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FINAL TECHNICAL REPORT¹

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Project Title

Evaluating action planning for enhanced NR management in PU Kolkata

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Organisation

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NRSP Production System

Peri-Urban Interface

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Abbreviations and Acronyms

ADB	Asian Development Bank
CEMPD	Centre for Environmental Management and Participatory Development
DFID	Department for International Development (UK Government)
DoF	Department of Fisheries, Aquaculture, Aquatic Resources and Fishing Harbours, GoWB
DoE	Department of Environment, GoWB
DoIW	Department of Irrigation and Waterways, GoWB
EKW	East Kolkata Wetlands
FPA	Fish Producers Association
GO	Government Organization
GoI	Government of India
GoWB	Government of West Bengal
IESWM	Institute of Environmental Studies and Wetland Management (formerly IW MED)
KMC	Kolkata Metropolitan Corporation
KMDA	Kolkata Metropolitan Development Authority
KEIP	Kolkata Environmental Improvement Project (ADB / DFID funded)
MIC	Minister-in-Charge
NGO	Non-government Organisation
NRM	Natural Resources Management
NRSP	Natural Resources Systems Programme (DFID funded)
PAP	Participatory Action Planning (the action planning approach adopted in this project)
PAPD	Participatory Action Plan Development (a workshop-based method for planning and consensus building, developed and tested in Project R7562)
PS	Production System
PU	Peri-Urban
PUI	Peri-Urban Interface
STEPS	Social, Technical, Environmental, Physical & Sustainability constraints/precursors to action (a participatory planning tool)
SWC	Save Wetlands Committee
WB	World Bank
WBSPCB	West Bengal State Pollution Control Board

Note on stakeholder terminology

Several stakeholders are referred to throughout the project reporting. The basic terminology draws on the DFID Sustainable Livelihoods Guidance Sheets (DFID, 2001): *primary stakeholders* are the intended beneficiaries of reform and *key stakeholders* are those who can influence the outcome of the reform process. Within the category of key stakeholders the research team found it useful to differentiate further between *secondary* and *tertiary stakeholders* - based on geographic scale, management role and interest. Therefore, with respect to the

East Kolkata Wetlands, the following working groupings were developed with the team and used in discussion:

Primary stakeholders:

Bheri workers, farm labourers, leaseholders, fisheries cooperative members, maintenance & construction workers, rag-pickers, etc...

Secondary stakeholders:

Panchayat members; CBOs (Save the Wetlands Committee (comprised of *bheri* owners, leaseholders, union leaders), Fish Producers Association, Fisheries Cooperatives); NGOs (CEMPD, PUBLIC, WWF, CARE-India and 150 other registered bodies in the State).

Tertiary stakeholders:

DoE, IESWM, WBSPCB, DoF, DoIW, Dept. of Land & Land Records, Dept. of Panchayat, North-24-District Authority, South-24-District Authority, KMC, KMDA, KEIP, ADB, DFID-India, EKW Management Committee.

For further discussion on the roles and responsibilities of many of the key stakeholders in the EKW see Edwards (2002).

1 Executive Summary

This report provides a summary of outcomes from a process of extended interaction with primary and key stakeholders associated with natural resources management in the East Kolkata Wetlands (EKW). These wetlands encompass a mosaic of inter-connected land-use and hydrological zones covering ~12,500 ha and providing livelihoods (directly & indirectly) to 60,000 people. The project started in March 2004 and finished in September 2005.

The participatory approach adopted for this work ensured that primary stakeholders (rice, vegetable and fish farmers) and key secondary stakeholders (Fish Producers Association [FPA]; Save the Wetlands Committee [SWC]; trade unions) were given the opportunity to identify the most pressing constraints concerning natural resources management in the wetlands, propose appropriate solutions, develop and agree upon a plan of action and embark upon the process of implementing preliminary development activities that address some of the most pressing and widely held problems. The objectives of this work, approach adopted and resulting conclusions and recommendations received broad-based support from both key secondary and tertiary stakeholders (Dept. of Environment [DoE], Institute of Environmental Studies and Wetland Management [IESWM], Department of Fisheries [DoF], Kolkata Municipal Corporation [KMC], South and North-24-Parganas District Authorities) that participated in the process.

Project activities and findings relate to four inter-related areas: adoption and evolution of a participatory action planning strategy (here termed PAP) based on an established approach and existing key principles; a methodology to track progress on planning and to allow facilitators to react to new opportunities or difficulties and to evaluate the performance of their strategy; compilation of detailed problem census and feasibility studies by a wide range of primary and key stakeholders across the EKW; a strategy to institutionalise this new knowledge.

The planning approach was specifically intended to represent the needs and concerns of the full range of primary stakeholders to government and informal management institutions (SWC and FPA) at other levels. Novel modifications included the attempt to bridge the vertical relationships between these interests and to delineate the system by region rather than livelihoods group (see Annex A, Section 2 for detail). The project team, as facilitator in the process, interacted with three tiers of overlapping stakeholders through a process of structured and pre-planned workshops and continual dialogue and this was captured by the compilation and publication of 11 local level planning activities and a structured approach to monitoring process (Annex B-b1 and B-b3, respectively).

This report outlines the development of an action plan for water management in the EKW which addressed major issues that cross-cut aquaculture and farming interests and extends beyond the resource base to health issues. Three pilot-scale interventions for key actions were selected to demonstrate the commitment of primary and key stakeholders and the potential of PAP for future planning. The pilots require additional inputs of technical expertise for hydrological survey and assessment of possible impacts on certain communities and settlements (Annex B-b1). The PAP used here and subsequently promoted to others worked to highlight existing environmental and social (poverty related) concerns and the need to assess the impact of land-use and water management changes on the vulnerable. The plan operates as a stand-alone document for IESWM and the EKW Management Committee but other communications products included internal communications such as guidance materials and literature within the project team and external dialogue with the full range of stakeholders groups during key planning workshops and other dialogue. To date the project

has generated material presented elsewhere in Asia and maintained an accessible website of key planning issues and working methods encountered (Annex A, Section 4).

The project built upon existing planning priorities, acknowledged ongoing planning activities, and worked to facilitate the application and adaptation of existing knowledge of participatory planning, notably PAPD, in a setting where such approaches were not being practiced. The approach adopted in applying this existing knowledge highlighted difficulties of working directly with the poorest groups (landless labourers, fish farm workers, possibly sharecroppers) and the benefits and limitations of facilitating the process through intermediaries (union representatives, association members and farm owners and managers) with greater influence and political connections. Findings also provide guidance for PUI planning more generally, in that there are benefits from applying existing knowledge and that this requires facilitation, possibly through intermediaries, but in doing so there are dangers that the process may not reach the poor/poorest, and that safeguards must be adopted.

2 Background

Aquaculture and horticulture practices exploiting wastewater resources in PU Kolkata were developed and refined by farmers; Bunting, Kundu and Mukherjee (2002) present a review concerning the evolution and present status of these production systems. Currently, the pond area managed for wastewater aquaculture extends to nearly 3,500 ha divided into several hundred fisheries. Various historical reasons and government interventions have contributed to the scale and distribution of land holdings in the area, furthermore, landowners are commonly absentee landlords and management of the fisheries is largely undertaken by leaseholders; others are operated by fishermen's cooperatives and groups and a small number are under government control. Recently it was estimated that ponds managed for wastewater aquaculture produce $>18,000 \text{ t y}^{-1}$ of fish for sale in urban markets, many of which service poor communities. Estimates have also suggested that horticulture, commonly irrigated with wastewater, occupies an area of $\sim 320 \text{ ha}$, and that vegetable production from this area may be up to $370 \text{ t ha}^{-1} \text{ y}^{-1}$; many vegetable growers also exploit inputs of solid waste from the city to enhance production, maintain soil quality and inhibit weed growth.

Further to producing significant quantities of fresh produce for urban and PU markets, it is widely acknowledged that these farms provide direct and indirect employment for several thousand people, and that managed wastewater reuse provides a valuable service to society, reducing health risks from unregulated discharges and protecting downstream environments. Regardless, however, producers face several threats to the continued operation of their farms, whilst a limited willingness to invest time and money in maintaining and enhancing their farms due to growing insecurity makes them more vulnerable to emerging constraints. New knowledge from project R7872 suggested many poor households and individuals in PU Kolkata engaged in activities related to farming experience seasonal vulnerability, which appears most closely related to insufficient access to water for irrigation and fish culture during the dry winter months, despite the continuous discharge of wastewater from municipal Kolkata. Siltation in the primary and secondary feeder canals compounds the problem and coordinated action on behalf of all groups, including rural and urban government agencies and primary stakeholders is urgently required to address this constraint. Problems regarding delivery to farmers and diversion of solid municipal waste to a new composting plant are forcing producers in the area to switch to inorganic fertilisers, which not only has consequences for yields, soil condition and disease and financial risks, but also denies some of the poorest local people a valuable coping strategy, namely gleaning items of value from

rubbish spread on the fields.

Considering the vulnerability of poor people in PU Kolkata, particularly during periods of water scarcity or where coping strategies are denied them it is widely acknowledged that coordinated action is required to address the underlying problems and support those at risk in accessing alternative employment or income generating activities, which due to opportunities presented by living in PU Kolkata may or may not be NR based. It was also recognised that decision-making and planning should involve collaboration between primary and key stakeholders groups, however, the divergent interests and agendas of these groups, especially the poor and urban and rural government agencies, meant research was required to monitor a process of action planning that fostered cooperation, understanding and collective decision making.

3 Project Purpose

The project purpose was to ‘Generate new knowledge of action planning to implement natural resources management strategies for the PUI of Kolkata, that benefit the poor, formulated through extended interaction with principal stakeholders’. Conditions and methods for achieving successful participatory action planning that benefits poor people in the complex social and administrative context of the peri-urban interface were studied. In particular, new knowledge was sought about the difficulties of, and opportunities for, effective participation of those poor, whose natural resource based livelihoods are threatened by urbanisation, in developing responses to the threats of urban growth and insensitive waste management policies, in collaboration with both urban and rural government authorities.

4 Outputs

Output 1: Process enabling action planning for NRM in the complex social and administrative context of a PUI better understood.

Two key elements were developed here. The principal output was an analysis of a planning approach, participatory action planning (PAP), that applied certain key principles of participatory planning but which made modifications to the process to better fit the complex setting of the PUI. Secondly, a basic monitoring strategy was developed to track the planning process and help facilitation. Together they were intended to provide a better understanding of the prospects and requirements for participatory planning in the PUI. The PUI PAP drew some design features from PAPD but key modifications related to the mechanism of representation, the need to involve key tertiary stakeholders (vertical linkage), the role of participation and the facilitator and the length of the process. These are summarised below and in Table 1.

Representation & vertical linkage

Innovative elements of the planning approach developed here include demarcation of the EKW by land use in an attempt to deconstruct the system into manageable and representative units. Consensual planning requires a democratic process of representation but the scale of consultation had to be sensibly constrained in a process analogous to stratified sampling. Furthermore, the political and institutional complexity of the PUI and EKW required that potential planning processes balance or negotiate the interests and positions of multiple stakeholders at many levels. Management of the PUI is controlled by overlapping functions and responsibilities that may complement or counteract one another. Superimposed on this is the informal institutional environment that influences the way land use decisions are made within and outside government. It was crucial that the PAP process engaged with both the representative organisations of primary stakeholders and with relevant non-government and development/government institutions, what the team termed secondary and tertiary

stakeholders, respectively. Ultimately, it was these stakeholders that would support or hinder interventions and the PAP process was intended to communicate the interests and needs of primary stakeholders to these groups.

The EKW was divided into eleven regions in order to manage the planning process and reflect local issues and concerns. This division also functioned to: 1) reflect broad similarities in livelihoods activities (and so NRM interests and concerns) *within* the regions and to 2) reflect distinct hydrological differences *between* the regions.

Consensual planning theory highlights the distinction between zero-sum games that represent compromise, and positive-sum games that benefit all stakeholders simultaneously (see Lewins et al, 2001). These latter ‘win-win’ plans are more likely to be widely supported and reach the implementation phase. In the case of the LWI in Bangladesh, water management was found to be both the consistent underlying cause of livelihoods constraints and conflict and the most likely entry point for win-win interventions with PAPD. There appear to be similar constraints to change and improved livelihoods in the EKW where water supply and quality is a concern for fish producers, labourers as their employees and leaseholders as agriculture stakeholders. Declining water quality for fish production (declining sewage content) and reduced water supply to agricultural zones to the east and south seemed to relate to canal maintenance and sluice gate management and did not appear mutually exclusive.

The role of political brokers

Proximity of the EKW to Kolkata increases the diversity of economic interests and increases differences in the capacity to exert economic and political influence. Although local planning processes like PAPD might attempt to deconstruct the community and acknowledge differences in power, it is assumed that PAPD participants are similarly dependent on NRM improvements and are all vulnerable. The negotiation process in PAPD can be termed horizontal in that the stakeholder groups that participate are directly linked to a local and delimited resource and are peers.

To date, planning through PAPD has operated in project environments with pre-arranged *modus operandi* with key institutions and staff to fulfil project objectives (establishment of sanctuaries, training etc...). In the context of EKW, however, a vertical form of planning to improve livelihoods of the poor had to be attempted and tested. Actions with the potential to benefit meaningful numbers of poor require a planning process that includes government stakeholders and other key players such as labour unions and pond owners that influence the economic reality and livelihoods options of the poor. The approach combined distinct, formal, interaction as one-off workshops and meetings with secondary and tertiary stakeholder with more ad hoc discussions (see Annex A, Figure 2.1 and Annex B-b2).

In addition to issues of representation and vertical linkage, the team found the following modifications (summarised in Table 1) necessary:

- *An alternative role for the facilitator* - IESWM have close working relations with several secondary stakeholders. The intention was to utilise their existing linkages and leverage with government and their perceived legitimacy and support by their members. Ultimately, they were to function to sanction and negotiate implementation of plans on behalf of primary stakeholders. PAPD requires good judgement by the facilitator during the early reconnaissance of the locality and the filtering of problems and clumping of solutions but the overall approach is well defined and structured enough to be simply replicated by others. Testing a PAP methodology in the context of the EKW required a more flexible approach to facilitating dialogue (the ability to exploit new opportunities for discussions as they arise etc...) and with respect to what might constitute a positive development (see

Lewins, 2005).

- *Timescale* - PAPD comprises a proscribed sequence of participatory tools and activities along a relatively fixed timeline over one week. Key to this process are plenary sessions which provide an end-point to the intra-group planning stages and the opportunity for mutual learning between groups. The PAP approach piloted at the EKW deliberately adopted a similar sequence of activities and tools but modified the strategy to incorporate the constraints represented by scale and complexity in the PUI context and the different purpose. The key sequence included equivalent reconnaissance, problem census, problem solving (including STEPS) and plenary phases but practical constraints required that these activities proceeded over a period of approximately 18 months to incorporate the input of all project regions - problem census and STEPS had to be repeated 11 times, for instance. Where possible, existing knowledge (from the previous project and baseline survey) was used to accelerate the process of demarcating stakeholders/regions and in the facilitation of the STEPS activities to identify potential actions. The PAP approach attempted to channel local level planning options vertically to the relevant enabling institutions. This required the problem census and STEPS first to identify potential interventions (taking about 6 months) and a parallel process of less directed dialogue with secondary and tertiary stakeholders. Three major workshops were held approximately half way through this process and functioned to publicise PAP objective and discuss early options with representative stakeholders.
- *The role of participation* - Participation performed two functions: to enable representative groups of poor to demonstrate local constraints and potential solutions to their livelihoods; increase the level of support of enabling institutions such as producer organisations (FPA, SWC, trade unions) and government agencies. In the former case, participation was relatively extractive because discussions focussed on the quick identification of problems framed by the research team, in this case, NRM issues related to water management. The role of participation could be described as functional in that the scope of the contribution of participants was pre-determined by project facilitators and purpose (Pimbert and Pretty, 1994). In the PAPD context, although the scope of discussions and planning is carefully focussed on NRM and problems with potential solutions, the workshops include carefully facilitated exercises (such as resource use mapping and drawing of seasonal timelines) intended to include all those present. The local level meetings for problem census and STEPS analysis were less structured in the EKW PAP. The research team convened open meetings with the various stakeholders represented on an *ad hoc* basis. The principles of problem and solutions identification and STEPS analysis were applied but not in the strongly-guided, workshop environment of PAPD. Instead, the facilitators were briefed on the value of STEPS as a planning tool but, crucially, as a means to direct open discussion towards ideas for acceptable and feasible actions for and by local people. In this respect, STEPS provided a checklist to help guide and record the contributions of participants including women. The early and extractive stages of problems and solutions identification and STEPS was to provide material for discussion and support at other levels but primary stakeholders were to be presented with feedback on the plans and the status of government or intermediary support². As a week-long workshop process, PAPD provides no structured mechanism for this verification and feedback regarding key stakeholder support.

The second component to this output was a process monitoring method adopted by the team to help manage the planning process. Several recording formats were developed to capture

² This process will occur after project end and will centre on the discussion of the draft report.

significant developments in participation and decision-making with the intention to enable the facilitators to recognise obstacles, progress and opportunities (see Annex B-b3, Section 2 for these formats in detail). The planning process evolved during the course of the project and process monitoring was critical in moving the planning process forward, recording interaction with the various stakeholders, the outcomes of this interaction and its significance for the pilot planning. It also functioned to highlight the key role of the team, themselves, as facilitators and the need to react strategically to the outcomes of discussion and meetings. In this last regard, it was felt important the team were able to navigate the political landscape of EKW and were aware of potential problems before they occurred. Process monitoring outputs also informed the comparative review of what was done and achieved with PAP and how this related to the PAPD process applied in other contexts.

Finally, project experience suggests potential future applications of the process monitoring approach (Annex B-b3, Section 4). Any such approach must work to convey: representation and participation (a sufficient range of primary stakeholders are given opportunity to shape planning); the process adopted (what mechanisms for representation and communication of planning priorities were put in place and if and how these changed over time); outcomes (whether pro-poor action is achieved or headway has been made on representing the needs of the poor to supportive institutions).

Output 2: Pro-poor action plans for three primary stakeholder groups dependent on NR management in the Kolkata PUI further developed.

The water management action plan for the EKW addressed constraints faced by poor communities dependent on largely on farming rice, fish or vegetables, or a combination of these. The regional basis of the action planning process, in which the EKW was divided into 11 geographically defined regions was invoked to ensure groups with different livelihoods (fish farmers and labourers, rice and vegetable growers) and assets, notably social and political, were properly represented. The scale and complexity of the EKW production system provided special problems regarding proper representation and the identification of potential actions that can benefit the range of primary stakeholders simultaneously without significant negative impacts on other users or livelihood functions of the system (Annex A, Section 2). Despite this the pilot-scale development activities tested did represent win-win scenarios associated with enhanced water management that would benefit poor groups that had different livelihood strategies; potential negative impacts associated with implementation on vulnerable groups such as the landless poor and women were highlighted by the process and uncovered during local planning consultations with STEPS. Additional actions discussed to ensure fair outcomes included employment for the landless poor on proposed rehabilitation and development projects or resettling vulnerable groups and providing alternative livelihood options. It is important to acknowledge that it is wrong to assume that increased productivity or profitability for PU PS would contribute directly to enhanced livelihoods for poor people. Findings from R7872 demonstrated that poor people were often keen primarily to enhance their cash income and that with adequate support this might be obtained from non-NR, and indeed more urban oriented activities.

Table 1. PUI planning as applied in the EKW and modifications of the Participatory Action Plan Development approach (PAPD).

Modification and purpose	PAPD	PAP at EKW
<p><i>Scale & reach</i></p> <p>EKW size requires process to extend beyond village workshop to engage government & user groups & primary stakeholders from entire system. Political complexity of PUI requires vertical links & formal, but more <i>ad hoc</i>, interaction.</p>	<p>Normally LWI sites comprising several villages – project delineated waterbody with agricultural land.</p> <p>Primarily local issues & horizontal negotiation.</p> <p>Minimal role for Union level government representatives & other local/regional service providers such as Local Government Engineering Department.</p>	<p>The mosaic of inter-connected land-use & hydrological zones over 12,500 hectares & providing livelihoods (directly & indirectly) to 60,000 people.</p> <p>Local or regional* issues discussed but presented as symptomatic of system-wide issues where applicable.</p> <p>Major role for government institutions** & resource user representative groups (fish producers’ organisation, agricultural cooperatives etc.) in negotiation & prospective implementation.</p>
<p><i>Deconstructing the system</i></p> <p>Micro-issues as potential targets for planned actions should relate to livelihood concerns but were predicted to correspond to water use & so be determined by hydrology & existing economic activity.</p>	<p>NRM interests & positions considered to relate to 5-6 broad livelihoods groups. The groups are identified with key informants & may be re-defined by wealth ranking. A sub-set (approx 20 people) participate form each group.</p>	<p>EKW interests and positions in relation prospective interventions considered to relate to hydrology and economic activity – relating to three basic zones (fish production, agriculture production & mixed). These zones sub-divided by facilitator (IESWM) to 11 regions based on existing knowledge & transect study. Problem census & STEPS conducted with open groups with range of stakeholders from each region (approx. 30 people). Key secondary and tertiary stakeholders identified by facilitator.</p>
<p><i>Timing</i></p> <p>Institutional complexity, geographic scale and no. stakeholders impacts logistics. Requires repeated engagement with each of 11 regions & re-verification & facilitation between 3 distinct levels of stakeholders.</p>	<p>Approx. 7 day process. Situation & stakeholder analysis before week-long workshops of problem identification, filtering, cause & effect analysis, STEPS and plenary. Finishes with commitment to develop implementing committee.</p>	<p>18 month process. Analysis of EKW stakeholders occurred prior to project over several years (material existed). Similar sequence of problem census, identifying potential solutions, STEPS and plenary. Problem census and STEPS repeated for 11 regions over extended period (approx. 6 months). 3 stakeholder workshops equivalent to PAPD 1st plenary – verification process with government and primary stakeholders will work as 2nd PAPD plenary after project end.</p>

Table 1 (cont'). PUI planning as applied in the EKW and modifications of the Participatory Action Plan Development approach (PAPD).

<p><i>The role of facilitator</i></p> <p>EKW facilitator required to interact with larger constituency of primary stakeholders & crucially secondary stakeholders as representatives (unions etc.) & tertiary stakeholders. EKW facilitator acts as intermediary between these 3 levels.</p> <p>The multiple interests of government/donors required facilitator to operate PAP events in parallel with other commitments (to ADB etc.).</p>	<p>Facilitating agency strongly influences identification of stakeholder groups, directs planning activities & sorts/filters feedback in isolation. Facilitator required to achieve broad agreement on feasible intervention at plenary sessions. No negotiation between tertiary stakeholders & facilitator. Facilitator switches to other project related activities post-PAPD.</p>	<p>Facilitating agency identifies stakeholder groups/constituencies independently. Facilitator seeks support for planning process rather than implementation of actions.</p> <p>Facilitator interacts with primary stakeholders, their representative organisations and tertiary stakeholders.</p> <p>Interaction occurs both at discrete events (planning workshops & meetings) & continuously and informally.</p> <p>Facilitator expected to extend the implement phase after project end.</p>
<p><i>The role of participation</i></p> <p>Commitment to planning required input of tertiary and secondary (intermediary) stakeholders.</p> <p>Participation of primary stakeholders was intended to prove local ability to plan carefully. Plans were extracted for promotion elsewhere by facilitator, <u>not</u> by primary stakeholders themselves – local political reality required the facilitator to navigate the government and institutional landscape on behalf of the poor.</p>	<p>A sub-set of representative interest groups participate in planning.</p> <p>Participation in planning lasts 1 week, participation in implementation dependent on successful establishment of committee & action.</p> <p>Participation is a means to extract options for interventions, engender ownership & increase local legitimacy of plans.</p> <p>Participation of tertiary stakeholders occurs at two plenary sessions to increase legitimacy & commitment to act.</p>	<p>A sub-set of broadly representative secondary stakeholders from each of 11 regions participates in problem/solution identification and one-off plenary as workshop.</p> <p>Primary stakeholders are passive in workshops – representative groups and government agencies state their positions.***</p> <p>Participation is primarily a means to extract options for intervention types for promotion at government level.</p> <p>Participation of tertiary stakeholders occurs at two workshop sessions and <i>ad hoc</i> meetings/discussions with facilitator. Government participation intended to gain support for planning process and intervention types.</p>

* The 11 regions as defined by the research team and based on hydrological and land-use characteristics.

** PAP's function will be dictated by role of DoE, DoIW etc. ...

*** Workshops had potential to validate the contributions of primary stakeholders in planning but meeting format failed to do this (see Annex B-b2).

An action plan for water management in the East Kolkata Wetlands was formulated from the issues, constraints and potential solutions highlighted by representatives of each of the eleven regions. From these consultations, three local plans were taken forward and presented as case studies with great potential to relevant tertiary stakeholders (DoE, WBSPCB, DoIW, KMC, KEIP, ADB). The case studies were intended to represent the range of livelihoods interests and associated problems and opportunities across the EKW; these regions were representative of aquaculture, mixed agriculture and mixed fisheries/agriculture areas and associated wetlands users (*bheri* workers, farm labourers, leaseholders, fisheries cooperative members, maintenance & construction workers, rag-pickers).

Output 3: Internal, local, national and international awareness of improved action planning process increased.

The project has achieved significant influence on a range of audiences through project communication products and through completion of products from the preceding project (R7872). Evidence of this is presented against Outputs 4 and 6 and in Annex A. Lessons drawn from a comparison of the PUI PAP approach developed here and PAPD used elsewhere are summarised in Table 1.

The project intended to make some headway on increasing the awareness of potential beneficiaries with respect to the prospect and function of participatory planning. All meetings facilitated by IESWM were intended to publicise the potential of the planning process, even if the process itself was evolving over time. The process of exploring a potential planning strategy with IESWM has increased awareness of the principles and methods available. While IESWM now has experience of managing a participatory and tiered approach to planning and its documentation, other tertiary (DoE, ADB) and secondary stakeholders (SWC, FPA and trade unions) have already contributed to the process and are aware of its potential. A small post-planning awareness survey suggested that enthusiasm and understanding of the action planning process was relatively high within the operator or manager groups at intermediate (secondary stakeholder) levels while there appeared potential to better include Panchayat and women at village level and to reach tertiary government stakeholder operating above IESWM (Annex B-b3, Section 3). The development of the reporting formats was intended to introduce new issues to the team (the need to understand and represent the significance of what is seen during planning meetings, for instance). Although the IESWM field team was relatively young and inexperienced in the use of participatory approaches and in facilitating public events, the team members that stayed with the project did well to adopt the reporting formats and understand their purpose. Process documentation of participatory processes requires good judgement and a higher degree of initiative on the part of the researcher than the quantitative surveys that have tended to dominate natural resources research. The team became more sophisticated in their understanding of what was significant to the PAP process and, crucially, what factors might make the planning process more or less realistic or representative.

Output 4: Action plans promoted for external support.

This output was withdrawn in the 2005-06 extension. However development agencies including USAID and ADB, through an ongoing Technical Assistance project, have expressed a requirement that future work they are proposing to support in the EKW should utilise the outcomes from this planning activity. Furthermore, the wetlands management plan being formulated under the ADB TA will build upon the water management action plan

developed here.

Output 5: Pilot scale interventions for two priority action points relating to NR management tested by stakeholders.

Three promising pilot-scale development activities were identified within the broader water management action plan, each being associated with the re-excavation of canals, however, owing to concerns over feasibility it was not possible to test these within the project period. Documentation of the water management action plan is presented in Annex B-b1 and outcomes of preliminary implementation with primary and key stakeholders including lessons learned from the PUI PAP approach developed here are discussed in Annex A.

Output 6: Principal stakeholders supported in institutionalising participatory action planning in decision-making structures and processes relating to the PUI.

Continued support and participation by a range of primary and key stakeholders during the extended planning process provides an indication that the process was valued due to its potential benefits. Development agencies not directly involved in the planning process also appear to value the planning process and its findings. Achievement in institutionalising the PAP process was demonstrated when a Statement Of Work developed by USAID in consultation with the Department of Environment, Government of West Bengal stipulated that future work in the wetlands should build on the results of the current project. Furthermore, a writ submitted to the High Court by DoE cites the outcomes of the current project and highlights the need to institutionalise the participation of user groups and NGOs in future planning initiatives. Secondary stakeholders representing NR users in the wetlands also endorse the use of PAP and have expressed a willingness to engage in future participatory planning activities. Support has also been sought by DoE and ADB from the project team in integrating project findings, the planning approach and pilots into the EKW management plan being prepared as part of ADB [TA-3423-IND]. Development and circulation of the EKW water management action plan and preliminary development activities report (Annex B-b1) with IESWM and the EKW Management Committee is expected to influence future planning and lobbying activity by this group.

5 Research Activities

Activities to accomplish Output 1:

Detailed work plans for action planning, process monitoring and communication activities were developed and refined throughout the project (Bunting et al., 2004; Annex A). Initial training in action planning and process monitoring was provided to team members and materials originating from the various activities were reviewed during the inception phase. Methods and approaches for action planning that might be suited to work with PU communities and stakeholders were discussed and the key elements of an ‘action plan’ reviewed. The concept of process monitoring was introduced and elements including observation, documenting interactions, reporting, data analysis and potential difficulties reviewed. Following the inception phase process monitoring pro-forma for major meetings and workshops were revised to better enable the research team to identify knowledge of participatory action planning that is new to Kolkata, West Bengal and India. Subsequent review of process monitoring reports from major workshops showed that the research team was able to identify important developments and possible constraints to participatory action

planning in peri-urban Kolkata, West Bengal and India (Annex B-b2). Monitoring of activities and outcomes continued throughout the project. A comparison of PAPD with the PUI PAP activities and outcomes in this project enabled the identification of important new findings and knowledge providing an insight concerning the constraints to and benefits of participatory planning and institutionalisation of the processes in the complex physical, social and institutional landscape of peri-urban Kolkata (Table 1; Annex A; Annex B-b3).

Activities to accomplish Output 2:

A robust communication plan for the project was prepared based on comments received following the inception report review and guidelines provided by NRSP (Annex A). The revised plan focused on informing primary and key stakeholders about ongoing activities and outcomes relating to the research assignment. Following the inception phase a revised pro-forma was used to monitor the action planning process among diverse stakeholder groups in PU Kolkata (Annex B-b2). An action plan focused on water management in the EKW (divided in to 11 regions) and addressing constraints faced by vegetable, fish and paddy farming communities was formulated through extended interaction with both primary and key stakeholders (Annex B-b1). Action planning activities included informal meetings and problem census, 11 regional workshops, attendance at meetings organised by key secondary stakeholder representatives, 3 workshops for key tertiary government and secondary NGO stakeholders, a general stakeholder workshop and bilateral meetings with State level agencies (Annex A, Section 2).

Activities to accomplish Output 3:

The internal project communication strategy depended on the effective documentation and exchange of information from field workers and CEMPD and IESWM regarding their interaction with various stakeholder groups to the rest of the project team. Pro-formas developed for this purpose ensured that this element of communication was well structured, consistent and undertaken in a timely fashion. Other key elements of the internal communication strategy included: email and phone calls; process monitoring outputs; meeting and workshop reports; project management coordination meetings and visits. Internal reports e.g. Pickstock (2004), Lewins (2004), Quarterly reports, Milestones and spending forecasts, Annual reports, pre-MTR and pre-FTR reports and the PCSS and FTR report were used to facilitate internal communication regarding progress and findings between the project team and NRSP programme managers.

Key elements of the external communication strategy included: identification of short and long term communication aims; identifying communication stakeholders; assessment of existing knowledge, attitudes and practices; assessing communication objectives; identifying appropriate media and pathways; assigning responsibility for activities (Annex A). Participation of primary and key stakeholders at all stages of the research process was central to the local communication strategy aimed at raising awareness; facilitating stakeholder involvement in planning; promoting mutual understanding and benefits of working together. Target institutions were primary and key stakeholders in PU Kolkata, District and State level government agencies, NGOs and Development agencies. Activities included informal meetings and problem census; 11 regional workshops; attendance at meetings organised by key stakeholder representatives; 3 workshops for key tertiary government and NGO stakeholders; a general stakeholder workshop; bilateral meetings with State level agencies; 3 STEPS workshops and subsequent follow-up; focus group discussions. In addition a series of three project briefings, providing updates on action planning activities and the selection and implementation of pilot-scale development activities in the East Kolkata Wetlands was

produced, these bulletins were given to participants and were made available on the website. A number of chapters, journal articles and presentations at regional and international conferences and workshops were used to raise awareness of project activities and outcomes.

Activities to accomplish Output 4:

Building on contacts and dialogue established during R7872 development oriented agencies (DFID-India, ADB, NGOs and CBOs) were made aware of the proposed project purpose, planned activities and objectives, and where appropriate invited to participate. Efforts were made to ensure development oriented agencies were included in the action planning process and that research findings and products were communicated to them effectively. Project briefings were produced to provide key stakeholders, including development agencies, with an overview of intended activities and objectives and subsequent developments and achievements. The website also provided a useful summary of key issues and a repository for project outputs that was easily accessible, meetings were also arranged to discuss in detail the possible role of selected key stakeholders in the project and in supporting action plan implementation.

Team members from ADB [TA-3432-IND] project working on a management plan for wetlands in West Bengal attended the multi-stakeholder workshops organised by the project. It was anticipated that their participation at these meetings would sensitise them to the demand for participatory planning from primary stakeholders, and contribute to appropriate participatory planning approaches being included as an important element in the management plan for wetlands at a state level. Support has also been sought by DoE and ADB from the project team to integrating project findings, the planning approach and pilots into the EKW management plan being prepared as part of ADB [TA-3423-IND].

Achievement in institutionalising the PAP process was demonstrated when a Statement Of Work developed by USAID in consultation with the Department of Environment, Government of West Bengal stipulated that future work in the wetlands should build on the results of the current project. Furthermore, a writ submitted to the High Court by DoE cites the outcomes of the current project and highlights the need to institutionalise the participation of user groups and NGOs in future planning initiatives. Key secondary stakeholders representing NR users in the wetlands also endorse the use of PAP and have expressed a willingness to engage in future participatory planning activities.

Activities to accomplish Output 5:

Outcomes of the multi-stakeholder workshop held at the WBPCB and attended by participants from Government departments, NGOs, environmental bodies and primary stakeholder groups confirmed that rehabilitation of the waterways in the wetlands, enhanced fish, rice and vegetable production, improved environmental health and protection and livelihoods diversification are widely held priorities for action. Considering the outcomes of this meeting and the detailed prioritisation of problems and solutions in each of the 11 wetland regions pilot-scale interventions for three priority action points relating to water management were tested for feasibility by stakeholders employing the STEPS approach (Annex B-b1). The 3 pilot activities identified were to:

- desilt Paranchaprasa khal to benefit fish farms in the north,
- desilt Boynala connecting canal to benefit farms in the south-west,
- desilt the southern Bidyadhari and associated branch canals to benefit rice and fish producers in the south-east.

The first action in assisting primary and key stakeholder groups in implementation of the

pilot-scale activities was to convene a meeting of primary and key secondary stakeholder representatives from the regions that would benefit directly from the proposed intervention. The purpose of this meeting was first to verify the feasibility of undertaking the activity as a pilot project and the second was to help facilitate the structured analysis of the conditions required for implementation and potential problems and bottlenecks. Follow up meetings with stakeholders to discuss the proposed pilot-scale activities are ongoing and where required consents and approval are being sought from key stakeholders.

A report with content agreed between the project team and participants and in an appropriate format for submission to the EKW Management Committee was prepared to: inform them of the process and progress; provide them with access to a valuable knowledge-base to support implementation; give evidence that stakeholders in the wetlands are working together constructively to solve problems; ensure ongoing support and raised awareness concerning the potential of participatory planning approaches for future development work in the wetlands.

Activities to accomplish Output 6:

Institutionalising participatory action planning among key stakeholder groups constituted an important activity for the second phase of the project. The project team supported this process through continuing a constructive dialogue with primary and key stakeholder groups and their representatives. Consequently several stakeholder groups were actively involved in the preliminary implementation of development actions focused on 3 potential pilot-scale activities and were increasingly taking a lead in coordinating and facilitating preliminary development actions. Following STEPS workshops focusing on the pilot-scale activities the project team undertook to work with primary and key stakeholders to prepare a report for submission to the EKW Management Committee (Annex B-b1); thus, providing secondary and tertiary stakeholders with knowledge concerning the outcomes of pilot-interventions to reinforce positive perceptions and confirm that members from different communities in the wetlands are working together constructively to solve problems. Furthermore, through ongoing dialogue and representation to the EKW Management Committee it is anticipated that this body will make a commitment to adopt participatory planning approaches in the future. Committee members including IESWM, WBPCB and DoE Principal Secretary's Office have endorsed and support the use of participatory action planning in the future (Annex B-b1). The value the Department of Environment, Government of West Bengal associates with outcomes of the current project was also highlighted in a Statement Of Work developed by USAID in consultation with the West Bengal State government which stated that future work in the wetlands should build on the results of the current project. A recent writ submitted to the High Court by DoE also cites the outcomes of the current project and highlights the need to institutionalise the participation of user groups and NGOs in future planning initiatives. Secondary stakeholders representing NR users in the wetlands also endorse the use of PAP and have expressed a willingness to engage in future participatory planning activities.

6 Environmental assessment

6.1 What significant environmental impacts resulted from the research activities (both positive and negative)?

The project worked with primary and key stakeholders living in an area recently designated a Ramsar site of international importance, however, the research activities did not result

directly in any affects on the environment or biodiversity.

6.2 What will be the potentially significant environmental impacts (both positive and negative) of widespread dissemination and application of research findings?

The water management action plan formulated through extended interaction with primary and key stakeholders during the project aims to enhance both the production systems and livelihoods of those dependent on access to PU NR based activities. Managed reuse of waste resources in this way makes a significant contribution to environmental protection, therefore, continuation and enhancement of these practices will contribute to ensuring negative impacts associated with unregulated waste disposal are limited. The feasibility of preliminary pilot action planning activities for implementation was assessed using the STEPS approach in which environmental considerations are made explicit. For each of the three pilot activities a number of environmental concerns associated with the planned activity were identified as requiring further assessment. Important factors included the possibility of disruption during rehabilitation work to sites exhibiting high biodiversity and the need to ensure localised environmental impacts were assessed prior to work commencing and appropriate mitigation measures taken.

6.3 Has there been evidence during the project's life of what is described in Section 6.2 and how were these impacts detected and monitored?

Outcomes of the STEPS analysis of the three proposed planning initiatives are presented in Annex B-b1. The report prepared for the EKW Management Committee contains an outline of how to conduct a STEPS workshop and expected outcomes to guide future use of this tool in PUI planning activities. New knowledge contained in the report of the possible environmental concerns associated with the pilot development activities provides a valuable resource for those undertaking implementation in the future.

6.4 What follow up action, if any, is recommended?

Support is being provided by the project team to DoE and ADB in integrating project findings, the planning approach and pilots into the EKW management plan being prepared as part of ADB [TA-3423-IND]. The report to the EKW Management Committee is also still in the process of being reviewed by some stakeholder groups that participated in the planning activity or could be affected by implementation.

7 Contribution of Outputs

7.1 NRSP Purpose and Production System Output

Project outcomes contribute towards the NRSP Purpose 'To deliver new knowledge that enables poor people who are largely dependent on the NR base to improve their livelihoods'. Institutions providing services to poor people in the EKW including IESWM, WBSPCB and DoE participated in the planning process and have indicated that they will use the outcomes of this process in the future. Employers of the poor, notably members of the Fish Producers Association also participated throughout the planning, showing a commitment to the process, its principles and outcomes. The project team have also provided knowledge to synthesis studies on CPR, PUI, PIP and communication strategies thus contributing to developing lessons from NRSPs research for the continued attainment of DFIDs objectives.

The project has contributed towards the PUI Production System Output of 'Natural resources management strategies for peri-urban areas which benefit the poor developed and promoted'. Several key stakeholders including government agencies (DoE, IESWM, DoF, ADB [TA

team]), CBOs (FPA, SWC and trade unions) and NGOs (CEMPD, PUBLIC), together with primary stakeholders (bheri workers, farm managers, agricultural and women labourers) regularly participated in the formulation of plans of action for enhanced water management in the EKW that have potential to benefit poor communities dependent both directly and indirectly on rice, fish and vegetable farming. Target institutions, notably the DoE are actively using outcomes from the current project in formulating proposals in conjunction with USAID and ADB to implement aspects of the water management action in PUI Kolkata.

7.2 Impact of outputs

The stated purpose of the project was to ‘Generate new knowledge of action planning to implement natural resources management strategies for the PUI of Kolkata, that benefit the poor, formulated through extended interaction with principal stakeholders’. The project has generated new knowledge of planning experience and requirements in the PUI context and has introduced established concepts to new users in the EKW, specifically. Progress in attaining OVIs at the purpose level is assessed below.

OVI 1. Stakeholders utilise action planning as a decision tool in the future for other equivalent areas in West Bengal or elsewhere around the world.

Based on progress against OVI 2 and OVI 3 (see below) it appears that several key stakeholders, notably state level government agencies and international development agencies value the outcomes of the participatory planning approach developed here. However, to date a commitment to utilise this approach in the future has only been made with regard to future planning and development for the EKW. It is anticipated that as new knowledge of the PUI planning process and its outcomes is communicated more widely and State level organisations build on their experience in the current project in other planning activities elsewhere, that the tools and approaches presented here will be used in the future for other equivalent areas in West Bengal, India or elsewhere around the world. The modifications from horizontal planning processes such as PAPD are applicable in PUI and other complex settings outside India and the approach can help identify development interventions that move beyond the natural resources sector e.g. consensual planning for health, transport or energy infrastructure initiatives that are intended to serve the poor (See Annex A, Section 2.2.5.).

OVI 2: Adaptation of action planning process by at least one development agency

Building on contacts and dialogue established during R7872 development oriented agencies (DFID-India, ADB, NGOs and CBOs) were made aware of the proposed project purpose, planned activities and objectives, and where appropriate invited to participate. Efforts were made to ensure development oriented agencies were included in the action planning process and that research findings and products were communicated to them effectively. Team members from ADB [TA-3432-IND] project working on a management plan for wetlands in West Bengal attended the multi-stakeholder workshops organised by the project. It was anticipated that their participation at these meetings would sensitise them to the demand for participatory planning from primary stakeholders, and contribute to appropriate participatory planning approaches being included as an important element in the management plan for wetlands at a state level. Support has also been sought by DoE and ADB from the project team to integrating project findings, the planning approach and pilots into the EKW management plan being prepared as part of ADB [TA-3423-IND].

The value the Department of Environment, Government of West Bengal associates with outcomes of the current project was also highlighted in a Statement Of Work developed by USAID in consultation with the West Bengal State government which stated that future work

in the wetlands should build on the results of the current project. A recent writ submitted to the High Court by DoE also cites the outcomes of the current project and highlights the need to institutionalise the participation of user groups and NGOs in future planning initiatives. Secondary stakeholders representing NR users in the wetlands also endorse the use of PAP and have expressed a willingness to engage in future participatory planning activities.

OVI 3: At least one action plan taken up by national government agency or internationally development agency when planning future of the PUI Kolkata and its communities.

Institutionalising participatory action planning among key stakeholder groups constituted an important project activity. The project team supported this process through continuing a constructive dialogue with both primary and key secondary and tertiary stakeholder groups. Consequently several groups were actively involved in the preliminary implementation of development actions focused on 3 potential pilot-scale activities derived from the EKW water management action plan, and were increasingly taking a lead in coordinating and facilitating preliminary development actions. Following STEPS workshops focusing on the pilot-scale activities the project team undertook to work with participants to prepare a report for submission to the EKW Management Committee (Annex B-b1); thus, providing key stakeholders with knowledge concerning the outcomes of pilot-interventions to reinforce positive perceptions and confirm that stakeholders with diverse interests in the wetlands are working together constructively to solve problems. Furthermore, through ongoing dialogue and representation to the EKW Management Committee it is anticipated that this body will make a commitment to adopt participatory planning approaches in the future. Committee members including IESWM, WBPCB and DoE Principal Secretary's Office have endorsed and support the use of participatory action planning in the future (Annex B-b1).

OVI 4: Greater livelihood opportunities and reduced vulnerability of poor people through involvement in the formulation and implementation of the action plan, pilot-scale interventions and institutionalising participatory action planning.

In the case of this peri-urban planning initiative for the EKW, both the context and objective were different from other cases where PAPD has been employed as a planning tool. Rather than operating horizontally to develop understanding and agreement between primary stakeholders, the intention here was to explore a planning process that can result in feasible pro-poor actions with government support and facilitation. This necessitated a mechanism to report back local level issues and suggestions to intermediaries such as farmer or fish pond-operator organisations and to government institutions. Contributions to planning by primary stakeholders were provided at distinct periods within the process but not continuously. The planning process was not conducted specifically to build consensus but to develop feasible pro-poor plans with the required backing and to test the suitability of the pilot process to Kolkata and other PUI settings. The project team acknowledge that the production of new knowledge regarding PUI planning had greater priority than the successful implementation of a process or resultant actions. The scale and complexity of the EKW production system provided special problems regarding proper representation and the identification of potential actions that can benefit the range of primary stakeholders simultaneously without significant negative impacts on other users or livelihood functions of the system (Annex A, Section 2). However, the intention of conducting the local planning workshops with STEPS was to cross-check the current impacts on different stakeholders and the potential effects of any proposed interventions. All the proposals for change featured solutions to existing livelihoods constraints (chemical pollution affecting agricultural production, water quality affecting aquaculture, including labourers and other employees, and water quantity and seasonal issues to all primary stakeholders). In this respect, compilation of these workshop events in the EKW water management action plan and preliminary development activities

report (Annex B-b1) has highlighted key NR and specifically water management issues faced by the range of stakeholders across the EKW system to the EKW Management Committee and others responsible for aspects of its management.

7.3 Uptake Promotion

The internal project communication strategy depended largely on the effective documentation and exchange of information from field workers and CEMPD and IESWM regarding their interaction with various stakeholder groups to the rest of the project team. Pro-formas developed for this purpose ensured that this element of communication was well structured, consistent and undertaken in a timely fashion. Other key elements of the internal communication strategy included: email and phone calls; process monitoring outputs; meeting and workshop reports; project management coordination meetings and visits. Internal reports e.g. Pickstock (2004), Lewins (2004), Quarterly reports, Milestones and spending forecasts, Annual reports, pre-MTR and pre-FTR reports and the PCSS and FTR report were used to facilitate internal communication regarding progress and findings between the project team and NRSP programme managers.

Key elements of the external communication strategy included: identification of short and long term communication aims; identifying communication stakeholders; assessment of existing knowledge, attitudes and practices; assessing communication objectives; identifying appropriate media and pathways; assigning responsibility for activities (Annex A). Participation of stakeholders at all stages of the research process was a central tenet of the local communication strategy aimed at raising awareness; facilitating stakeholder involvement in planning; promoting mutual understanding and benefits of working together. Target institutions were primary and key stakeholders (District and State level government agencies, NGOs, CBOs and development agencies) in PU Kolkata. Activities included informal meetings and problem census; 11 regional workshops; attendance at meetings organised by key stakeholder representatives; 3 workshops for key tertiary government and NGOs; a general stakeholder workshop; bilateral meetings with State level agencies; 3 STEPS workshops and subsequent follow-up; focus group discussions. In addition a series of project briefings, providing updates on action planning activities and the selection and implementation of pilot-scale development activities in the East Kolkata Wetlands was produced, these bulletins were given to participants and were made available on the website.

Project technical reports (Bunting et al., 2004; Annex B-b2 and Annex B-b3) were produced to help raise awareness of the process and findings and contribute towards the institutionalisation of participatory action planning; target institutions included state and national level government agencies, policy-makers and planners, researchers and development practitioners in West Bengal, India and globally. The project team also worked with participants to prepare a report for submission to the EKW Management Committee (Annex B-b1); thus, providing key stakeholders with knowledge concerning the outcomes of pilot-interventions to reinforce positive perceptions, confirming that stakeholders in the wetlands are working together constructively to solve problems and contributing towards institutionalisation of the process.

A paper by Kundu, Pal, Chaudhuri and Bunting (2004) entitled 'Evaluating participatory action plan development in formulating sustainable management strategies for peri-urban areas, with emphasis on the East Kolkata wetlands' was presented at the 7th Asian Fisheries Forum and resulted in very positive feedback, including an invitation to 4-5 project team members to participate in a regional workshop in Dhaka, Bangladesh during November 2005. This workshop was organised by DFID AFGRP with a focus on peri-urban aquatic food production and its role in sustaining and safeguarding poor livelihoods. An invited

presentation entitled 'East Kolkata Wetland - an experience for preparation of conservation plan' was delivered by Dr Kundu at the Asian Wetland Symposium 2005 which focused on 'Innovative Approaches to Sustainable Livelihood' (Kundu, Bunting, Pal, Saha and Halder, 2005). Dr Kundu also made a trip to the UK where he was able to meet and talk with other researchers based at Stirling working on aquatic peri-urban production systems, visit the WWT reserve at Welney and talk to senior WWT staff at Slimbridge to discuss the management and development of the trust and its reserves.

The project website attracted around 350 hits per week, and resulted in a number of enquires from India and elsewhere, including an invitation by IWIM-India to publish an article on the project in an edition of the journal *Urban Agriculture* focused on urban aquaculture. Subsequently, drawing on preliminary findings from the experience of participatory action planning in a peri-urban setting a paper entitled 'Planning for aquatic production in East Kolkata Wetlands' was published in *Urban Agriculture* (Kundu, Halder, Pal, Saha and Bunting, 2005). Another paper aimed at engineering, sanitation and water resources management professional entitled 'Wastewater aquaculture and livelihoods in peri-urban Kolkata' was published in *Waterlines* (Bunting, 2004a). A third paper entitled 'Household livelihoods in peri-urban Kolkata: constraints, opportunities and coping strategies' (Punch and Bunting, submitted) has been submitted to the journal *World Development* for review. During the course of the project a paper building on outputs from R7872 entitled 'Wastewater aquaculture: perpetuating vulnerability or opportunity to enhance poor livelihoods?' was published in the journal *Aquatic Resources, Culture and Development* (Bunting, 2004b). Recent research findings from work supported by NRSP in Kolkata also contributed to a datasheet on peri-urban issues for the forthcoming CAB International *Aquaculture Compendium*.

8 Publications and other communication materials

8.1 Books and book chapters

Bunting, SW., Kundu, N. and Mukherjee, M. 2005. *Peri-urban aquaculture and poor livelihoods in Kolkata, India*. CAB International 61-76pp.

Bunting SW., Little, DC. and Leschen, W. [Forthcoming.] *Urban Aquatic Production*. RUAf, The Netherlands.

Little, DC. and Bunting, SW. 2005. *Opportunities and constraints to urban aquaculture, with a focus on south and southeast Asia*. CAB International. 25-44pp.

8.2 Journal articles

8.2.1 Peer reviewed and published

Bunting, SW. 2004. *Wastewater aquaculture and poor livelihoods in peri-urban Kolkata*. *Waterlines*. 19-21pp.

Kundu, N., Halder, N., Pal, M., Saha, S. and Bunting, SW. 2005. *Planning for aquatic production in East Kolkata Wetlands*. *Urban Agriculture*. 24-26pp.

Leschen, W., Little, D., Bunting, SW. and van Veenhuizen, R. 2005. *Urban aquatic production*. *Urban Agriculture* 1-7pp.

8.2.2 Pending publication (in press)

Author or Authors, Initial. Date. Title. Institution. XXpp. (Page numbers)

8.2.3 Drafted

Punch, S. and Bunting, SW [Submitted]. *Household livelihoods dependent on the peri-urban East Kolkata Wetlands: opportunities, constraints and coping strategies*. *World Development*.

8.3 Institutional Report Series

Author or Authors, Initial. Year. Title. Publisher/Institution. XXpp. (Page numbers)

8.4 Symposium, conference and workshop papers and posters

Kundu, N., Bunting, S., Pal, M., Saha, S. and Halder, N. 2005. *East Kolkata Wetland: an experience for preparation of conservation plan.* Asian Wetlands Symposium 2005, Bhubaneswar and Chilka Lake, India. Ramsar Center Japan; Chilika Development Authority; Department of Forest and Environment, Government of Orissa; Ministry of Forest and Environment, India.

Kundu, N., Pal, M., Chaudhuri, SR, Bunting, S. 2004. *Evaluating participatory action plan development in formulating sustainable management strategies for peri-urban areas, with emphasis on the East Kolkata Wetlands.* 7th Asian Fisheries Forum, Penang, Malaysia. Publisher/Institution. 278p.

8.5 Newsletter articles

Author or Authors, Initial. Year. Title. Publisher/Institution. XXpp. (Page numbers)

8.6 Academic theses

Author or Authors, Initial. Year. Title. Publisher/Institution. XXpp. (Page numbers)

8.7 Extension leaflets, brochures, policy briefs and posters

Bunting, SW. 2004. *Briefing 1: Fact Sheet.* Stirling, UK: University of Stirling. 2pp.

Bunting, SW. 2005. *Briefing 2: Action Planning.* Stirling, UK: University of Stirling. 2pp.

Bunting, SW. 2005. *Briefing 3: STEPS and Preliminary Activities.* Stirling, UK: University of Stirling. 2pp.

8.8 Manuals and guidelines

Author or Authors, Initial. Year. Title. Publisher/Institution. XXpp. (Page numbers)

8.9 Media presentations (videos, web sites, TV, radio, interviews etc)

Author or Authors, Initial. Year. Title. Publisher/Institution. Format.

8.10 Reports and data records

8.10.1 Project technical reports including project internal workshop papers and proceedings

Bunting, SW., Kundu, N., Saha, S., Lewins, R. and Pal, M. 2005. *EKW Water Management Action Plan and Preliminary Development Activities. Report to be submitted to the EKW Management Committee.* Stirling, UK: Institute of Aquaculture and Kolkata, India: Institute of Environmental Studies and Wetland Management. 1-24pp.

Bunting, SW., Lewins, R., Pickstock, M. and Kundu, N. 2004. *Inception report: evaluating action planning for enhanced natural resources management in peri-urban Kolkata.* Stirling, UK: University of Stirling. 1-20pp.

Lewins, R. 2005a. *The PAP process - modifications of the PAPD approach.* Oxford 1-12pp.

Lewins, R. 2005b. *Process monitoring for PUI planning in the East Kolkata Wetlands.* Oxford 1-45pp.

8.10.2 Literature reviews

Author or Authors, Initial. Year. Title. Publisher/Institution. XXpp. (Page numbers)

8.10.3 Scoping studies

Author or Authors, Initial. Year. Title. Publisher/Institution. XXpp. (Page numbers)

8.10.4 Datasets

Author or Authors, Initial. Year. Title. Publisher/Institution. Format.

8.10.5 Project web site, and/or other project related web addresses

Bunting, SW., 2004. Evaluating action planning for enhanced natural resources management in peri-urban Kolkata. Stirling, UK: Institute of Aquaculture [project website: www.dfid.stir.ac.uk/dfid/nrsp/kolkata.htm]

9 References cited in the report, sections 1-7

Bunting, S.W., 2004a. Wastewater aquaculture and poor livelihoods in peri-urban Kolkata. *Waterlines* 23(1), 19-21. [R7872]

Bunting, S.W., 2004b. Wastewater aquaculture: perpetuating vulnerability or opportunity to enhance poor livelihoods? *Aquatic Resources, Culture and Development* 1, 51-75. [R8365]

Bunting, S.W., Kundu, N., Mukherjee, M. 2002. Situation analysis: production systems and natural resource

- management in PU Kolkata. Working Paper 4. DFID NRSP project R7872. Stirling, UK: Institute of Aquaculture [unpublished report]
- Bunting, S.W., Lewins, R., Pickstock, M. and Kundu, N. 2004. Inception report: evaluating action planning for enhanced natural resources management in peri-urban Kolkata. DFID NRSP project R8365. Stirling, UK: Institute of Aquaculture [unpublished report]
- Coupe, S. 2005. Consensus for a Holistic Approach to improve Rural-livelihoods in Riverine-islands of Bangladesh (CHAR). Final Technical Report Project R8103.
- Edwards, P. 2002. Institutional assessment: reviewing policies, process and stakeholder positions at the Kolkata peri-urban interface. Working Paper 3. DFID NRSP project R7872. Bangkok, Thailand: AIT [unpublished report]
- Kundu, N., Bunting, S., Pal, M., Saha, S., Halder, N., 2005. East Kolkata Wetland: an experience for preparation of conservation plan. Presentation at Asian Wetlands Symposium 2005, Bhubaneswar and Chilika Lake, India. Ramsar Center Japan; Chilika Development Authority; Department of Forest and Environment, Government of Orissa; Ministry of Forest and Environment, India. [R8365 output]
- Kundu, N., Halder, N., Pal, M., Saha, S. and Bunting, S.W. 2005. Planning for aquatic production in East Kolkata Wetlands. Urban Agriculture 14, 24-26. [R8365 output]
- Kundu, N., Pal, M., Chaudhuri, S.R, Bunting, S., 2004. Evaluating participatory action plan development in formulating sustainable management strategies for peri-urban areas, with emphasis on the East Kolkata Wetlands. Proceedings of the 7th Asian Fisheries Forum, Penang, Malaysia. [R8365 output]
- Lewins, R. 2004. Process monitoring. R8365 Working Paper [unpublished report]
- Pickstock, M. 2004. Communicating the results of DFID-NRSP supported project in peri-urban (PU) Kolkata to enhance natural resources management. R8365 Working Paper [unpublished report].
- Punch, S. and Bunting, S.W. (submitted). Household livelihoods dependent on the peri-urban East Kolkata Wetlands: opportunities, constraints and coping strategies. World Development. [R7872 & R8365 output]

10 Project logframe

Narrative summary	Objectively verifiable indicators	Means of verification	Important assumptions
Goal			
<p>Natural resources management strategies for peri-urban areas which benefit the poor developed and promoted</p>	<p>By March 2005, in 2 target city regions, programme generated strategies and new pro-poor approaches incorporated into the management approaches of at least two target institutions</p> <p>By March 2004, in at least one other city-region, key stakeholders (including at least two target institutions) regularly participating in the formulation of plans of action for at least two aspects of natural resource management for the PUI that will benefit the poor</p> <p>By March 2005, in at least one other city-region, at least two target institutions make approaches to donors to fund pilot projects for at least two aspects of natural resource management for the PUI that will benefit the poor</p>	<p>Reviews by programme manager</p> <p>Reports of research team and collaborating /target institutes</p> <p>Appropriate dissemination products</p> <p>Local, national and international statistical data</p> <p>Data collected and collated by programme manager</p>	<p>Target beneficiaries adopt and use strategies and practices</p> <p>Enabling environment exists</p> <p>Budgets and programmes of target institutions are sufficient and well managed</p>
Purpose			
<p>Generate new knowledge of action planning to implement natural resources management strategies for the PUI of Kolkata, that benefit the poor, formulated through extended interaction with principal stakeholders</p>	<p>Stakeholders utilise action planning as a decision tool in the future for other equivalent areas in West Bengal or elsewhere around the world.</p> <p>Adaptation of action planning process by at least one development agency</p> <p>At least one action plan taken up by national government agency or internationally development agency when planning future of the PUI Kolkata and its communities.</p> <p>Greater livelihood opportunities and reduced vulnerability of poor people through involvement in the formulation and implementation of the action plan, pilot-scale interventions and institutionalising participatory action planning.</p>	<p>Feedback reports from participants.</p> <p>NRSP guidelines on action planning</p> <p>Concept notes of subsequent development programmes</p> <p>Pilot projects based on action plans supported by external development agency</p>	<p>Continued public acceptance of products from PS exploiting waste resources</p>

Outputs			
<p>1. Process enabling action planning for NRM in the complex social and administrative context of a PUI better understood.</p> <p>2. Pro-poor action plans for three primary stakeholder groups dependent on NR management in the Kolkata PUI further developed.</p> <p>3. Internal, local, national and international awareness of improved action planning process increased.</p> <p>5. Pilot-scale interventions for two priority action points relating to NR management tested by stakeholders</p> <p>6. Principal stakeholders supported in institutionalising participatory action planning in decision-making structures and processes relating to the PUI</p>	<p>Process monitoring of action planning and pilot-scale interventions, demonstrating improved knowledge of participants and project staff (month 18)</p> <p>Principal stakeholders involved in action planning concerned with an aspects of NR management with potential to enhance poor livelihoods for three stakeholder groups (months 11)</p> <p>At least two non-participating development oriented agencies aware of process monitoring and action planning for PUI. (month 10)</p> <p>Principal stakeholders in at least two of the 11 regions actively participate in concerted activities to achieve one or more of the priorities identified in the action planning phase (month 18)</p> <p>At least two principal stakeholder groups adopt participatory action planning approaches for use in future decision-making and planning related to PUI NR management (month 19)</p>	<p>Process monitoring reports</p> <p>Three Action Plans Project meeting reports</p> <p>Process monitoring reports Dissemination materials</p> <p>Donor meeting reports MoU between wetlands community and development agency Process monitoring reports Local media coverage Reports from user group meetings Reports from meetings with principal stakeholder groups Minutes from apex committee meetings</p>	<p>Participatory approaches to decision-making and action planning will be acceptable to target beneficiaries and principal stakeholders</p> <p>Development oriented agencies interested in supporting PU NR management to enhance poor livelihoods developed through participatory action planning</p>
Activities	Budget and milestones		
<p>1.1 Research team finalised, MOUs signed and work plans agreed</p> <p>1.2 Training provided for inexperienced project partners in action planning and participatory decision-making methods, including facilitation, process monitoring and reporting</p> <p>1.3 Process monitoring reported regularly by all project staff and assessed by managers</p> <p>1.4 Lessons from process monitoring of participatory and collective action planning assessed & documented</p>	<p>MS 1.a Signed MOUs between UOS and partners, containing outline work plans (month 2)</p> <p>MS 1.b Training materials (month 2)</p> <p>MS 1.c Field staff diaries and monthly management assessments (from month 3 to month 18)</p> <p>MS 1.d Lessons learned with participatory and collective decision making approaches employed assessed and report (month 18)</p>		
<p>2.1 Initial discussions and agreement with stakeholders about the action planning process and topics. (what support materials required?)</p> <p>2.2 Action planning relating to NR management and access in PU Kolkata initiated (see Annex 1).</p>	<p>MS 2.a Agreed list of topics (month 3) and support materials produced: Bengali leaflet, street play (month 3).</p> <p>MS 2.b Field staff diaries and monthly management assessments (from month 3 to month 13)</p>		
<p>3.1. Define internal communication strategy (for staff and stakeholders)</p> <p>3.2. Formulate external communication strategy (with specialists, staff and stakeholders)</p> <p>3.3. Appropriate communication media produced to raise awareness of project objectives, approach, research findings (process) and products (action plans)</p>	<p>MS 3.a Internal project communication strategy (month 2)</p> <p>MS 3.b Project website and electronic discussion list (month 2)</p> <p>MS 3.c External project communication strategy and workshop proceedings(month 4)</p> <p>MS 3.d Based on communication strategy developed in MS 3.a-c appropriate media produced (e.g. Bengali leaflet, newspaper</p>		

3.4. Target groups benefit from new knowledge on participatory action planning with poor PU communities and rural and urban government agencies	article, radio & television broadcast) (month 5-19) MS 3.e Appropriate communication products for target groups engaged in action planning and PU NR or wetland management	
4.1. Building on contacts and dialogue established during R7872 development oriented agencies made aware of project activities and objectives and invited to participate 4.2. Ensure development oriented agencies are informed at all steps of project and that research findings and products are communicated in a timely fashion 4.3. Building on extended interaction with development agencies agree schedule to implement action plans	MS 4.a Promotional materials suitable for development agencies produced (month 3 to 14). Record of those who participate (month 5) MS 4.b Project records of materials produced and promoted (month 3 to 19) MS 4.c Report on participation of, and meetings with development agencies and outline agreement on schedule for implementation (month 19)	
5.1. Based on the priorities outlined in the action plans identify aspects of NR management in PUI Kolkata that could be addresses in at least two of the 11 wetland regions as pilot-scale interventions 5.2. Support principal stakeholders in implementing pilot-scale interventions and help facilitate negotiations between groups 5.3. Document and record the process surrounding the pilot-scale activity and raise awareness surrounding the intervention and associated outcomes among the broader wetland community and principal stakeholders	MS 5.a Meetings with principal stakeholders held and agreement achieved with principal stakeholder regarding which pilot-interventions to test (month 14) MS 5.b. Pilot-scale interventions established and principal stakeholders actively involved in the process (month 16) MS 5.c. Process monitoring reporting completed and analysed, and appropriate communication mechanisms used to raise awareness generally (month 17)	
6.1. Continue dialogue established with principal stakeholder groups during action planning phase 6.2. Provide principal stakeholders with knowledge concerning the outcomes of pilot-interventions to reinforce positive perceptions 6.3. Building on the participation of principal stakeholder groups in the action planning process negotiate a commitment by at least two groups to adopt participatory action planning in the future	MS 6.a Preliminary meetings held with principal stakeholders held and they continue to engage in a constructive dialogue (month 14-19) MS 6.b. Appropriate communication media produced and pathways used to inform principal stakeholders (month 14-19) MS 6.c. Meetings and media used to exchange knowledge on participatory action planning and principal stakeholders agree to use such approaches in the future (month 18)	Budget: £89,000
Pre-condition		

11 Keywords

participatory action planning; process monitoring; peri-urban; poor livelihoods; wastewater reuse; aquaculture, horticulture and agriculture; West Bengal, India