# NATURAL RESOURCES SYSTEMS PROGRAMME

## The effectiveness of the PAPD method: a comparison of community organisation experience in the CBFM-2 project (DFID/NRSP Project PD131)

# FINAL REPORT

**February 2004-September 2004**

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**Date completed : 28 September 2004**

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# ABBREVIATIONS AND GLOSSARY

| Term | Meaning |
|---|---|
| | |
| ADR | Alternative Dispute Resolution |
| *beel* | Floodplain depression, a waterbody, may be perennial or seasonal |
| BELA | Bangladesh Environmental Lawyers Association (Bangladeshi NGO) |
| BMC | Beel Management Committee |
| BRAC | Bangladeshi NGO (formerly Bangladesh Rural Advancement Committee) |
| BS | Banchte Shekha (Bangladeshi NGO) |
| Caritas | Bangladeshi NGO |
| CBFM | community based fisheries management |
| CBFM-1 | Community Based Fisheries Management project phase 1 (supported by the Ford Foundation) |
| CBFM-2 | Community Based Fisheries Management project phase 2 (supported by DFID) |
| CBWM | Community-Based Wetland Management (project supported by the Ford Foundation) |
| CNRS | Center for Natural Resource Studies (Bangladeshi NGO) |
| CRED | Center for Resource and Economic Development (Bangladeshi NGO) |
| CPR | common pool resource |
| decimal | One hundredth of an acre, about 40 $m^2$ |
| DFID | UK Department for International Development |
| DIP | deliberative inclusionary process |
| DOF | Department of Fisheries |
| EDA | Exploratory data analysis |
| ERA | Efforts for Rural Advancement (Bangladeshi NGO) |
| FGD | Focus Group Discussion |
| *haor* | Extensive low lying and deeply flooded area of floodplain in north-east Bangladesh bounded by natural river levees and containing several beels |
| IFAD | International Fund for Agricultural Development |
| IGA | income generating activity |
| IMF | Institutional Monitoring Form |
| IUCN | World Conservation Union (formerly International Union for the Conservation of Nature) |
| *jalmohal* | Government owned waterbody, a water estate, where fishing rights are leased out |
| *kata* | Brushpile used as a fish aggregating device (usually in a river) |
| *khal* | natural canal |
| *kua* | Man-made ditch or catch-pond in seasonally flooded beel |
| MACH | Management of Aquatic resources and Community Husbandry (project supported by USAID) |
| *matbar* | head of a samaj |
| MC | Management Committee (BMC and/or RMC) |
| NGO | Non Governmental Organisation |
| NR | Natural Resources |
| NRSP | Natural Resources Systems Programme (research program of DFID) |
| PAPD | Participatory Action Plan Development |
| *para* | A neighbourhood, informal division of a village |
| PC-VW | Problem Census – Village Workshop process (precursor to PAPD) |
| PRA | Participatory Rural Appraisal |
| Proshika | Bangladeshi NGO |

| Term | Meaning |
|---|---|
| | |
| QMR | Quarterly Monitoring Report |
| RMC | River Management Committee |
| *samaj* | community – based on locality - a village or neighbourhood (*para*) – and same religion |
| SEMP | Sustainable Environmental Management Project (supported by UNDP) |
| SPSS | Statistical Package for the Social Sciences (data analysis software) |
| SSM | Soft Systems Methodology |
| UNDP | United Nations Development Programme |
| Union Parishad (UP) | Local elected council for on average about 10 villages, lowest level of government |
| Upazila | Sub-district |
| USAID | United States Agency for International Development |

# EXECUTIVE SUMMARY

Participatory Action Plan Development (PAPD) was developed in Bangladesh through NRSP research to build consensus among local stakeholders on their common problems and solutions for natural resource management. The PAPD method is argued to be advantageous because it encourages different stakeholders to voice their needs and ideas, to share their opinions and analyses, and to agree on a common action plan that addresses shared problems.

This study provides statistical evidence that community based fisheries management is more effective in achieving desired outcomes when initiated with PAPD than where NGOs follow their normal approaches. The analysis used data from 36 sites of the Community Based Fisheries Management Project phase 2 in Bangladesh, half where a PAPD was the basis for collective action and institution development, and half were similar sites where PAPD was not used. In all cases an NGO facilitated development of community organisations and better resource management. Data from project monitoring and focus groups was used to test the hypotheses.

Allowing for the type of waterbody, which is associated with issues such as leasing which increases conflict, and other relevant factors, PAPD was associated with:

- a saving of about 100 days in the process of forming community-based organisations (CBOs);
- CBOs that hold 3-4 times more awareness raising events;
- CBOs that include representatives of more stakeholder categories, yet 66% of their membership is poor (compared with 33% in non-PAPD sites);
- participants rating significantly higher the improvements in social cohesion;
- participants perceiving more personal benefits and expecting more long term community (environmental) benefits to which they give greater importance;
- natural resource management actions that occur about 100 days sooner after CBO formation (and over 180 days earlier from the start of NGO support);
- an average of about three more resource management actions implemented within about two and a quarter years, and fewer plans that were not implemented;
- many fewer rule breaking incidents and conflicts, despite a similar number of fishing rules in place in PAPD and non-PAPD sites;
- recognition that more types of people were benefiting and higher ratings for the benefits to fishers and other stakeholders; and
- reportedly greater improvements in local government attitudes in favour of user community management.
- Yet participants spent about 200 hours per year less on resource management.

Case studies indicated that PAPDs have given a direction for CBFM activities and helped initiate the local institutions and community organisations. In the non-PAPD sites the NGOs had to make considerable piecemeal efforts to explain to local people their objectives and intentions. The history of leasing and conflicts over access were a major reason for slow progress in changing resource management in some sites (these tended not to have a PAPD and were perceived as being fisher-managed). Facilitation in general was probably better in the PAPD sites, and in the case study PAPD sites there were fewer reasons for conflict and disputes than in the non-PAPD sites. Generally the PAPD process appeared to generate plans as a focal point for action, greater unity among fishers and support from local leaders compared with the situation with NGO support but no PAPD.

**KEYWORDS**
Participatory action planning, consensus building, community based organisations, fisheries, research evaluation, Bangladesh.

# EXTENDED SUMMARY

## 1 Background

Community based management or co-management of natural resources depends on facilitation and processes that ensure participation of the user communities. So a major question is how best to initiate such regimes and what participatory planning methods are effective given that there is diversity among the local communities. In Bangladesh a methodology has been developed for consensus building for floodplain resource management that has been named Participatory Action Plan Development (PAPD). The method was developed, refined and tested, and since has been promoted for uptake and adaptation through a series of projects supported by DFID's Natural Resources Systems Programme (NRSP) (R6756, R7562, R8306, etc, and programme development).

The purpose of this study was to determine whether there is evidence from the Community Based Fisheries Management phase 2 (CBFM-2) Project that the PAPD consensus building method has resulted in differential outcomes from the facilitation of community based management of natural resources.

### *1.1 PAPD*

PAPD recognises heterogenous interests in natural resources (floodplains) and aims to be inclusive of these diverse interests. The methodology involves a series of linked local workshops where different stakeholders participate separately and together to develop a management plan for the common aquatic resources they use (Barr et al., 2000). The process is designed to ensure that poor people's interests are voiced and represented at least on an equal footing with more powerful stakeholders.

Box 1 (based on Sultana and Thompson 2004) summarises the steps in PAPD and how this phase fits into the overall process of establishing community based natural resource management. Stages four to eight involve participatory workshops with separate stakeholder groups and in plenary, and form the PAPD proper. The principle is that members of any stakeholder category, but especially the disadvantaged (such as fishers in Bangladesh) are better able to express their views separate from other (dominant) categories of people, but that this will fail to develop a shared understanding of common problems and possible win-win solutions (consensus building). Participatory planning just through multi-stakeholder plenary workshops is unlikely to give the poor a fair opportunity, or to result in an understanding of

**Box 1 PAPD within the CBFM process**

I. Scoping phase (*Stages one to three)*
   1. Situational analysis (summarizing local knowledge)
   2. Stakeholder identification and analysis (through key informants)
   3. Household census and invitations to a random sample of households to PAPD (stratified by stakeholder categories)

II. **Participatory planning phase -PAPD** (*Stages four to eight)*
   4. Problem census (with each individual stakeholder group)
   5. Compilation of problem rankings by facilitators (combining stakeholder group rankings)
   6. Plenary with stakeholders and local leaders (to review and agree on main problems for solution analysis)
   7. Solution and impact analysis (with each individual stakeholder group)
   8. Plenary with stakeholders and secondary stakeholders (to present the process, identify feasible solutions, discuss institutional arrangements and next steps)

III. Implementation phase (*Stages nine to thirteen)*
   9. Develop and adapt community organizations and institutions for resource management
   10. Community organization develops detailed plan to implement solutions agreed in stage eight
   11. Problem solving (review and adjust plans with community to mitigate or avoid any adverse impacts)
   12. Implementation of action plan
   13. Institutionalization of management arrangements including local policy support.

differences or common problems, therefore PAPD is structured to have two rounds of divergent and convergent sessions. Through this solutions that address problems shared by all stakeholders are found.

### *1.2 Community Based Fisheries Management*

The Community Based Fisheries Management project phase 2 (CBFM-2), supported by DFID, started in September 2001 and is implemented by WorldFish Center working with several NGO partners[1] and Department of Fisheries. It offered an ideal opportunity to assess the effectiveness of the PAPD method. Improved fisheries management through community based organizations (CBOs) has been taken up in a wide range of sites. PAPD was used in 18 of its working areas covering 42 out of about 115 waterbodies under the project (mainly by Centre of Natural Resources Studies (CNRS), also by WorldFish Center working with Banchte Sheka and Caritas and in one site with a local NGO (Efforts for Rural Advancement - ERA)[2]). In the other (non-PAPD) sites the NGOs used their own approaches: reconnaissance studies, often some form of PRA, then forming groups of their target people (essentially fishers), providing training, savings and credit to these groups. They based membership of the CBOs on these groups, and the NGO has helped the CBOs plan activities in discussion with the primary groups but usually not with the wider community.

Eighteen non-PAPD sites were sampled, excluding CBFM first phase sites and closed stocked waterbodies that were not comparable to the 18 PAPD sites. This made it possible to compare PAPD and non-PAPD sites within the context of the same project structure and types of support for facilitation, organizational development and fishery management.

## 2 Research Activities

This study used data available from CBFM-2 and information collected for this study to address the key research question: "**Has PAPD within CBFM resulted in any benefits beyond those generated by CBFM without PAPD?"** This was operationalised, after reviewing available data and the scope to collect additional data, into testing 11 hypotheses.

Any differences between sites may be affected by factors other than the use of PAPD, both exogenous (such as the type of waterbody, existing social and user pressures on it, other use of the waterbody, number of poor fishers in decision making and other development activities), and endogenous (e.g. differences in the capabilities of NGOs in establishing CBFM organisations and activities). The study took account of these confounding factors in the data analysis. Several possible indicators were available for some hypotheses, so over 30 different sub-hypotheses were tested.

Within the CBFM-2 project PAPDs had been conducted in 18 locations, these formed sampling units for "with-PAPD." However, many of these covered more than one waterbody each of which after the PAPD has its own community based organisation (CBO) – either a River Management Committee or Beel Management Committee, and in one case more than one CBO was formed for one large floodplain. Therefore data from the respective CBOs were aggregated (averaged or summed as appropriate) for each sampling unit (a total of 59 CBOs were surveyed in these 18 sampling units). Eighteen project waterbodies without PAPDs were sampled after excluding "closed beels" (small well defined lakes with few

[1] Including, Banchte Shekha (BS), Bangladesh Environmental Lawyers Association (BELA), BRAC, CARITAS, Center for Natural Resource Studies (CNRS), Center for Resource and Economic Development (CRED), FemCom and PROSHIKA.

[2] In a related project for CBFM in South and South-East Asia (supported by International Fund for Agricultural Development – IFAD).

outlets) which are stocked by the fisher community since no PAPDs were conducted in this type of waterbody, and after excluding a few sites where there were major problems such as prior legal cases (none existed in PAPD sites).

Data that was used from the CBFM-2 project came from household censuses in 2002 plus: quarterly monitoring of implementation and project activities by waterbody, an institutional assessment survey, and transaction cost surveys; all were conducted in January 2004.

A substantial part of the data used was collected for the study using focus group discussions (FGD) in March-April 2004 using a participatory assessment method following a fixed structure. Two FGDs were held in each sample unit, one with about 10 members of the CBO and one with about 10 general poor fisher participants. This method ensured that mixed groups were avoided and scorings made by the participants were for the same questions/issues and could then be analysed along with other data, and also generated qualitative information for use in interpreting the results and helping build up an understanding of causation.

## 3 Outputs

Eleven main hypothetical/potential benefits of PAPD within the context of CBFM were identified based on the theory behind PAPD. Each hypothesis was tested using a general linear modelling procedure that generated an analysis of variance. Other determinants of the response variable were included so that the significance of the PAPD effect could be observed free from possible effects due to other variables likely to affect the response such as waterbody type and various confounding factors. In several cases one hypothesis was operationalised into several sub-hypotheses.

The outcomes of this analysis are summarized in Table 1. Overall this provides statistically significant evidence that PAPD works in most of the ways hypothesized. Care was needed in interpreting the results, and for this the focus group discussion write ups and the four case studies have been used to help explain the presence or absence of PAPD effects and the role of other factors, most notably type of waterbody which was often significant and represents the context in terms of resource access and resource base. In a few cases the sub-hypotheses tested were modified from those identified in the study design, according to the data available and collected through the participatory assessments/group interviews.

**Table 1 Outcomes of testing the research hypotheses.**

| Research hypothesis | Sub-hypotheses tested | PAPD effect | Mean values | Other significant confounding factors | Overall model |
|---|---|---|---|---|---|
| ***Community Based Organisation (CBO) development*** | | | | | |
| **i.** PAPD results in faster setting up of CBOs | No. of days taken to form CBO | **Accept** | PAPD=263 Non=370 | None | F=9.3; df 1, 34; p<0.01; $R^2$ = 0.22 |
| **ii.** PAPD results in more active CBOs | Overall | **Unclear** | | No difference or non-PAPD more active in routine operations of CBO, but in PAPD sites CBO more active in relations with others | |
| | Average no. of CBO meetings per month | Reject | PAPD=0.60 Non=1.26 | None | NS |
| | % attendance at CBO meetings | Reject | PAPD=73 Non=80 | None | F=4.6; df 1, 34; p<0.05; $R^2$ = 0.12 |
| | No. of awareness raising activities with organisations outside the CBO | Accept | PAPD=15.8 Non=4.4 | None | F=11.2; df 1,34; p<0.01; $R^2$ = 0.25 |
| | % of conflicts resolved by CBO | Reject | PAPD=23 Non=32 | None | NS |
| **iii.** PAPD results in the formation of CBOs that are more holistic, and where poor are better represented | Overall | **Accept** | | Diversity difference not large, but stronger PAPD impact on representation of poor | |
| | No. of categories of stakeholders in the CBO | Accept | PAPD=3.6 Non=4.2 | Waterbody type | F=2.9; df 4,31; p<0.05; $R^2$ = 0.28 |
| | % of CBO comprises poor fishers and landless | Accept | PAPD=66 Non=35 | None | F=19.5; df 1,34; p<0.001; $R^2$ = 0.36 |
| ***Social capital*** | | | | | |
| **iv**. PAPD results in greater social cohesion | Overall | **Accept** | | Several factors important, but allowing for these PAPD effect seen by those taking decisions and by poor fishers | |
| | Score for change in social cohesion in community | Accept | PAPD=4.4 Non=2.4 | Waterbody type; other development activities; % better off in CBO | F=2.9; df 6,29; p<0.05; $R^2$ = 0.37 |
| | Score for change in social cohesion - BMC/RMC | Accept | PAPD=4.7 Non=3.1 | Waterbody type; other development activities; % better off in CBO | F=2.4; df 6,28; p=0.05; $R^2$ = 0.34 |
| | Score for change in social cohesion - fishers | Accept | PAPD=4.1 Non=2.0 | Waterbody type; other development activities; % better off in CBO | F=2.9; df 6,29; p<0.05; $R^2$ = 0.37 |
| ***Sustainability of fishery*** | | | | | |
| **v.** PAPD results in greater community awareness and concern for collective sustainability and security actions. | Overall | **Accept** | | Waterbody type important – use rights and range of non-fish resources | |
| | Number of own benefits | Accept | PAPD=3.0 Non=2.0 | Waterbody type; number of non-fisher users; if respondent is in MC | F=10.9; df 9,60; p<0.001, $R^2$ = 0.62 |
| | Own benefit importance (score) | Accept | PAPD=6.8 Non=5.5 | Waterbody type; waterbody-PAPD interaction; number of non-fisher users | F=8.8; df 9, 60; p<0.001; $R^2$ -= 0.57 |
| | No. of short term community benefits | Reject | PAPD=2.2 Non=1.9 | Waterbody type | NS |
| | Short term benefit importance (score) | Reject | PAPD=6.9 Non=5.9 | None | NS |
| | No. of long term community benefits | Marginal accept | PAPD=4.0 Non=3.2 | Waterbody type, no. of other uses of the fishery, no. of people fish for an income | F= 6.1; df 9,59; p<0.05; $R^2$ = 0.48 |
| | Long term benefit importance (score) | Accept | PAPD=8.1 Non=6.8 | PAPD-waterbody interaction | F= 7.7; df 6,62; p<0.001; $R^2$ = 0.43 |

| Research hypothesis | Sub-hypotheses tested | PAPD effect | Mean values | Other significant confounding factors | Overall model |
|---|---|---|---|---|---|
| ***Collective action*** | | | | | |
| **vi**. PAPD results in faster uptake of community actions for NR management. | Overall | **Accept** | | Some waterbody types have a PAPD effect | |
| | No. of days from fielding NGO staff to first action | Accept | PAPD=308 Non=481 | None | F= 23.2; df 1,34; p<0.001; $R^2$ = 0.42 |
| | No. of days from CBO formation to first action | Accept, but | PAPD=66 Non=165 | PAPD-waterbody interaction | F= 5.4; df 6,24; p<0.01; $R^2$ = 0.57 |
| **vii.** PAPD results in more community/ collective actions for NR management | Overall | **Accept** | | Conflicts etc. also limit plan implementation | |
| | No. of actions planned and not implemented | Accept | PAPD=1.0 Non=3.2 | No. of conflicts, no. of other development activities, other uses of waterbody | F= 17.0; df 4,31; p<0.001; $R^2$ = 0.69 |
| | No. of actions implemented | Accept | PAPD=4.7 Non=1.7 | None | F= 62.4; df 1,34; p<0.001; $R^2$ = 0.65 |
| **viii.** PAPD results in community actions with greater compliance. | Overall | **Accept** | | Same number of rules and awareness, waterbody and access also an effect | |
| | No. of rules in place | Reject | PAPD=1.9 Non=1.8 | None | NS |
| | No. of rule breaking incidents | Accept | PAPD=1.0 Non=5.5 | Type of waterbody, waterbody area, PAPD-waterbody interaction | F= 11.9, df 7,28; p<0.001, $R^2$ = 0.75 |
| | % of community know rules | Reject | PAPD=84 Non=86 | none | NS |
| | Total no. of conflicts | Accept | PAPD=0.6 Non=8.3 | none | F= 7.9, df 1,34; p<0.01; $R^2$ = 0.19 |
| | No. of internal conflicts | Accept | PAPD=0.2 Non=3.0 | None | F= 17.6; df 1,34; p<0.001; $R^2$ = 0.34 |
| ***Livelihood outcomes and linkages*** | | | | | |
| **ix.** PAPD results in community actions involving wider coverage of communities that perceive benefits | Overall | **Accept** | | More types of beneficiary benefited more, and fishers also benefit more | |
| | Number of stakeholder categories benefited | Accept | PAPD=7.4 Non=4.6 | None | F= 11.9; df 1,34; p<0.01; $R^2$ = 0.26 |
| | Extent of benefits for all stakeholders | Accept | PAPD=5.6 Non=4.4 | None | F= 8.0; df 1,34; p<0.01; $R^2$ = 0.19 |
| | Extent of benefits for fishers | Accept | PAPD=5.8 Non=4.5 | None | F= 5.9; df 1,34; p<0.05; $R^2$ = 0.15 |
| **x.** PAPD results in better links with local government | Overall | **Accept** | | The number of government bodies with links and frequency of meetings do not differ, but other supports and attitude changes do differ | |
| | No of government bodies giving support and their scores | Reject | Not calculable / no difference | Not applicable | Not applicable |
| | No. of times received govt. support | Accept | PAPD=7.7 Non=4.5 | None | F= 6.2; df 1,30; p<0.05; $R^2$ = 0.17 |
| | Change in attitude score to CBFM in Union Parishad | Accept | PAPD=2.7 Non=0.9 | None | F= 44.2; df 1,46; p<0.001; $R^2$ = 0.49 |
| | Change in attitude score to CBFM in Upazila | Accept | PAPD=2.8 Non=1.6 | None | F= 21.5; df 1,56; p<0.001; $R^2$ = 0.28 |
| | No. of meetings fishers have with local govt. | Reject | | Indicator/sub-hypothesis probably not useful | |

| Research hypothesis | Sub-hypotheses tested | PAPD effect | Mean values | Other significant confounding factors | Overall model |
|---|---|---|---|---|---|
| ***Time /transaction costs*** | | | | | |
| **xi**. PAPD actions require greater time input from participant communities | No. of hours per person involved in CBFM activities last year | **Reject** | PAPD=179<br>Non=391 | If MC member or general fisher | F= 7.2; df 2,58; $p<0.001$; $R^2 = 0.2$ |

### *3.1 Hypothesis i. PAPD results in faster setting up of CBOs*

The number of days was calculated from the date of signing of the MOU with each concerned NGO for its project implementation activities to the date that a CBO was first formed. In PAPD sites the time taken to establish a CBO was significantly less: on average it took a year in non-PAPD sites or 41% longer than in PAPD sites. This reflects the greater understanding and consensus in the sites with a PAPD where the planning process leads into CBO formation. In some cases the difference is because a CBO comprising different types of stakeholders could be established in a flexible way after PAPD whereas some NGOs in non-PAPD sites followed a fixed process that required forming and establishing user groups of fishers for some time before the CBO.

### *3.2 Hypothesis ii. PAPD results in more active CBOs*

This hypothesis could not be accepted, partly because the main hypothesis was broken down into four sub-hypotheses which from the focus groups and case studies were found to have different implications. It was expected that more active CBOs would arise in sites with PAPD because from an early stage they had plans that were agreed among a wide range of stakeholders. To some extent the level of collective action (hypothesis vi) is also an indicator for this. Here the focus was on:

1. Frequency of meetings, but there were more frequent meetings in the non-PAPD sites, although the difference was not significant.
2. Meeting attendance rates were just significantly higher in the non-PAPD sites. This was not expected, but the focus groups indicated that a success of PAPD was that with a general consensus fewer meetings were needed, whereas in sites without that consensus more meetings were needed to discuss problems and conflicts. Reported attendance rates were high (over 70%) in both PAPD and non-PAPD sites.
3. There were almost four times as many awareness raising events targeted at non-CBO members in the PAPD sites compared with non-PAPD sites, and a wider range of types of awareness raising activities were involved. Although such events also involved the NGOs, this indicates CBOs that are more active at the community level.
4. There were many fewer conflict incidents reported in the PAPD sites compared with the non-PAPD sites (see hypothesis viii), but a higher percentage of conflicts in non-PAPD sites were reportedly resolved although the difference was not significant. The few PAPD sites with conflicts reported tended to be substantial ones.

### *3.3 Hypothesis iii. PAPD results in the formation of CBOs that are more holistic, and where poor are better represented*

The analysis confirmed that in PAPD sites the CBOs have significantly more categories of stakeholders as members of the committee, although the difference is not great. This was partly because of higher representation of women in the committees in PAPD sites (poor women were one of the stakeholder categories that participated in all of the PAPDs). This pattern was also linked with the type of waterbody and NGO approach. Some NGOs, mostly

in non-PAPD sites that were not floodplain beels, formed CBOs comprising only people who fish for an income. Floodplain beels in general have more types of stakeholder involved since the land is private but seasonally flooded, so farmers catch fish and as owners of the area have to be involved in any management plans and activities.

A significantly higher percentage (66%) of CBO members in PAPD sites were poor (fishers and other landless people) compared with the non-PAPD sites (35%). Better off and more articulate or literate people tend to be nominated or chosen to represent communities in the CBOs, but 70% of households in CBFM-2 sites are poor (WorldFish Center 2003) and the CBOs in PAPD sites are close to this. There was more influence of DOF and NGOs on selecting participants in non-PAPD sites and this appears not to have been pro-poor but to have favoured inclusion of some local influential people and slightly better off fishers.

### *3.4 Hypothesis iv. PAPD results in greater social cohesion*

PAPD as a consensus building method involving different types of stakeholder was argued as building social capital in NRSP project R6756, but measuring this is difficult. PAPD was expected to result in higher levels of trust, harmony, cooperation and collective action compared with CBFM sites without PAPD. The respondents in the participatory assessments were asked to score the change in social cohesion between just before CBFM started and the interview date on a scale of -5 to +5. Committee members and fishers reported increased social cohesion, except for a very few sites, such as ones where professional fishers now control a waterbody and exclude others from the community from fishing.

The hypothesis was accepted. Average scores for the change in social cohesion with the project activities were over 4 in PAPD sites for the community as a whole, CBO committee members and fishers, but up to 3 for the non-PAPD sites. The case studies and focus groups found this is largely because PAPD brought different stakeholders from different villages to know each other, to exchange ideas and to come in consensus among themselves. This relationship was further nurtured through working together for common interests after the PAPD. However, waterbody type, other development activities and the percentage of better off people in the CBO were significant confounding factors. Other development activities may have already brought gains, or may result in competition for resources. Involvement of more better-offs in the management committee reduces social cohesion as they tend to work for their own interests. Floodplain and river-beel areas showed greater social cohesion probably as they are not leased and had fewer conflicts.

### *3.5 Hypothesis v. PAPD results in greater community awareness and concern for collective sustainability and security actions*

In the participatory assessments, Management Committee members and general fishers not involved in the committee separately assessed for their own benefit and short and long term (future sustainable) community benefits the number of types of benefit that they had/would receive, and the importance of those benefits on a scale of 1-10. This resulted in six tests – two for each type of benefit. Types of own benefit were similar, but on average respondents had one more own benefit and rated them more highly in importance in PAPD sites. PAPD had less effect in floodplains since the management bodies in non-PAPD floodplain sites also represent different users and everyone found some benefits.

Short term community benefits were few and did not differ with PAPD. About twice as many long term as short term community benefits were reported and long-term benefits were rated more important than short term benefits in both PAPD and non-PAPD sites. However, the number of long term benefits was barely significantly higher in PAPD sites. At this relatively early stage of establishing CBFM this is understandable. Both PAPD and non-PAPD sites emphasised fishery benefits such as increased biodiversity, conservation measures and

limiting fishing effort; but participants where there had been a PAPD regarded community participation and linkages with local government as important long term benefits, whereas in sites without PAPD establishing ownership and access for fishers was reported.

Waterbody type is therefore a key factor: in the river sites in general few long-term benefits were predicted as there has been less change in access and participants fear that open access means in future the resource could be captured by powerful people. In non-PAPD open beel sites, benefits only go to the fishers rather than to the entire community, and the whole community has only a vague expectation of long-term benefits. But the PAPDs in similar open beel sites involved the wider community and this was expected to give greater assurance of improved management continuing in future and a broader spread of benefits. The other key factor is the leasing system: the only waterbody type that is leased by the users in this study is the open beels. Open beels have a risk that in future powerful people may once again take them on lease and exclude poor fishers. In the few open beels with PAPD there was a consensus on new management among the wider community (including with local leaders and elected representatives) so this could mean that the participants in PAPD open beels see less risk of losing their access and benefits in the long term.

### *3.6 Hypothesis vi. PAPD results in faster uptake of community actions for NR management*

This hypothesis was accepted. On average PAPD resulted in saving 170 days of NGO facilitation time in achieving the first community actions for natural resource management, and on average CBOs in sites with PAPD took about two months before they took their first actions compared with over 5 months in non-PAPD sites. The difference was largely because first actions took longer in open beel areas and especially in river areas among non-PAPD sites. There appears to be no effect due to PAPD in floodplain beels. In some PAPD sites, the community influence and awareness generated from the PAPD was so strong that the actions even started straight after the PAPD. For example, in Shuluar Beel, the CBO was formed during the last plenary session of the PAPD proper and the first activity they took up was restriction of use of harmful gears. The action was jointly planned with Department of Fisheries and implemented within a few days of the PAPD.

In the rivers there was a very large PAPD-effect on time taken between CBO formation and first management action. Before CBFM, most of the fishers had limited access in rivers because of intense fishing effort including many brushpiles made by better off people since they became open access in 1995. PAPD resulted in a general consensus on the problems amongst all local stakeholders including support of local influentials to end harmful fishing, and the formation of CBOs that included these different stakeholders. Therefore they started to remove cross dams and later they banned harmful gear use and restricted brushpiles. In the non-PAPD river sites CBOs were formed of fishers based on small groups developed by the NGOs. Fishers had difficulty establishing their rights and government recognition of their rights was delayed. Without PAPD a long process of awareness building among the community was needed after the fisher based CBOs were formed.

### *3.7 Hypothesis vii. PAPD results in more community/ collective actions for NR management*

This hypothesis was accepted. The management committees in both PAPD and non-PAPD sites planned over five management actions on average, but the communities in the PAPD sites were able to implement most of their planned actions, whereas in the non-PAPD sites they could implement about a third of what they planned during about two years. This is not so surprising. The PAPD process generates plans that specify activities, whereas in non-PAPD sites identification of planned activities was not systematic or so widely supported. Also conflicts result in more planned actions not being undertaken.

### *3.8 Hypothesis viii. PAPD results in community actions with greater compliance*

To assess this hypothesis five indicators were used: number of rules in place in the last year, number of rule breaking incidents in the last year, percentage of the community who know the rules, total number of conflicts in the last year, and number of internal conflicts (within the CBO). The hypothesis was accepted. Although after two years there are on average the same number of fishing rules in place in CBFM sites with and without PAPD, and most (over 80%) of the community reportedly are aware of these rules, there were five times more rule breaking incidents and many more conflicts in the non-PAPD sites than the PAPD sites.

Very few rule breaking incidents were reported in floodplain beels where there was a broader participation even in non-PAPD sites, whereas the highest incidences were recorded in non-PAPD river sites. Open access to rivers made rule implementation difficult and these sites had more conflicts. The definition of beneficiaries varies, in PAPD sites they include different stakeholder groups represented in PAPD. Similar multi-stakeholder committees were formed in non-PAPD floodplain beels, but only fishers were organized in the other non-PAPD sites. This explains the tendency of others to break rules that were developed by only a certain group in non-PAPD open beels and rivers.

Although PAPD itself does not resolve conflict, the study indicates less conflict in these sites. The PAPD increased confidence among the committee and they can negotiate or bargain with others within or outside the local community. Also there are cluster committees which coordinate among adjacent waterbodies within the cluster area (and more PAPD than non-PAPD sites are in such cluster locations). Moreover, PAPD has raised social cohesion.

### *3.9 Hypothesis ix. PAPD results in community actions involving wider coverage of communities that perceive benefits*

It was hypothesised that more categories of stakeholders would perceive more benefits in the PAPD sites because the actions taken up address common needs of the community. Ideally this would be tested with data on the livelihood outcomes for households, but this was not possible as this study was carried out about two and a half years after the CBFM-2 project started and in many cases only a year after resource management actions started. Therefore information from the participatory assessments was used.

Although the same types of beneficiary stakeholders were recognized in PAPD and non-PAPD sites, significantly more stakeholder categories were reported to benefit in the PAPD sites (over seven with PAPD compared with under five without PAPD). In all cases fishers were reported to benefit, and were usually the most benefited group. In PAPD sites both management committee members and poor fishers more often mentioned that farmers, poor households, rich people and fish traders benefited. Farmers benefit from more fish from their own land and restoration of water for fisheries provides more moisture for the crops. The rich can buy more fish at a cheaper rate. Poor households can fish for food and to sell when they have less work. Fish traders get fish locally at a cheaper rate, which minimizes their carrying cost. In PAPD sites, one third of committee respondents mentioned women as beneficiaries because in most PAPD sites women are included in the committees.

The focus groups of respondents scored the extent of benefit for each stakeholder category on a scale of 1 to 10. The mean score for all types of stakeholder and just for fishers was significantly higher in PAPD sites. So people from sites with PAPD probably at this stage of developing CBFM are benefiting more than those in sites without PAPD.

### *3.10 Hypothesis x. PAPD results in better links with local government*

As a key part of the PAPD process all concerned secondary stakeholders, such as local government and NGOs, attended the plenary sessions and they became aware of the problems, solutions and action plans proposed. Linkages between community members and these secondary stakeholders were supposed to be strengthened through PAPD. However, there was no significant difference in number of overall linkages with types of agency supporting the community/CBO. The Department of Fisheries is a partner in the project and has a role in co-management in all sites. Hence there was no difference in the number of meetings held with government between PAPD and non-PAPD sites. However, PAPD sites tended more often to have links and support from the local council (Union Parishad) which was always involved in the PAPD plenary sessions.

The focus groups reported support from local government was mainly in the form of advice and conflict resolution. The average PAPD site had received government help almost eight times compared with 4.5 times in non-PAPD sites. Members of local councils and the officials of the sub-district (upazila) administration appear to have changed attitudes. Both types of government officials thought the CBFM approach is new. Initially they had doubts about community involvement, setting fishing rules, and conflicts of interest. At the start they thought that the NGOs might take over the waterbodies. However, in both PAPD and non-PAPD sites their attitudes have on average changed. The focus group participants were asked to score the attitudes of these officials to the CBFM activities on a scale of -3 (most negative) to +3 (most positive) for the start of the project and present time, and the change in scores was calculated. The change in scores was significantly greater (close to 3) in PAPD sites compared with non-PAPD sites (about 1-1.5). Hence links with government were similar in both types of site, but PAPD was associated with greater perceived changes in government attitudes in favour of community based management.

### *3.11 Hypothesis xi. PAPD actions require greater time input from participant communities*

The evidence rejects the hypothesis that PAPD requires participants to spend more time on CBFM. Instead people in PAPD sites apparently spent less time for community action in the last year. Management committee members spent more than double the time of poor fishers which was expected (equivalent to about 40 working days a year), although much of this includes for example observing that rules are not broken which can be done while they are fishing. The reduced time spent on CBFM in PAPD sites suggests that already after about two years those management actions that are in place are being observed voluntarily because of the general consensus reached with PAPD. The other factor is that poor fishers have less involvement in NGO groups in these sites than they do in the non-PAPD sites, and these groups take up time in addition to that related with resource management. Also conflicts and lack of consensus in the non-PAPD sites means that more time is taken up in conflicts and legal cases in some of these sites.

## 4 Case Studies

Case studies investigated causality of differences encountered and development of institutions and community actions. This expanded on the participatory assessments and gave more in depth information from four sites: Shuluar Beel (BS PAPD), Fatki River (CNRS PAPD), Chitra River (BS non-PAPD), and Shakla Beel (Proshika non-PAPD).

The PAPDs in both cases were found to have given a direction for CBFM activities and helped initiate the local institutions and community organisations under the project. In the

non-PAPD sites the NGOs had to make considerable piecemeal efforts to explain to local people their objectives and intentions. In one (non-PAPD) site the history of leasing and conflicts over access were a major reason for slow progress in changing resource management. Facilitation in general was probably better in the PAPD sites, and in the case studies there were fewer other reasons for conflict and disputes in PAPD than in the non-PAPD sites. The PAPD process appeared to generate plans as a focal point for action, greater unity among fishers and support from local leaders.

## 5 Contribution of Outputs

### *5.1 Implications for Participatory Planning*

The extent that participatory processes are holistic, build partnerships, build local institutions, create synergies across sectors, foster local ownership, developing local partners and create enabling environments for the transparent and accountable delivery of services at the community level, has been questioned. This study shows that broader based community-led CBFM associated with PAPD was far more effective than narrower fisher-led CBFM associated with many of the non-PAPD sites.

The PAPD process differs from less structured approaches such as PRAs as it considers opinions of each stakeholder group separately and then presents each stakeholder group's plans to all stakeholder groups in a plenary session to see what others need, and then common and uncommon issues are considered for final planning. With good facilitation in PAPD there should be no scope for powerful people to dominate poor people's views.

It is argued that projects influence the way in which people construct their needs through participatory methods. However, in PAPDs all types of needs were raised by different stakeholder groups. The CBFM project was limited to addressing wetland and fishery management needs, but the NGOs addressed some of the other needs expressed in the PAPDs, for example providing tubewells for drinking water and sanitary latrines.

The danger from a policy point of view is that actions based on consensus may in fact further empower the powerful vested interests that manipulated decision making in the first place (Mohan 2002). In PAPD sites most (95%) CBOs were formed with representatives of different types of stakeholder yet are not dominated by local elites, and where fishers formed CBOs they have advisory committees composed of other influential stakeholders. But in non-PAPD sites most (78%) CBOs were formed just of poor fishers. In these non-PAPD sites the number of conflicts and court cases has been high. Another reason is that most PAPD sites are rivers and floodplains, while more non-PAPD sites are leased jalmohals, and leases are the usual focus of fisheries related court cases. These conclusions apply to the types of situations covered by this study. There is evidence from the Fourth Fisheries Project that CBOs developed without PAPD but including a wide range of local stakeholders tend to be dominated by elites where there are more valuable resources and funds to be handled by the CBO, for example jalmohals and sites with stocking (Aeron-Thomas 2003, Begum 2004).

### *5.2 Implications for Fisheries Co-Management*

The CBFM-2 project is a co-management project involving government and communities with NGOs as facilitators. CBOs were formed for fisheries management in all the sites. PAPD was used in half of the studied sites. Government officials were invited in the final plenary of each PAPD to endorse the outcomes, but without influencing the planning process. In the other sites studied, resource management institutions were formed through simple discussion and facilitation by government and NGO staff organizing groups of fishers. However, the communities involved in CBFM are different in different sites. In PAPD sites

although NGOs prepared participant lists during PAPD it was endorsed by the participants. In non-PAPD sites participant lists were prepared by the NGO and the list was endorsed by the Department of Fisheries. The study shows that PAPD accelerated CBO formation.

In the leased jalmohals (which more often had no PAPD), DOF had a greater role and put pressure for the CBO to earn money from the fishery and to pay the lease, overlooking that CBFM is there because leaseholders did not conserve the resource and that leases are unsustainably high in some jalmohals. As leaseholders were locally influential, they were not obstructed by nearby landowners when they controlled fishing. Poor fishers cannot stop landowners from keeping fishing rights in floodplains and even in jalmohals. As DOF is ultimately responsible for paying the lease, they have no option but to force fishers to pay the lease, otherwise the fishing rights would be returned to the land administration.

Participation is a pre-requisite for co-management. However, participation in certain situations can force the participants to agree with the majority. In non-PAPD sites the participants fail to communicate their actual desire because they do not want to antagonise more powerful elders or neighbours. In this case the group members lead one another into misperceiving the collective reality. On the basis of this misperception actions are taken by the group that are actually contrary to what everyone would prefer and benefit most from doing. This leads to anxiety, frustration, anger, and the search for someone to blame.

In PAPD sites, resource management institutions involved all types of stakeholders in the community as everyone within the area is a wetland user in one way or the other. In most of the non-PAPD sites (except floodplain beels), fishers formed resource management institutions and other stakeholders have very little involvement. This created confusion, lack of ownership feeling and exploiting attitude within the community.

Although the average number of resource management activities planed was about the same for both PAPD (5.6) and non-PAPD (5) sites, the number implemented was 2.7 times more in PAPD sites. For example, in Fatki River the community agreed in PAPD that re-excavation of silted up parts of the river was needed. They discussed the plan with the Upazila Engineer and DoF engineer, and then organised the labour team. All types of stakeholders were involved in the process and there was no opposition. It can be argued that group discussion and strength leads to groups taking more innovative and risky decisions than they would have taken as individuals. Actual sharing of responsibility means that individual accountability for a given decision is blurred. However, in the non-PAPD sites more plans have not been implemented because they lack everyone's commitment and participation. For example, at Dubail Beel (non-PAPD) the participants took decisions on registration, excavation, and land purchase, but did not consider the risk that this could not be achieved without funds and consensus; conflicts arose and they could not implement their plan.

Co-management is expected to minimise conflict and rule breaking and increase cooperation and voluntary compliance among community members. Due to greater social cohesion, higher awareness and better coordination with different agencies, internal conflict among the participants in CBFM sites where there was a PAPD is less and rule breaking incidences were few. For an example, in Shuluar Beel there was no conflict between the community members after a PAPD was held, although in the previous eight months the NGO made little progress in raising issues and bringing together the community to manage this floodplain beel. In Shuluar Beel, all ditch owners were previously trapping fishes in their ditches during monsoon and were catching all the fish when water recedes by de-watering. During PAPD, the ditch owners committed not to dewater all the ditches to catch fish. There are also some ditch owners representing their group in the BMC. By following their commitment they reportedly observed an increase in fish population of 3 to 4 times in the next monsoon season after they left some water and fish in the ditches in the previous year. In Chitra River,

however, the adjacent beel community enjoys catching fish during the early monsoon when fish move from the river to the beel to breed and again when fish go back to the river after the breeding period. After seeing this people who had agreed to follow the CBO rules are following the same path as the people from the beel and also break the rules. Thus the planned management system is mostly inactive.

The number of days between staff recruitment and CBO formation depended on the capacity and skill of the staff and the approach adopted. Most of the NGOs recruited fresh graduates who did not have any previous experiences of forming groups. The number of days between staff recruitment and CBO formation was less in PAPD sites than in non-PAPD sites. In PAPD sites the community itself pushed the staff to provide necessary support when they started to implement their planned actions. In the non-PAPD sites staff spent a great deal of time to coordinate with the community for organising people for CBO formation. As there was no specific direction for starting fishery management action the staff were confused. Moreover, the community itself was not so sure about what activity they wanted and the expected outcomes. Several months after CBO formation, members were not sure about the objectives of the project, what support they might get, and the funding system was not transparent. In the case of PAPD sites, the participants were made aware of the project and they had an opportunity to ask any question to the implementing NGO, wider community and local representatives, and government agencies during the PAPD.

The initial transaction costs for management were expected to be high because PAPD and the following actions were predicted to take more time from participants (for workshops etc) than in non-PAPD sites. However, in the PAPD sites there were fewer conflicts and rule breaking incidences. When there was confusion among the community in the case study sites of Shuluar Beel and Fatki River, the management committee along with the DoF staff and local government representatives could resolve the issue before it became a conflict. This study found some evidence that transaction costs were less in the PAPD sites than in the non-PAPD sites, even including the time taken for the PAPD.

### *5.3 Contribution of Project Outcomes to Development Impacts*

This study provides quantitative evidence that PAPD is effective in terms of more efficient and inclusive participatory planning and initiation of community management, and also show that it increases participation of the poor, brings more benefits faster, and reduces the time needed for community decisions and interactions later because of the consensus created.

The beneficiaries from PAPD sites mentioned income as a main benefit for themselves as a result they can send their children to school, can get better health care and improved family nutrition, especially for children. They now consume more fish which they translate as more energy through more protein intake. Some of the beneficiaries mentioned increased knowledge through PAPD, training, meetings and workshops and through facing visitors. They particularly mentioned the PAPD as the first gathering where they freely raised their own problems and they also proposed solutions (participation) which were taken into consideration. They felt that they were given attention and they were not controlled by anyone. The same types of benefits were reported in non-PAPD sites but fewer were achieved within the period assessed. Also in the focus group discussions respondents from non-PAPD sites said that decisions were taken in a big meeting where powerful people dominated decisions and the poor people were given less attention.

These benefits can be scaled up within Bangladesh through projects in the water, fisheries and related sectors all of which are increasingly taking a community based approach. They are also relevant internationally. Promotion of PAPD is already ongoing, but has not changed the practices of many organisations in Bangladesh so far. For example, in the CBFM-2 project all partner NGOs were oriented in and participated in a demonstration

PAPD in 2002, yet most did not use it. One reason is that most NGOs have a target group approach that focuses only on households within a specific poverty range and cannot see that a more inclusive PAPD approach and consensus can be merged with specific supports for poor fishers and other resource users.

PAPD is good in bringing all stakeholder groups to a consensus without any pressure. To design project activities in a site, all stakeholders' opinions on the feasibility of the project, pros and cons of the project, and assessment of the benefits and disbenefits to each stakeholder need to be judged. PAPD provides those opportunities. For community participation in the implementation phase, sometimes it is difficult to know who will be the best contacts to take responsibilities. PAPD identifies those people and also shows linkages of the villagers with the power structure, individuals and agencies. Finally, an action plan is prepared in a participatory way keeping in mind all stakeholders' interests and allowing for including mitigation measures for the people who may in addition be disbenefited (benefit in general but for example losing income during a closed season for fishing).

This study shows that for project design, factors such as type of waterbody, CBO composition, other development works, other uses of the waterbody, and number of poor households (fishers and non-fishers) need to be considered as they have a significant effect on the outcomes for CBFM. For example, PAPD did not result in specific actions to change access of poor people to waterbodies, in general use rights stayed the same and mainly did not involve jalmohals. This difficult issue of fisher rights tended to be an issue and addressed more in non-PAPD jalmohal sites and is one reason for differences found.

To make development plans, PAPD is very effective. There is strong evidence that plans prepared through the PAPD processes were mostly implemented, and it took less time to implement actions after the planning process and also after CBO formation. Therefore, PAPD results in more appropriate planning and saves time and costs in facilitating participatory management of natural resources.

Although PAPD was used for planning purposes, it raises awareness about the project and its objectives. Everyday different stakeholder groups were coming to the PAPD meetings and the curious neighbours asked them about the objectives of the PAPD and the project and what they did for the whole day. Moreover, it is an exciting experience for the participants as for most of them this is something very new. PAPD is a good start for awareness raising on natural resource issues and scope to improve their management.

Participation of poor people (fishers and non-fishers) in the PAPD in homogenous groups did let them express their own views without fear and anxiety. They feel honoured and confident in this situation. When asked about interaction with other stakeholders in the community and the government officers/agencies, they expressed their grievances and satisfactions. This information can help projects and government improve services. For example, in Shuluar Beel PAPD participants were very happy with their Union Parishad Chairman. They kept him as an advisor in the committee and said that they can tap resources from him. Moreover, through interaction with different people and exposure to outsiders as part of the PAPD plenary process they now became more confident and demanding.

Linkages with government were established during the PAPD plenary session where concerned government officers and NGO staff were present. Government officials also were happy to see local knowledge, skills, analysis, and proposals presented. Government officials also made commitments in the plenary. Based on these initial links the management committees were more confident when they had to meet different people in connection with their resource management activities.

The study assessed changes over only about two years. The time is too short to conclude on the sustainability of CBFM including the institutions developed from PAPD or from NGO support without PAPD. However, some of the indicators that were assessed, such as comparing own, short term and long term benefits that the participants mentioned showed that long term community benefits are anticipated to be significantly higher in the PAPD sites than in the non-PAPD sites. This translates into sustainability.

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