

Best practices for fisheries

Validated RNRRS Output.

Decision makers responsible for fisheries now have best practices to help them change fisheries policies and regulations for the better. Competing demands, environmental degradation and climate change mean that fisheries are among the most difficult resources to manage. The best practices help planners to realise the potential of fisheries to reduce poverty while maximising economic benefits in the long term. Many problems with fisheries have non-fisheries causes—social and policy issues need to be taken into account along with resource concerns. Drawing together best practices is strengthening the growing global call for better fisheries management and influencing policy change throughout East Africa and South East Asia. Already, planners have used these practices to revive fisheries in post-tsunami India and develop fisheries in Sierra Leone.

Project Ref: **FMSP02:**

Topic: **3. Improving Fishers Livelihoods: Better Fishing Management & Aquaculture**

Lead Organisation: **MRAG Ltd, UK**

Source: **Fish Management Science Programme**

Document Contents:

[Description](#), [Validation](#), [Current Situation](#), [Current Promotion](#), [Impacts On Poverty](#), [Environmental Impact](#),

Description

FMSP02

A. *Description of the research output(s)*

Research into Use

NR International
Park House
Bradbourne Lane
Aylesford
Kent
ME20 6SN
UK

Geographical regions included:

[Bangladesh](#),
[British Indian Ocean Territory](#),
[Cambodia](#),
[Congo DR](#), [Fiji](#),
[Ghana](#), [India](#),
[Indonesia](#),
[Kenya](#),
[Malawi](#),
[Mauritius](#),
[Nepal](#),
[Seychelles](#),
[Tanzania](#),

1. Working title of output or cluster of outputs.

In addition, you are free to suggest a shorter more imaginative working title/acronym of 20 words or less.

Full title: Improving policy for fisheries management; maximising potential for economic growth and poverty reduction

2. Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.

Fisheries Management Science Programme

3. Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.**Policy Briefs**

Marine Resources Assessment Group Ltd (Suzannah Walmsley / Chris Mees)

18, Queen Street, London W1J 5PN

Tel: +44 20 7255 7755; Fax: +44 20 7499 5388; Email: s.walmsley@mrags.co.uk / c.mees@mrags.co.uk

R8467 – Incorporating Common Pool Resource Issues into Fisheries Management

IDDRA Ltd (Dr. Arthur E. Neiland, Co-Director)

Portsmouth Technopole, Kingston Crescent, Portsmouth, Hants, UK PO2 8FA

Tel: +44 2392 658232 Fax: +44 2392 658201 Email: neiland@iddra.org

R8118 – Understanding livelihoods dependent on inland fisheries in Bangladesh and SE Asia

ICLARM – The World Fish Center (Dr Mahfuzuddin Ahmed, Leader Policy Research and Impact Assessment Program)

Jalan Batu Baung, Batu Maung, PO Box 500 GPO, 10670 Penang, Malaysia

Tel: 60 4 626 1606 Fax: 60 4 626 5530 Email: ICLARM@cgjar.org

Current contact details of Dr Mahfuzuddin Ahmed:

Director, IFM, Centre for Maritime Research (MARE), Nieuwe Prinsengracht 130, Room G.2.05, NL-1018 VZ

Amsterdam, The Netherlands

Phone: +31 20 5254143 Fax: +31 20 5254051 E-mail: info@marecentre.nl

Other institutions collaborating in the project were: Can Tho University and An Giang University, Vietnam; Ministry of Agriculture, Forestry & Fisheries, Cambodia; Living Aquatic Resources Research Center / NARI; Bangladesh Centre for Advanced Studies; University of Durham and Environmental Science & Technology, Imperial College, London.

R8196 - Understanding Fisheries Livelihoods and Constraints to their Development: Kenya and Tanzania

[Thailand,](#)
[Togo, Turks & Caicos Islands,](#)
[Uganda,](#)
[Vanuatu,](#)
[Vietnam,](#)

Target Audiences for this content:

[Fishers,](#)

Marine Resources Assessment Group Ltd (Chris Mees / Catherine O'Neill)

18, Queen Street, London W1J 5PN

Tel: +44 20 7255 7755; Fax: +44 20 7499 5388; Email: c.mees@mrag.co.uk / enquiry@mrag.co.uk

Food, Agriculture and Natural Resources Management (FANRM) Research Consultants, Tanzania (Francis Shao, Director)

Tel: 00 255 22 2451400; Email: fshao@muchs.ac.tz

MKK Ltd (Dr Delphine Malleret-King)

Current contact details:

Technical Adviser, Laikipia Wildlife Forum, P. O. Box 764, Nanyuki 10400, Kenya

Tel: 062 31600; Email: research@laikipia.org

4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? (**max. 400 words**). This requires a clear and concise description of the **output(s) and the problem the output(s)** aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.

The 'outputs' in this cluster refer to recommendations for improved **fisheries policy** and **fisheries management**. These have arisen from the whole range of over 60 FMSP projects over 11 years, developed and implemented in collaboration with developing country researchers and governments.

The key issues have been summarised in a series of five **Policy Briefs** on:

1. Fisheries and **Poverty Reduction**;
2. Fisheries and **Economic Growth**;
3. Fisheries and **Food Security**;
4. Fisheries and **Livelihoods**; and,
5. Fisheries and **Governance**;

and four **Keysheets** on Common Pool Resources (CPR) and Fisheries Management.

The Policy Briefs contain the following key messages:

- Fisheries are potential sources of significant wealth and, when they are well managed, they can contribute to both economic growth and poverty reduction;
- Fisheries provide benefits at national and local levels, providing revenue to the state, employment to millions of fishers and people in associated trades, and food security to poor people;
- Net export revenues from fish exports earned developing countries US\$17.7 billion in 2001; more than coffee, cocoa, sugar and tea combined. Fisheries are also a source of income for over 100 million people; the majority are employed in small-scale fisheries in the developing world, and 90% are from Africa and Asia.
- To increase the contribution that fisheries make to poverty reduction, management is needed that ensures sustainability of fish stocks and equitable distribution of the benefits.

Global reviews of the current state of fish stocks by FAO indicate that prevailing systems of fisheries management have been largely ineffective at controlling access to fishery resources to ensure their sustainability; one quarter of

fish stocks are fished beyond sustainable levels, and half of all stocks are fully exploited, with no potential for increases in production with increasing fishing effort. Fisheries are inherently difficult to manage; they are complex, dynamic, subject to competing demands on limited resources and vulnerable to external influences such as environmental degradation and climate change. Many fisheries institutions also face severe human and financial constraints and there is a great need for **capacity development** and improved governance, particularly in developing countries.

Improved fisheries management can help tackle these issues: improve productivity of fish stocks, increase the economic benefits to the state, and maintain and enhance the contributions they make to poor people's livelihoods and food security.

The outputs in this cluster provide **policy messages and recommendations** to support the process of change towards improved fisheries management and **governance**, and to raise awareness of the issues and the potential of fisheries to contribute to **poverty reduction**. The FMSP has made an important contribution, in the fields of fisheries management and fisheries development, to international best practice.

5. What is the type of output(s) being described here?

Please tick one or more of the following options.

Product	Technology	Service	Process or Methodology	Policy	Other Please specify
X				X	

6. What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment

These outputs are focussed on the management of fisheries and the commodities that flow from them. If managed appropriately, fisheries can provide a range of goods and services which can underpin the livelihoods of people working in the sector, and can also contribute to the livelihoods of people outside the sector.

7. What production system(s) does/could the output(s) focus upon?

Please tick one or more of the following options.

Leave blank if not applicable

Semi-Arid	High potential	Hillsides	Forest-Agriculture	Peri-urban	Land water	Tropical moist forest	Cross-cutting
					X		

8. What farming system(s) does the output(s) focus upon?

Please tick one or more of the following options (see Annex B for definitions).

Leave blank if not applicable

Smallholder rainfed humid	Irrigated	Wetland rice based	Smallholder rainfed highland	Smallholder rainfed dry/cold	Dualistic	Coastal artisanal fishing	Inland fishing	Deep sea fishing

		X			X	X	X	X
--	--	---	--	--	---	---	---	---

9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources (RNRRS and non RNRRS)? (**max. 300 words**).

Please specify what other outputs your output(s) could be clustered. At this point you should make reference to the circulated list of RNRRS outputs for which proformas are currently being prepared.

Value could be added to these outputs by clustering them with other outputs that focus on providing advice to policy makers. In most cases, livelihoods based on natural resources are complex and multi-dimensional, often involving a range of integrated activities related to fishing, farming, trading etc. Many poverty problems of fishing communities have non-fisheries causes, and are often related to institutional issues, requiring broader cross-sectoral support from sectors such as health, education and infrastructure.

In addition, fish and fishery products are amongst the most widely traded goods worldwide and are a major source of foreign exchange for many developing countries. Net export revenues from fish exports earned developing countries US\$17.7 billion in 2001. The economic wealth generated by fisheries in developing countries can be channelled into national poverty reduction programmes.

For these direct and indirect contributions to poverty reduction to be realised, fisheries must be managed sustainably, with consideration of the distribution of wealth that arises from them. These outputs have drawn together the main policy messages and findings from all FMSP research and outputs, and a range of products and tools to support fisheries management and development are available from the FMSP Programme:

- Simple empirical models for lake and river fishery assessments;
- Vulnerability of fisheries to climate variation and options for response;
- Participatory fisheries monitoring;
- Fisheries stock assessment and management – A collection of tools and guides for assessing fisheries and developing management plans;
- Managing fisheries with limited data: technical and participatory approaches;
- Adaptive co-management: Supporting co-managed fisheries;
- Control of Foreign Fishing to provide economic benefits to developing coastal states;
- Tools for managing floodplain fisheries;
- Fisheries Enhancement Decision Support Tools: EnhanceFish;
- Fish aggregating devices (FADs) for enhancing coastal artisanal fisheries;
- Training courses in fisheries stock assessment and management for capacity building.

Many of the factors identified as affecting fisheries management performance in developing countries also commonly affect the management of other common pool resources, such as forests, rangeland and water resources. As such, there may be potential to add value by clustering the FMSP outputs with relevant ones from other RNRRS programmes, for example:

- NRSP Caribbean 2 cluster: Policy knowledge for alternative NR livelihoods;
- NRSP East Africa 3 cluster: Improved management of CPRs;
- NRSP India 3: Improving NRM management strategies and access to CPRs;

- NRSP Nepal 1: Livelihoods and NRM in forest CPRs.

Validation

B. Validation of the research output(s)

10. How were the output(s) validated and **who** validated them?

Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the "who" component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation (max. 500 words).

The outputs have undergone a range of validation techniques at different levels:

The recommendations and arguments presented in the Policy Briefs and Keysheets are drawn from the underlying FMSP projects. These projects and their reports have undergone a peer review process, and many have produced articles in academic peer-reviewed journals. Thus, they have been validated in the formal academic system. Over the course of the FMSP, a total of 384 publications were produced; 136 papers in academic peer-reviewed journals, and 248 reports in non-peer reviewed journals (although project reports underwent an internal peer-review process)

The projects have also undergone field evaluation through their implementation with a range of stakeholders including government staff, NGOs, researchers and above all, resource users.

The summary outputs (Policy Briefs and Keysheets) were validated through in-house editing and verification of their accuracy and presentation of arguments. Their validity was confirmed through their acceptance by influential international policy-makers and donors, e.g. fisheries advisers from the UK Department for International Development (DFID), the UN Fisheries and Agriculture Organisation (FAO) and the World Bank.

11. Where and when have the output(s) been validated?

Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above (max 300 words).

The outputs have been validated in a range of countries over the period 1995 – 2006 (the duration of the FMSP programme). Testing and validation of individual outputs took place in the following countries: Kenya, Tanzania, Uganda, Malawi, Indonesia, Cambodia, Lao PDR, Vietnam, Thailand, Bangladesh, India, Nepal, Fiji, Vanuatu, Seychelles, Mauritius, British Indian Ocean Territory, Ghana, Tonga, Indonesia, Namibia, and the Turks and Caicos Islands.

The Policy Briefs and Keysheets are applicable to fisheries worldwide, but focus mainly on experiences from East Africa and Southeast Asia (as above), being the areas where the FMSP was focussed. They apply to inland, coastal

and deep-sea fisheries.

Current Situation

C. *Current situation*

12. **How and by whom** are the outputs currently being used? Please give a brief description (**max. 250 words**).

Many of the individual project outputs are being used in developing countries, where they are influencing the approach to fisheries management, promoting, inter alia, the participation of resource users in the management process, a consideration of the wider livelihood aspects of fisheries and recognition of the importance and potential value of fisheries. The details of how, by whom and where these outputs are being used are included in the summary dossiers of other FMSP clusters.

The Policy Briefs and Keysheets, and the messages for fisheries policy, are contributing to and being used to influence current thinking and approaches in fisheries management worldwide. The Policy Briefs are being used by Fisheries Advisers in the UK Department of International Development (DFID) for briefings up to Ministerial level, briefings with other donors, briefings for fisheries and non-fisheries sector personnel, and for the UK's Programme on Fisheries through links with the Department for Environment, Food and Rural Affairs (DEFRA). They have been distributed at international meetings, the DFID Natural Resource Advisers' Conference and on country visits. Wealth-based fisheries management, as described in the Keysheets, is being promoted by DFID's current fisheries policy. Advisers and consultants have also used them in developing thinking with partner governments. The World Bank has used them to inform Bank non-fisheries staff. The recommendations for improved fisheries governance and management are starting to influence thinking and policy. However, as discussed in Question 17, the process of bringing about policy change is usually slow. As a result, in many cases it is too early to assess the extent of uptake of these messages and their implementation into fisheries policy and management, although this is expected to grow over the coming years.

13. **Where** are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used (**max. 250 words**).

Many outputs, products, processes and technologies are being implemented as a result of previous FMSP work, and their use is detailed in the Output Dossiers for the other FMSP clusters. 136 sets of the Keysheets have been distributed in English, French and Spanish to policy makers and their advisers, research institutes and NGOs in twenty countries in Africa, Asia & Latin America. The Policy Briefs have been distributed to over 350 people in 68 countries, as well as to regional and international organisations. The Policy Briefs and Keysheets are also available on a number of websites.

The Policy Briefs, Keysheets and their messages are being used worldwide. Because they aim to influence the policy process, it can be difficult to track where ideas have been taken up. Furthermore, policy change is not immediate and in many cases it is too early to assess the extent of uptake of these messages and their implementation. However, the FMSP developed long-term supportive relationships with fisheries institutions in developing countries across Asia, Africa, the Caribbean and the Pacific, which has supported the uptake of these recommendations and outputs,

as well as supporting the process of policy change.

There are, however, specific examples where the use of the Policy Briefs and Keysheets is known. A consultant carrying out a post-tsunami assessment in India, funded by the World Bank, used the Keysheets to underpin discussions with senior fisheries administrators on new approaches to fisheries management and development. DFID is developing a new country sector programme in Sierra Leone, and has distributed the Policy Briefs there to inform people about fisheries, their importance and potential contributions, and to inform discussions on the development of fisheries management systems in the country. Much of the current thinking that has arisen through the FMSP programme and its outputs, has contributed to the development of a Fisheries Management Decision Support Tool (FMDST) in Lake Victoria.

14. What is the scale of current use? Indicating how quickly use was established and whether usage is still spreading (max 250 words).

It is difficult to identify the scale of 'use' of particular policy recommendations and policy messages for fisheries. What can be said is that these policy messages form part of a growing and global call for better fisheries management – effectively tackling illegal fishing, based on biological sustainability and maximising the benefits from fisheries in the long term, whether through effective management and redistribution of wealth from industrial fisheries, or equitable management of smaller-scale fisheries to support livelihoods and food security.

In terms of the Policy Briefs and Keysheets, these were sent out electronically to a range of institutions worldwide, and hard copies were sent to key institutions. Their use by key people in DFID and the World Bank was established quickly, within a few weeks or months of their production and distribution. Their use and influence is still spreading, as they continue to be distributed when and where opportunities arise, and are available on a number of websites and web portals. Specific opportunities for their use need to be capitalised on, for example as new investments are made in fisheries and new programmes are developed. The outputs can inform the identification of opportunities and underpin the thinking and design of policies and programmes.

15. In your experience what programmes, platforms, policy, institutional structures exist that have assisted with the promotion and/or adoption of the output(s) proposed here and in terms of capacity strengthening what do you see as the key facts of success? (max 350 words).

The FMSP approach to research, working in partnership with in-country institutions and developing collaborative working relationships, has helped the exchange of ideas both from western researchers to developing country researchers and government staff, as well as vice-versa. These long-term partnerships between scientists, FMSP and policy makers have been a key contributor to capacity building and have also increased the potential for uptake and adoption of the outputs, and consequently their impacts. However, in many cases uptake is still largely restricted to the institutions involved in developing the outputs.

The outputs are based on high quality empirical research which validates the resulting policy messages. The structure of the FMSP programme, based on demand-led issues and themes, has helped in the subsequent structuring of ideas and policy recommendations. The most recent outputs from the FMSP were starting to blend biological and technical disciplines with social and policy issues, something rarely found within much of agricultural or fisheries research. As a result, many of the outputs are at the forefront of current thinking in the sector. The DFID logo also confers a degree of credibility and quality on the briefs, due to the respect and trust that people have

in DFID.

Promotion and adoption of the outputs is directed mainly at institutional level. The nature of fisheries means their management must take place at a wider scale than the level of individual households or communities, therefore intermediary institutions usually need to be involved. Existing networks and platforms have been used to disseminate the outputs, most notably DFID and FAO networks, the oneFish and other websites and web portals, and also personal contacts and contacts built up over the duration of the FMSP programme.

Continued promotion of research outputs and policy messages is necessary, at a variety of levels, in order to encourage them to become 'embedded' in developing country institutions. This includes the availability of information on web portals or at workshops etc., as well as personal contacts and meetings to attempt to influence the thinking of key decision makers.

One conclusion in particular is that changes of this nature and scale need to be driven from the top. Buy-in of key influential people and 'champions' is an effective way of influencing policy decisions. At the lower levels in an institution, individual researchers or fishery officers may be interested in a particular approach for managing fisheries, but alone they have very little freedom or flexibility to influence their own work schedules and objectives. Therefore, any major changes to approach in fisheries management usually need to be implemented and directed from senior figures: ministers or directors. However, the importance of raising awareness and building capacity of people at the lower levels in an organisation is also important for the long-term, because these people may become the top decision makers in the organisation and have the influence to change the status quo.

Current Promotion

D. Current promotion/uptake pathways

16. Where is promotion currently taking place? Please indicate for each country specified detail what promotion is taking place, by whom and indicate the scale of current promotion (max 200 words).

The Policy Briefs and Keysheets have been widely distributed worldwide and are available on the FMSP website. 136 sets of the Keysheets have been sent out in English, French and Spanish to policy makers, research institutes and NGOs in twenty countries. The Policy Briefs have been distributed to x countries as well as regional and international organisations. They are also available on the FAO oneFish website and DFID's Research 4 Development website, both high-profile and well-used websites for fisheries and development. They are also being distributed through personal contacts with developing country governments by DFID and MRAG.

The DFID senior Fisheries Adviser has promoted the Policy Briefs in Sierra Leone, to inform people about fisheries, their importance and potential contributions, and to inform discussions on the development of fisheries management systems in the country in a new Sector Plan.

Additional promotion of the messages underlying the Policy Briefs is occurring, as detailed in the other FMSP cluster proformas.

17. *What are the current barriers preventing or slowing the adoption of the output(s)? Cover here institutional issues, those relating to policy, marketing, infrastructure, social exclusion etc. (max 200 words).*

Institutional and policy failures and weaknesses are widespread in the fisheries sector. Where fisheries are overexploited, and a change in management to reduce fishing pressure could result in increased productivity, this is often difficult to implement because the people (often poor) who depend on fisheries for their livelihoods usually have limited other opportunities.

Change is not always popular, and may meet institutional resistance as well as inertia; the process of bringing about policy change is usually extremely slow. This may be exacerbated by the prevailing political situation, and in particular, resistance from those who stand to lose out from any changes to the status quo.

The fisheries sector is often drastically under-resourced and suffers from a lack of capacity (human, financial and technical). This is particularly the case where fisheries are under-valued by policy makers, decision makers and the economy as a whole. This results in limited resources to implement management, a limited amount of information on which to base management decisions, and subsequently the fisheries sector does not contribute as much as it might to local livelihoods or to the economy as a whole.

However, in some cases the situation is changing, governments are starting to recognise they are losing out on potential benefits for development and growth, and there are a number of examples of success in fisheries management.

18. *What changes are needed to remove/reduce these barriers to adoption? This section could be used to identify perceived capacity related issues (max 200 words).*

Success in fisheries management is possible, and this fact needs to be communicated to and understood by people in the position to make a change. In some countries, fisheries management is becoming more effective, such as Namibia, Mauritania and Morocco. Tuna fisheries in the South Pacific are exploited mainly by foreign vessels that pay access fees to the Pacific Island Governments, which brings in US\$ 60 million per year. In Namibia, a proportion of the government revenues from selling fishing licences is channelled into a social fund which finances education and health projects for the population. At the other end of the spectrum, there are positive examples of increasing participation of local resource users in management systems. In Uganda, institutional structures have been successfully changed from a top-down management approach to a decentralised system involving 'Beach Management Units', in which fishers participate in creating by-laws for local management options (such as closed areas, number of licences) and in the monitoring of fishing activities.

Awareness needs to be raised amongst key decision makers, including Directors and Ministers for fisheries, as well as senior people in other sectors (such as trade, finance and agriculture), with which fisheries needs to integrate more. Inter-sectoral dialogue will help raise awareness of the contribution that fisheries can make to economic growth, international trade and poverty reduction, through sustainable management that generates wealth. The Policy Briefs and Keysheets are part of the process for promoting this.

Capacity building is an important aspect of promoting these changes, and needs to be seen as a long-term process rather than a one-off set of interventions. People involved in promoting institutional change towards improving fisheries management need to feel that they have support over the long-term, for technical advice and support.

Keysheet 3 identified possible entry-points for promoting change in fisheries management: using opportunities within the policy process; influencing the policy process and providing information to decision makers; gaining the support of influential individuals to promote change; and, through capacity building and support for organisations and individuals to enter and influence the policy process.

19. What lessons have you learnt about the best ways to get the outputs used by the largest number of poor people? (max 300 words).

Policy briefs and Keysheets need to be clearly written using non-specialist language in order to get the messages across effectively, and in particular to be accessible to non-fisheries people. They are useful for targeting people both in the fisheries sector as well as in other sectors. It is through decision makers understanding the messages in them, and bringing about changes in fisheries management, that the outputs will be used and contribute to improving the situation of poor people. These outputs are over-arching documents that lay down key principles that others can build upon; their potential impacts on reducing poverty do not stop at the production of the Policy Briefs. Importantly, capacity building that has taken place in-country has helped create the potential for others to develop their own products based on these outputs and the underlying FMSP products.

In terms of individual outputs that support the messages in the policy briefs, it is important to make them accessible, for example, by translating them into local languages or developing other innovative means of communication, especially in areas where there is high illiteracy. Participatory workshops have been used to promote a number of outputs under the FMSP. The involvement of resource users and poor people in the research to develop the outputs has also increased their adoption.

It can be appropriate to involve different stakeholders at different stages of the process. It is important to involve a broad range of actors, who interact, use information in different ways and share it amongst themselves. For example, in developing data collection and sharing systems for co-managed fisheries in Bangladesh, resource users, local government officers and national fisheries staff were involved at different stages of the process, yet all had an opportunity to share their ideas and opinions.

Impacts On Poverty

E. Impacts on poverty to date

20. Where have impact studies on poverty in relation to this output or cluster of outputs taken place? This should include any formal poverty impact studies (and it is appreciated that these will not be commonplace) and any less formal studies including any poverty mapping-type or monitoring work which allow for some analysis on impact on poverty to be made. Details of any cost-benefit analyses may also be detailed at this point. Please list studies here.

There have been a number of impact studies for the FMSP related to outputs that have contributed to this Policy Output.

Arthur, R.I., E. Fisher, R. Mwaipopo, X. Irz, and C. Thirtle, (2005). Fisheries Management Science Programme: An

overview of developmental impact to 2005, Final Technical Report., MRAG Ltd. (www.fmsp.org.uk Search Project Database, Project R4778C; http://www.fmsp.org.uk/Documents/r4778c/R4778C_FTR.pdf;

Halls, A. S. & Arthur, R. (2006). Assessment of the Impact of the FMSP: A summary of the assessment of impact from the perspectives of key fisheries institutions and researchers. Report to the DFID, London, MRAG Ltd. http://www.fmsp.org.uk/Documents/r4778c/R4778C_Rep1.pdf;

Fisheries Management Science Programme: assessing developmental impact, Policy Brief, March 2006, http://www.fmsp.org.uk/Documents/r4778c/R4778C_Brief.pdf

Arthur, R., A. Halls and C. Mees, 2006, Impact of fisheries management science: Experience from DFID's Fisheries Management Science Programme. *Paper 235 IIFET Conference Proceedings*, IIFET, Portsmouth, July 2006.

The following paper is not an impact assessment per se, but outlines lessons learnt on delivering FMSP research that can lead to impact.

Mees, C. and R. Arthur, 2006, Fisheries Management Research and the MDGs: Past Experience And Future Vision *Paper 236 IIFET Conference Proceedings*, IIFET, Portsmouth, July 2006.

FMSP annual reports also provide some information on impacts, and since 2004 a specific impact assessment questionnaire was sent to project leaders in addition to other annual reporting requirements. Responses to those questionnaires have been incorporated into annual reports and into the above impact studies.

LTS International (2005) Evaluation of DFID renewable Natural Resources Research strategy, DFID London, See Annex 10 Chapter 2: <http://www.dfid.gov.uk/research/renewable-natural-resources.asp>

21. *Based on the evidence in the studies listed above, for each country detail how the poor have benefited from the application and/or adoption of the output(s) (max. 500 words):*

- *What positive impacts on livelihoods have been recorded and over what time period have these impacts been observed? These impacts should be recorded against the capital assets (human, social, natural, physical and financial) of the livelihoods framework;*
- *For whom i.e. which type of person (gender, poverty group (see glossary for definitions) has there been a positive impact;*
- *Indicate the number of people who have realised a positive impact on their livelihood;*
- *Using whatever appropriate indicator was used detail what was the average percentage increase recorded*

These outputs aims to inform and influence policy makers with the aim of bringing about better management of fisheries, and ultimately improve fisheries dependant livelihoods. Arthur et al (2006) indicate that for 'enabling' outputs, the measurement of direct poverty impacts is complex and it is necessary to look at the chain of events required to bring about change in people's livelihoods and at the impacts achieved at different stages in that chain. In particular this type of enabling output seeks to build capacity of intermediary organisations and individuals to ultimately deliver benefits to the poor.

The recommendations of this output form part of the general changes in thinking that are occurring in the field of fisheries and the Policy Briefs are contributing positively to the international debate on fisheries policy and management. As a result, the positive impacts on livelihoods that stem directly from these policy messages and from the various outputs of the FMSP are difficult to measure. Due to the nature of fisheries and the scale of fish stocks, most fisheries cannot be managed at a household or community level. As a result, many of the changes required are at an enabling level, strengthening and supporting intermediary institutions to implement better fisheries management in order to realise the benefits for poor people in the longer term.

The move towards more responsible fisheries management and sustainable practices is a long-term process that is still ongoing. These Policy Briefs and Keysheets are relatively new (produced in March 2006 and November 2005, respectively) and still need to be continuously promoted. If and when improvements to fisheries management are implemented, their impact on poverty reduction could be immense. A summary of information in the impact assessment reports cited above indicates:

- In the view of international, regional and national agencies such as FAO, WorldFish Center, MRC, SPC and BCAS, the FMSP has made a real and significant contribution to the knowledge base of fisheries science and management. The Programme has been an important influence on the strategic direction of several of these agencies, and messages and products have been, and continue to be, adopted by many of them.
- Many of the research outputs from the FMSP are considered to be innovative, rigorous and of great scientific merit. In several areas, for example stock assessment and fisheries livelihoods, FMSP outputs are regularly cited.
- Efforts to make the knowledge generated accessible and available have been appreciated and have contributed to more widespread adoption. However, it is felt that further efforts need to be made, for example in translating materials, to improve the potential for further impact.
- The FMSP, through commissioned projects and Programme development activities, has provided tangible benefits to both intermediary management agencies and target beneficiaries. This has included capacity to manage fisheries resources, increased yields and improved income streams at both the national and household level.
- The Programme has also been immensely valuable to researchers who appreciate the fact that it enabled them to undertake rigorous research on important issues for which there was a real demand. This contrasts with other funding sources where support is either for scientific research without reference to development issues, or development activities without provision for rigorous research.

In terms of individual FMSP outputs and direct impacts on livelihoods, a number of impacts on poverty reduction in fisheries can be cited. Some examples are:

- Poor communities' incomes from inland fisheries were increased through enhancement techniques including stocking (Projects R7335 and R8292);
- The vulnerability of stocks to overexploitation can be reduced by setting appropriate management targets through the use of stock assessment tools for fisheries, which subsequently reduces the vulnerability of poor people who rely on those fisheries (Project R8468);
- Poor people's food security was increased through increasing production of fish species (Project R7917), and managing water flow regimes in inland fisheries to maintain fisheries production (Project R8486);
- Participation of fishers in management and stock assessment enables them to have a voice in the decision-making process (Projects R8397 and R8464);

- The potential for increased government revenue from industrial fisheries, that contributes to economic growth, was identified through the Control of Foreign Fishing (Project R8463).

Refer to other FMSP cluster proformas for more details.

Environmental Impact

H. *Environmental impact*

24. *What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? (max 300 words)*

This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.

Improved fisheries management can result in a range of environmental benefits, including sustainable fish production and increased biodiversity. It can prevent the negative environmental impacts associated with not managing a fishery such as over-fishing, loss of biodiversity, extinctions and stock collapse and loss of habitat associated with the use of destructive fishing gears. Integrated management approaches can also bring wider environmental benefits such as habitat restoration.

25. *Are there any adverse environmental impacts related to the output(s) and their outcome(s)? (max 100 words)*

No adverse environmental impacts are expected.

26. *Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? (max 200 words)*

Fisheries policy and management must cope with a diversity of relationships between people and fisheries, and capitalise on opportunities that they provide for development, whilst taking account of the fluctuations in natural systems and people's responses to those fluctuations. Climate change is expected to bring about fluctuations and changes in weather patterns, temperature, water availability and the spatial and temporal distribution of natural resources, including fish resources. The outputs promote adaptive and responsive fisheries management that takes account of the diversity of relationships between people and resources, and the range of possible responses to changes. A management system that takes account of these issues enhances or maintains people's resilience to be able to cope with such changes.
