ones? Are they government employees, university or research staff, private sector, NGOs? Identifying appropriate needs for different individuals/groups requires a benchmarking assessment of “knowledge, attitude, skills, and ability” (KASA) against an idealized KASA profile for his/her position. For example, with respect to the fisheries management process, the idealized capacity needed will be very different for senior fisheries managers, middle-level fisheries staff, field staff, trainers, or extension workers. Harte (2001) presents an example of the assessment of a hypothetical fishery agency official, where the first column identifies some of the KASAs appropriate to the individual’s role in the management process. The second column benchmarks for each KASA the individual’s KASA score against a KASA profile score in the third column for his/her position/role. The final column provides contextual comment to the individual and potential training providers.

**Table 2-2: Benchmarking approach to KASA levels**

<b>KASA</b>	<b>Score</b>	<b>Profile Score</b>	<b>Comment</b>
<b><i>Fisheries Management Specific KASAs</i></b>			
Rating Key: 1 = training, 2 =developing, 3 = competent, 4 = advanced, 5 = expert			
Knowledge of stock assessment	1	2-3	Limited formal training in stock assessment or related discipline. Key training required
Cost benefit analysis skills	3	3-4	Sound innate skills, overall score restricted by limited knowledge/experience of formal analytical methodologies
Fisheries law	3	3	KASA equivalent to required profile
<b><i>Management Team Specific KASAs</i></b>			
Rating Key: 1 = training, 2 =developing, 3 = competent, 4 = advanced, 5 = expert			
Achieve results	2-3	4	Needs development so that the drive is there to push project through to completion
Communicate openly	4	3	Strong KASA
Focus on clients and quality	3-4	5	As an advisory unit, exceeding client’s expectations is key to the success and ability to influence outcomes

*Source: Modified/simplified from Harte 2001*

As fisheries management becomes more participatory, there is likely to be a greater need for capacity development of fishers, local organizations etc., all with an idealized profile score.

Other examples of practical/current approaches being used for needs assessment are presented in Section 4.1.3.

**What is the time-frame of the improvement required?** Capacity development needs will depend greatly on how quickly an improvement is required. For assistance with immediate problems that need to be solved quickly, on-the-job training or workshops might be required. For medium/long term

improvements such as implementation of the ecosystems approach by 2012, it may be necessary and appropriate to change university curricula or research agendas to gradually build up the necessary capacity to implement such an approach to fisheries management. What sort of capacity is being developed may itself also have time implications as suggested in Figure 1-1. For example it may be possible to provide training in data collection quickly, but training for more effective policy development may require much longer time periods for it to be successful.

## 2.2 Human capacity development needs in fisheries

Despite the recognition that human capacity development needs will be case/initiative specific depending on the answers to the questions posed above, it is nevertheless possible to identify a range of general needs that might be required for successful fisheries management and sustainable exploitation, and on which capacity development initiatives might focus.

Projects to develop capacity in fisheries have traditionally focused largely on training and development of practical skills (i.e. improved fishing techniques, better fish storage and preservation etc), as well as on developing the capacity of scientists to provide scientific advice for fisheries management purposes. This has been set against a background of overall institutional capacity development, again focusing on traditional clients such as public sector fisheries and research departments. However, we have attempted to widen the horizon of capacity development needs by the fisheries sector and suggest that there are three main pillars of skill and knowledge areas as demonstrated in Figure 2-1 overleaf and summarized below. The individual list of capacity development areas within the boxes could of course be added to, and expanded into more detailed topics, but represent a first-stage categorization. The individual boxes and skill areas may be used to support capacity development at any of the four levels of capacity development described in Figure 1-1 and in the text in Section 1.2. In addition, the reader is referred back to Table 2-1 on page 7, which also highlights some specific capacity needs of IPOAs based on these three main pillars.

**Technical fisheries science, research and development:** a traditional focus of training, this group has generally responded well to formal and practical training courses. Often with a high science or technical content, a large number of universities and specialist fisheries training institutes have tailored courses, and overseas students often represent a significant proportion of student numbers and fee revenues (see Section 3.1). Although a number of the subjects are now well established, two emerging areas of importance include aquatic ecosystem management (see Box 1 overleaf) and information technology. The former is particularly important, as this has proved the basis for the precautionary ecosystem approach to fisheries management now advocated on a global basis, but operational process to achieve this still remain in their infancy.

**Fisheries sector management:** capacity development in this group has usually been based around donor-assisted projects with an institutional capacity-building component, often running alongside a more practical technical development theme. This has often proved an effective approach, although its long-term sustainability may depend upon both the recipient institutions as well as the capacity-building approach adopted. A number of themes have been emerging over recent years. One is the reduction of fishing capacity, which requires a particular combination of management and socio-economic skills (see Table 2-1 on page 7). Another important one is the increasing emphasis on the sustainable livelihood approach (SLA) to fisheries development. A third is more interest in “poverty” issues. The SLA and poverty assessments and solutions, require particular skill sets that are frequently novel and may require different approaches to traditional capacity development used in fisheries.

**Societal skills and knowledge:** this group of skill areas represents the areas that have largely been ignored until recent times, and which are generating increasing interest. They focus not necessarily on fisheries-specific issues, but on wider aspects that can contribute to an enabling environment. This requires capacity development at the national and sector level to assist facilitate good macro-economic policies, good governance and lack of corruption. It also requires fisheries managers and other stakeholders to possess management and other skills that may not be fisheries-specific.

For many fisheries, especially those small-scale or artisanal in nature undergoing transformation as a result of environmental, political and socio-economic change, the development of societal skills and knowledge at a local level also provides a resilience that allows communities to better control their

own destiny. Community mobilization and empowerment through collective organization may allow fishers to build stakeholder consensus leading to improved representation for resource access, control and management. Such consensus-building also improves the ability to manage conflict and dissent that can divide communities, especially in the face of change. Parallel to this have emerged other societal needs that affect resource benefit flows – these include a growing awareness of sustainability issues themselves and the finite nature of fisheries resources and their ecological “support system”.

### **Box 1: Ecosystem approach to resource natural management**

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It has 12 basic principles<sup>5</sup>:

- Principle 1:** The objectives of management of land, water and living resources are a matter of societal choices.
- Principle 2:** Management should be decentralized to the lowest appropriate level.
- Principle 3:** Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
- Principle 4:** Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context.
- Principle 5:** Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
- Principle 6:** Ecosystem must be managed within the limits of their functioning.
- Principle 7:** The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
- Principle 8:** Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
- Principle 9:** Management must recognize the change is inevitable.
- Principle 10:** The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
- Principle 11:** The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
- Principle 12:** The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

The ecosystem approach requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning. The complexity of the issues concerned, and the wide variety of stakeholders involved, have a number of implications for capacity-building:

- Ecosystem management requirements are dynamic and uncertain – therefore policy making and implementation strategies needs to be flexible, building upon local and collective knowledge and experience
- Local communities will be particularly important for managing biological diversity in ecosystems – therefore they will need to be armed with a wide range of skills and knowledge to understand and engage in conservation and management initiatives.
- This implies decentralization of resource management and the empowerment of local communities with appropriate policy and legislative support.
- Where common property resources are involved, appropriate skills and knowledge for conflict resolution are needed, together with institutional support (i.e. information and analysis) where necessary.
- Fisheries needs to be integrated into national biodiversity strategies – these are cross-sectoral in nature, meaning fisheries sector specialist needing to engage in non-fisheries issues such as water resource management, agriculture development and spatial planning. Sector managers and decision-makers must be provided with sufficient skills and knowledge to ensure aquatic ecosystem maintenance and conservation remains high on the “development agenda”. This may imply fundamental change in the way the fisheries sector engages with other institutions and sectors.

<sup>5</sup> Convention of Biological Diversity, see <http://www.biodiv.org>

Since the 2001 Fourth WTO Ministerial Conference in Doha there is also a greater understanding of the opportunities that global trade presents to fishers, as well as the potential harm that trade barriers, sanitary and phyto-sanitary (SPS) measures and market-driven initiatives may have in terms of reducing livelihood options for poor people. Increasing access to the Internet by rural communities provides major opportunities in terms of an information and communication tool, but these are opportunities which require capacity development if rural communities are to be able to exploit them.

**Figure 2-1: Primary capacity development areas in fisheries science and research, fisheries sector management and general societal skills and knowledge**

