

Developing, implementing and evaluating policies to support fisheries co-management



The Fisheries Management Science Programme (FMSP) is one of ten research programmes funded by the UK Department for International Development (DFID) through the Renewable Natural Resources Research Strategy (RNRRS). The FMSP has been in existence for eleven years and during this time it has commissioned over 50 individual research projects addressing issues in the management of marine and inland as well as capture and enhancement fisheries in developing countries. These projects have provided a wide range of approaches, tools and information relevant and accessible to policy makers and managers in these countries. For more information, see the web-link below.

Fisheries co-management

There has been increasing interest in the potential for co-management to deliver sustainably managed fisheries that meet the needs and obligations of the nation state while at the same time providing benefits that meet the needs of those that depend on the resource to meet some or all of their livelihood needs.

The DFID funded Fisheries Management Science Programme (FMSP) has, over the past eleven years, commissioned a number of projects that have produced insights into co-managed fisheries and the co-management process. The outputs of these projects have been made widely available.

The FMSP has recently completed a short, easy to read, synthesis of the lessons learned relating to co-management based on the experiences of research over the past eleven years on fisheries management science in developing countries.

The synthesis highlights a number of approaches, tools and methods developed through the FMSP and details some of the experiences with using them. It also provides an entry point to the resources available from the FMSP and indicates where these can be accessed. As such it provides a valuable resource and starting point for anyone interested or involved in fisheries co-management. The synthesis, and the research outputs on which it is based, is available from the FMSP website at www.fmsp.co.uk.

Aim of this document:

The aim of this document is to bring together a number of the lessons relating to the development, implementation and evaluation of policies to support co-management that have emerged from projects undertaken through the DFID Fisheries Management Science Programme (FMSP) and elsewhere.

It is beyond the scope of this document to provide a comprehensive analysis or guide but it seeks to highlight some experiences and some areas that need to be considered by policy makers when attempting to develop sustainably co-managed fisheries.

Target of this document:

This document is targeted to fisheries policy makers, and decision makers concerned with the fisheries sector.

Citation: Arthur, R.I. 2005 Developing, implementing and evaluating policies to support fisheries co-management. MRAG Ltd, London, 12pp

Design of publication by Charlotte Howard

Introduction: Fisheries co-management

While it is acknowledged that there are many nationally important large scale and relatively industrialised fisheries in developing countries, the focus of this brief will be on co-management in relation to the small scale coastal and inland fisheries.

The importance of these small scale fisheries to the coastal and rural poor becomes all too apparent when the figures are examined. Based on statistics from the FAO (FAO, 2004), there are an estimated 36 million fishers world wide. Of these, 90% can be classified as small-scale fishers and 95% are based in the developing world.

In total FAO estimate that small-scale fisheries contribute directly or indirectly to the livelihoods of some 200 million people worldwide (FAO, 2004). This figure includes processors, many of whom are women, and coastal and rural people who depend on fisheries for food, income or employment but who would not be classified as fishers.

The failure of centralised arrangements for small-scale fisheries has increased the interest in the potential of fisheries co-management. Co-management represents variety of management arrangements that result in the sharing of responsibility and authority for management between resource users and other stakeholders (or their representatives) and government (e.g. Berkes *et al.* 2001).

There have been various reasons put forward by those promoting co-management including that participation in management by those who are subject to regulation can improve compliance to regulations (Kaplan and McCay, 2004); reduce the costs of data collection, monitoring and enforcement; lead to empowerment of local communities (Pomeroy and Berkes, 2004); provide more locally relevant management plans (Garaway and Arthur 2004) and assist in conflict management (Noble, 2000).

In reality, co-management arrangements may be developed for a number of reasons, including the recognised failure of centralised arrangements and/or because of economically driven reforms and constraints (e.g. Hara, 2004; Jentoft, 2003; Hanna, 2003).

The exact nature of the arrangement will depend on the local context, such as the scale of the fishery; who should be involved in the management process



Photo credit: Robert Wakeford

and how they can be involved or represented; the role for existing institutions; the resources available for management and the capabilities of the various stakeholders involved and the extent of their willingness to share responsibility and authority. Some of these issues are discussed on the next page.

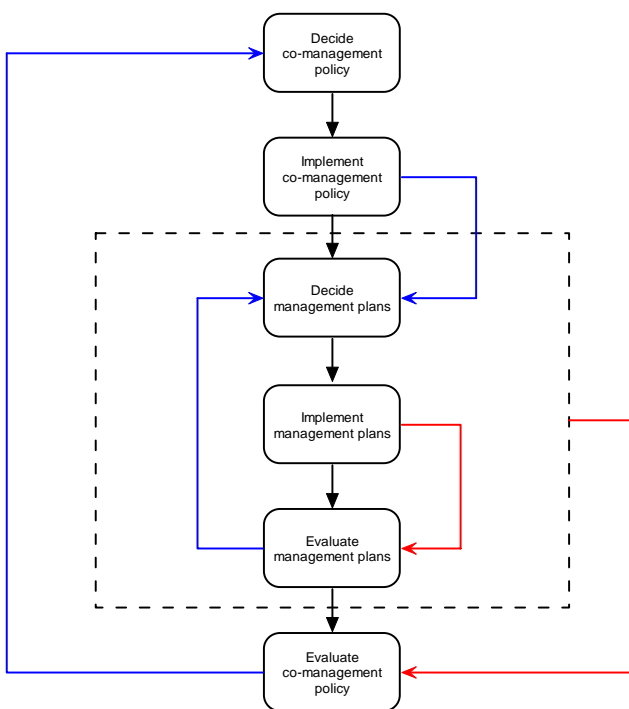
Because the context will differ between fisheries it is almost inevitable that the arrangements will differ from fishery to fishery. In addition changes in the nature of the fishery; in those seeking access and the resources; and in the capabilities available across the stakeholder groups involved over time, will mean that the arrangements are also likely to change over time.

This means that it is not possible to identify a 'one size fits all' arrangement that will provide successful outcomes in all cases. Instead creating successful co-management arrangements from a policy perspective is more about creating and supporting the conditions and processes that are most likely to result in successful local management arrangements. This means using policies at the national and sub-national level to create what is often referred to as an 'enabling environment' for local management planning.

Developing successful co-management arrangements that provide sustainable fisheries and meet the needs of resource users and other stakeholders is a challenge. However, this is an area in which policy makers, donors and other external actors can have an important role to play. It is hoped that this brief will highlight some of the issues that need to be considered and provide details of some useful further reading that can help in meeting the challenge.

Developing co-management policies: creating conditions for success

The diagram, adapted from Halls *et al.* (2005), below illustrates the policy development and co-management planning processes and shows how information (in blue) from policy development influences the management planning process at the local level (the dashed box represents a single management unit). Implementation of the local plans produces data (in red) for evaluating the local management plans and co-management policies.



The diagram highlights again the role of policy in creating an enabling environment for management planning.

If co-management is to develop as a multi-modal partnership with authority and responsibility shared between stakeholder groups, then it is vital that the local co-management planning process and the rights of these groups to participate or be represented and to assume responsibility is legitimised. An additional role of policy is to ensure that a supportive enabling environment is established that creates or supports the sorts of conditions and processes that have been identified as contributing to successful fisheries co-management (see box). Some policy requirements are considered below:

- Specification of broad national sectoral objectives.

As a starting point for the development of policies there needs to be clear policy objectives. This is the case whether creating co-management arrangements is part of an explicit co-management policy or a component of policies relating to natural resource management. The need to consider cross-sectoral issues is crucial in fisheries. In the first place, there may be a need to consider multiple resource use issues and to ensure that potential conflicts are avoided.

Factors outside of the fisheries sector, such as competition for water resources with other sectors, run-off from agriculture and logging, industrial and urban pollution, mangrove destruction and habitat alteration due to irrigation and/or hydroelectric developments can have serious impacts on both inland and coastal fisheries (e.g. Sultana *et al.*, 2003).

Conditions affecting the success of fisheries co-management (Pomeroy *et al.*, 2001)

Government level

- ✓ Enabling policies and legislation
- ✓ External agents

Local level

- ✓ Appropriate scale and defined boundaries
- ✓ Clearly defined membership
- ✓ Group homogeneity
- ✓ Participation by those affected
- ✓ Leadership
- ✓ Empowerment, capacity building and social preparation
- ✓ Community organisations
- ✓ Long-term support from government
- ✓ Property rights over the resource
- ✓ Adequate financial resources
- ✓ Partnerships
- ✓ Accountability
- ✓ Conflict management
- ✓ Clear objectives
- ✓ Management rules enforced

Individual and household level

- ✓ Incentives



Photo credit: Robert Wakeford

Without addressing them, these threats can lead to situations such as those observed by Sultana *et al.* (2003) in Vietnam and Bangladesh where there has been an increasing divergence between the policy objectives and the actual outcomes of resource use due to conflict over water and the exclusion of poorer people from access to the fishery.

- **Creating an enabling environment through policies and legislation.**

A legislative framework that supports co-management, and within which local rule making can occur with the full backing of the law and with support for monitoring and enforcement, needs to be established including the development of supportive sanctioning arrangements. This may mean the creation of new legislation or the modification of existing laws.

This may be challenging enough but fisheries are dynamic resource systems and it is also important that legislation is able to keep pace with changing stakeholder objectives and technical developments. For example, it was found by Sultana *et al.* (2003), in research commissioned by the FMSP, that in Lao PDR the legal structures in place were not able to keep pace with increases in biological knowledge and technical advances and that this was in turn impacting on how fisheries were exploited.

- **Creating nested governance structures**

The scale at which local management planning will occur depends on a number of factors including the

scale of the fishery, available resources etc. In any case it is important that consideration is given to the need to develop nested levels of enforcement, planning and coordination. For example, in floodplain fisheries it may be possible to have a number of discrete management units within a river basin but it will also be important to make management decisions at the catchment scale and to coordinate the activities of the local management units (e.g. Halls *et al.* 2005). However it is important that the creation of these structures takes into account two important considerations. The first is to ensure that traditional local institutions with a remit covering fisheries management are considered and also that the central government should be careful not to undermine local authority (e.g. Bennett and Nieland 2002).

- **Reducing stakeholder vulnerability**

In many cases it will be necessary to ensure that there is coordination within policies to ensure that poverty, vulnerability and marginalisation of stakeholder groups is addressed. Only when this occurs are these groups likely to feel that they are able to consider the sustainability of the fishery and engage in co-management. One aspect of this is that the role of fisheries in the livelihoods of these groups should be examined and options for livelihoods diversification may be considered (SFLP, 2005).

- **Provision of training, communication, conflict resolution and extension services to support co-management.**

This is a vital aspect of policy making and one of the most difficult as it involves the allocation of often scarce resources and, given that partnerships in managing the fisheries may be a new development, means that agencies and individuals will have to adapt and learn to work in new and often challenging ways. This will be considered in more detail over the next two pages but it is important that governments, external agents (including donors) are able to provide resources and develop the capacity and capability of individuals and agencies to deliver these services.



Photo credit: Simon Bush

Implementing co-management policy

Through implementing co-management policies the co-management arrangements will be established and the conditions and processes required for successful co-management nurtured. In this section the type of management arrangements will be considered together with some of the principles that can be applied in implementing co-management policies.

As mentioned on page 3, more traditional, centralised management arrangements that provide management advice in a top-down manner are widely considered to have failed to deliver sustainably managed fisheries or meet the needs of those who depend upon the resources. Taking just one example, there are a large number of cases in inland fisheries where the resource has been 'captured' by the better-off resulting in fisheries that are heavily or over exploited and inaccessible to the poor.

The reasons for the failures include the fact that centralised management arrangements lead to decisions and/or the provision of information for decision making that, being detached from the fishers (and other stakeholders) and their needs, fails to account for local complexities and the uncertainties that these can create. At the same time, centralised management agencies often lack the resources and capability to either enforce centrally decided management decisions or to support more local arrangements. In order to develop supportive policies we need to consider what sort of arrangements we are looking to support.

Given the apparent failure of centralised management, is community-based management the answer? Community-based management, where

decision-making is decentralised to the extent that management decisions are made locally has been advocated by some on the basis that since those dependent on the fishery have the greatest interest in ensuring the sustainability of the resource system, and have extensive local knowledge, including of the needs of local users, then they are potentially the best placed to make management decisions (e.g. Folke *et al.* 1998).

However, as research, including that by the FMSP, has shown, local resource custodians do not necessarily have extensive knowledge of the limiting conditions of their resources (for example the capacity of the resource to support multiple users or the processes underlying natural replacement or resource maintenance). Nor is there always evidence to suggest that management decisions are necessarily made to ensure the biological sustainability of the resource or equity in the benefits arising from exploitation (e.g. Mees and Anderson, 1999).

Moving away from the two extremes we come to the sorts of co-management arrangements suggested by Berkes *et al.* 2001 where management is considered as a partnership arrangement between government and other stakeholders and into which existing informal and customary management systems may have to be integrated (e.g. Pomeroy 2001). These multi-modal arrangements provide an opportunity to build on the strengths of the various stakeholders involved and to combine knowledge types in order to develop local management plans that can go some way to meeting the objectives of multiple stakeholders.

The challenge with creating arrangements that emphasise partnerships and shared decision making



Photo credit: Rob Arthur

is in ensuring that all stakeholders can participate (see below) and that authority is devolved as well as responsibility for activities such as monitoring and enforcement (Meinzen-Dick and Knox, 1991; Hara, 2004).

While uncertainty about how best to proceed may hinder decentralisation of authority, the outcomes in cases where only responsibility has been devolved (instrumental co-management) have not been found to be much better than for centralized management, often because stakeholders still lack the incentive to manage in a sustainable manner (e.g. Hara 2004, Wilson *et al.*, 2004). While recognising that creating co-management arrangements is far from simple, below are some of the principles of good governance that can guide the process.

- **Ensuring meaningful participation in the management process.**

Both the type of participation (consultative, collaborative or informative) and the level of participation (individual participation or representation) will depend upon a number of factors including the scale of the resource system; the available capacity and financial resources, and the administrative level at which these exist; the existing institutional arrangements; and willingness of potential participants to bear the costs of participation. The challenges here are to ensure that stakeholder groups are identified and involved or legitimately represented, and that there is a commitment to providing resources to support participation, develop capacity and empower these groups.

Participation by various stakeholder groups provides an opportunity to build on the strengths that each group has and to share roles and responsibilities. This can help to address two potential constraints to effective management. In the first place, an opportunity exists to combine local knowledge of fishers and other stakeholders with the scientific and technical knowledge of government staff and other external agents providing a better basis for decision-making. This can help overcome problems associated with insufficient information for management, including assumptions about the objectives and needs of users (e.g. Arthur, 2005). Secondly, appropriate participation, providing that it leads to beneficial outcomes, can help to overcome a lack of will to manage effectively.

- **Creating transparency**

Effective participation can contribute to all parties gaining a clear understanding of how the process will proceed. This forms the basis for ensuring that all stakeholder groups (possibly through their

representatives) are made aware of the information and options available, the management decisions taken and the basis on which the key decisions have been made. Transparency can contribute to legitimacy and acceptance of decisions and therefore compliance.

- **Ensuring accountability**

In the first place it is important if there is representation that the representatives are legitimate and communicate the views of those being represented. Co-management plans should be developed in a way so that local stakeholders are accountable to central government, e.g. by meeting national and international requirements and undertaking agreed roles. However government and other external stakeholders should be accountable local stakeholders. In both cases external agents may well have an important role in exercising leverage on one or other group to ensure that commitments are fulfilled.

- **Developing management capability**

Where authority and responsibility are being devolved it is important that there is support from government and other external agents to increase their capacity and where necessary to take on the responsibility. This will include financial resources, training and coordination. As well as developing the capacity (in its broadest sense) of local stakeholders to contribute to decision-making and take on management roles and responsibilities, it is important to consider the capabilities of government agencies and other service delivery agencies.

These, often external, agencies need to be able to provide flexible and responsive support. Individual fisheries, local management arrangements, and stakeholder objectives will differ and be subject to change. Addressing the way in which individuals and organisations work is a difficult but important aspect that will need to be addressed (e.g. Garaway and Arthur, 2004).



Photo credit: Rob Arthur

Evaluating co-management policy: learning from doing

Because of the complex and dynamic nature of small-scale fisheries and the livelihoods of those dependent upon them together with the difficulty of developing and supporting an effective and nested set management arrangements, it will be vital to evaluate and adapt policies in the light experience.

Evaluation of co-management policies will need to consider both the outcomes of the policies and management plans and also the process by which policies are implemented and management plans in turn are developed, coordinated, implemented and evaluated. This will indicate whether the co-management and sectoral objectives are being achieved as well as whether or not the policies in place are creating the required processes. Each of these will be considered in turn.

- **Co-management processes**

In the first instance it is useful to consider whether the process of developing and implementing co-management policy has been effective. This can include aspects starting with whether policies have been based on sufficient understanding of the fisheries and the needs of those dependent upon them and whether they have resulted in effective legislation.

It is then possible to go on to consider the means by which policy objectives have been delivered. For example, have there been effective data collection and information sharing systems developed so that national requirements are reflected in local management plans? In addition are management plans consistent with national and international requirements (e.g. formats, authorisation, reporting requirements, consistent with legislation on gear and access)?

Further considerations include whether stakeholders been correctly identified and engaged in the process? At what stages of management are stakeholders participating, who is participating and what is the nature of their participation? Is the level of participation appropriate? On this last point it may be the case that stakeholders do not have sufficient capabilities to begin with to participate collaboratively in decision making and implementing management plans, nor may they feel that the costs associated with this level of participation are worth

the benefits. This is even more the case with multi-modal co-management arrangements where different stakeholder groups may wish for different levels of participation.

These are examples but specific indicators will need to be developed based on the policy objectives and the conditions and outcomes that the policies are designed to deliver.

- **Co-management outcomes**

Producing desirable outcomes through effective co-management is the aim of co-management policy. Policy outcomes will therefore manifest themselves on a number of levels. In the first place an initial outcome would be the extent to which the conditions for successful co-management are being created. For example, have clear sectoral objectives been identified and have these been clearly articulated? Have property rights and rights of access to resources been established and is legislation in place that legitimises local management decision-making and support it?

Further to whether the conditions have been established, it is important also to evaluate whether or not the policies are delivering, through the local management plans, the management outcomes that meet the needs of those dependent on the resource and national objectives. Essentially an evaluation should consider both the benefits arising from co-management as well as the distribution of these benefits. In addition the evaluation should also examine the costs associated with co-management and the distribution of these.

A thorough and ongoing evaluation of the process and outcomes resulting from co-management policy will allow continual adaptation to new circumstances and is a crucial part of the policy process. Further reading is provided in the references section.



Photo credit: Suzannah Walmsley

References

- Allison, E H and Ellis, F (2001) The livelihoods approach and management of small-scale fisheries. *Marine Policy* 25. 377-388
- Allison, E H; Ellis, F; Mathieu, L; Musa, A; Mvula, P M and Tinch, R (2002) Sustainable Livelihoods from Fluctuating Fisheries, Final Technical Report Project R7336. Available from www.fmsp.org.uk
- Agrawal, A. (2001) Common property institutions and sustainable governance of resources. *World Development* 29 No. 10 p1649-1672
- Arthur, R.I. (2005) Uptake of adaptive learning approaches for enhancement fisheries. Final technical report Project R8292. Available from www.fmsp.org.uk
- Arthur, R.I (2005) Fisheries co-management: a synthesis of the lessons learned from the DFID Fisheries Management Science Programme. MRAG Ltd. London. Available from www.fmsp.org.uk
- Bennett, E. and Nieland, A. (2002) The Management of Conflict in Tropical Fisheries. Final technical report Project R7334. Available from www.fmsp.org.uk
- Berkes, F., Mahon, R., McConney, P., Pollnac, R. & Pomeroy, R. 2001. Managing smallscale fisheries: alternative directions and methods. International Development ResearchCentre, Canada. 320 pp.
- FAO (2003) Management, Co-management or no management? Fisheries Technical Paper No. 426/1, FAO, Rome
- FAO (2004) The State of World Fisheries and Aquaculture (SOFIA 2004). Rome, FAO. 153 p.
- Folke, C., Berkes, F. and Colding, J. (1998) Ecological practices and social mechanisms for building resilience and sustainability. Pages 414-436 in F. Berkes and C. Folke (eds.). Linking social and ecological systems. Cambridge University Press, London, UK.
- Garaway, C J and Arthur, R I (2004) Adaptive learning: A practical framework for the implementation of adaptive co-management lessons from selected experiences in South and Southeast Asia. MRAG Ltd, London. Available from www.fmsp.org.uk
- Halls, A S; Arthur, A I; Bartley, D; Felsin, M; Grainger, R; Hartmann, W; Lamberts, D; Purvis, J; Sultana, P; Thompson, P; Walmsley, S (2005) Guidelines for designing data collection and sharing systems for co-managed fisheries. Parts I & II: Technical Guidelines, FAO Fisheries Technical Paper, FAO, Rome
- Hanna, S. 2003. The economics of co-management. In: D.C. Wilson, J. Raajaer Nielsen and P. Degnbol (eds.). The fisheries co-management experience: accomplishments, challenges and prospects. Kluwer, Netherlands.
- Hara, M. 2004 Beach village committees as a vehicle for community participation: Lake Malombe/Upper Shire River Participatory Programme In: C. Fabricius, E. Koch, H. Magombe and S. Turner (eds.). Rights, resources and rural development: community-based natural resource management in southern Africa. Earthscan, London.
- Jentoft, S. 2003 Co-management – the way forward. In: D.C. Wilson, J. Raajaer Nielsen and P. Degnbol (eds.). The fisheries co-management experience: accomplishments, challenges and prospects. Kluwer, Netherlands.
- Jentoft, S; McCay, B J and Wilson, D C (1998) Social theory and fisheries co-management *Marine Policy* 22 No. 4-5 423-436

Kaplan, I M and McCay (2004) Cooperative research, co-management and the social dimension of fisheries science and management. *Marine Policy* 28 (2004) 257-258

Mees, C.C. and J.D. Anderson (1999) The performance of Customary Marine Tenure in the management of community fishery resources in Melanesia. Final Technical Report project R6436. MRAG Ltd London, UK. Available from www.fmisp.org.uk

Meinzen-Dick, R. & Knox, A. 1991. Collective action, property rights, and devolution of natural resource management: a conceptual framework. Pp. 41-73 In: Meinzen-Dick, A. Knox and M. Di Gregorio, (eds.). Collective action, property rights and devolution of natural resource management. CGIAR. 295 pp.

Nielsen, J R; Degnbol, P; Kuperan Viswanathan, K K; Ahmed, M; Hara M; Abdullah, N M R (2004) Fisheries co-management—an institutional innovation. Lessons from South East Asia and Southern Africa. *Marine Policy* 28 151-160

Noble, B F (2000) Institutional criteria for co-management *Marine Policy* 24 69-77

Pomeroy, R. (2001) Devolution and fisheries co-management. In: Meinzen-Dick, R., Knox, A. and Di Gregorio, M. (eds.) Collective action, property rights and devolution of natural resource management: exchange of knowledge and implications for policy. DSE/GTZ, Germany

Pomeroy, R. and Berkes, F (1997) Two to tango: the role of government in fisheries co-management. *Marine Policy* 21 No. 5 465-480

Pomeroy, R; Katon, B M and Harkes, I (2001) Conditions affecting the success of fisheries co-management: lessons from Asia. *Marine Policy* 25 197-208

Sen, S and Neilsen, J R (1996) Fisheries co-management: a comparative analysis

Sultana, P., Thompson, P. and Ahmed, M. (2003) Understanding livelihoods dependent on inland fisheries in Bangladesh and Southeast Asia. Final Technical Report for R8118. Available from www.fmisp.org.uk

Walmsley, S F; Howard C A and Medley, P A (2005) Participatory Fisheries Stock Assessment (ParFish) Guidelines, MRAG Ltd, London. Available from www.fmisp.org.uk

Wilson, D.C., J. Raajaer Nielsen and P. Degnbol (eds.). The fisheries co-management experience: accomplishments, challenges and prospects. Kluwer, Netherlands.

World Bank (2004) Saving Fish and Fishers Toward Sustainable and Equitable Governance of the Global Fishing Sector, Report No. 29090-GLB, The World Bank, Washington

Sources of further information

This document is based on experiences from three projects undertaken within the Fisheries Management Science Programme (FMSP) supported by the UK Department for International Development (DFID), and managed by Marine Resources Assessment Group.

Further information on these projects and a number of other projects related to research to improve the livelihoods of the poor reliant on fisheries resources can be accessed from the FMSP website. Alternatively it is possible to contact MRAG for copies of any of the reports related to these reports.

Related Documents

A series of related documents are available that provide additional information on the projects highlighted here and all are available from the FMSP website.

This document is a brief that provides information on policy issues in co-managed fisheries. In addition to this there is a nested series of products on co-management that provide increasing detail of products that can be a valuable resource to anyone considering fisheries co-management (see diagram on the right).

The co-management synthesis describes the co-management process, including both policy relating to co-management and local management planning, and includes an introduction to many of the tools and methods developed through the FMSP that can be applied to support the development of sustainably co-managed fisheries. A summary is also available.

Further to this synthesis there are additional synthesis documents that take some of the issues raised in the co-management synthesis further detail. These provide an introduction to the wealth of knowledge amassed by the FMSP and to the tools and guidelines that provide the technical detail to implementing the approaches.

Website Address

www.fmsp.org.uk

Contact Details

Marine Resources Assessment Group

Email: enquiry@mrags.co.uk

Tel: +44 (0) 20 7255 7755

Fax: +44 (0) 20 7499 5388

