

Final Technical Report

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TITLE OF PROJECT	Promotion of FMSP guidelines for floodplain fisheries management and sluice gate control	
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2. Executive Summary

This project promoted FMSP-developed materials guiding the integrated management of floodplain fisheries resources, taking into account key factors such as establishment of sanctuaries, management of sluice gates to benefit both rice and fish, and climate change impacts. The project targeted both local managers in Bangladesh, e.g. sluice gate managers and fisheries officers, and national, regional and international policy makers in the South and South east Asian region (especially West Bengal, India). Many of these stakeholders still see floodplain management in purely sectoral terms although the new Bangladesh fisheries strategy now includes many of the FMSP floodplain fishery management recommendations. New materials produced by the project include leaflets, PowerPoint presentations, posters, bill boards, articles in newspapers and newsletters, a field manager's guide, a DFID policy brief and web pages with key messages and download facilities (especially the project page on the FMSP site). Existing knowledge and these new materials were promoted using a range of different communication channels, as appropriate to different stakeholder groups, including workshops, seminars, presentations at informal meetings, a stall at the Bangladesh Fish Fair, pot songs and street theatre. These materials and activities were developed with the Bangladesh partners, BCAS and CNRS, developing them as regional centers of excellence on FMSP and related DFID knowledge on floodplain fisheries. The project has contributed to the FMSP purpose by developing capacity for improved, integrated knowledge of floodplain river fisheries, enabling downstream benefits for poor people, especially in the target areas of Bangladesh and West Bengal, and the wider Asian region.

3. Background

Fisheries contributed about 6% of the GDP for Bangladesh in 2000 and 12% of export earnings, and employs about 9% of the labour force. In 2003, total fish production was 1.78 million tons. Inland fisheries and aquaculture contributed 53% and 24% respectively to the annual fish production totals in Bangladesh in the late 1990s, although the contribution made by culture fisheries has since increased.

Fisheries in Bangladesh include inland open waters, inland closed waters (aquaculture), and marine fisheries. All are an important source of animal protein, income, foreign exchange earnings and employment generation (Alam and Thomson 2001). The importance of

floodplain fisheries is often neglected in development activities. This is despite the fact that much of the population engages in floodplain fishing for livelihood purposes, or for household consumption and good health from animal protein. The Bangladesh Department of Fisheries (DOF, 1990) state that about 73% of households were engaged in subsistence floodplain fishing in 1987-88. Many people are also involved in fisheries related activities such as making fishing gear and fishing crafts, fish marketing, processing and transportation etc. BBS (2000) estimate that over 70% of all animal protein consumed in Bangladesh is from fish, and de Graaf *et al.* (2001) estimate this figure to be 60%.

Results of various studies carried out on inland fish production in relation to flood control, drainage and irrigation projects indicate that fish catches are declining in inland water bodies (Ahmad *et al.* 1997; MPO 1987; FAP-17 1995; de Graaf *et al.* 1999, Halls *et al.* 1999). Hoque (1995) also points out that fish diversity is decreasing. Reasons for this decline in fish biomass and diversity include the construction of flood control projects, pesticide use, industrial pollution and water withdrawal for irrigation (Halls *et al.* 1998; World Bank 1990). In spite of the conclusions of these studies, statistics published by the Department of Fisheries of Bangladesh suggest that in many areas, landings are increasing significantly (Craig *et al.* 2004).

Outputs from the FMSP cluster of floodplain fisheries projects and other research provide suggestions on how to increase inland fish production. Sanctuaries are known to enhance floodplain fish stocks, and improved sluice gate management could also enhance fisheries production in flood control systems. Sluice gates and embankments are known to block fish migration and dispersal routes and reduce wetland areas (Hoggarth *et al.* 1999; Mirza and Ericksen 1996; Sultana and Thompson 1997; Khan *et al.* 1994; Ahmad *et al.* 1997; Nishat 1993; Rahman and Huq 1994). Larval release experiments show that 25% of all hatchlings passing the Jugini regulator in Tangail, died because of this passage (Marttin and de Graaf 2002; de Graaf *et al.* 2001). The DFID FAP 17 project confirmed that fish catches within compartments were mostly small floodplain resident species ('black fish') rather than larger riverine species ('white fish'), which previously constituted most fish catches on unmodified floodplains (Halls *et al.* 1998). Every year, major carp and other white fish migrate upstream to spawn in the early floods. Juveniles and adult fish also migrate passively onto the floodplain with the flooding waters to feed and spawn (Welcomme and Halls 2001; 2004; Hoggarth *et al.* 1999; Halls 2005). Whilst sluice gates provide these passively migrating fish with access to modified floodplains, their operation is often geared to meet the needs of the agricultural sector. Sluice gates are often managed by Sluice Gate Committees. Recent work under FMSP project R8210 suggests that stakeholders are willing to open sluice gates early in the flood season in an attempt to improve fisheries production and biodiversity inside flood control compartments. The project provided guidelines on how to facilitate this.

Improved management of existing sluice gates therefore provides an opportunity to increase floodplain fish stocks at no (or minimal) cost to rice farmers. These farmers may however be farming very marginal (low-cost), flood-prone land. Ensuring these individuals are represented on such a committee is therefore important from a poverty perspective.

As well as negotiating obstacles to their spawning and feeding migrations, fish populations that reside on the floodplain during the dry season in residual water bodies are further threatened by irrigation activities to support the increasing emphasis on dry-season irrigated rice production. NRSP's project R7868 on integrated floodplain management found that beyond some threshold, these irrigation activities have a significant impact on fisheries yield (Shanker *et al.*, in press and 2004, based upon simulations described by Halls *et al.* (2001). These workers propose a strategy of integrated floodplain management to improve production from both the agriculture and fisheries sectors. This includes changes to cropping patterns, diversification of dry season crops, early and ebb flood sluice gate management practices and retirement of marginal low-lying land.

The FMSP floodplain fisheries project cluster has produced a considerable amount of new knowledge concerning such production issues on floodplains. The management strategies and guidelines from the earlier projects have been summarized and widely disseminated to worldwide fisheries stakeholders via FAO Fisheries Technical Report 384 (Hoggarth *et al.* 1999) and other publications (e.g. Halls and Welcomme, 2004; Halls *et al.*, 2000). More recent knowledge from project R8210 has already been taken up by the Bangladesh Water Development Board.

For references, see Section 9 below

4. Project Purpose

The project purpose was the '*Promotion of FMSP and other DFID-developed materials to policy makers and field-level resource managers, to improve or sustain the integrated management of floodplain fisheries resources important to the livelihoods of the poor, taking into account key factors such as establishment of sanctuaries, effective sluice gate control and climate change impacts*'.

The project aimed to change management policies and practices for floodplain fishery resources, specifically promoting FMSP knowledge on the integrated management of fisheries, including harvest reserves and fish-friendly management of sluice gates in FCDI schemes. Awareness on the benefit of such management measures is now increasing in Bangladesh, and is included in the new open water capture fisheries strategy, but specific guidance on implementation strategies is still much needed at field levels.

5. Outputs

The project outputs were defined as:

1. Existing knowledge on floodplain river fisheries management from FMSP and other sources packaged and actively promoted to communication stakeholders in Bangladesh according to their identified needs, thereby developing the capacities of BCAS and CNRS as joint centers of excellence on integrated floodplain fisheries management in Bangladesh.
2. Awareness raised about FMSP and other knowledge on integrated floodplain resource management in target Mekong countries and wider Asian region outside project sites.
3. Impacts of project uptake promotion activities documented for a range of communication stakeholders.

In Bangladesh (Output 1) FMSP knowledge was packaged in a range of different media (see Annex 1) and promoted using a range of activities, as appropriate to different stakeholders (see Annex 2). Most of the requirements of the project's revised communications plan have now been met, along with some additional activities, as summarized in Table 1 below. The project's Bangladesh collaborators, BCAS and CNRS, have been involved in developing all of the materials produced by the project, and led all of the local promotional activities. They remain as joint centers of excellence on integrated fisheries management in Bangladesh, and now specifically on the knowledge produced by the FMSP floodplains cluster (and related work by NRSP and others).

At the regional level (Output 2), awareness was raised about the FMSP guidelines on floodplain fishery management by a two-day dissemination workshop in West Bengal. This was attended by 25 Indian stakeholders, in addition to an invited participant from the Bangladesh Department of Fisheries (see Annex 5). A letter describing the uptake of the workshop recommendations by the local collaborator, West Bengal Department of Fisheries,

is attached to this report at the end of Annex 5. Towards the raising of awareness in other Asian regions, including the Mekong, project materials have been submitted for uploading on both the STREAM and oneFish websites. It is expected that the availability of such information will be announced on the February 2006 e-newsletters of both these websites.

Regarding Output 3, KAP surveys were conducted in both Bangladesh and India at the start and end of the project activities. Initial impacts (on knowledge and attitudes) arising from the India workshop are reported in Annex 5. The outcome of project activities in Bangladesh is reported in the KAP survey report of Annex 6. In both target locations, the project has had positive impacts on knowledge and attitudes, although many of the programme's recommendations still remain to be operationalised at the field level (see Annexes 5 and 6).

Table 1. Summary of achievements towards each of the project's planned communication products and activities, as proposed in the project communications matrix (as updated at the project Inception Workshop – see Annexes 3 and 4).

Communication products	Project achievements
Policy briefs (co-authored where possible by senior ministry staff)	Not done. Project recommendations are largely incorporated already in the new draft fisheries strategy, and further promotion was achieved through face-to-face discussions particularly at the Fish Fortnight seminar (see below and Annex 2.2) attended by several high level policy makers. This was felt to be more effective than a written policy brief.
Provision of PowerPoint presentations for incorporation into existing training programmes	Five presentations produced (see Annex 1.2), made available on FMSP web site, delivered to key DOF reviewers at Bangladesh materials testing workshop and India workshop, and promoted at Fish Fair, in leaflets etc.
Preparation of 2-page summaries of FMSP and other Bangladesh projects (also to contribute to FMSP programme level database)	Work in progress but not yet finished. Since this document will include projects of other non-FMSP funding agencies, it was agreed that this activity should be done as an internal BCAS document, not as a project output.
Articles for BCAS 'Bangladesh Environmental News' newsletter and DOF Fish Fortnight souvenir magazine, also submitted for use by other agencies' newsletters	Articles produced for 'BEN' and 'Fish Fortnight Souvenir' magazines (see Annex 1.6), 10,000 copies of latter distributed in Bangladesh and regionally.
Distribution of FMSP guidelines in leaflet form (e.g. based on SUFER formats)	Four-page leaflets produced on three key themes (see Annex 1.1). 1500 copies of each leaflet printed, mostly distributed at Fish Fair and India workshops. Remaining copies held at BCAS and MRAG for further distribution.
Distribution of 5-10 page managers guidelines in Bangla	6 page English version produced (see Annex 1.5). Translation into Bangla now being finalized at BCAS/CNRS, then both versions to be posted on FMSP web site.
Newspaper article (based on newsletter material) and promoted to target 'green' newspapers (e.g. 'Bangla Daily')	Short articles published at time of Fish Fortnight in <i>Jugantor</i> and <i>Ittefaq</i> Bangladesh newspapers.
Provision of bill boards and posters for display in project locations to be selected by DOF and project partners; focus on clear simple messages with good artwork	<ul style="list-style-type: none"> • Two posters and two bill boards produced on sluice gate and harvest reserve themes (see Annexes 1.3 and 1.4). • 1000 copies of each poster printed (total 2000), displayed and distributed at Fish Fair, to DOF, NGOs, fisheries projects, local administrators, academics etc (see Annex 2.1). • 8 bill boards printed (four on each theme), with 6 displayed in Pabna FMSP site, and 2 in Tangail.
Information briefs prepared around DFID guidelines for policy level audiences	DFID policy brief prepared in requested 'id21' format (see Annex 1.7)

Communication activities	
Policy dialogue with key influential stakeholders in one-to-one meetings and small multi-stakeholder workshops	<ul style="list-style-type: none"> Discussions held with senior DOF staff at May Inception workshop and July materials testing workshop. Further high-level policy dialogue awaiting production of Bangladesh policy brief document.
Sponsorship of Fish Fortnight seminar with DOF about floodplains management	Organised jointly with DOF, held on 8 August, and attended by 188 'signed in' delegates, including the three key government ministers and over 200 professionals and media. Results of DFID funded projects on floodplain fisheries were presented. This was the first time the official government Fish Fortnight had highlighted the importance of floodplain capture fisheries (see Annex 2.2).
Hosting of FMSP/BCAS stall at DOF Fish Fortnight Fair (activity added to communication strategy to enhance promotion opportunities)	Stall hosted for duration of Fish Fair, 9-17 August, attended by 634 registered visitors, including senior government officials, plus many others (estimated as over 4,000 in total, see Annex 2.1). National TV coverage included the visit of the Minister's entourage to the stall.
Inclusion of key FMSP points in draft ' Parliamentary Policy Paper on Fish Sanctuaries'	Revisions to DOF's draft 'Proposed Amendments to the Protection and conservation of Fish Act, 1950 to incorporate provisions on Fish Sanctuary' submitted June 2005. Inputs were considered by the Parliamentary Standing Committee but the final outcome not yet known.
Development of BCAS and CNRS web sites to provide access to e-docs and directions to hard copy grey literature in library	BCAS site developed to add link to FMSP project web page (see http://www.bcas.net/). Links not yet developed on CNRS web site. BCAS and CNRS provided with copies of early FMSP reports for their libraries at Inception Workshop.
Powerpoint presentations at senior managers monthly meetings , with hard copy handouts of management guidelines, leaflets and policy briefs etc	No specific presentations yet, but largely covered by dissemination of materials and displays at Fish Fortnight Fair.
Briefings at upazilla monthly meetings in 2-3 locations to be selected by DOF	<ul style="list-style-type: none"> BCAS project staff participated in upazilla level coordination meeting to improve sluice gate operation, already in Pabna. Suitable opportunities still awaited for Tangail activities, where no gate management committee yet exists.
Focus groups / training at FMSP sites in Tangail / Pabna, to coincide with start of flood	<ul style="list-style-type: none"> Focus group discussions held in Pabna at start of flood (June 2005). Awaiting opportunities for Tangail as above.
Street theatre + pot songs - up to 10 locations/performances at selected sites, during Fish Fortnight, with invitations to TV media to film and distribute nationally	Street theatre play and related pot songs performed at Fish Fortnight on 11 August 2005, and at nine locations in four field districts (Pabna, Tangail, Magura and Gopalganj), 17-27 September to audiences of approximately 500-1500 on each performance (see Annexes 2.3 and 2.4). No TV coverage reported.
India workshop in Calcutta for water planners/managers, to present Bangladesh policy briefs, training materials, other guidelines etc, as relevant to India	New PowerPoint presentations given at India dissemination workshop on 5-6 August, along with invited presentations from local experts, and uptake promoted. Leaflets issued. Workshop attended by 34 participants, and positive changes in knowledge and attitude reported (see Annex 5).
Postal dissemination of hard copy materials and electronic dissemination on web sites (esp. STREAM, WorldFish) or via e-groups	<ul style="list-style-type: none"> Postal dissemination to all targeted stakeholder in Bangladesh. New outreach materials and existing key documents posted for free download with introductory guidance on FMSP project web page. Materials submitted for uploading on both the STREAM and oneFish websites, providing introductory guidance and download links for all project e-materials. Availability of project materials to be announced in February 2006 newsletters of both these websites.

6. Research Activities:

This project was commissioned to synthesize the key messages arising from the FMSP cluster of floodplain fisheries projects and to promote these to policy makers and implementing agencies in Bangladesh and the South and Southeast Asian regions. The project also aimed to provide guidance on climate change issues and other existing knowledge from previous or current NRSP LWI and DFID Water KAR projects including R4778J, R6756, R7868, R6744, R7793, R8195 and R8306.

The project began in April 2005 with the listing and summarization of existing knowledge on floodplain fisheries management, derived from FMSP and other DFID projects. This was written up as a 59 page internal report (Halls et al, 2005, see publications list) that formed the basis of discussions at the project's May Inception Workshop (see Annex 3). The Inception Workshop confirmed the identities of communication stakeholders in Bangladesh and elsewhere in Asia, and planned communication products and activities for their promotion (see updated communications plan in Annex 4). A detailed Inception Workshop Report was submitted with the first Quarterly Report in June.

Participants were invited to the Inception Workshop from relevant government, NGO and regional bodies and development projects from Bangladesh, India and the Mekong region (Cambodia, Lao PDR and Vietnam). The workshop was well attended by Bangladeshi stakeholders, with 38 and 25 local participants on days 1 and 2 respectively, not including the members of the project team. These included senior staff of both the key target agencies in the fisheries, agricultural extension and water resources sectors (see Annex 3).

The workshop was less well attended by the regional community, with only one person, Mr Kamphet Roger representing Lao PDR and the Mekong region. The staff of India's West Bengal Department of Fisheries were unable to attend as insufficient time was available to obtain state government permission for such international travel. Inputs from these Indian collaborators were instead obtained at meetings in India in the following week (9-13 May) while on related FMSP project R8468. Invitees of both MRC and STREAM were unavailable to attend due to prior engagements.

Twenty copies of the 1999 FMSP summary guidelines on Asian river fisheries, as published by FAO¹ were distributed at the workshop. Copies of the Final Technical Reports and related papers from early projects R4791 and R5953 were taken for local libraries of BCAS and CNRS and Dhaka University Fisheries Department. The latter papers are available only in hard copy, with the original documents not including the graphics.

The finalization of the communication plan involved no significant changes to the logical framework. Activity OVI 1.3c was however amended to allow for the intended timing of communication events to coincide with the Department of Fisheries 'Fish Fortnight' (see Annex 2.1), and the timing of the 2005 Bangladesh flood.

Key outputs from the FMSP, NRSP LWI and other DFID projects were identified at the Inception Workshop and agreed with communication stakeholders. These included scientific knowledge, management guidelines and assessment methodologies as summarized in Table 2 below.

¹ Hoggarth et al, 1999. Management Guidelines for Asian River Fisheries. FAO Fish. Tech. Paper 384. Parts 1 and 2. (Download: <http://www.fao.org/DOCREP/006/X1357E/X1357E00.HTM>)

Table 2. Key outputs from the FMSP, NRSP LWI and other DFID projects

	From project/s
Knowledge	
Impact of FCDIs (Bangladesh)	R5953 - Fisheries dynamics of modified floodplains in Southern Asia
Impact of reserves / sanctuaries - (Bangladesh – modeling) - (Indonesia – empirical studies)	R5953 - Fisheries dynamics of modified floodplains in Southern Asia R7043 - Selection criteria and co-management guidelines for harvest reserves for tropical fisheries
Management guidelines	
Fish stocking	R6494 - Evaluation of the biological and socioeconomic benefits of enhancement of floodplain fisheries
Framework for floodplain fishery management	FAO Paper 384 (programme)
Sanctuaries (harvest reserves) - selection criteria and management	R7043 - Selection criteria and co-management guidelines for harvest reserves for tropical fisheries
Self-recruiting species in aquaculture	R7917 - Self recruiting species in aquaculture – their role in rural livelihoods
Operation of sluice gates	R5953 - Fisheries dynamics of modified floodplains in S. Asia, R8210 - the use of sluice gates for stock enhancement and diversification of livelihoods, (R7868 - Maximization of joint benefits from multiple resource use in Bangladesh floodplains, R7793 – Managing impacts of irrigation development on fisheries) ²
Assessment methods	
Area-based predictive models	R5030 - Synthesis of simple predictive models for fish river yields in major tropical rivers, (R7834 - Interdisciplinary multivariate analysis for adaptive co-management)
Population dynamics models including hydrology	R5953 - Fisheries dynamics if modified flood plains in S. Asia, (R7868 - Maximization of joint benefits from multiple resource use in Bangladesh floodplains)
Multi-species, multi-gear modeling of management options	(R4791 - Poverty, equity and sustainability in the management of inland capture fisheries of south and south east Asia)

Based on the current knowledge, attitude and practices of key stakeholders, the inception workshop confirmed the current validity and need for this knowledge by different stakeholders in Bangladesh, India and Lao PDR (see communications matrix, Annex 4).

Following the Inception Workshop, to develop the communication products, the project partners (including ITDG-Bangladesh for project R7917) summarized the FMSP knowledge from the above projects in the following five key themes:

- Fish sanctuaries for floodplain fishery benefits
- Management of FCDI sluice gates and water levels for integrated benefits of agriculture and fisheries
- Self-recruiting species in aquaculture and rural livelihoods
- Fish stocking
- Floodplain fishery modeling and assessment methods

For each of these themes, 'key messages' documents were produced giving 2-6 key one-line messages for use by the Bangladesh partners in the development of leaflets, summary guidelines, posters, street theatre and pot-songs etc. Each main point was supported by

² Brackets indicate related but non-FMSP cluster 9 projects

summary information on the scientific background for the recommendation along with any evidence of the expected benefits and/or implementation details. References were also provided along with locations for internet downloads etc.

The key messages on these themes were then tested with Bangladesh communication stakeholders at the second project workshop in Dhaka on 5th July. In those discussions, the key messages on self recruiting species were seen to be in conflict with current DOF guidelines (and are already being promoted by project R7917), while those on fish stocking were found to be largely already adopted by DOF. The project thus agreed to focus on producing communication materials promoting the general guidelines for integrated floodplain management (summarized in FAO Fish. Tech. Paper 384/1), and the specific key messages on harvest reserves / fish sanctuaries and the management of sluice gates (see project leaflets in Annex 1.1 for details of the identified key messages on these three themes).

Following the testing workshop, a range of communication products were then produced by the project partners ready for promotion at and around the Bangladesh DOF's 2005 'Fish Fortnight' in August. The Fish Fortnight is the premier annual fisheries event in Bangladesh, when fisheries officials, the public and the media focus extensively on the country's aquatic resources. The Fortnight includes a series of seminars, workshops, round table discussion meetings etc, on a wide range of fisheries issues. In 2005, it included a 'Fish Fair' from 9th to 17th August, held at Shilpakala Academy, adjacent to the Department of Fisheries (Matshya Bhavan, Dhaka). To take advantage of this opportunity, the project reserved a stall at the Fish Fair for the promotion of the FMSP knowledge (see Annex 2.1). It also organized a special seminar on floodplain fisheries resources, which was attended by three ministers and many staff of relevant government and NGO bodies (see Annex 2.2). FMSP knowledge was promoted at the Fish Fair and the seminar, and elsewhere around Bangladesh using the projects leaflets, PowerPoint presentations, pot songs, theatre productions etc as described in Table 1 above, and in Annexes 1 and 2 below.

Towards **Output 2**, in India, FMSP floodplains cluster knowledge was disseminated at a two-day workshop held at Kolkata's, Great Eastern Hotel, on 5-6 August 2005. This was conducted in collaboration with the West Bengal Department of Fisheries. As with the Bangladesh activities, the presentations focused on the four main themes – general management, harvest reserves, sluice gates and floodplain fishery modeling (see Annex 1). Time was also included for the presentation of local experience on floodplain fishery management, both Indian and Bangladeshi, and for brief descriptions of the NRSP floodplains projects. The presentation by Bangladesh DOF participant, Masood Siddique, was of particular interest to the Indian participants. This described the new Bangladesh DOF strategy for management of the open water capture fisheries, which includes many of the recommendations promoted by the FMSP floodplains cluster projects. Electronic copies of the various guidelines, leaflets and presentations etc were provided to the workshop participants on CD.

For promotion of knowledge into the Mekong region, electronic materials and introductory notes have been submitted for uploading on to the 'Other Organisations' page of the STREAM website (<http://www.streaminitiative.org/Library/organizations/index.html>), as also used by other FMSP projects. Text for a publicity announcement has also been submitted for inclusion in the next STREAM newsletter. It is understood that the numbers of hits on the STREAM web pages are analysed and published on the site on a monthly basis. Similar materials and links have also been uploaded to the FAO/SIFAR oneFish website providing links to the FMSP site for downloads.

A policy document in the 'id21' format requested by DFID and the FMSP programme managers has also been prepared (see Annex 1.7). This has not yet been submitted to the relevant communication stakeholder (DFID policy makers), but it is understood that it will be

included as one of the ten-part series being prepared for submission at the FMSP programme level.

7. Contribution of Outputs:

7.1 Contribution to FMSP's purpose and outputs

The project was designed to promote the uptake of existing FMSP (and other DFID) knowledge on floodplain fisheries via a range of communication channels. At the FMSP output level, the project contributes specifically to the floodplain-related requirements of Output OVI 5:

5. *Pro-poor capture fisheries management strategies actively promoted into at least four target institutions (including the DFID bilateral country programmes) in two target countries and widely promoted (nationally and internationally) by 31 March 2006.*

The project's communications products have been actively promoted in two of the key DFID geographic focus areas of Bangladesh and West Bengal, India. It is hoped that further outreach within the region will be achieved by the uploading of project materials on to the STREAM website.

On application of the outputs, the project will contribute to the FMSP's Purpose OVIs 1, 2 and 3 for *capture* fisheries, and especially to OVI 1: *Less variable capture fisheries production, and yield stabilised at sustainable level to support sustainable livelihoods.* Effective implementation of both harvest reserves and sluice gate management will sustain fisheries production inside the many impounded floodplains in both Bangladesh and West Bengal. Successful implementation will also contribute to OVI 2, at least in the sense of good management sustaining fisheries employment, compared to the alternative likely trajectory of declining yields and livelihoods. Regarding OVI 3, the range of communications channels and media used by the project will have delivered FMSP knowledge to an equally wide range of fisheries stakeholders including poor resource users.

7.2 Impact of the project

Progress towards the project's Purpose level OVIs will take some years to achieve, following the successful application of knowledge at the policy and field levels. The project has achieved positive initial impacts in terms of changes in knowledge and attitude, as measured by the KAP surveys conducted in Bangladesh at the start and end of the project (see Annex 6). Attitudes clearly still vary between different communication stakeholders and many recommendations are still more commonly implemented in development projects than as routine practice of government agencies. Many of the FMSP recommendations on floodplain fisheries management (including the use of reserves and management of sluice gates), however, have now been incorporated into the new Bangladesh open-water capture fisheries strategy produced by the Bangladesh DOF and the Fourth Fisheries Project. The real impact of the programme, therefore, may best be assessed by comparing the current very positive strategies now in place in Bangladesh (emphasizing adaptive co-management with strong local involvement in planning, monitoring and enforcement), with the largely technical measures (especially stocking) that were being used at the start of the FMSP activities in the early and mid-1990s. The new guidelines and training products provided by the project will significantly help with the implementation of the new Bangladesh fisheries strategy. The current policy environment will provide a healthy climate for uptake of the FMSP knowledge.

7.3 Further work

Most of the project's intended communication products (e.g. PowerPoint presentations, leaflets, posters, etc) have now been transferred to the intended target groups. A few final tasks are now under way to ensure that all materials are available on the FMSP and STREAM websites, and suitable links made on the partners' sites (BCAS, CNRS).

Recognising that specific guidance on implementation strategies is still much needed at field levels in Bangladesh, it is recommended that further training and communications-related work could usefully be undertaken at the level of field resource managers. To extend beyond existing FMSP field sites, this could include a radio-based campaign raising issues and promoting public debate about floodplain fisheries management.

In the wider region, and especially the Mekong, uptake could be promoted by translations of materials into local languages. The STREAM contacts particularly recommended this as a worthwhile exercise for their local stakeholders, and have offered to facilitate such an exercise (at cost).

Finally, noting the wide diversity of communications products and channels used in the project, some systematic research could be undertaken into the specific impacts of the different approaches that were adopted. This was not a focus of this project, but such research would take advantage of this valuable opportunity to fully understand the effects, over time, of different materials in raising awareness and changing management practices.

8. Publications and other communications materials

(a) Peer-reviewed publications (published);

Hoggarth, D.D., S. Koeshendrajana, M. Aeron-Thomas, C. Garaway, A.S. Halls, Z. Nasution, Samuel, and A. Sarnita. 2004. An integrated assessment of Indonesian river fishery reserves; Part 1 – Introduction and study design; Part 2 – Institutional analyses; Part 3 – Biological studies; Part 4 – Socio-economic studies and the distribution of fisheries costs and benefits. *Indonesian Fisheries Research Journal*. Vol. 9, No.1: 1-26.

The above paper was published by Project R7043 collaborators, CRIFI, in their own in-house journal, the Indonesian Fisheries Research Journal. This is widely read in Indonesia, but is not currently available on-line. Internet access to this important summary paper has therefore now been made available on the FMSP R7043 project page, with the permission of the CRIFI publishers.

(b) Peer-reviewed publications (in press or submitted)

None

(c) Non peer-reviewed publications and reports and communications materials

Leaflets (see Annex 1.1)

Management guidelines for Asian floodplain river fisheries – helping to ensure sustainable rural livelihoods.

Using Harvest reserves or fish sanctuaries in floodplain river fisheries – helping to ensure sustainable rural livelihoods.

Improving fish catches inside flood control schemes

PowerPoint presentations (see Annex 1.2)

Hoggarth, D.D., 2005. *Management guidelines for Asian Floodplain river fisheries.*

www.fmsp.co.uk

Hoggarth, D.D., 2005. *Harvest reserves in floodplain river fisheries - Protecting fish to*

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Billboards (see Annex 1.3)

1. Promoting the use of harvest reserves / fish sanctuaries.
2. Promoting the fish-friendly management of sluice gates in FCDI schemes.

Posters (see Annex 1.4)

1. Promoting the use of harvest reserves / fish sanctuaries.
2. Promoting the fish-friendly management of sluice gates in FCDI schemes.

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Newsletter articles etc (see Annex 1.6)

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BCAS, 2005. Outreach programme of DFID-FMSP for Management Floodplain Fisheries. P2 *In: Bangladesh Environment Newsletter*. Volume 16, No. 1, June 2005. BCAS. 8pp.
Two newspaper articles published in *Jugantor* and *Ittefaq* Bangladesh newspapers, August 2005, coinciding with Fish Fortnight activities.

DFID Policy Brief (see Annex 1.7)

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Project summaries report (submitted with May 2005 Inception Report)

Halls, A.S., Hoggarth, D.D., Huq, S., Rahman, M., Reid, H. and Alam, S.S. Summaries of FMSP Floodplains Projects and Related DFID Research. FMSP Project R8486. Promotion of FMSP guidelines for floodplain fisheries management and sluice gate control. 59pp.

(d) Verbal presentations & project dissemination and other workshops

Project Inception Workshop, held at BRAC Inn, Dhaka, 3-4 May 2005. (See May 2005 Inception Report submitted with First Quarterly Report, and Annex 3).
Project materials testing workshop, held at BCAS, 5 July 2005, attended by 12-15 key representatives of DOF and fisheries NGOs and projects.
Hosting of BCAS/FMSP stall at Bangladesh DOF Fish Fortnight Fair, 9-17th August 2005 (see Annex 2.1)
FMSP Sponsored seminar at Bangladesh DOF Fish Fortnight, 8 August 2005 (see Annex 2.2)
Performances of pot songs and theatrical dramas, incorporating the key messages on use of sluice gate and harvest reserves on 11 August 2005 at the National Fish Fortnight and at

four other locations in Pabna, Tangail, Magura and Gopalganj, between 17 and 27 September 2005 (see Annexes 2.3 and 2.4).

India Dissemination Workshop, held in Kolkata, West Bengal, 5-6 August 2005, in collaboration with the West Bengal Department of Fisheries (see Annex 5).

(e) Other types of project output (eg literature reviews, databases, software etc)

Websites

- Key documents, leaflets, presentations have been made available on the R8486 project page of the FMSP website, for free download and use. The page also includes introductory notes on the available materials, and links to relevant FMSP and NRSP project pages.
- Summary introductory materials submitted for uploading to the STREAM and oneFish websites providing links to download sites for all electronic materials.
- Links to the FMSP floodplain fisheries web page have also been provided on the BCAS web site (see <http://www.bcas.net/>).

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10. Project Logframe

Narrative summary	Objectively verifiable indicators	Means of verification	Important assumptions
Goal			
Existing FMSP research outputs relating to: the contribution of <u>capture and enhancement</u> fisheries to the livelihoods of the poor; fisheries management tools and strategies that could benefit the poor; and, the means to realise improved management, further developed, disseminated and promoted to relevant stakeholders at all levels	5. Pro-poor <u>capture</u> fisheries management strategies actively promoted into at least four target institutions (including the DFID bilateral country programmes) in two target countries and widely promoted (nationally and internationally) by 31 March 2006.	<ul style="list-style-type: none"> • Programme Management review • Project FTRs • Programme highlights • Publications and other communications materials • Teaching materials • Fisheries management tools • Quarterly and annual reports • FMSP project database • FMSP Website • Requests for manuals and guidelines received • Uptake of research products by target institutions monitored and reported in Annual Report • National statistics and publications • International networks, databases 	<ul style="list-style-type: none"> • Policy makers remain receptive to information on fisheries management • Government policies continue to support co-management • Government policies continue to support pro-poor approaches • Target beneficiaries remain receptive to management approaches proposed. • Stock enhancement process cost effective and socially

		and publications	appropriate. <ul style="list-style-type: none"> Target beneficiaries adopt and use strategies
Purpose			
5.3 FMSP guidelines for floodplain fisheries management and sluice gate control actively promoted to relevant target institutions including DFID bilateral country projects (e.g. Bangladesh, 4th Fisheries Project).	<ol style="list-style-type: none"> By 21 October 2005, FMSP guidelines relating to integrated floodplain resource management adopted/endorsed in Bangladesh, both at policy level and for practical field use by government offices and development projects. By 21 October 2005, awareness about FMSP outputs raised among target stakeholders in at least three Mekong countries, West Bengal state in India, and promoted around the Asian region. By 31 October, initial and potential impacts of project uptake promotion activities documented. 	<ol style="list-style-type: none"> Direct contacts with communication stakeholders, and using indicators as developed in Activity 3.1. As above. 	
Outputs			
<ol style="list-style-type: none"> Existing knowledge on floodplain river fisheries management from FMSP and other sources packaged and actively promoted to communication stakeholders in Bangladesh according to their identified needs, thereby developing the capacities of BCAS and CNRS as joint centres of excellence on integrated floodplain fisheries management in Bangladesh. Awareness raised about FMSP and other knowledge on integrated floodplain resource management in target Mekong countries and wider Asian region outside project sites. Impacts of project uptake promotion activities documented for a range of communication stakeholders. 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> By 13 May 2005, communications needs of target audiences in Bangladesh identified, communications plan updated and inception report submitted to FMSP for PAC feedback. By 15 July 2005, new outreach materials tested and presented to policy-level stakeholders in Bangladesh. By 30 September 2005, FMSP knowledge published in English and Bangla languages as appropriate, including in BCAS and CNRS media, and uptake promoted by selected communication stakeholders at field, management and policy levels in Bangladesh. <ol style="list-style-type: none"> By 15 July 2005, communications needs of target audiences in Mekong and wider Asian region identified and communications plan updated. By 12 August 2005, new materials disseminated to Indian stakeholders. By 21 October 2005, materials disseminated to Mekong and wider Asian audience via electronic or other channels. By 21 October 2005, contributions made to programme level uptake promotion activities. <ol style="list-style-type: none"> By 31 October 2005, FTR documents outcomes of promoting floodplain management messages to communication stakeholders at a range of levels. 	<ol style="list-style-type: none"> Project quarterly reports and inception report. Project quarterly reports and copies of new materials. Project quarterly reports and copies of new materials (translated into English as needed). Project quarterly reports. Project quarterly reports and copies of new materials. Project quarterly reports, including web addresses, website hits; courier / postal receipts etc. Project quarterly reports. 	<ul style="list-style-type: none"> Policy makers and resource managers in Bangladesh and the Southeast Asian Region are receptive to the project outputs and willing and able to introduce them into their sphere of influence. Suitable media and channels are available for regional dissemination of project outputs.
Activities	Budget and milestones		
<ol style="list-style-type: none"> <ol style="list-style-type: none"> List and summarise existing FMSP, NRSP LWI outputs and other knowledge relevant to integrated management of floodplain river resources. Identify specific communication stakeholders in Bangladesh, Mekong and India for invitation to project workshops. Hold regional workshop for 	<ol style="list-style-type: none"> <ol style="list-style-type: none"> By 29 April 2005, existing knowledge sources listed and summarised. By 4 April 2005, communication stakeholders identified and invited to project workshop in Bangladesh. By 6 May 2005, one week workshop in Bangladesh attended by 		<ul style="list-style-type: none"> Political volatility in Bangladesh does not make outreach activities

<p>Bangladeshi, Mekong and Indian communication stakeholders to present and discuss existing knowledge, management practices, impacts and dependencies of floodplain resource users</p> <p>1.1d Identify needs of target communication stakeholders at all levels, as relevant to integrated management of river floodplain resources and agree a strategy to maximise impacts of outreach activities.</p> <p>1.2a Guided by above, develop new outreach materials to meet specific information / training needs of priority target users re integrated floodplain management (e.g. reports, posters, leaflets, handbooks, videos, etc, in Bangla or English).</p> <p>1.2b Hold second regional workshop or series of meetings in Bangladesh to present policy-level outputs and test draft management- and training-level materials with communication partners.</p> <p>1.3a Finalise materials according to comments received in 1.2b.</p> <p>1.3b Publish hard copies of finalised materials in English and/or Bangla languages as appropriate, including in BCAS and CNRS media.</p> <p>1.3c Undertake field-level and other outreach activities (as guided by activities 1.1d and 1.2b) to promote uptake of knowledge by Bangladeshi communication stakeholders.</p> <p>2.1 Alongside workshops 1.1c and 1.2b, investigate options for dissemination of communication materials outside target sites and confirm with relevant outreach institutions and projects (eg FAO oneFish, STREAM, WorldFish Centre) appropriate formats for delivery of information.</p> <p>2.2 Guided by above, present FMSP knowledge at Indian workshop.</p> <p>2.3 Develop and promote communications products for Mekong and wider Asian region according to media and communications channels identified in communications plan (e.g. including briefs, newsletter articles, web pages).</p> <p>2.4 Contribute to Programme-level uptake promotion activities as required.</p> <p>3.1a Cross cutting all other</p>	<p>at least 25 policy makers, resource managers and development project staff from Bangladesh, Indian and Mekong region.</p> <p>1.1d By 13 May 2005, communication plan updated, and submitted to FMSP management with an Inception Report identifying any clarification of the log frame and/or project responsibilities.</p> <p>1.2a By 1 July 2005, first draft new materials developed.</p> <p>1.2b By 15 July 2005, testing workshops and/or meetings attended by Bangladesh and Indian collaborators.</p> <p>1.3a By 5 August 2005, materials finalised.</p> <p>1.3b By 26 August 2005, materials published in Bangladesh.</p> <p>1.3c By 21 October 2005, and coinciding where possible with DOF 'Fish Fortnight' and key flood events, Bangla-language training and materials promoted to sluice gate managers and other field-level or project-level stakeholders in Bangladesh, and English language materials promoted to policy and management-level stakeholders.</p> <p>2.1 By 13 May 2005 (with a final review by 15 July 2005), communications plan updated for outreach to SE Asian stakeholders.</p> <p>2.2 By 12 August 2005, Indian dissemination workshop in Calcutta attended by at least 15 communication stakeholders (to be identified).</p> <p>2.3 By 21 October 2005, post / submit / upload or otherwise electronically disseminate materials.</p> <p>2.4 By 21 October 2005.</p> <p>3.1a By 29 April 2005, indicators to evaluate change in capacity in</p>	<p>impossible.</p> <p>• Floods in Bangladesh do not prevent completion of project work on time.</p>
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activities, develop indicators at first workshop (Activity 1.1c) as required to monitor and evaluate achievement of project outputs and purpose.	fisheries management and training institutions, outcomes at policy level, and wider uptake and awareness identified (e.g. including before and after knowledge-attitude-practice questionnaires, citations, or references to knowledge in published materials).	
3.1b Indicator data collected as required.	3.1b By 21 October 2005, indicator data collected by all partners as agreed.	
3.1c Project achievements evaluated and reported.	3.1c By project end (31 October 2005), initial results analysed and reported in FTR.	
	<u>Budget allocations:</u>	
	Output 1	£64,320 including part costs for Outputs 2 & 3
	Output 2	£11,655
	Output 3 (M&E)	£4,025
	Total	£80,000

11. Keywords

Floodplain fisheries, sluice gate management, harvest reserves / fish sanctuaries, Bangladesh, India.

12. Acronyms and Abbreviations

BARC	Bangladesh Agricultural Research Council
BCAS	Bangladesh Centre for Advanced studies
BELA	Bangladesh Environmental Lawyers Association
BEN	Bangladesh Environment Newsletter
BRAC	Bangladesh Rural Advancement Committee
BWDB	Bangladesh Water Development Board
CBFM2	Second Community Based Fisheries Management Project, Bangladesh
CD	Compact Disc
CNRS	Centre for Natural Resource Studies
DAE	Department of Agricultural Extension
DFID	Department for International Development
DOF	Department Of Fisheries
FAO	Food and Agriculture Organisation
FAP	Flood Action Plan
FCDI	Flood Control Drainage and Irrigation schemes
FFP	Fourth Fisheries Project, Bangladesh
FMSP	Fisheries Management Science Programme
FTR	Final Technical Report
GDP	Gross Domestic Product
IIED	International Institute for Environment and Development
ITDG	Intermediate Technology Development Group
KAP	Knowledge, Attitude and Practice
KAR	Knowledge and Research
LGED	Local Government Engineering Department
LWI	Land Water Interface
MACH	Management of Aquatic Ecosystems through Community Husbandry project
MRAG	Marine Resources Assessment Group
MRC	Mekong River Commission
NGO	Non-Government Organisation
NRSP	Natural Resources Systems Programme
OVI	Objectively Verifiable Indicator
PIRDP	Pabna Irrigation and Rural Development Project (FMSP case study site)
SRS	Self Recruiting Species (as compared to aquaculture species)
STREAM	Support to Regional Aquatic Resources Management
TI	Target Institutes
WFC	World Fish Centre