Common Pool Resources and Fisheries Management (4)

Key Sheet Series:
The purpose of these Key Sheets (Nos 1-4) is to ensure the effective dissemination of the findings of a research project funded under the DFID Fisheries Management Science Programme (FMSP) entitled 'Incorporating Common Pool Resource (CPR) Issues into Fisheries Management in Developing Countries: Key Lessons and Best Practice' (No. R8467). The main target audience are policy-makers and their advisers throughout the world with a responsibility for CPR management, especially fisheries.

DFID /FMSP Study on CPR Issues:
During 2005, IDDRA undertook this project (No. R8467) synthesising the results of 18 fisheries research projects undertaken in developing countries under the DFID Fisheries Management Science Programme (FMSP) (1992-2004) managed by MRAG Ltd. Further detailed information is available from these websites: (www.fmsp.org.uk/FTRs.htm) (www.onefish.org/id/281354)

DFID Department for International Development

MRAG Marine Resources Assessment Group

IDDRA

This document is an output from a Fisheries Management Science Programme (FMSP) project funded by DFID for the benefit of developing countries. The views expressed are not necessarily those of DFID.

FUTURE RESEARCH PRIORITIES FOR CPR (FISHERIES) MANAGEMENT IN DEVELOPING COUNTRIES

Overview

Over the past 50 years, new knowledge and understanding about Common Pool Resources such as fish stocks has increased significantly on a global basis. Investment in scientific and environmental research, particularly in Developed Countries, has enabled the development of national and international programmes in areas such as the biology, ecology and assessment of major fish resources. However, research in other important areas relevant to the sustainable exploitation of CPR (fisheries) has lagged behind, particularly in the management and social sciences. More recently, the realisation that the design of effective fisheries management systems must be based on a broad, multi-disciplinary understanding of the components and factors involved in a fishery system has led to further research investment and work in both natural and social sciences. In addition, consideration has been given to the factors which affect CPR management in general.

In this fourth Key Sheet, on the basis of the past work of the FMSP, a series of future research priorities will be identified for fisheries management, particularly in developing countries.

Key Issues

1. The *Importance* of Research to Fisheries Management

There is no doubt that fish stocks – like other CPR – are difficult to manage effectively for the benefit of society. This has been demonstrated in many parts of the world over the past 50 years in particular [Key Sheets Nos 1 and 2]. Unless an appropriate fisheries management system is operating, there is always a tendency for fish stocks to be exploited and degraded. However, the design and implementation of fisheries management systems has proven to be a major challenge, and there are relatively few successful cases.

The reasons for this situation are now becoming clear due to the work of programmes such as the FMSP. One of the major factors is a lack of broad-based understanding of the fishery systems involved. In part, this can be attributed to the research which has been carried out. In general, there has been an emphasis on the natural and environmental sciences, with less emphasis on the social and political sciences. There is a need to correct this research bias, and particularly, for understanding fisheries systems in Developing Countries where components such as the governance context, institutions and organisations impact on fisheries management performance [Key Sheet No. 2].

Box. 1. Fisheries research needs (1): Information systems and communication approaches for fisheries management: Bangladesh and SE Asia

In Bangladesh and SE Asia, as in other parts of the developing world, there is an urgent need for more and different types of information to assist fisheries policy and management decision-makers. Three aspects are particularly important: (i) New research: There is need for data and information which reveals the relative importance of aquatic resources in rural livelihoods, and the contribution of these resources to regional and national economies. Without this type of valuation information (value is a measure of the importance to society), then it will be difficult to make the case for greater support by government to the sector (other sectors will be prioritized instead) [FMSP R. 8118]; (ii) Building on existing research: the development of guidelines for information systems to underpin fisheries co-management arrangements has already been undertaken [FMSP R8285]. There is a case for further field research to test and refine these approaches; (iii) Communicating results: this can take many forms, depending on the actors involved; for example, an innovative 'adaptive learning approach' to fisheries enhancement in Lao [FMSP R7335] involved key stakeholders sharing and exchanging information regarding fisheries management actions and outcomes. Further research is needed to build upon this work and see whether it can be used in other fisheries and countries

Box 2: Fisheries research needs (2): Understanding livelihoods, poverty and development pathways: Kenya and Tanzania

In general, research into fisheries and fisheries management in Developing Countries has been dominated by scientific investigations with a focus on fish resources. More recently, attention has focused on livelihood features of fishers, poverty status and causes, and the ways and means of promoting development and poverty alleviation. In Kenya and Tanzania, research has aimed to understand fisheries livelihoods and the constraints which they face – in particular the mismanagement of aquatic resources. While this work is a good foundation, there is a need for further research to better understand the options for improving livelihoods through improving fisheries management, promoting an enabling environment for community-based initiatives, reducing post-harvest losses and stock enhancement (e.g. Fish Aggregating Devices, FADs). [FMSP R.8196]

With unlimited funds and time, new research could focus on all of the components of the fishery system at the same time to develop a better understanding. However, more realistically, research investments will need to target specific areas. But what are the future research priorities for fisheries management, particularly in Developing Countries? What specific areas related to the management of CPR, in general, need to be considered?

2. Future *Research Priorities* for Fisheries Management in Developing Countries

The FMSP has undertaken research in a wide range of Developing Countries and in different types of fisheries over the past 11 years. A particular focus has been the local and small-scale fisheries which contribute to the livelihoods of thousands of people, often on the margins of society and vulnerable to poverty [Key Sheet No. 1]. This work has helped to identify the factors which affect fisheries management performance [Key Sheet No. 2] and also a new set of approaches which can contribute to improved management [Key Sheet No. 3]. It is also possible to identify a set of future research priorities which lead on from this work[(1)], on the basis of major constraints to improved fisheries management and development, as follows:

(i) Information systems and communication for policy and management decision-making

The first major researchable constraint to improved fisheries management and development is the limited amount of information on fisheries which is available to policy-makers and fisheries managers, and which limits their ability and capacity to make appropriate decisions. The research response can have various dimensions as illustrated by the results of the FMSP projects in Asia [Box 1]: (i) to undertake additional work to fill knowledge gaps (e.g. fisheries valuation); (ii) to build upon good existing research work (e.g. field-testing and refinement of tools); and (iii) to integrate and communicate research results within fisheries management systems (e.g. co-management and adaptive learning approaches).

(ii) Livelihood analysis, poverty and development pathways

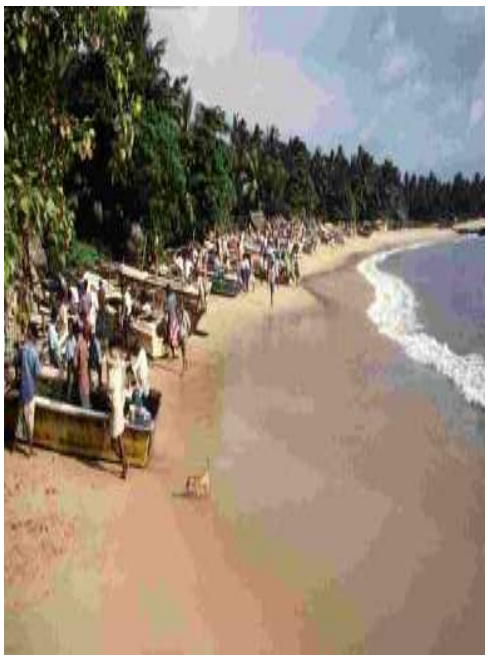
The second researchable constraint to improved fisheries management and development is the limited understanding in general of the relationship between fisheries livelihoods, poverty and the options for development interventions. In many countries, fisheries development for poverty reduction has focused on technological approaches to increasing fish catch on the assumption that this work translates into higher earnings for fishing communities. FMSP research in East Africa, for example, has shown that there is a need to progress beyond this simple conceptualisation of poverty in fisheries [Box 2]. The livelihoods of fishing communities and the constraints which they face need to be better understood, and the pivotal role to be played by effective and appropriate fisheries management further investigated. Approaches such as livelihood analysis have to be further developed and linked to others such as poverty profiling[(2)].

(iii) Policy analysis, political-economy and governance

The third researchable constraint to improved fisheries management and development is the limited extent to which the relationships between fisheries policy, the political-economy and the governance context of developing countries are understood in general. FMSP work in SE Asia

Box 3. Fisheries research needs (3): Policy analysis, political-economy and governance: Bangladesh and South-East Asia

Recent FMSP research has investigated fisheries livelihoods in Bangladesh, Laos, Cambodia and Vietnam, including the effect of the policy, institutional and governance context. Fisheries are usually one component of rural livelihoods (mainly farming). All the countries have undergone economic reform in the past decade with an emphasis on poverty reduction through economic growth. Agriculture (and fisheries) policy has favoured intensification, production increases and exports. While poverty reduction has been achieved at national level, some local producers including fishers have been negatively impacted by downstream impacts of flood management and irrigation schemes. Fisher livelihoods are further constrained by the governance context ('rights' to fish stocks and benefits are minimal or difficult to defend), and a low level of 'capital' accumulation. Further development is hampered by problems ranging from lack of infrastructure to land shortages and environmental decline (e.g. fisheries and forestry). While this research provides a start, there is a need for further work on policy options and likely impacts, and the potential for governance reforms. The political economy of fisheries and other CPR in SE Asia needs to be better understood, as a basis for analyzing and influencing policy processes and outcomes. [FMSP R8118]



In many countries, policy research is required to understand the possibilities for managing the interaction between fisheries and other sectors such as tourism. (Sri Lankan fishing beach. Source: G. Bizzarri (1995), courtesy of FAO Media Archive.)

[Box 3] shows that policy interventions in the fisheries sector must take account of the wider political, economic and social context, and the linkages between fisheries and other sectors. The performance of a fisheries management system is often affected significantly by governance arrangements in a particular country. New approaches such as co-management will have to be based on a sound understanding of the dynamics of actor-to-actor relations if they are to stand any chance of success in the future. Research is needed on the policy process (operation and factors affecting implementation), the political-economy of fisheries development and management (role of different actors) and the governance arrangements (possible new frameworks and likely impacts on sustainable development must be explored).

(iv) Fisheries management approaches and planning

The fourth researchable constraint to improved fisheries management and development is a weak understanding of the factors which affect the performance of fisheries management systems. FMSP work in Africa and Asia, for example [Box 4], has described the range of fisheries management systems which exist, and explored their workings and impacts to some extent. The new challenge now is to further investigate and collate information of this type into a 'lessons learned' information base. In turn, this can be used as a basis for 'best practice' guidelines on fisheries management planning across the full range of fisheries[3]. New research is required to establish appropriate methodology for the evaluation of fisheries management systems, then to implement the methodology in specific countries. Further research will be required to develop appropriate decision-support tools (to build on the information collected) for use by policy-makers, fisheries managers and other actors – to improve existing management systems and design new ones in the future.

Box 4. Fisheries research needs (4): Fisheries management approaches and planning: Malawi and Indonesia

There is a diversity of fisheries types – large-scale and small-scale; subsistence, small-scale and industrial – and a range of possible management objectives (e.g. conservation, economic efficiency, equity). Management approaches also vary from prescribed command-and control, centralized systems, to more decentralized, adaptive, participatory ones involving co-management. The research work of the FMSP has contributed to understanding the nature and performance of various fisheries management systems in Developing Countries. Important lessons have also been documented regarding experiences of fisheries management design and implementation. There is a need to continue and further develop this research to establish best practice guidelines for fisheries management systems design and planning. In the case of countries like Malawi and Indonesia, with fluctuating fisheries resources, new research questions have emerged with particular regard to the reality and recent experience of co-management e.g. How do management rules get made in non-traditional commons? Did the original conceptualization and design affect co-management outcomes? What are the economic and ecological optimality implications of adaptive strategies pursued by fishers? [FMSP R.7336]

(v) Operationalising new approaches to fisheries management

The fifth researchable constraint to improved fisheries management and development is a limited understanding of how to convert new knowledge derived from research into new approaches and designs for fisheries management systems in reality. In other words, how to operationalise these new approaches and designs for fisheries

Box 5: Fisheries research needs (5): Operationalising fisheries management - Melanesia, West Africa and SE Asia

Research can take many forms, but fundamentally aims to provide information as a basis for decision-making and answers to questions to assist understanding. These functions are also critical to fisheries management systems (Key Sheet No.1). The evolution of the work of the FMSP over 11 years has shown that research can play a vital role in helping to operationalise new fisheries management systems. Within the context of many Developing Countries, approaches such as co-management will have to adopt a process-led and adaptive approach, with activities such as experimentation of interventions, evaluation of outcomes, communication of information and consensus-building between actors as core functions. Researchers and research must be an integral part of this mechanism, for example by supporting and problem-solving through action research. Under a range of projects within the FMSP, in Africa, Asia and the Pacific, this sort of relationship started to emerge, with researchers working closely with actors within the fisheries involved to build new knowledge and understanding concerning the opportunities and constraints facing fisheries management systems. The next step is to build further on this knowledge and relationships, and to focus on the role of research in operationalising new and improved fisheries management systems, including the development of research and decision-making tools (e.g. information systems guidelines) [FMSP R6436, R.7042, R. 7334]

References

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management systems which emerge. Is it possible to involve all the relevant actors in this task, build consensus on a common goal, and focus on problem identification and problem-solving for the benefit of all participants? One option is to seek to integrate research more closely within a development process for fisheries management through various forms of action research. FMSP work in Asia [Box 5] has shown that co-management in fisheries can be established as a process, with different actors working together to build a successful fisheries management system. The development of the Adaptive Learning approach for fisheries management under the FMSP [Box 6] has revealed the possibilities for integrating research and development. Further development work will be required in these areas in the future.

Box 6. Adaptive Learning (AL) Approach to Fisheries Management – Lao PDR, India and Mekong Basin Countries

AL was developed as a process-based approach integrating research and management aimed at delivering benefits from management. Also for developing capacity and delivering new knowledge about the resource system (human and bio-physical elements). AL was implemented in Lao PDR (small water-body and joint village managed fisheries), seasonal deep-water rice-fish systems and small brackish water systems in India and large reservoir fisheries in the Mekong Basin. Implementation helped in the development of practical support tools, and approaches for managing AL in different governance settings. The approach, tools and experiences have been documented as a set of guidelines (Garaway and Arthur, 2004) and reports available at the following website: (www.fmsp.org.uk/documents/r7335/r7335_13.pdf) [FMSP R7335]

3. The *Future Challenges* for Research into Fisheries Management

The work of programmes such as the FMSP has made an important contribution to understanding fisheries and fisheries management in developing countries. However, there are many new and important researchable constraints relevant to the link between CPR (fisheries) management and poverty reduction which must be addressed in the future. Five of these have been identified above, and amongst the future challenges which their advocates must face up to include:

- Institutional resistance in both developed and developing countries to a new research agenda which includes both natural and social sciences, and a blend of fundamental, applied and action research involving a full range of appropriate actors within fisheries;
- Limited capacity, particularly in developing countries, for research organizations and other actors to fully participate in new areas and forms of research;
- Low level of investment in research in general, particularly from domestic sources in many developing countries, leading to erosion of research infrastructure and linkages with other actors.

Footnotes

(1) Some FMSP projects have already addressed some of these priorities, but inevitably there is a need for more in-depth analysis and further knowledge generation. See FMSP website for the complete portfolio of projects undertaken (www.fmsp.org.uk/FTRs.htm).

(2) For further information on 'poverty profiling' see Pittaluga (2004).

(3) Projects R8360 and R8468 have initiated the development of best practice fisheries management guidelines for stock assessment. Further work will be needed to broaden this into other areas relevant to fisheries management systems as a whole.

Acknowledgements

The Project Leader would like to thank the other FMSP Project Leaders and project participants for their comments and advice on early drafts of the Key Sheets. The usual disclaimer applies.