



**Community-Based Fish Culture in
Irrigation Systems and Seasonal Floodplains**

Project Inception Report

June 2005

**Challenge Program on Water and Food
Project Number 35**

April 2005 – March 2010

Executive Summary

This is an Inception Report for the research project entitled *Community-Based Fish Culture in Irrigation Systems and Seasonal Floodplains* (CPWF PN – 35) with approved funding for US\$1,697,910, and five-year duration from April 2005 to March 2010.

This report represents one of the accomplishments of the project since it was started in April 1, 2005. It also identifies the major activities to be undertaken in the next five years and presents them in three sections. The first part covers the basic action research framework of the project and includes the *significance* of the undertaking, its *goals and objectives*, the *relevance* to the CPWF program, and the expected outputs of the project. The second part presents the *operational* and *implementation* aspects of the project. It describes in detail the three-phase cycle of the project, starting with the inception phase where all the relevant resources and plans are made available for the project to succeed. The report ends with a brief presentation on how the project intends to make its impact sustainable.

The Research Project

This Project is an interdisciplinary action research with an overall aim of enhancing water productivity to improve and sustain the livelihoods of the poor. It is a collaborative undertaking among three CGIAR Centers and six lead NARES institutions. The main activities of the project are to be conducted in seasonal floodplain and irrigation areas of three CPWF benchmark river basins (Indus-Ganges, Mekong and Yellow River Basins) and one non-benchmark basin of Niger, with the option of expanding the activities into the Senegal (Mali) and Yantze (China) basins in the later part of the project.

Significance, Goals and Objectives, Outputs and Benefits

The underlying assumption of the project is that seasonal waterbodies (over flooded crop fields) and canals/reservoirs in irrigation schemes can be communally managed by stakeholders under equitable and sustainable sharing arrangements. Recent on-farm demonstrations in Vietnam and Bangladesh have confirmed the feasibility of this approach.

The project will provide:

- User-verified technical options for integrating fish and other living aquatic resources into irrigation systems and seasonal floodplains.
- Demonstrated and locally rooted institutional options for sharing benefits of integrating fish and other living aquatic resources into irrigation systems and seasonal floodplains.
- A validated participatory diagnostic and stakeholder-involving diffusion approach for community-based fish culture in shared water bodies.
- Improved capacity of NARES for supporting community based fish culture in shared water bodies.

The approach would help mitigate the declining volume of inland capture fisheries production and subsequent increases in fish prices, which renders them less affordable and less accessible to the poor.

In Bangladesh alone, for example, there are 3 million *ha* of medium and deep flooded areas, of which about 1.5 million *ha* are suitable for community-based fish culture. Even

if this approach is adopted only in half of that area, annual fish production would increase by 450,000 *t* (in addition to the current 60,000 *t* of wild fish catch) with estimated value of US\$340 million and would benefit an estimated 6.7 million people (2.7 million of which are either landless or functionally landless). Similar opportunities are seen for floodplain and deltaic systems in other countries in Asia and Africa.

Project Implementation – Three-Phase Cycle

The project has been approved for implementation for five years – with a three-phase project cycle. The first phase has three months duration, commencing on April 1, 2005 until June 30, 2005. The second-phase will be completed on March 30, 2008, and on March 30, 2010 for the third phase.

The *Phase One* of the project – or the project inception phase, started on April 1, 2005 and ended on June 30, 2005. Within this period the project undertook a series of project start-up activities to prepare for the implementation phases in the field and produced several operational and financial plans, including the following;

- Conducted a Project Inception Workshop
- Completed the Project Implementation Plans (Five-Year Work plan; Five-Year Milestone Plan; Financial Plan – Final Budget and Schedule of Payments; Intellectual Asset Audit)
- Organized the partner CGIAR Centers and NARES Institutions
- Drafted Memoranda of Agreement between/among partners
- Established a Project Secretariat at the WorldFish Center headquarters

Work and Milestone Plans: Activities and Time-Table

One of the most comprehensive project document produced during the inception workshop was the Project Work Plan. Corresponding to each major project activity, milestones or activity outputs were also incorporated in the plan, including time-table and roles of responsible agency or team.

The Work Plan for the project presents the specific activities and time schedules of each – it also presents and describes the methodology employed in the project as each activity relates and complements each other.

The following are the major planned activities of the project.

Activity	Milestone	Lead Institution(s)
1 Development of methodology for measuring water productivity at the landscape level	literature review; a methodology for measuring water productivity	The WorldFish Center, IFPRI and NARES
2 Assessment of the current and potential contribution of aquatic resources	case analyses, report on the contribution of fisheries to water productivity	The WorldFish Center, IFPRI and NARES
3 Development of participatory diagnostic and stakeholder-involving diffusion approach for community based fish culture in shared water bodies.	framework for participatory diffusion approach	IFPRI, The WorldFish Center, and NARES

4 Design of technical options for integrating living aquatic resources in irrigation systems and seasonal floodplains.	Site-specific technical design of fish culture	The WorldFish Center and NARES
5 Design of institutional options for integrating living aquatic resources in irrigation systems and seasonal floodplains.	Site-specific institutional arrangements	IFPRI, The WorldFish Center, and NARE
6 Implementation of identified technical and institutional options in selected sites.	Community-based fish culture trials	The WorldFish Center, IFPRI, NARES, and WARDA
7 Capacity building of NARES for supporting community based fish culture in shared water bodies	Graduate students produced	The WorldFish Center, IFPRI, WARDA and NARES

Final Budget and Fund Releases

The entire project requires a total of US\$1,992,910 to implement. The CPWF is to fund around 85% of it (or US\$1,697,910) while the GCIAR Centers and NARES partners are contributing the other 15% (*in kind*, US\$295,000 equivalent). The NARES partners would get from CPWF (through WorldFish Center) a total of US\$653,878¹ (39%) for their operations.

Allocation of CPWF funds are as follows:

<i>Bangladesh, India, Vietnam</i>	US\$ 117,698
<i>Cambodia, Mali, China</i>	US\$ 85,004
<i>IFPRI</i>	US\$ 132,054
<i>WARDA</i>	US\$ 42,946

The schedule of fund releases to each partner institution is based on individual funding allocation reflected in the *Sources and Uses of Funds* tables and subject to submission of reports.

The WorldFish Center has received from CPWF the amount of US\$61,077 for *Phase One* operation of the project, and expects to receive US\$91,916 at the start of *Phase Two*. The other partner institutions are to receive the first payments at the start of the *Phase Two*, after accomplishing the inter-agency MOAs. Succeeding releases are subject to submission and acceptance of relevant reports (e.g. Progress Reports, Annual Reports, Milestone Reports).

Global Public Goods

The results and outputs of CPWF funded projects are considered *global public goods* and should be made available to anybody who wants to use them. As such, each project is required to submit an audit – or a list of third party intellectual property (IP) that would be utilized in conducting the research that could possibly impact the CPWF's

¹ 7% of this amount would be withheld by WorldFish Center for re-allocation later in the Project.

ability to make the research results freely available globally or affect its ability to seek IP protection for some aspects of the research results.

During the workshop, however, the participants have determined and signified that no private property, tangible or not, would be used in the project that would infringe on intellectual property rights of owners. They further signify that any output of the project would be made global public good.

Sustainability of the Project

The impacts and benefits of the project go beyond the project sites. The development and adoption of the *research-based* technology from this project ensures the *sustainability* of the project beyond the *phases* of project cycle.

Application of the Technology

The potential areas for the application of community-based fish culture approach in floodplains and irrigation systems are considerable. In the Mekong river basin there are around 0.8 million *ha* of medium and deep-flooded areas. There are 1.5 million *ha* in Bangladesh; and in other basins in Asia are Myanmar (1.2 million *ha*), Thailand (0.7 million *ha*), and the Red river delta in Vietnam (0.1 million *ha*). In China, the Yellow river basin area has a total of 7.33 million *ha* of irrigated lands with at least 1.3 million *ha* suitable for community-based fish culture. In Africa, the potential is greatest in presently used deepwater rice areas in Nigeria (726,000 *ha*), Guinea (240,000 *ha*), Sierra Leone (68,000 *ha*) and Cote d'Ivoire (42,000 *ha*).

Technology Development

Towards the end of the project, an international workshop will be held to review project achievements and to outline the strategy to ensure continuity of dissemination activities beyond the present project. The workshop will recommend sustainable approaches to ensure the continuity of the community-based fish production programs initiated in the context of the present project.

Dissemination Strategy

The multi-partner cooperation of this project with national research institutions, extension departments, financial institutions, universities and national and international NGOs will ensure wider familiarity and implementation experience with the approach. These institutions also have their own linkages and networks and subsequently implement and disseminate new technologies to farmers as part of their operations. Field days will be conducted at the key project sites to inform farmers about the recommended technical and institutional options. Furthermore, publications will be prepared in descriptive and locally accessible language, to enable wider local dissemination.

For the first time, the project will introduce the approach to Africa, where the floodplains and irrigation systems are regarded to have highest potential for adoption and most convincing demonstration effect. The project will first be implemented in Mali in the inner Niger delta. The Mali experiences will then be disseminated to other West African areas like the Senegal irrigation system.

Abbreviations and Acronyms

BARC	-	Bangladesh Agricultural Research Council
CIFA	-	Central Institute of Freshwater Aquaculture
CIFRI	-	Central Inland Fisheries Research Institute
CGIAR	-	Consultative Group on International Agricultural Research
CPWF	-	Challenge Program for Water and Food
ICAR	-	Indian Council of Agricultural Research
FFRC	-	Freshwater Fisheries Research Center
IFPRI	-	International Food Policy Research Institute
IVC	-	Inland Valley Consortium
NARES	-	National Agricultural Research and Extension System
WARDA	-	West Africa Rice Development Association

Community-Based Fish Culture in Irrigation Systems and Seasonal Floodplains

Project Inception Report

This Inception Report is for the research project entitled *Community-Based Fish Culture in Irrigation Systems and Seasonal Floodplains* and presents the entire picture of the project – from inception to implementation, and its sustainability beyond the project life cycle.

The report is presented in three parts: 1) *Introduction – The Research Project*, 2) *Project Implementation*; and 3) *Sustainability of the Project*. The first part covers the basic research framework of the project and includes the *significance* of the undertaking, its *goals and objectives*, the *relevance* to the CPWF program, and the expected outputs of the project. The second part presents the *operational* and *implementation* aspects of the project. It describes in detail the three-phase cycle of the project, starting with the inception phase of the project where all the relevant resources and plans are made available for the project to succeed. The report ends with a brief presentation on how the project intends to make its impact sustainable.

I. Introduction – The Research Project

This Inception Report is for the research project entitled Community-Based Fish Culture in Irrigation Systems and Seasonal Floodplains, being implemented by The WorldFish Center in collaboration with two other CGIAR Centers and six NARES institutions with major funding support from the CGIAR's Challenge Program on Water and Food (CPWF) and matching contributions from partner institutions.

The Project is a five-year interdisciplinary action research with an overall aim of enhancing water productivity to improve and sustain the livelihoods of the poor. Its main activities are to be conducted in six developing countries in seasonal floodplain and irrigation areas of three CPWF benchmark river basins (Indus-Ganges, Mekong and Yellow River Basins) and one non-benchmark basin of Niger, with the option of expanding the activities into the Senegal (Mali) and Yantze (China) basins in the later part of the project.

Significance of the Project

Water scarcity and productivity

The past decade has seen the growing recognition of the crisis facing the world's water resources and thus the need for concerted effort to use them more efficiently. It is well understood that the efficiency of water use, or *water productivity*, can be increased by either producing more output per unit of water used or by reducing water losses – or by the combination of both.

However, strategies (developed and applied so far) for increasing output have been limited to agricultural crop cultivation and have not fully taken advantage of increased

water productivity by integrating fish and other living aquatic resources into the existing water use systems. Such opportunities of integration include community-based fish culture in irrigation schemes and seasonal floodplains.

Fish and water productivity

At present, there is no existing comprehensive assessment of the value of fisheries in irrigation systems. Fish have been harvested in the reservoirs and canals of irrigation systems for at least two millennia and a variety of studies have shown that these would continue to yield substantial fish harvests. These are important sources of protein and livelihoods for the poor and landless households, yet the current use of irrigation systems and floodplains for fish production falls far short of potential. In seasonal floodplains, fish production essentially emanates from the *capture* activities by seasonal or part-time fisher-farmers of wild fish species that enter, grow and reproduce in the flooded fields. But in Cambodian floodplains, the value of fish caught through trap ponds within rice fields can reach as much as 37– 42% of the value of rice production.

A number of studies were conducted in the 1980s to test the technical feasibility of culturing fish in seasonally flooded rice fields (B. Roy *et al.* 1990; Das *et al.* 1990; Mukhopadhyay *et al.* 1991, Ali *et al.* 1993; Rothuis *et al.* 1998a; Rothuis *et al.* 1998b; and Ali *et al.* 1998). These studies also show that fish production can be increased by more than 1 *mt/ha/yr* by stocking flooded ricefields with fish (*i.e.*, individual farmers fencing their plots and stocking fish during the flood season). In addition, the culture of fish within ricefields can increase rice yields, especially on poorer soils and in unfertilized crops where the fertilizing effect of fish is greatest. Savings on pesticides and earnings from fish sales can lead to increased yields and result in net incomes that are 65% higher than for rice monoculture alone. In spite these potential benefits, the adoption of this technology by farmers has been very low, mainly due to the high cost of fencing individual plots.

Community involvement

Recently, the WorldFish Center established a new approach in Bangladesh and Vietnam, where fish is *cultured communally* during the flood season, but the same land is *cultivated individually* to rice during the dry season.

The results of initial trials show 10% lower cost of rice production and net returns from fish production of US\$220-400 per *ha*. Significantly, these benefits were obtained with no reduction in the *wild fish* catch. The returns from fish culture were distributed among the group members according to *pre-negotiated* sharing arrangement at the beginning of the season. The share of the landless members can be significant due to limited income generating opportunity.

Research-based knowledge

There are many options for enhancing food production from fish in managed aquatic systems. The most appropriate technology will vary from country to country and site to site. Additionally, the social and economic conditions under which these technologies can be implemented need to be understood. Although recent studies in Vietnam and Bangladesh demonstrated the feasibility of the *community-based* fish culture systems, much more work is needed to understand the social and economic viability of these approaches under different socio-cultural and institutional environments, and to design appropriate institutional arrangements for different social settings. Similarly, the governance arrangements for fish culture in irrigation systems (canals, fields, reservoirs)

also require detailed analyses if the full social value of these resources is to be harnessed.

At the ecosystem or basin level, water provides a wide range of goods and services, all of which need to be considered in broader analyses of the value obtained from water. Most of the previous studies of water productivity have concentrated on measuring the value of crop production only and excluded the existing and potential contributions of living aquatic resources. There is, therefore, a need not only to increase water productivity, but also to improve the methodologies for measuring water productivity.

The current *research project* intends to do just that and to contribute to the development of *research-based technologies* that can leave a dent in the fight against widespread poverty.

Goals and Objectives

The general goals of the project are to increase water productivity, to reduce poverty, generate employment and increase income of all classes of rural society in floodplain and irrigation areas (including disadvantaged groups such as women and landless population).

In the context of the CPWF, the project will contribute to achieving the following outputs of the *Themes* and *Benchmark Basins*:

Theme 1: Crop Water Productivity Improvement

- interventions that enhance farmers' livelihood and water productivity at field levels;
- institutional arrangements that encourage farmers to adopt water productivity enhancing technologies;

Theme 3: Aquatic Ecosystems and Fisheries

- assessment of current and potential contribution of aquatic resources to water productivity in different farming systems, notably irrigated and flood-prone systems;
- quantification of the benefits that can be obtained by integrating fish production and harvest of other aquatic animals and plants into farming systems;
- improved technologies for integrating aquaculture and fisheries into different farming systems.

Theme 4: Integrated Basin Water Management Systems

- improved data and information for local, regional and global use;
- capacity built to manage basin water resources sustainably.

Theme 5: The Global and National Food and Water System

- publication of state-of-the-art research methodologies, research reports, journal articles, books, policy briefs, and media briefings that evaluate and explain policies, institutions, and the dynamics of change in the global and national food and water systems.

Mekong River Basin and Yellow River Basin:

- Varieties with superior abiotic stress tolerance and improved water productivity;
- Technologies and interventions developed to enhance water productivity at field and agro-ecosystem level;
- Assessment of the impacts of hydrological change on the ecological functions and environmental water requirements of different aquatic ecosystems;
- Improved understanding of issues of scale, upstream-downstream interactions and basin governance requirements.

Indo-Gangetic Basin:

- Technologies and interventions developed to enhance water productivity at field and agro-ecosystem level;
- Institutional arrangements that encourage farmers to adopt water-productivity enhancing technologies;
- Governance systems, policies and institutions, that foster equitable and sustainable management of aquatic ecosystems and their resources;
- Assessments and valuations of the goods and services provided by aquatic ecosystems, and costs of ecosystem degradation;
- Assessment of the impacts of hydrological change on the ecological functions and environmental water requirements of different aquatic ecosystems;
- Tools, improved data and information for addressing basin management issues.

Estimated coverage of themes:

Theme 1: Crop Water Productivity Improvement	10%
Theme 2: Multiple Use of Upper Catchments	0%
Theme 3: Aquatic Ecosystems and Fisheries	60%
Theme 4: Integrated Basin Water Management Systems	20%
Theme 5: The Global and National Food and Water System	10%

Specific objectives

The project has four specific objectives; each benefits one or more target groups:

1. To develop a methodology for measuring water productivity at the landscape level and to assess the contribution of aquatic resources to water productivity in irrigation systems and floodplains.
2. To develop appropriate technical and institutional options for increasing water productivity at basin level through integration of community-based fish production into existing floodplain and irrigation systems.
3. To develop a participatory diagnostic and stakeholder-involving diffusion approach for community-based fish culture in shared water bodies.

4. To enhance human resource capacity of NARES for supporting community based fish culture in shared water bodies

Project Outputs

In the *project sites*, seasonal multi-month floodwaters are mostly unutilized for agricultural production, with the exception of deepwater rice culture. This practice, however, is diminishing in attractiveness to farmers due to comparatively low productivity and returns. During this time, the area becomes an open access resource, from which the landless derive essential benefits. This project will implement and test on a wider scale *community-based* arrangements for the *profitable, equitable and sustainable* management of *low-input* aquaculture technology involving relevant stakeholders, *i.e.*, landowners, landless and traditional seasonal fishers.

The project will have three (3) principal outputs, corresponding to the four (4) objectives:

1. Methodology for measuring water productivity at the landscape level, and knowledge on the values of the contribution of aquatic resources to water productivity in irrigation systems and seasonal floodplains.
2. Technical and institutional options for integrating fish and other living aquatic resources into irrigation systems and seasonal floodplains.
3. Improved capacity of NARES for supporting community based fish culture in shared water bodies.

The project will sponsor at least six (6) PhDs students recruited from participating NARES partners and precipitate several associated Masteral level studies. Based on existing information, brochures will be produced in local languages for decision makers of local and community based organizations. These would be used to obtain basic information required to successfully establish and operate fish culture groups, together with necessary guidelines on technical and institutional aspects of implementation. From previous experience, a *spill-over* effect based on spontaneous local adoption is anticipated. This process will be monitored and analyzed in order to understand the specific criteria for the attractiveness of the *research-based* technology and institutional arrangements to floodplain population.

Impacts and Benefits

Short-term impacts and direct benefits.

Inland fisheries are an important resource to the rural poor - affecting their income, nutrition and food security. But they are also the most threatened globally registering a constantly declining production trend in the last decade; consequently fish prices are constantly increasing and less accessible to the poor!

This project, however, may be able to duplicate and improve on the previous works in Bangladesh and Vietnam where fish production from fenced floodplain areas increased by two to ten times compared to the natural catch. Harvests were in bulk and traded directly in the market place, thus producing cash returns that were shared among group members, including the landless. Cash income (relative base income) increased for all participating group members, more notably for the landless. We expect similar levels of benefits from group-based fish culture approaches in irrigation systems.

At the same time, the capture of *wild* small indigenous species with traditional fishing methods within the area remained unaffected by the culture method, and thereby ensured the supply of protein and income from this source.

Longer-term benefits

In the longer term, the project aims at providing the rural populations in the floodplain areas and irrigation systems of the targeted basins with an equitable source of additional income and supply of fish, both from natural fish production, as well as from stocked culture species. This will directly benefit the members of the communities involved, and also indirectly benefit fish consumers outside the culture areas due to increased supply in the market, and the positive effect on inland fisheries production. Revenues from fish production can also be used in the maintenance and improvement of the irrigation systems.

Project Beneficiaries

Several groups will directly benefit from this project:

- Farmers and fishers at the study sites in India, Bangladesh, Cambodia, Vietnam Mali and China
 - Increased income from culture of fish; contribution of labor and use of land; continued access to flooded area for fishing even during the culture period; higher fish consumption; enhanced social capital through harmonious group operations; enhanced human capital through training.
- District and provincial resource management and extension personnel
 - Added portfolio of technical options and proven cases to support the approach and assist in implementation; data on relative benefit compared with other technical options.
- Policymakers at regional/national levels
 - Awareness of the value of floodplains for livelihoods, institutional and technical options to increase incomes from these areas.
- NARES scientists and extension service staff
 - increased knowledge of feasible systems and identified opportunities for further research towards understanding, adaptation, sustainability and improvement under local conditions; options for utilization of other local fish species with market demand and the timely availability of fingerlings in adequate amounts, sizes and quality.
- NGOs
 - Confidence from experiences in facilitating institutional arrangements and disseminating community-based technologies.
- People living outside of the study area
 - Increased supply of fresh fish in local markets, thereby reducing the price; higher consumption.
- International researchers and members of the development community

understanding of viable and sustainable institutional arrangements; knowledge on comparative performance, suitability and adaptability of the approach to local situations; opportunities for further improvement of production.

II. Three-Phase Cycle – Project Implementation

The current research project was officially approved for CPWF funding in February 2005, with the signing Project Agreement Letter between the CPWF Steering Committee and The WorldFish Center. The project begins in April 2005 and ends in March 2010, with a maximum funding of US\$1,697,910.

The project has been approved for implementation for five years – with a three-phase project cycle. The first phase has three months duration, commencing on April 1, 2005 until June 30, 2005. The second-phase will be completed on March 30, 2008, and on March 30, 2010 for the third phase.

A. Phase One – the Project Inception Phase

It is during *Phase One* that partnerships among participating institutions and researchers are further established; the methodology critically examined; expertise within the partnership team re-evaluated; and project operational and financial plans drawn up.

The *Phase One* of the project – or the project inception phase, started on April 1, 2005 and ended on June 30, 2005. Within this period the project undertook a series of project start-up activities to prepare for the implementation phases in the field and produced several operational and financial plans, including the following;

- Conducted a Project Inception Workshop
 - A four-day activity that brought together the different proponents and partners to a series of workshop activities for the preparation of various project plans.
- Completed the Project Implementation Plans
 - The project operational and financial plans were updated and finalized during the first phase of the project.
 - A Project Inception Report submitted to the CPWF at the end of *Phase One* incorporates the final operational and financial plans for the project in the following annexes:
 - Five-Year Work plan
 - Five-Year Milestone Plan
 - Final Budget – Financial Plan
 - Intellectual Asset Audit

In addition, the project has:

- Organized the partner CGIAR Centers and NARES Institutions
- Drafted Memoranda of Agreement between/among partners

- Established a Project Secretariat at the WorldFish Center headquarters

Project Inception Workshop

As part of project development and planning, the project conducted a Project Inception Workshop to draw up a *roadmap* document that would guide the researchers and proponents in the implementation of the project. The workshop was held at The WorldFish Center on 7-10 June 2005 and participated in by most of the lead CGIAR Centers and NARES Institutions.

(Please refer to Annex 1 – Project Inception Workshop, for the detailed program of activities conducted and outputs/documents produced during the workshop)

The workshop activities were a balance of lectures and seminars, and planning activities. During this workshop, the participants had the opportunity of meeting up with each other and finalize their roles and participation with the different project activities. They also agreed on the methodology to be used in the project and outlined a project work plan (and corresponding milestone for each activity) for implementation in each of the selected project sites.

B. Phases Two and Three - Project Implementation

Although the operational and financial plans for the projects were finalized during *Phase One*, their utility to the project are in the application and implementation phases. Progression from Phase One to *Phase Two* requires the submission of those documents. So that discussions concerning those plans are inevitable in the implementation phases of the project.

(*Phase Three* is relevant only to projects with more than three years time-frame, such as this project. These projects are required to undergo an external review and provide further set of documents as necessary. On the successful completion of the review and acceptance of the necessary documents, the projects can proceed to *Phase Three*)

Please note that subdividing the implementation phase into phases two and three is mainly a *management* mechanism for monitoring and evaluation – which are otherwise the same *implementation phases* of the project.)

1. Five-Year Work Plan: Methodology, Activities, and Time-Table

One of the most comprehensive project document produced during the inception workshop is the Project Work Plan. The Project Agreement Letter required only the submission of a *Two-Year Work Plan*, but the workshop participants (who are also the principal investigators and lead agency representatives) decided to complete the full Five-Year Work Plan document. Corresponding to each major project activity, milestones or activity outputs were also incorporated in the plan, including time-table and roles of responsible agency or team.

(Please refer to Annex 2 for detailed treatment of the project work activities presented in Gantt Charts. Please note that the *Milestones Plans* are also included in the form of Gantt Charts. This kind of presentation relates the milestone (output/input) to specific activity timeline, which would have been lost in other presentation formats. There is,

however, a separate table in Annex 3 that lists all these project milestones in chronological order.)

The Work Plan for the project presents the specific activities and time schedules of each – it also presents and describes the methodology employed in the project as each activity relates to and complements each other.

Activities and methodologies

In order to achieve its set objectives, the project would employ the methodologies described below and undertake the corresponding activities. It will be implemented in two countries (Bangladesh and India) in the Indus-Ganges basin, two countries (Cambodia and Vietnam) in the Mekong basin, one country (China) in the Yellow river basin, and one country (Mali) in the inner delta of the Niger basin. After successful initiation of the project activities in Mali and China, the project will explore the possibility of initiating activities in the irrigation systems of the Senegal and Yantze river basins.

(Please note again that the Work Plan in Annex 2, in Gantt Chart, graphically depict these project activities with corresponding time-table for each activity and specific *milestone* or accomplishment. The Chart also shows the responsible *team* for each activity and milestone. So that it does not only reflect the methodology employed in the project, it also monitors the progress of each activity – and the entire project.)

Activity 1 – Development of methodology for measuring water productivity at the landscape level

Lead Institute: The WorldFish Center, IFPRI and NARES

At the landscape level (such as in floodplains and irrigation systems) water provides a wide range of goods and services, all of which need to be considered in the broader analysis of the value obtained from water. However, most of the previous studies of water productivity have concentrated on measuring the value of crop production only and excluded the existing and potential contributions of living aquatic resources. Building upon the approaches of Bakker *et al.* (1999) and Meinzen-Dick (2001), this study will develop a holistic methodology of measuring the overall water productivity at the landscape level that includes aquatic resources.

This activity will include: i) review of the literature on measurement of water productivity during the first nine months of the project and ii) development of the methodology for measuring water productivity by the end of the 18th month of the project. A workshop will be organized during the 1st year of the project to finalize the methodology. At least one PhD student from participating countries enrolled in a reputable university will work with the relevant WorldFish staff to implement this activity.

Activity 2 – Assessment of the current and potential contribution of aquatic resources.

Lead Institute: The WorldFish Center, IFPRI and NARES

Using the methodology to be developed under this project (activity 1), the contribution of aquatic resources to water productivity in irrigation systems and floodplains under different land and water use patterns will be assessed. To help achieve this, the project will conduct a series of comparative case studies in different ecosystems and localities varying in characteristics such as methods of water usage (regulated *versus* non-

regulated) and means of exploitation of aquatic production (e.g., irrigated rice fields, irrigation canals, etc. compared to *non-cultured* and flood systems). A series of case studies and appraisals will also be conducted to document the contribution of aquatic ecosystems to the livelihood and food security of poor households. These activities will be conducted during the first two years of the project in all the basins under study (Mekong, Indus-Ganges, Yellow and Niger), the output of which will help in designing appropriate technical and institutional options for integrating the culture of fish and other aquatic resources into existing farming systems. This and the subsequent activities will be implemented in all 6 areas of the Indo-Gangetic floodplain (covering the Teesta Mahananda, Gangetic, Damodar-Kangshabati, and coastal floodplains of West Bengal state of India, the Brahmaputra floodplain of Assam state of India, and the Ganges-Padma, Jamuna-Brahmaputra, Meghna, and coastal floodplain of Bangladesh), 5 areas of the Mekong delta (3 areas of southern Vietnam and 2 areas of Cambodia), 2 areas in the lower areas of the Yellow river basin and 2 areas of inner the Niger delta in Mali. Study areas will be identified based on: i) review of information from secondary sources; and ii) reconnaissance field visits by multidisciplinary teams.

Activity 3 – Development of participatory diagnostic and stakeholder-involving diffusion approach for community based fish culture in shared water bodies.

Lead Institute: IFPRI, The WorldFish Center, and NARES

The project will develop participatory diagnostic methods and stakeholder-involving diffusion approaches that will help in designing and testing of community based fish culture in irrigation systems and seasonal floodplains. These will be prepared by drawing together the experiences from various case studies on community based natural resources management and by convening workshops to review these and extract lessons that can be applied for community based fish culture in irrigation systems and seasonal floodplains.

Activity 4 – Design of technical options for integrating living aquatic resources in irrigation systems and seasonal floodplains.

Lead Institute: The WorldFish Center and NARES

The following sub-activities will be implemented during the first two years of the project to identify location specific technical options:

Activity 4.1 – Identification of landscapes and stakeholders

For each study area, one or more project sites will be selected depending on the socio-economic and agro-ecological diversity within the area (more study sites will be selected for more diversified areas). In selecting project sites, both the agro-ecological condition of the landscape and the socioeconomic and institutional aspects of the users of the landscape will be considered. For each project site, a control site with similar agro-ecological environment will be selected. After collecting relevant information on potential sites, several rounds of group discussions will be undertaken with the users in each site.

In identifying different stakeholders/users, the project will conduct group discussions and participatory rural appraisals (PRA) and will involve representatives from different classes of the society (i.e., poor farmers, rich farmers, landless of the nearby communities, women's groups, and members of local organizations). The stakeholders

will include land owners as well as other people of the community who rely on irrigation canals/floodplains in the selected sites for their livelihoods

Activity 4.2 – Assessment of users' needs

The steps to be followed in assessing users' needs are: (i) conduct of diagnostic survey and participatory rapid appraisal, (ii) baseline surveys of socioeconomic, institutional, and biophysical conditions; and (iii) group discussions with users. Preliminary results of appraisal and surveys will be presented and discussed during the group meetings. One main objective of the baseline survey is to generate baseline information on various socioeconomic aspects of the farmers so that the same parameters can be compared as part of the impact assessment of the project (activity 6.2).

Activity 4.3 – Designing location specific technical options

Location specific technical options will be identified jointly by researchers and users based on (i) the assessment of users' needs, (ii) assessment of current and potential contributions of irrigation systems (e.g. fields, reservoirs, canals) and floodplains to the livelihood of poor households, (iii) available research results on these topics (secondary data) and (iv) indigenous knowledge of the local communities. Group discussions will be organized to finalize various potential technical options.

The technical options will include fish technologies (*i.e.*, choice of species, stocking density, sizes at stocking and species combination, management practices, etc.) as well as other agricultural technologies to be practiced as concurrent (*i.e.*, with fish) and/or alternate (before or after fish) enterprises in the same land.

Activity 5 – Design of institutional options for integrating living aquatic resources in irrigation systems and seasonal floodplains.

Lead Institute: IFPRI, The WorldFish Center, and NARES

This Project will devise institutional approaches for the introduction of scientific fish culture into the moderate to deeply flooding ecosystem and irrigation systems that recognize the often overlapping common and private property regimes governing relevant land and water resources as well as the nature of other relevant local institutions. The project will identify community-based mechanisms for the supply of fingerlings, access to land and water, tenure security of farmers and fishers, decision-making involving multiple-ownership, and post-harvest processing and marketing. This will include attention to negotiation processes over rights to land and water resources and inclusion of women and landless households in decision-making, production, and control of output, building on the methods described by Sultana and Thompson (2002). As in the case of identification of technical options (activity 4), the area/site-specific institutional options will be identified during the first two years of the project.

Activity 6 – Implementation of identified technical and institutional options in selected sites.

Lead Institute: The WorldFish Center, IFPRI, NARES, and WARDA

Identified technical and institutional options will be tested, monitored and evaluated, and disseminated in stages.

Activity 6.1 – Testing of identified technical and institutional options:

Site specific technical and institutional options will be tested by stakeholders with minimum support from researchers. Stakeholders will provide labor, manage experiments and collect simple experimental data (e.g. input use levels). Researchers will be basically acting as resource persons. The project will provide initial financing support, as seed money, during the first two years to cover material costs. Stakeholders/users will deposit a certain portion of the proceeds from the experiments (*i.e.* fish sale) to cover the future project expenditures in subsequent years.

Groups will be formed with more or less homogenous users. A Project Implementation Committee (PIC) will be formed in each site with representatives from different categories of users, local organizations and the research team. The functions of the PIC will be: (i) preparation of a budget; (ii) finalization of the sharing agreement; (iii) overseeing the implementation of the project; (iv) settlement of disputes; (v) supervision of fish sales; (vi) distribution of proceeds from experiments according to terms earlier negotiated by the group; and (vii) management of the project account.

The National Project Team (with representatives from research institutes, extension agencies, NGOs, financial institutes such as rural/agricultural banks) will repeatedly visit the sites to ensure smooth interactions among the group members and to facilitate the implementation of the action research activities. The project will also facilitate interaction between group members and local service institutions such as banks.

Actual testing of technical and institutional options will be carried out in selected sites in the Mekong, lower reaches of the Yellow river, and lower Gangetic flood plain in Asia and in the inner Niger delta of Mali in western Africa during the 2nd, 3rd and 4th year of the project.

Activity 6.2 – Monitoring and evaluation

A range of variables including biophysical (e.g., water quality, soil quality, water depth), agricultural (e.g., input use, crop yield, fish culture, fish catch) and socioeconomic (input and output price, profitability, fish consumption) variables will be monitored in both the control and project sites. In addition, group performance will also be monitored in the project sites. This information will be used in assessing the impact of the community-based fish culture in flooded rice fields and irrigation systems. This activity will be conducted concurrently with activity 6.1 during the 2nd, 3rd, and 4th year of the project.

The project will also assess the impact of the recommended options based on the data collected through monitoring and evaluation of trials and adoption surveys. The impact will be assessed at evaluation stage (*i.e.*, during the testing of options at farm level) and final adoption stage, and this will be done both at household and community/landscape level.

The impact indicators to be used at household level will include: increase in fish production (kg/ha, wild and cultured fish), increase in total farm productivity, increase in total farm income (USD per ha per year), increase in fish consumption (kg/capita/year), increase in food consumption (Kcal/capita/year) and increase in employment (person days per ha by gender). At community /landscape level, the impact indicators to be used will include: increases in overall productivity and revenue from irrigation systems, reduction in number of people below poverty line, sustainability of farmers'/fishers' groups, level of conflicts among group members, increase in the availability of fish in local markets (by season), and status of biodiversity. The list of impact indicators will be

finalized during the first six months of the project, in consultation with various stakeholders.

Activity 6.3 – Dissemination of validated technical and institutional options

After testing and evaluation (activities 6.1 and 6.2), the project will initiate dissemination of validated technical and institutional options to farmers through relevant extension agencies (government, non-governmental). This activity will begin from the fourth year of the project. Adoption surveys will be conducted to monitor the adaptation and adoption of the options by different types of farmers. As community based fish culture is a very new concept in western Africa, this activity will be implemented only in Asian sites.

In Bangladesh, two relevant government extension agencies (Department of Agriculture Extension, and Department of Fisheries) and a number of non-governmental organizations (e.g. Proshika Manobik Unnayan Kendra, BRAC, etc) and the Technology Transfer Monitoring Unit (TTMU) of the Bangladesh Agriculture Research Council (BARC) will be involved in disseminating the technology (*i.e.*, technical and institutional options) to farmers. The TTMU of BARC (the lead participating institute in Bangladesh) will coordinate the dissemination activities of all the agencies involved.

In India, the Directorate of Fisheries and Directorate of Agriculture of West Bengal and Assam states, Central Inland Fisheries Research Institute (CIFRI), Central Institute of Freshwater Aquaculture (CIFA) and a number of NGOs (e.g., Ramakrishna Mission) operating in West Bengal and Assam will disseminate the technology, and CIFRI will coordinate these extension activities. In Cambodia, Vietnam and China, the relevant government agencies (*i.e.*, Department of Fisheries in Cambodia, Research Institute of Aquaculture no. 2 in Vietnam, and Freshwater Fisheries Research Center in China) will be responsible for disseminating the technology with the help of local government units.

Activity 7 – Capacity building of NARES for supporting community based fish culture in shared water bodies.

Lead Institute: The WorldFish Center, IFPRI, WARDA and NARES

The project will be structured so as to provide substantial capacity building opportunities. This will be achieved by joint planning and implementation of the detailed work of the project by IARCs and NARES. In addition, specific PhD and Masters projects will be identified, funded and pursued. These will generally be conducted through collaborative arrangements linking national universities within the Benchmark Basins with ARIs and IARCs (WorldFish, IFPRI and WARDA).

Roles of Project Researchers and Institutions

Related to the Project Work Plan presented above are the roles of the researchers and institutions that serve as partners in the conduct and successful implementation of the project at the basin, country, field levels. For this project, a multidisciplinary team of researchers from international and national institutions will implement this interdisciplinary action research. The table below presents the participating CGIAR Centers and NARES Institutions. It should be emphasized, however, that there are many local organizations (*i.e.*, NGOs, government offices, private and cause-oriented organizations) that would be tapped and mobilized to assist in the project implementation. So that the list of partners presented in the following table are only the *lead partner* IAR Centers and NARES institutions

Participating Institutions – lead partners in the project

CGIAR Centers	Lead NARES Institutions
The WorldFish Center	Central Inland Fisheries Research Institute (CIFRI), Indian Council for Agricultural Research (ICAR)
International Food Policy Research Institute	Central Institute of Freshwater Aquaculture (CIFA), Indian Council for Agricultural Research (ICAR)
The Africa Rice Center (WARDA)	Bangladesh Agricultural Research Council (BARC)
	Department of Fisheries, Cambodia
	Research Institute of Aquaculture No. 2
	Inland Valley Consortium-Mali Unit
	Freshwater Fisheries Research Center, China

The WorldFish Center staff will help develop methods for measuring water productivity and assess the contribution of aquatic resources, provide guidance in designing and testing technical and institutional options for integrating fish culture in floodplains and irrigation systems, supervise PhD students from participating NARES, and provide overall coordination and management of the project and ensure implementation and outcomes in all sixteen sites. In the past, the national institutions in Bangladesh, Cambodia and Vietnam and CG centers like IRRI and IFPRI collaborated fruitfully with WorldFish Center on similar projects. Close and frequent interaction with all partners aside from regular site visits will contribute to the synchronous achievement of milestones towards planned outputs.

IFPRI staff will help develop methods for evaluating multiple uses of water systems, coordinate the studies of community action, group formation and operation with the involvement of all stakeholders, sharing arrangements for the explicit inclusion of the poor and landless, related gender issues in the group operation and access to resources and benefits.

WARDA staff will facilitate the establishment of the first nucleus site for the community based fish culture approach in Africa and assist in the selection of appropriate sites in the inner Niger delta in Mali. After successful establishment of the project in Mali, WARDA-IVC in collaboration with the WorldFish Center will attempt to initiate community-based fish farming in the irrigation system of the Senegal basin.

CIFRI staff will coordinate with staff of the Department of Agriculture of the State of West Bengal and the State of Assam for the establishment of sites, community organization and institutional arrangements and liaise closely with CIFA partners. CIFA staff will provide appropriate technology advice at these sites, facilitate supply of juvenile fish and assist in monitoring the production ecology in the fenced-in floodplain areas. Previous trials have shown that wild fish production in the fenced areas is not reduced, rather in most cases increased.

BARC staff will act as main implementer and coordinator for other institutions such as Bangladesh Fisheries Research Institute (BFRI), Department of Agricultural Extension (DAE), the Department of Fisheries (DoF), NGOs, and the Bangladesh Krishi Bank. Both institutional arrangements and technology support will be provided to locally formed groups.

The Cambodian Department of Fisheries staff will implement both institutional arrangements and technology transfer, and conduct monitoring activities. If needed, linkages with and local implementation by NGOs and CBOs will be sought and established.

Staff of Vietnam's Research Institute for Aquaculture No. 2 will coordinate and implement the activities of group formation, technology advice and monitoring in the Mekong delta through its dissemination branch and technology development branch.

The Inland Valley Consortium (IVC) Mali unit will implement the project activities in Mali in cooperation with the Institut des Economies Rurale (IER) under the coordination of WARDA.

A team of experts from the Freshwater Fisheries Research Center in China will implement the project initially in one site in the lower reaches of the Yellow river, and later in areas within the Yantze river basin.

2. Five-Year Milestone Plan: Monitoring and Evaluation

The monitoring and evaluation of progress of the project is as important as the project implementation itself – so that integral to the workplan is a complementary *Milestone Plan* presented in Annex 3 of this report. The same Milestone Plan is also presented in conjunction with the workplan, as pointed out earlier. Again, although only a Two-Year Milestone Plan is required in the first phases of the project, the workshop participants opted for a complete Five-Year Milestone Plan for the project.

As a *progress-monitoring* tool for the project, the Milestone Plan as presented in Annex 3 include the list of *milestones*² associated with each major activity, with corresponding set of deadline and *means of verification*.

As indicated in the Milestone Plan the current project should have had accomplished the following to progress from *Phase One* to *Phase Two*:

- 1) Draft MOAs;
- 2) Project Inception Workshop;
- 3) Two-Year Project Milestone Plan;
- 4) Two-Year Project Work Plan;
- 5) Final Budget;
- 6) Intellectual Asset Audit; and
- 7) Established a Project Secretariat

² A “milestone” in this context is the intermediate objective to fully complete an input, activity or output by a deadline. Its achievement can be qualitative or quantitative. Milestones are set by the project researchers. Reporting the completion of a “milestone” indicates that the project is progressing.

(Note that as this Inception Report has indicated, the project has accomplished all the milestones it has set to accomplish in *Phase One*)

By major activity, the milestones the project is set to accomplished are:

Activity 1 – literature review; a methodology for measuring water productivity

Activity 2 – case analyses, report on the contribution of fisheries to water productivity

Activity 3 – framework for participatory diffusion approach

Activity 4 – Site-specific technical design of fish culture

Activity 5 – Site-specific institutional arrangements

Activity 6 – Community-based fish culture trials

Activity 7 – Graduate students produced

Annex 3 offers the complete list of project milestones.

In addition to the *Milestone Plan*, the monitoring and evaluation process would be institutionalized at the project sites.

A *Project Implementation Committee* (PIC) will be established at each site in each country tasked to monitor activities within the country and meet at least three times annually. A *National Project Steering Committee* within each country, composed of senior representatives from the participating institutions, will meet annually to review the progress of the project. Internal project review meetings will also be held at regular intervals.

The plan is to conduct two external evaluations: one during the second year and one during the fourth year. The external evaluation team would consist of a community-action specialist, a resource economist and floodplain ecologist or aquaculturist.

3. Financial Plan – Sources and Uses of Resources

A final budget – Financial Plan is one of the most important documents required by the CPWF Program Management from all of its funded projects. This in turn was the major document developed by the project and Inception Workshop participants. The final *Sources and Uses of Funds* tables are presented in Annex 4, whereas the *Schedule of Payments* tables are in Annex 5. These two Project documents present in monetary terms (in US dollars, for this project) the resources needed to implement the project and accomplish its objectives, part of which were requested (as grant) from CPWF and part contributed (in kind) by The WorldFish Center and participating CGIAR Centers and NARES Institutions.

As spelled-out in the project proposal, the project will need 41 person-months of international scientists covering disciplines of aquaculture and fisheries, agricultural and resources economics, development sociology, and natural resources management to execute the planned activities. The CPWF is to support the 31 person-months of 4 international scientists (including PL and PIs). The other 10 person-months of international scientists will be provided in kind by the WorldFish Center. The CPWF will also support the 25 person-months of national PIs, 52 person-months of PostDocs/consultants that will provide specialized scientific tasks (particularly on 'institutional

arrangement') and six full time support staff (one in each of the participating countries to manage country operations and one at WorldFish Headquarters) to implement project activities on time. National partner institutes will provide another 20 person-months of national PIs time as matching funds.

On the average, there will be 4 visits per year in each country by the international staff and consultants to assist NARES staff in implementing the project activities. There will be three international workshops (one project inception workshop during the first year of the project, a mid-term review workshop during the 3rd year of the project and a final workshop during the 5th year of the project) to be attended by key national and international scientists from the participating institutes and resource persons from advanced institutes. The project will provide partial funding to 6 PhD students from NARES to enhance human resources in the participating NARES countries.

In monetary terms, the total value of *in-kind* contributions of WorldFish Center is US\$195,000 as matching funds; US\$135,000 as staff time spent on this CPWF project, US\$ 40,000 as office equipment, and US\$ 20,000 in form of communications and publications. Similarly, NARES partners are to provide *in kind* contributions of US\$ 60,000 as staff time and US\$ 40,000 as office and field equipment. The total matching fund (US\$295,000) is about 15% of the total project costs,

To save resources, linkages with the following on-going WorldFish projects funded by other donors will be established:

1. Community based fisheries management project in Bangladesh (funded by DFID, UK)
2. Community-based fisheries management program in south and southeast Asia (funded by IFAD)
3. Sustainable aquaculture development project in Bangladesh (funded by USAID)
4. Adaptive learning project in India (funded by DFID, UK).

Final Budget and Fund Releases

The final budget tables in Annex 4 show that the entire project requires a total of US\$1,992,910 to implement. The CPWF is to fund around 85% of it (or US\$1,697,910) while the GCIAR Centers and NARES partners are contributing the other 15% (*in kind*, US\$295,000 equivalent). The NARES partners would get from CPWF (through WorldFish Center) a total of US\$653,878³ (39%) for their operations.

Allocation of CPWF funds are as follows:

<i>Bangladesh, India, Vietnam</i>	US\$ 117,698
<i>Cambodia, Mali, China</i>	US\$ 85,004
<i>IFPRI</i>	US\$ 132,054
<i>WARDA</i>	US\$ 42,946

³ 7% of this amount would be withheld by WorldFish Center for re-allocation later in the Project.

The schedule of fund releases (payments) to each partner institution is based on individual funding allocation reflected in the *Sources and Uses of Funds* tables in Annex 4 and subject to submission of reports – and presented in Annex 5.

The WorldFish Center has received from CPWF the amount of US\$61,077 for *Phase One* operations of the project, and expects to receive US\$91,916 at the start of *Phase Two*. The other partner institutions are to receive the first payments at the start of the *Phase Two*, after accomplishing the inter-agency MOAs. Succeeding releases are subject to submission and acceptance of relevant reports (e.g. Progress Reports, Annual Reports, Milestone Reports).

4. The Intellectual Asset Audit

The results and outputs of CPWF funded projects are considered *global public goods* and should be made available to anybody who wants to use them. As such, each project is required to submit an audit – or a list of third party intellectual property (IP) that would be utilized in conducting the research that could possibly impact the CPWF's ability to make the research results freely available globally or affect its ability to seek IP protection for some aspects of the research results.

During the workshop, however, the participants (principal investigators and national partners) have determined and signified that no private property, tangible or not, would be used in the project that would infringe on intellectual property rights of owners. They further signify that any output of the project would be made global public good.

(An *accomplished* Intellectual Asset Audit is in Annex 6)

III. Sustainability - Beyond the Project Cycle

It has been established from previous sections that the impacts and benefits of the project go beyond the project sites. The development and adoption of the *research-based* technology from this project ensures the *sustainability* of the project beyond the *phases* of project cycle.

Potential Application of the *Technology*

The potential areas for the application of community-based fish culture approach in floodplains and irrigation systems are considerable. These areas are usually densely populated but the seasonal floodwaters are underutilized.

In the Mekong river basin there are around 0.8 million *ha* of medium and deep-flooded areas that could be utilized for joint fish culture activities during the flood season. These areas are otherwise unutilized with very low economic and agricultural activity. Of the 5.2 million *ha* of medium and deep flooded areas in the Indo-Gangetic basin, 3 million *ha* are in Bangladesh, where 27 million potential beneficiaries live. Other seasonally flooding areas suitable for the approach in other basins in Asia are Myanmar (1.2 million *ha*), Thailand (0.7 million *ha*), and the Red river delta in Vietnam (0.1 million *ha*). In China, the Yellow river basin area has a total of 7.33 million *ha* of irrigated lands with at least 1.3 million *ha* suitable for community-based fish culture.

In Africa, the potential is greatest in presently used deepwater rice areas in Nigeria (726,000 *ha*), Guinea (240,000 *ha*), Sierra Leone (68,000 *ha*) and Cote d'Ivoire (42,000 *ha*).

Technology Development

Towards the end of the project, a five-day international workshop will be held to review the achievements of the project and to outline a strategy at ensuring continuity of dissemination activities beyond the present project. The workshop will recommend sustainable approaches to ensure that community-based fish production programs initiated in the context of the present project will continue.

The participatory approach of the project is a positive factor in the wider dissemination of project outputs beyond the project period. The involvement of policy-makers (at local, regional and district levels) in the project design and implementation will ensure their ownership of the concept of community based fish farming and will facilitate its incorporation into relevant development plans. Participation of farmers in designing, testing and disseminating the community-based fish farming technique, will accelerate the dissemination of the technology through farmer-to-farmer extension.

Dissemination Strategy

The multi-partner cooperation of this project with national research institutions, extension departments, financial institutions, universities and national and international NGOs will ensure wider familiarity and implementation experience with the approach. These institutions also have their own linkages and networks and subsequently implement and disseminate new technologies to farmers as part of their operations. Field days will be conducted at the key project sites to inform farmers about the recommended technical and institutional options. Furthermore, publications will be prepared in descriptive and locally accessible language, to enable wider local dissemination.

Decision makers will also be informed first-hand through their involvement in field visits to communities implementing the approach. Regional level workshops will be organized to share experiences among scientists, extensionists and policymakers across countries. The project will also facilitate dissemination of scientific results among the scientific community through national and international publications.

For the first time, the project will introduce the approach to Africa, where the floodplains and irrigation systems are regarded to have highest potential for adoption and most convincing demonstration effect. The project will first be implemented in Mali in the inner Niger delta. The Mali experiences will then be disseminated to other West African areas like the Senegal irrigation system.

Bibliography

- Ali, M H, M N I Miah and N U Ahmed. 1993. Experiences in Deepwater Rice-Fish Culture, Bangladesh Rice Research Institute Publication No. 107, Gazipur, Bangladesh. 28 p.
- Ali M H, M N I Miah and M N Elahi. 1998. Increasing farm income by incorporating fish culture in deepwater rice environment, *Bangladesh Journal of Fisheries Research*, 2(2):183-188.
- Bakker M, R Barker, R S Meinzen-Dick and F Konradsen (eds). 1999. Multiple Uses of Water in Irrigated Areas: A Case Study from Sri Lanka. SWIM Report 8. Colombo, Sri Lanka: International Water Management Institute. <http://www.cgiar.org/iwmi/pubs/SWIM/Swim08.pdf>
- Das, D N , B Roy and P K Mukhopadhyay. 1990. Fish Culture with DW rice in West Bengal. In: *Deepwater and Tidal Wet Land Rice Bulletin*, No. 17, Nov 1990, International Rice Research Institute, Philippines.
- Meinzen-Dick, Ruth S (ed.) 2001. Multiple Uses of Water in Irrigated Areas. *Irrigation and Drainage Systems* 15 (2). (6 articles).
- Mukhopadhyay P K, D N Das and B Roy. 1991. Deepwater Rice-Fish Farming Bulletin, Issue no. 11, Feb 1991, Rice Research Station, Chinsurah, West Bengal, India.
- Roy B, D N Das and P K Muhkopadhyay. Rice-fish-vegetable integrated farming: towards a sustainable ecosystem. *Naga*, The ICLARM Quarterly, October 1990.
- Rothuis A J, D K Nhan, C J J Richter and F Ollevier. 1998a. Rice with fish culture in the semi-deep waters of the Mekong delta, Vietnam: a socio-economic survey. *Aquaculture Research*, Vol 29, pp 47-57.
- Rothuis A J, D K Nhan, C J J Richter and F Ollevier. 1998b. Rice with fish culture in the semi-deep waters of the Mekong delta, Vietnam: interaction of rice culture and fish husbandry management on fish production. *Aquaculture Research*, Vol 29, pp 59-66.
- Sultana P and P Thompson. 2003. Methods of consensus building for community based fisheries management in Bangladesh and the Mekong delta. CAPRI Working Paper 30. Washington DC: IFPRI. <http://www.capri.cgiar.org/pdf/capriwp30.pdf>

Annexes

Appendices

Appendix 1 – Project Inception Workshop

Appendix 2 – Five-Year Work Plan

Appendix 3 – Five-Year Milestone Plan

Appendix 4 – Final Budget Allocation: Sources and Uses of Funds.

Appendix 5 – Schedule of Payments

Appendix 6 – Intellectual Asset Audit

Inception Workshop
COMMUNITY-BASED FISH CULTURE IN IRRIGATION SYSTEMS
AND SEASONAL FLOODPLAINS
(CPWF Project No.35)

7 – 10 June 2005
WorldFish Center, Penang, Malaysia

PROJECT BACKGROUND

This Project is a five-year interdisciplinary action research project with the overall aim of enhancing the productivity of seasonally occurring floodwaters – for the improved and sustained benefit of the livelihoods of the poor.

During rainy season in extensive river floodplains and deltaic lowlands, floods render the land unavailable for crop production for several months each year. These waters are considerably underutilized during this period which raises the opportunity of enclosing parts of these floodwater areas to produce a crop of specifically stocked aquatic organisms. This is in addition to the naturally occurring 'wild' species that are traditionally fished and remain unaffected by the culture activity. Overall, the utilization of these waters for *aquaculture* activities should result to more high-quality, nutrient-dense food production and enhanced farm income for all stakeholders, notably the poor.

The underlying assumption of the approach is that seasonal water-bodies (over flooded crop fields, or ponds and reservoirs in irrigation schemes), can be communally managed by all stakeholders under equitable and sustainable sharing arrangements. (Recent on-farm demonstrations using community-based management in Vietnam and Bangladesh confirmed the feasibility of this management strategy.)

The approach would help mitigate the declining volume of inland capture fisheries production and subsequent increases in fish prices, rendering them less affordable and less accessible to the poor.

In Bangladesh alone, for example, there are 3 million *ha* of medium and deep flooded areas, of which about 1.5 million *ha* are suitable for community-based fish culture. Even if this approach is adopted only in half of that area, annual fish production would increase by 450,000 *t* (in addition to the current 60,000 *t* of wild fish catch) with estimated value of US\$340 million and would benefit an estimated 6.7 million people (2.7 million of which are either landless or functionally landless). Similar opportunities are seen for floodplain and deltaic systems in other countries in Asia and Africa.

The main Project activities are to be conducted in seasonal floodplain and irrigation areas of two *benchmark* river basins (Indus-Ganges and Mekong) and one *non-benchmark* basin (Niger), with option to expand into Senegal basin in the later part of the project.

The Project is a collaborative undertaking of several CGIAR and National Research Centers. Participating institutions include:

- The WorldFish Center
- International Food Policy Research Institute (IFPRI)
- African Rice Center (WARDA)
- Indian Center for Agricultural Research (ICAR)

Annex 1 – Project Inception Workshop

- Central Inland Fisheries Research Institute (CIFRI)
- Central Institute of Freshwater Aquaculture (CIFA)
- Bangladesh Agricultural Research Center (BARC)
- Department of Fisheries of Cambodia
- Ministry of Fisheries of Vietnam (Research Institute for Aquaculture No. 2)
- Inland Valley Consortium-Mali Unit

Specific objectives

The Project has four specific objectives; each benefits one or more target groups:

1. To develop a methodology for measuring water productivity at the landscape level and to assess the contribution of aquatic resources to water productivity in irrigation systems and floodplains.
2. To develop appropriate technical and institutional options for increasing water productivity at basin level through integration of community based fish production into existing floodplain and irrigation systems.
3. To develop a participatory diagnostic and stakeholder-involving diffusion approach for community based fish cultured in shared water bodies.
4. To enhance human resource capacity of NARES for supporting community based fish culture in shared water bodies

The Project will provide (outputs):

- * User-verified technical options for integrating fish and other living aquatic resources into irrigation systems and seasonal floodplains.
- * Demonstrated and locally rooted institutional options for sharing benefits of integrating fish and other living aquatic resources into irrigation systems and seasonal floodplains.
- * A validated participatory diagnostic and stakeholder-involving diffusion approach for community-based fish culture in shared water bodies.
- * Improved capacity of NARES for supporting community-based fish culture in shared water-bodies.

THE INCEPTION WORKSHOP

The Project is for the duration of five years – with three-phase project cycle. The first phase is from 1 April (start of the Project) to 30 June 2005. The second phase will reach completion in 30 March 2008, the third phase on 30 March 2010.

It is during the Phase One of the Project that the implementers – the participating institutions, researchers and investigators, and partners – are to prepare and submit to the CPWF a **Project Inception Report** which would include the following:

1. A Milestones Plan (final plan for the first two years of activities)
2. Work Plan of the Project (Gantt Chart presentation; final plan for the first two years of activities)
3. A Revised Budget (final financial plan for the entire Project); and

Annex 1 – Project Inception Workshop

Note that it is during this workshop that the above documents (Project Inception Report and the four Annexes) are to be finalized by the participants.

The Inception Workshop, therefore, has the following objectives:

- To strengthen the partnership and collaboration among team members, participating institutions, and country partners;
- To firm up the research methodologies and development framework of the Project;
- To identify the various activities necessary for the efficient implementation of the Project and to clearly define the roles and responsibilities of each institute and team member;
- To orient the participants about project management, and administrative and financial arrangements for the successful implementation of the Project; and
- To finalize the Project Inception Report

Annex 1 – Project Inception Workshop

List of Participants

No.	Name	Institute	Title/Position	e-mail
1	Mark Prein	WorldFish Center (WorldFish)	Senior Scientist	m.prein@cgiar.org
2	Madan Dey	WorldFish Center (WorldFish)	Senior Scientist and Director, East and Southeast Asian Region	m.dey@cgiar.org
3	Rowena Valmonte-Santos	International Food Policy Research Institute (IFPRI)	Research Analyst	r.valmonte-santos@cgiar.org
4	Paul Kiepe	WARDA - The Africa Rice Center	Leader, Rice Policy and Development Program	p.kiepe@cgiar.org
5	Md Rafiqul Islam	Department of Fisheries, Bangladesh	Principal Scientific Officer	
6	Khabir Ahmed	Bangladesh Agricultural Research Council (BARC)	Chief Scientific Officer and Head, Fisheries Division	kahmed@barcbgd.org; khabirbarc@yahoo.com
7	Utpal Bhaumik	Central Inland Fisheries Research Institute (CIFRI), Indian Council for Agricultural Research (ICAR)	Principal Scientist (Extension)	utpal_bhaumik@yahoo.com
8	Hav Viseth	Dept. of Fisheries, Cambodia	Aquaculture	naothuok@mobitel.com.kh
9	Nguyen Van Hao	Research Institute for Aquaculture No.2 (RIA-2), Ministry of Fisheries, Vietnam	Director	haoria2@hcm.vnn.vn
10	Zhu Jian	Division of Science and Technology Freshwater Fisheries Research Center	Director	zhuji@ffrc.cn
11	Chen Jiazhang	Division of Fishery Resource and Environmental Protection Freshwater Fisheries Research Center	Director	chenjz@ffrc.cn
12	Robert Arthur	MRAG Ltd London		r.arthur@mrag.co.uk
13	Matthias Halwart	FAO-Inland Fisheries/Aquaculture, Rome	Fishery Resources Officer(Aquaculture)	Matthias.Halwart@fao.org
14	Nicos Perez	WorldFish Center	Consultant/Resource Economist	n.perez@cgiar.org
15	Devendra.K. Kaushal	Indian Council of Agricultural Research (ICAR)-RCER	Principal Scientist (Fisheries)	kaushalmail@linuxmail.org
16	Pamela George	CGIAR-CPWF	Program Manager CPWF	p.george@cgiar.org

Annex 1 – Project Inception Workshop

Inception Seminar and Workshops

Chambo Room, Block J, WorldFish Center

7 – 10 June 2005

Program of Activities

Date and Time	Activity	Presenter/Moderator
<i>Day 1 – Tuesday - 7 June 2005</i>		
8:30 – 9:30	Registration	
9:30 – 10:00	Presentation of Participants	Nicos Perez Workshop Coordinator The WorldFish Center
	Opening and Welcome Address	Steve Hall Director General, The WorldFish Center Madan Dey Director, East and Southeast Asian Region The WorldFish Center
10:00 – 10:30	<i>Coffee Break</i>	
10:30 – 10:45	Workshop Overview	Nicos D. Perez
10:45 – 12:30	Country Presentations	
	- Bangladesh	Khabir Ahmed Head Fisheries Division Bangladesh Agricultural Research Council (BARC)
	- India	Utpal Bhaumik Principal Scientist (Extension) CIFRI, Indian Council for Agricultural Research (ICAR)
	- Vietnam	Nguyen Van Hao Director Research Institute for Aquaculture No.2 (RIA-2), Ministry of Fisheries, Vietnam
	- Cambodia	Hav Viseth Deputy-Director General Dept. of Fisheries, Cambodia

Annex 1 – Project Inception Workshop

	- Mali	Paul Kiepe Leader, Rice Policy and Development Program WARDA
		Matthias Halwart FAO-Inland Fisheries/Aquaculture Rome
	- China	Zhu Jian Director, Division of Fishery Resource and Environmental Protection, Freshwater Fisheries Research Center, P.R.China
	<i>Open Forum</i>	Nicos Perez - Moderator
12:30 – 2:30	<i>Lunch Break</i>	
2:30 – 5:30	R&D Initiatives	
	- CPWF and R&D initiatives at the Global level	Pamela George Program Manager CPWF
	- R&D initiatives at the Theme level	Mark Prein (on behalf of V.V. Sugunan, Theme Leader Aquatic Ecosystem and Fisheries)
	- R&D initiatives at the Basin level	D.K. Kaushal (on behalf of the Basin Coordinator Indus-Ganges)
	- R&D at the Project level (previous undertaking)	Madan Dey Principal Investigator CPWF Project No. 35
4:00 - 4:15	<i>Coffee Break</i>	
4:15 – 5:30	<i>Open Forum</i>	Nicos Perez - Moderator
7:00 – 9:30	<i>Dinner and Socials</i> Host: WorldFish Center	Oriental Seafood Restaurant Georgetown, Penang
Day 2 - Wednesday - 8 June 2005		
Morning Session – Seminar – Research Methodology and Project Implementation Strategy		
8:30 – 9:00	Mechanics of the Inception	Nicos D. Perez

Annex 1 – Project Inception Workshop

9:00 – 9:30	General Framework of the Project	Madan Dey/Nicos Perez
9:30 -10:00	Community Action: Framework for assessing feasibility and constraints across different systems	Rowena Valmonte-Santos Research Analyst IFPRI
10:00 – 10:30	The Adaptive Learning Approach for Community Based Fisheries Management: Experiences from West Bengal/India and Lao PDR	Robert Arthur MRAG London
10:30 – 11:00	Open Forum (<i>working Coffee Break</i>)	Nicos Perez - Moderator
11:00 – 12:30	Discussions on: <ul style="list-style-type: none"> • Project Implementation Plans by country: including number of sites; start-up operations; participating organizations and NGOs; etc. • Technical and Institutional Options for Integrating Living Aquatic Resources in Irrigation Systems and Seasonal Flood Plains • Selection of Project Sites 	All Participants Mark Prein and Madan Dey – Resource Persons
12:30 – 2:00	<i>Lunch Break</i>	
<i>Afternoon Session – Workshop 1 – Preparation of Work Plans</i>		
2:00 – 3:00	Mechanics of Workshop 1	Nicos Perez
3:00 – 3:30	<i>Coffee Break</i>	
3:30 – 5:30	Preparation of Work Plan by Country, Study, and Project	All Participants; Nicos Perez - facilitator
5:30 – 6:30	Consolidation and Finalization of Work Plans	All Participants
<i>Day 3 – Thursday - 9 June 2005</i>		
<i>Morning Session – Workshop 2 – Preparation of Milestone Plans</i>		

Annex 1 – Project Inception Workshop

8:30 – 9:00	Mechanics of Workshop 2	Nicos Perez
9:00 – 11:30 (with coffee break)	Preparation of Work Plan by Country, Study, and Project	All Participants; Nicos Perez - facilitator
11:30 – 12:30	Consolidation and Finalization of Milestone Plans	All Participants
12:30 – 2:00	<i>Lunch Break</i>	
<i>Afternoon Session – Workshop 3 – Financial Management and Preparation of Budgetary Allocation</i>		
2:00 – 3:00	Management of Funds	Yap Way Ling /Nicos Perez
3:00 – 3:30	<i>Coffee Break</i>	
3:30 – 5:30	Preparation of Budgetary Allocation by Country, Study, and Project	All Participants; Nicos Perez - facilitator
5:30 – 6:30	Consolidation and Finalization of Budgetary Allocations	All Participants
<i>Day 4 - Friday - 10 June 2005</i>		
<i>Morning Session – Workshop 4 – Presentation of Output (Work, Milestones, Budget Plans)</i>		
8:30 – 10:00	Presentation by Country, Study, and Project	All Participants
10:00 – 10:30	<i>Coffee Break</i>	
10:30 – 12:30	Action Planning: The Next Step and Consolidation of Workshop Outputs; Project Coordination and Administrative Matters	All Participants
12:30 – 2:00	<i>Lunch Break</i>	
<i>Afternoon Session – Field Trip and City Tour</i>		
2:00 – 6:30	Visit to Fishermen's Village and City tour	

Annex 2 – Five-Year Work Plan

Work and Milestone Plans: Year 1 to Year 5
 Community-Based Fish Culture in Irrigation Systems and Seasonal Floodplains
 CPWF Project No. 35

No.	Activity/Task	Team	Year 1 Apr. 2005-Mar. 2006			Year 2 Apr. 2006-Mar. 2007			Year 3 Apr. 2007-Mar. 2008			Year 4 Apr. 2008-Mar. 2009			Year 5 Apr. 2009-Mar. 2010		
			A	M	J	A	M	J	A	M	J	A	M	J	A	M	J
7	NARES capacity building	3CC, 6CP															
7.1	Joint planning	3CC, 6CP															
7.2	PhD + MSc students	3CC, 6CP															
	Task-specific milestone																
7.1	Workplans for local sites established	3CC, 6CP															
7.2	Six PhD students selected	3CC, 6CP															
7.3	Dissertation research completed	3CC, 6CP															
7.4	Theses submitted.	3CC, 6CP															
8	Project Management																
8.1	Administration processes	3CC, 6CP															
8.2	Internal Review	3CC, 6CP															
8.3	External Review	3CC, 6CP															
	Project milestone																
8.1	Local workshops conducted	3CC, 6CP															
8.2	Internal review reports	3CC, 6CP															
8.3	External review report	3CC, 6CP															
	Submission of Reports																
	Inception Report																
	- Milestone Plan																
	- Work Plan																
	- Budget																
	Milestone Report																
	Progress Report																
	Annual Report																
	Completion Report																
	Payment Schedule																

Notes on Team/Group:

- WorldFish - The WorldFish Center
- IFPRI - International Food Policy Research Institute
- WARDA - West Africa Rice Development Association
- 3CC - the three CGIAR Centers -WorldFish, WARDA and IFPRI
- BD/IN - the Indus-Gangenttic group, Bangladesh and India
- KH/VN - the Mekong group, Cambodia and Vietnam
- CN/ML - the irrigation system group, China and Mali
- 6CP -all the six country partners

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
Phase One – Project Inception/Startup						
1	1 st	i	Output	Draft Memorandum of Agreements (MOAs) among partners	30/06/2005	Copy of draft MOA
1	1 st	i	Activity	Conduct of Project Inception Workshop	30/06/2005	Printed copy of Workshop Program of Activities
1	1 st	i	Output	Two-year Project Milestone Plan	30/06/2005	Submission of plan
1	1 st	i	Output	Two-year Project Work Plan	30/06/2005	Submission of plan
1	1 st	i	Output	Project Final Budget/ Financial Plan	30/06/2005	Submission of plan
1	1 st	i	Output	Project Intellectual Asset Audit	30/06/2005	Submission of Audit/Report
1	1 st	i	Activity	Project support staff recruited	30/06/2005	Appointment of new project staff
Phase Two						
1	2 nd	2	Activity	Short-list of potential sites for case study for: - Indo-Ganges basin and - Mekong basin	31/08/2005	List of potential sites with brief profile
1	2 nd	4, 5	Activity	Short-list of potential sites for design of technical and institutional options for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/08/2005	List of potential sites with brief profile
1	2 nd	2	Activity	Short-list of potential sites for	30/09/2005	List of potential

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				case study for: - Niger basin		sites with brief profile
1	2 nd	4, 5	Input	Survey design and instrument for baseline survey and appraisal for: - Indo-Ganges basin - Mekong basin	30/09/2005	Printed copy of survey instrument
1	3 rd	2	Activity	Short-list of potential sites for case study for: - Yellow basin	31/10/2005	List of potential sites with brief profile
1	3 rd	2	Activity	Sites for case study selected for: - Indo-Ganges basin - Mekong basin	31/10/2005	List of selected sites
1	3 rd	3	Activity	Graduate student selected	31/10/2005	Name of student, professor and school
1	3 rd	4, 5	Activity	Sites for the design of technical and institutional options selected for: - Indo-Ganges basin and - Mekong basin - Niger basin - Yellow basin	31/10/2005	List of sites
1	3 rd	7	Activity	Graduate student selected for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/10/2005	Name of student, professor and school
1	3 rd	2	Activity	Sites for case study selected for: - Niger basin	30/11/2005	List of selected sites
1	3 rd	4, 5	Input	Survey design and instrument	30/11/2005	Printed copy of

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				for baseline survey and appraisal for: - Niger basin - Yellow basin		survey instrument
1	3 rd	1	Activity	Graduate student selected	31/12/2005	Name of student, professor and school
1	3 rd	2	Activity	Sites for case study selected for: - Yellow basin	31/12/2005	List of selected sites
1	3 rd	3	Activity	Workshop on participatory diffusion approach conducted for: - Indo-Ganges basin and - Mekong basin	31/12/2005	Printed copy of Workshop Program of Activities
1	3 rd	7	Output	Workplans for Project sites established for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/12/2005	Copy of workplans
1	4 th	3	Activity	Workshop on participatory diffusion approach conducted for: - Niger basin	31/01/2006	Printed copy of Workshop Program of Activities
1	4 th	3	Activity	Workshop on participatory diffusion approach conducted for: - Yellow basin	28/02/2006	Printed copy of Workshop Program of Activities
1	4 th	1	Input	Literature review completed	31/03/2006	Review of literature document
1	4 th	8	Activity	Annual internal review conducted for: - Indo-Ganges basin	31/03/2006	Report of reviewers

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				- Mekong basin - Niger basin and - Yellow basin		
2	1 st	6	Activity	Project implementation committees (PICs) for each site formed for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	30/04/2006	Documentations on PIC formation
2	1 st	6	Activity	Community-based groups formed in: - Yellow basin	30/04/2006	Documentations on organization; minutes of meetings; registration; reports
2	1 st	4, 5	Input	Baseline survey and appraisal completed for: - Indo-Ganges basin - Mekong basin	31/05/2006	Completed survey forms; data analyses
2	1 st	5	Output	Institutional options designed for: - Indo-Ganges basin and - Mekong basin	31/05/2006	Report on institutional options formulated
2	1 st	6	Activity	Community-based groups formed in: - Mekong basin - Niger basin	31/05/2006	Documentations on organization; minutes of meetings; registration; reports
2	1 st	6	Activity	First year fish culture trials established for: - Mekong basin - Yellow basin	31/05/2006	Fish culture enclosures constructed; audio-visual records
2	1 st	7	Activity	Project management	31/05/2006	Workshops

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				workshops conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin		documents
2	1 st	1	Output	Initial methodology on water productivity measurement	30/06/2006	Submission of write-up on methodology formulated
2	1 st	3	Output	Framework for participatory diffusion approach	30/06/2006	Submission of write-up on framework developed
2	1 st	4	Output	Technical design ready for testing for: - Indo-Ganges basin and - Mekong basin	30/06/2006	Submission of write-up on site-specific technical design
2	1 st	6	Activity	Community-based groups formed in: - Indo-Ganges basin	30/06/2006	Documentations on organization; minutes of meetings; registration; reports
2	1 st	6	Activity	First year fish culture trials established for: - Indo-Ganges basin	30/06/2006	Fish culture enclosures constructed; audio-visual records
2	2 nd	4, 5	Activity	Baseline survey and appraisal completed for: - Niger basin and - Yellow basin	31/07/2006	Completed survey forms; data analyses
2	2 nd	5	Output	Institutional options designed for: - Niger basin and - Yellow basin	31/07/2006	Report on institutional options formulated

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
2	2 nd	6	Activity	First year fish culture trials established for: - Niger basin and - Yellow basin	31/07/2006	Fish culture enclosures constructed; audio-visual records
2	2 nd	4	Output	Technical design ready for testing for: - Niger basin and - Yellow basin	31/08/2006	Submission of write-up on site-specific technical design
2	3 rd	6	Output	First year fish culture trials harvested for: - Yellow basin	30/11/2006	Records of harvest; Audio-visual record
2	3 rd	6	Activity	First year fish culture monitoring data analyzed for: - Yellow basin	31/12/2006	Records of harvest; report of initial results
2	4 th	1	Activity	Initial methodology for measuring water productivity - validated	31/01/2007	Report on validation results
2	4 th	2	Activity	Case study reports completed for: - Indo-Ganges basin and - Mekong basin	31/01/2007	Reports on case studies
2	4 th	6	Output	First year fish culture trials harvested for: - Mekong basin	31/01/2007	Records of harvest; Audio-visual record
2	4 th	2	Activity	Case study reports completed for: - Niger basin	28/02/2007	Reports on case studies
2	4 th	4	Output	Research report on design of site-specific fish culture technology	28/02/2007	Research report
2	4 th	5	Output	Research report on design of site-specific institutional arrangement	28/02/2007	Research report

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
2	4 th	6	Activity	First year fish culture monitoring data analyzed for: - Mekong basin	28/02/2007	Records of harvest; report of initial results
2	4 th	6	Output	First year fish culture trials harvested for: - Niger basin	28/02/2007	Records of harvest; Audio-visual record
2	4 th	2	Activity	Case study reports completed for: - Indo-Ganges basin and - Mekong basin	31/03/2007	Reports on case studies
2	4 th	6	Output	First year fish culture trials harvested for: - Indo-Ganges basin	31/03/2007	Records of harvest; Audio-visual record
2	4 th	6	Activity	First year fish culture monitoring data analyzed for: - Mekong basin	31/03/2007	Records of harvest; report of initial results
2	4 th	8	Activity	Annual internal review conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/03/2007	Report of reviewers
3	1 st	6	Activity	First year fish culture monitoring data analyzed for: - Indo-Ganges basin	30/04/2007	Records of harvest; report of initial results
3	1 st	1	Output	Final methodology on water productivity measurement	31/05/2007	Submission of write-up on methodology formulated
3	1 st	2	Output	Contribution of aquatic resources to water productivity	31/05/2007	Submission of report
3	1 st	6	Activity	Second year fish culture trials established for:	31/05/2007	Fish culture enclosures re-

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				- Yellow basin		established; audio-visual records
3	2 nd	6	Activity	Second year fish culture trials established for: - Mekong basin	31/07/2007	Fish culture enclosures re-established; audio-visual records
3	2 nd	6	Activity	Second year fish culture trials established for: - Niger basin	31/07/2007	Fish culture enclosures re-established; audio-visual records
3	2 nd	6	Activity	Second year fish culture trials established for: - Indo-Ganges basin	30/09/2007	Fish culture enclosures re-established; audio-visual records
3	3 rd	6	Output	Second year fish culture trials harvested for: - Yellow basin	30/11/2007	Records of harvest; Audio-visual record
3	3 rd	6	Output	Methodological framework for the measurement of water productivity	31/12/2007	Research report
3	3 rd	6	Activity	Second year fish culture monitoring data analyzed for: - Yellow basin	31/12/2007	Records of harvest; report of initial results
3	4 th	6	Output	Second year fish culture trials harvested for: - Mekong basin	31/01/2008	Records of harvest; Audio-visual record
3	4 th	6	Activity	Second year fish culture monitoring data analyzed for: - Mekong basin	29/02/2008	Records of harvest; report of initial results
3	4 th	6	Output	Second year fish culture trials harvested for: - Niger basin	29/02/2008	Records of harvest; Audio-visual record
3	4 th	6	Activity	Second year fish culture trials harvested for: - Indo-Ganges basin	31/03/2008	Records of harvest; Audio-visual record

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
3	4 th	6	Activity	Second year fish culture monitoring data analyzed for: - Niger basin	31/03/2008	Records of harvest; report of initial results
3	4 th	8	Activity	Annual internal review conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/03/2008	Report of reviewers
3	4 th	8	Activity	External review conducted for the project	31/03/2008	Report of external reviewers
Phase Three						
4	1 st	6	Activity	Second year fish culture monitoring data analyzed for: - Indo-Ganges basin	30/04/2008	Records of harvest; report of initial results
4	1 st	6	Activity	Third year fish culture trials established for: - Yellow basin	31/05/2008	Fish culture enclosures re-established; audio-visual records
4	1 st	7	Activity	Project management workshops conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/05/2008	Workshops documents
4	2 nd	6	Activity	Third year fish culture trials established for: - Mekong basin	31/07/2008	Fish culture enclosures re-established; audio-visual records
4	2 nd	6	Activity	Third year fish culture trials established for: - Niger basin	31/07/2008	Fish culture enclosures re-established; audio-visual records
4	2 nd	6	Activity	Third year fish culture trials	3/09/2008	Fish culture enclosures re-

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				established for: - Indo-Ganges basin		established; audio-visual records
4	3 rd	6	Output	Third year fish culture trials harvested for: - Yellow basin	30/11/2008	Records of harvest; Audio-visual record
4	3 rd	6	Activity	Third year fish culture monitoring data analyzed for: - Yellow basin	31/12/2008	Records of harvest; report of initial results
4	4 th	6	Output	Third year fish culture trials harvested for: - Mekong basin	31/01/2009	Records of harvest; Audio-visual record
4	4 th	6	Activity	Third year fish culture monitoring data analyzed for: - Mekong basin	28/02/2009	Records of harvest; report of initial results
4	4 th	6	Output	Third year fish culture trials harvested for: - Niger basin	28/02/2009	Records of harvest; Audio-visual record
4	4 th	6	Activity	Third year fish culture trials harvested for: - Indo-Ganges basin	31/03/2009	Records of harvest; Audio-visual record
4	4 th	6	Activity	Dissemination of tested technology initiated for: - Mekong basin	31/03/2009	Packaged technology materials
4	4 th	6	Activity	Third year fish culture monitoring data analyzed for: - Niger basin	31/03/2009	Records of harvest; report of initial results
4	4 th	8	Activity	Annual internal review conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/03/2009	Report of reviewers
5	1 st	6	Activity	Third year fish culture	30/04/2009	Records of

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				monitoring data analyzed for: - Indo-Ganges basin		harvest; report of initial results
5	1 st	7	Output	Dissertation researches of six graduate students - completed	30/04/2009	Draft theses
5	2 nd	6	Activity	Dissemination of tested technology initiated for: - Indo-Ganges basin	30/09/2009	Packaged technology materials
5	2 nd	6	Activity	Three-year fish culture monitoring data analyzed for: - Indo-Ganges basin	30/09/2009	Report of initial results
5	2 nd	6	Activity	Adoption survey completed for: - Indo-Ganges basin	30/09/2009	Accomplished survey materials or questionnaires
5	2 nd	6	Activity	Three-year fish culture monitoring data analyzed for: - Mekong basin	30/09/2009	Report of initial results
5	2 nd	6	Activity	Adoption survey completed for: - Mekong basin	30/09/2009	Accomplished survey materials or questionnaires
5	2 nd	6	Activity	Dissemination of tested technology initiated for: - Niger basin	30/09/2009	Packaged technology materials
5	2 nd	6	Activity	Three-year fish culture monitoring data analyzed for: - Niger basin	30/09/2009	Report of initial results
5	2 nd	6	Activity	Adoption survey completed for: - Niger basin	30/09/2009	Accomplished survey materials or questionnaires
5	2 nd	6	Activity	Dissemination of tested technology initiated for: - Yellow basin	30/09/2009	Packaged technology materials
5	2 nd	6	Activity	Three-year fish culture	30/09/2009	Report of initial

Five-Year Project Milestone Plan

Project number: CPWF PN-35
 Project title: Community-Based Fish Culture
 Starting date: 01/04/2005
 Completion date: 31/03/2010

Yr*	Qtr*	Act #	Type	Description	Deadline*	Means of verification
				monitoring data analyzed for: - Yellow basin		results
5	2 nd	6	Activity	Adoption survey completed for: - Yellow basin	30/09/2009	Accomplished survey materials or questionnaires
5	3 rd	6	Output	Research reports on community-based fish culture for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	31/12/2009	Research report
5	4 th	7	Output	Theses submitted by graduate students	31/01/2010	Copies of theses
5	4 th	7	Activity	Project terminal workshops conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	28/02/2010	Workshops documents
5	4 th	7	Activity	Project terminal workshops conducted for: - Indo-Ganges basin - Mekong basin - Niger basin and - Yellow basin	28/02/2010	Workshops documents

*Project-year starts in April and ends in March – to coincide with the start of the Project in April 2005. So that 1st quarter is from April-June; 2nd quarter is from July-Sept; 3rd quarter is from Oct-Dec; and 4th quarter is from Jan-March

Annex 4 – Final Budget Allocation
Sources and Uses of Resources

Annual sources and uses of funds - CPWF PN-35, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
1	Contributed Funds						
	Matching funds						
2.1.1	Project Leader Salary	13,500	14,250	15,000	15,750	16,500	75,000
2.1.2a	PI (International)	10,800	11,400	12,000	12,600	13,200	60,000
2.1.3a	PI (National)	10,800	11,400	12,000	12,600	13,200	60,000
3.1.1	Office Equipment	16,000	16,000	16,000	16,000	16,000	80,000
3.2.1	Communication/Publication		5,000	5,000	5,000	5,000	20,000
	Total	51,100	58,050	60,000	61,950	63,900	295,000
2	Funds Requested from the CPWF						
	Personnel remunerations, travel and accommodation						
	Personnel costs						
2.1.1	Project Leader	27,000	28,500	30,000	31,500	33,000	150,000
2.1.2	Principal investigators (International)	45,900	48,450	51,000	53,550	56,100	255,000
2.1.3	Principal investigators (National)	11,000	11,000	11,000	11,000	11,000	55,000
2.1.4	Consultants	39,060	41,230	43,400	45,570	47,740	217,000
2.1.5	Support Staff	34,560	46,080	46,800	47,520	48,240	223,200
2.2	Travel and accommodation						
2.2.1	Project Leader	5,000	5,000	4,000	4,000	2,000	20,000
2.2.2	Principal investigators (International)	17,500	17,500	14,000	14,000	7,000	70,000
2.2.4	PI (National), Consultants & Support staff	6,117	11,893	11,518	11,518	5,026	46,072
3	Research operational costs						
	Equipment						
3.1.1	Office equipment	7,150	14,300	7,150			28,600
3.2	Communication costs and consumables						
3.2.1	Communication expenses	2,000	5,000	5,000	5,000	5,000	22,000
3.2.2	Office supplies	2,660	2,660	2,660	2,660	2,660	13,300
3.2.4	Field research supplies	25,975	84,409	84,529	83,681	10,484	289,078
3.2.5	Other services (workshops & PhD fellowships)	38,647	25,329	36,947	25,329	36,747	163,000
	Total of 2 & 3	262,569	341,351	348,004	335,328	264,998	1,552,250
4	Miscellaneous						
4.1	Contingency (3%)	7,877	10,241	10,440	10,060	7,950	46,567
4.2	Overheads (on WorldFish part)						73,737
4.3	Others (4% mgt fee on NARES)						25,355
	Total requested from the CPWF	270,447	351,592	358,444	345,388	272,947	1,697,910
	Grand Total	321,547	409,642	418,444	407,338	336,847	1,992,910

Annual sources and uses of funds - Three-CGIAR Centers (The WorldFish Center, IFPRI, WARDA) operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
Contributed Funds							
1	Matching funds						
2.1.1	Project Leader Salary	13,500	14,250	15,000	15,750	16,500	75,000
2.1.2a	PI (International)	10,800	11,400	12,000	12,600	13,200	60,000
3.1.1	Office Equipment	8,000	8,000	8,000	8,000	8,000	40,000
3.2.1	Communication/Publication		5,000	5,000	5,000	5,000	20,000
	Total	32,300	38,650	40,000	41,350	42,700	195,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.1	Project Leader	27,000	28,500	30,000	31,500	33,000	150,000
2.1.2	Principal investigators (International)	45,900	48,450	51,000	53,550	56,100	255,000
2.1.3	Principal investigators (National)						
2.1.4	Consultants	39,060	41,230	43,400	45,570	47,740	217,000
2.1.5	Support Staff	12,960	13,680	14,400	15,120	15,840	72,000
2.2	Travel and accommodation						
2.2.1	Project Leader	5,000	5,000	4,000	4,000	2,000	20,000
2.2.2	Principal investigators (International)	17,500	17,500	14,000	14,000	7,000	70,000
2.2.4	Consultants & Support staff	837	2,093	2,093	2,093	1,256	8,372
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	2,500	5,000	2,500			10,000
3.2	Communication costs and consumables						
3.2.1	Communication expenses	2,000	5,000	5,000	5,000	5,000	22,000
3.2.2	Office supplies	800	800	800	800	800	4,000
3.2.4	Field research supplies	6,511	11,417	11,537	10,689	5,618	45,772
3.2.5	Other services (workshops & PhD fellowships)	16,000	11,000	16,000	11,000	16,000	70,000
	Total of 2 & 3	176,068	189,670	194,730	193,322	190,354	944,144
4	Miscellaneous						
4.1	Contingency (3%)						
4.2	Overheads (on WorldFish part)						
4.3	Others (4% mgt fee on NARES)						
	Total requested from the CPWF	176,068	189,670	194,730	193,322	190,354	944,144
	Grand Total	208,368	228,320	234,730	234,672	233,054	1,139,144

Annex 4 – Final Budget Allocation
Sources and Uses of Resources

Annual sources and uses of funds - The WorldFish Center operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
Contributed Funds							
1	Matching funds						
2.1.1	Project Leader Salary	13,500	14,250	15,000	15,750	16,500	75,000
2.1.2a	PI (International)	10,800	11,400	12,000	12,600	13,200	60,000
3.1.1	Office Equipment	8,000	8,000	8,000	8,000	8,000	40,000
3.2.1	Communication/Publication		5,000	5,000	5,000	5,000	20,000
	Total	32,300	38,650	40,000	41,350	42,700	195,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.1	Project Leader	27,000	28,500	30,000	31,500	33,000	150,000
2.1.2	Principal investigators (International)	19,046	20,611	24,000	25,565	30,778	120,000
2.1.3	Principal investigators (National)						
2.1.4	Consultants	39,060	41,230	43,400	45,570	47,740	217,000
2.1.5	Support Staff	12,960	13,680	14,400	15,120	15,840	72,000
2.2	Travel and accommodation						
2.2.1	Project Leader	5,000	5,000	4,000	4,000	2,000	20,000
2.2.2	Principal investigators (International)	8,398	8,202	4,900	5,500	3,000	30,000
2.2.4	Consultants & Support staff	837	2,093	2,093	2,093	1,256	8,372
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	2,500	5,000	2,500			10,000
3.2	Communication costs and consumables						
3.2.1	Communication expenses	2,000	5,000	5,000	5,000	5,000	22,000
3.2.2	Office supplies	800	800	800	800	800	4,000
3.2.4	Field research supplies*	6,511	11,417	11,537	10,689	5,618	45,772
3.2.5	Other services (workshops & PhD fellowships)	16,000	11,000	16,000	11,000	16,000	70,000
	Total of 2 & 3	140,112	152,533	158,630	156,837	161,032	769,144
4	Miscellaneous						
4.1	Contingency (3%)						
4.2	Overheads (on WorldFish part)						
4.3	Others (4% mgt fee on NARES)						
	Total requested from the CPWF	140,112	152,533	158,630	156,837	161,032	769,144
	Grand Total	172,412	191,183	198,630	198,187	203,732	964,144

* 7% of NARES funds for re-allocation later in the Project.

Annex 4 – Final Budget Allocation
Sources and Uses of Resources

Annual sources and uses of funds - IFPRI operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
1	Contributed Funds						
	Matching funds						
2	Funds Requested from the CPWF						
	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.1	Project Leader						
2.1.2	Principal investigators (International)	19,873	20,672	20,374	21,173	19,778	101,870
2.1.3	Principal investigators (National)						
2.1.4	Consultants						
2.1.5	Support Staff						
2.2	Travel and accommodation						
2.2.1	Project Leader						
2.2.2	Principal investigators (International)	6,942	6,942	6,942	6,340	3,018	30,184
2.2.3	Principal investigators (National)						
2.2.4	Consultants & Support staff						
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment						
3.1.2	Laboratory equipment						
3.1.3	Field equipment						
3.1.4	Other equipment						
3.2	Communication costs and consumables						
3.2.1	Communication expenses						
3.2.2	Office supplies						
3.2.3	Laboratory supplies						
3.2.4	Field research supplies						
3.2.5	Other services (workshops & PhD fellowships)						
3.3							
	Total of 2 & 3	26,815	27,614	27,316	27,513	22,796	132,054
4	Miscellaneous						
4.1	Contingency (3%)						
4.2	Overheads (on WorldFish part)						
4.3	Others (4% mgt fee on NARES)						
	Total requested from the CPWF	26,815	27,614	27,316	27,513	22,796	132,054
	Grand Total	26,815	27,614	27,316	27,513	22,796	132,054

Annex 4 – Final Budget Allocation
Sources and Uses of Resources

Annual sources and uses of funds - WARDA operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
	Contributed Funds						
1	Matching funds						
	Funds Requested from the CPWF						
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.1	Project Leader		7,167	6,626	6,812	5,544	33,130
2.1.2	Principal investigators (International)	6,981					
2.1.3	Principal investigators (National)						
2.1.4	Consultants						
2.1.5	Support Staff						
2.2	Travel and accommodation						
2.2.1	Project Leader						
2.2.2	Principal investigators (International)	2,160	2,356	2,158	2,160	982	9,816
2.2.3	Principal investigators (National)						
2.2.4	Consultants & Support staff						
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment						
3.1.2	Laboratory equipment						
3.1.3	Field equipment						
3.1.4	Other equipment						
3.2	Communication costs and consumables						
3.2.1	Communication expenses						
3.2.2	Office supplies						
3.2.3	Laboratory supplies						
3.2.4	Field research supplies						
3.2.5	Other services (workshops & PhD fellowships)						
3.3							
	Total of 2 & 3	9,141	9,523	8,784	8,972	6,526	42,946
4	Miscellaneous						
4.1	Contingency (3%)						
4.2	Overheads (on WorldFish part)						
4.3	Others (4% mgt fee on NARES)						
	Total requested from the CPWF	9,141	9,523	8,784	8,972	6,526	42,946
	Grand Total	9,141	9,523	8,784	8,972	6,526	42,946

Annex 4 – Final Budget Allocation

Sources and Uses of Resources

Annual sources and uses of funds - Six-country field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
in US \$							
Contributed Funds							
1	Matching funds						
2.1.3a	PI (National)	10,800	11,400	12,000	12,600	13,200	60,000
3.1.1	Office Equipment	8,000	8,000	8,000	8,000	8,000	40,000
	Total	18,800	19,400	20,000	20,600	21,200	100,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.3	Principal investigators (National)	11,000	11,000	11,000	11,000	11,000	55,000
2.1.5	Support Staff	21,600	32,400	32,400	32,400	32,400	151,200
2.2	Travel and accommodation						
2.2.4	PI (National), Consultants & Support staff	5,280	9,800	9,425	9,425	3,770	37,700
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	4,650	9,300	4,650			18,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	1,860	1,860	1,860	1,860	1,860	9,300
3.2.4	Field research supplies	19,464	72,992	72,992	72,992	4,866	243,306
3.2.5	Other services (workshops & PhD fellowships)	22,647	14,329	20,947	14,329	20,747	93,000
	Total of 2 & 3	86,502	151,681	153,274	142,006	74,643	608,106
4	Miscellaneous						
4.1	Contingency (3%)						
4.2	Overheads (on WorldFish part)						
4.3	Others (4% mgt fee on NARES)						
	Total requested from the CPWF	86,502	151,681	153,274	142,006	74,643	608,106
	Grand Total	105,302	171,081	173,274	162,606	95,843	708,106

Annex 4 – Final Budget Allocation

Sources and Uses of Resources

Annual sources and uses of funds - Bangladesh field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
in US \$							
Contributed Funds							
1	Matching funds						
2.1.3a	PI (National)	2,700	2,850	3,000	3,150	3,300	15,000
3.1.1	Office Equipment	2,400	2,400	2,400	2,400	2,400	12,000
	Total	5,100	5,250	5,400	5,550	5,700	27,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.3	Principal investigators (National)	2,000	2,000	2,000	2,000	2,000	10,000
2.1.5	Support Staff	4,000	6,000	6,000	6,000	6,000	28,000
2.2	Travel and accommodation						
2.2.4	PI (National) and Support staff	750	2,250	1,875	1,875	750	7,500
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	900	1,800	900			3,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	360	360	360	360	360	1,800
3.2.4	Field research supplies	3,904	14,639	14,639	14,639	976	48,798
3.2.5	Other services (workshops & PhD fellowships)	5,000	3,300	3,300	3,300	3,100	18,000
	Total requested from the CPWF	16,914	30,349	29,074	28,174	13,186	117,698
	Grand Total	22,014	35,599	34,474	33,724	18,886	144,698

Annex 4 – Final Budget Allocation

Sources and Uses of Resources

Annual sources and uses of funds - India field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
Contributed Funds							
1	Matching funds						
2.1.3a	PI (National)	2,700	2,850	3,000	3,150	3,300	15,000
3.1.1	Office Equipment	2,400	2,400	2,400	2,400	2,400	12,000
	Total	5,100	5,250	5,400	5,550	5,700	27,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.3	Principal investigators (National)	1,000	1,000	1,000	1,000	1,000	5,000
2.1.5	Support Staff/2 scholars	4,000	6,000	6,000	6,000	6,000	28,000
2.2	Travel and accommodation						
2.2.4	PI (National) and Support staff	1,530	2,550	2,550	2,550	1,020	10,200
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	900	1,800	900			3,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	360	360	360	360	360	1,800
3.2.4	Field research supplies	4,088	15,329	15,329	15,329	1,022	51,098
3.2.5	Other services (workshops & PhD fellowships)	4,235	2,647	4,235	2,647	4,235	18,000
	Total requested from the CPWF	16,113	29,686	30,375	27,886	13,637	117,698
	Grand Total	21,213	34,936	35,775	33,436	19,337	144,698

Annex 4 – Final Budget Allocation

Sources and Uses of Resources

Annual sources and uses of funds - Vietnam field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
in US \$							
Contributed Funds							
1	Matching funds						
2.1.3a	PI (National)	2,700	2,850	3,000	3,150	3,300	15,000
3.1.1	Office Equipment	1,600	1,600	1,600	1,600	1,600	8,000
	Total	4,300	4,450	4,600	4,750	4,900	23,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.3	Principal investigators (National)	2,000	2,000	2,000	2,000	2,000	10,000
2.1.5	Support Staff	4,000	6,000	6,000	6,000	6,000	28,000
2.2	Travel and accommodation						
2.2.4	PI (National), Consultants & Support staff	750	1,250	1,250	1,250	500	5,000
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	900	1,800	900			3,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	360	360	360	360	360	1,800
3.2.4	Field research supplies	4,104	15,389	15,389	15,389	1,026	51,298
3.2.5	Other services (workshops & PhD fellowships)	4,235	2,647	4,235	2,647	4,235	18,000
	Total requested from the CPWF	16,349	29,446	30,135	27,646	14,121	117,698
	Grand Total	20,649	33,896	34,735	32,396	19,021	140,698

Annex 4 – Final Budget Allocation

Sources and Uses of Resources

Annual sources and uses of funds - Cambodia field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
in US \$							
Contributed Funds							
1	Matching funds						
2.1.3a	PI (National)	2,700	2,850	3,000	3,150	3,300	15,000
3.1.1	Office Equipment	1,600	1,600	1,600	1,600	1,600	8,000
	Total	4,300	4,450	4,600	4,750	4,900	23,000
Funds Requested from the CPWF							
2	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.3	Principal investigators (National)	2,000	2,000	2,000	2,000	2,000	10,000
2.1.5	Support Staff	3,200	4,800	4,800	4,800	4,800	22,400
2.2	Travel and accommodation						
2.2.4	PI (National), Consultants & Support staff	750	1,250	1,250	1,250	500	5,000
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	650	1,300	650			2,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	260	260	260	260	260	1,300
3.2.4	Field research supplies	2,456	9,211	9,211	9,211	614	30,704
3.2.5	Other services (workshops & PhD fellowships)	3,059	1,912	3,059	1,912	3,059	13,000
	Total requested from the CPWF	12,375	20,733	21,230	19,433	11,233	85,004
	Grand Total	16,675	25,183	25,830	24,183	16,133	108,004

Annex 4 – Final Budget Allocation
Sources and Uses of Resources

Annual sources and uses of funds - Mali field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
1	Contributed Funds						
	Matching funds						
2	Funds Requested from the CPWF						
	Personnel remunerations, travel and accommodation						
2.1	Personnel costs						
2.1.3	Principal investigators (National)	2,000	2,000	2,000	2,000	2,000	10,000
2.1.5	Support Staff	3,200	4,800	4,800	4,800	4,800	22,400
2.2	Travel and accommodation						
2.2.4	PI (National), Consultants & Support staff	750	1,250	1,250	1,250	500	5,000
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	650	1,300	650			2,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	260	260	260	260	260	1,300
3.2.4	Field research supplies	2,456	9,211	9,211	9,211	614	30,704
3.2.5	Other services (workshops & PhD fellowships)	3,059	1,912	3,059	1,912	3,059	13,000
	Total requested from the CPWF	12,375	20,733	21,230	19,433	11,233	85,004
	Grand Total	12,375	20,733	21,230	19,433	11,233	85,004

Annex 4 – Final Budget Allocation

Sources and Uses of Resources

Annual sources and uses of funds - China field operations, April 2005 to March 2010.

Code	Line Items	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
----- in US \$ -----							
1	Contributed Funds						
	Matching funds						
2	Funds Requested from the CPWF						
2.1	Personnel remunerations, travel and accommodation						
Personnel costs							
2.1.3	Principal investigators (National)	2,000	2,000	2,000	2,000	2,000	10,000
2.1.5	Support Staff	3,200	4,800	4,800	4,800	4,800	22,400
2.2	Travel and accommodation						
2.2.4	PI (National), Consultants & Support staff	750	1,250	1,250	1,250	500	5,000
3	Research operational costs						
3.1	Equipment						
3.1.1	Office equipment	650	1,300	650			2,600
3.2	Communication costs and consumables						
3.2.2	Office supplies	260	260	260	260	260	1,300
3.2.4	Field research supplies	2,456	9,211	9,211	9,211	614	30,704
3.2.5	Other services (workshops & PhD fellowships)	3,059	1,912	3,059	1,912	3,059	13,000
	Total requested from the CPWF	12,375	20,733	21,230	19,433	11,233	85,004
	Grand Total	12,375	20,733	21,230	19,433	11,233	85,004

Project Inception Report: CPWF PN-35

Community-Based Fish Culture in Irrigation Systems and Seasonal Floodplains

A4.12

Annex 5 – Schedule of Payments

Schedule of Payment - from CPWF to The WorldFish Center

Payment Number	Amount (US\$)	Estimate Date of Payment	Payment Subject to
PHASE ONE PAYMENT			
1	61,077	April 2005	Paid on return of the signed Letter of Agreement. These funds are to cover the Phase one activities of the project - specifically implementation meetings.
PHASE TWO PAYMENTS			
1	91,616	June 2005	Paid on acceptance of the documentation required in Clause 6.03 of the Project Agreement to commence phase two operations.
2	152,692	September 2005	Paid on acceptance of the first six month progress report (see Clause 8 of the Project Agreement for the recommendations and actions taken regarding progress reports which activate this and all other payments)
3	178,630	March 2006	Paid on acceptance of the first year annual report.
4	178,630	September 2006	Paid on acceptance of the second year six month report
5	186,347	March 2007	Paid on acceptance of the second year annual report (Note that a third year milestones and workplan must be submitted at this point - refer to Clause 6.04 of the Project Agreement)
6	186,347	September 2007	Paid on acceptance of the third year six month progress report.
7	181,052	March 2008	Paid on acceptance of the third year annual report. (Note that a fourth and fifth year milestones and workplan must be submitted at this point if the project is to progress to Phase Three - refer to Clause 6.06 of the Project Agreement. An external review may also be undertaken)
PHASE THREE PAYMENTS			
8	181,053	September 2008	Paid on acceptance of the fourth year six month progress report.
9	150,233	March 2009	Paid on acceptance of the fourth year annual report.
10	120,187	September 2009	Paid on acceptance of the fifth year six month progress report.
11	30,046	March 2010	Paid on acceptance of the Project Completion Report and an external audit report (See Clause 4.11 of the Project Agreement)

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to CGIAR CenterS (IFPRI and WARDA)

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	17,978	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	17,978	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	18,569	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	18,569	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	18,050	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	18,050	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	18,243	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	18,243	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	14,661	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	11,729	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	2,932	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to IFPRI

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	13,408	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	13,408	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	13,807	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	13,807	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	13,658	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	13,658	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	13,757	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	13,757	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	11,398	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	9,118	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	2,280	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to WARDA

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	4,571	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	4,571	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	4,762	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	4,762	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	4,392	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	4,392	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	4,486	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	4,486	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	3,263	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	2,610	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	653	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to the Six Country Partners

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	43,251	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	43,251	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	75,841	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	75,841	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	76,637	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	76,637	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	71,003	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	71,003	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	37,322	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	29,857	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	7,464	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to the Bangladesh Agricultural Research Council (BARC)

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Dates of Reports
Phase Two Payments				
1	8,457	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	8,457	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	15,175	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	15,175	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	14,537	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	14,537	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	14,087	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	14,087	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	6,593	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	5,274	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	1,319	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to the Indian Council of Agricultural Research

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	8,057	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	8,057	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	14,843	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	14,843	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	15,187	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	15,187	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	13,943	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	13,943	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	6,819	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	5,455	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	1,364	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to the Research Institute for Aquaculture 2 (Vietnam)

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	8,175	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	8,175	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	14,723	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	14,723	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	15,067	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	15,067	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	13,823	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	13,823	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	7,061	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	5,649	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	1,412	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to the Department of Fisheries (Cambodia)

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	6,188	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	6,188	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	10,366	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	10,366	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	10,615	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	10,615	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	9,716	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	9,716	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	5,616	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	4,493	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	1,123	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to Inland Valley Consortoum - Mali Unit

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	6,188	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	6,188	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	10,366	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	10,366	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	10,615	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	10,615	October 2007	3rd Year: Three-Month Milestone Report 3rd Year: Six-Month Progress Report	June 1, 2007 September 1, 2007
7	9,716	April 2008	3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	9,716	October 2008	4th Year: Three-Month Milestone Report 4th Year: Six-Month Progress Report	June 1, 2008 September 1, 2008
9	5,616	April 2009	4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	December 1, 2008 March 1, 2009
10	4,493	October 2009	5th Year: Three-Month Milestone Report 5th Year: Six-Month Progress Report	June 1, 2009 September 1, 2009
11	1,123	April 2010	5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	December 1, 2009 March 1, 2010

Annex 5 – Schedule of Payments

Schedule of Payment - from The WorldFish Center to the Freshwater Fisheries Research Center (China)

Payment Number	Amount (US\$)	Schedule of Payment	Subject to Receipt and Acceptance of Following Reports	Due Date of Report or Document
Phase Two Payments				
1	6,188	July 2005	Signed Memorandum of Agreement (MOA)	July 15, 2005
2	6,188	October 2005	1st Year: Three-month Progress Report.	September 1, 2005
3	10,366	April 2006	1st Year: Six-Month Milestone Report 1st Year: End-of-Year Annual Report.	December 1, 2005 March 1, 2006
4	10,366	October 2006	2nd Year: Three-Month Milestone Report 2nd Year: Six-Month Progress Report	June 1, 2006 September 1, 2006
5	10,615	April 2007	2nd Year: Nine-Month Milestone Report 2nd Year: End-of-Year Annual Report. Finalized 3rd Year Milestone and Work Plans	December 1, 2006 March 1, 2007 March 1, 2007
6	10,615	October 2007	3rd Year: Three-Month Milestone Report	June 1, 2007
7	9,716	April 2008	3rd Year: Six-Month Progress Report 3rd Year: Nine-Month Milestone Report 3rd Year: End-of-Year Annual Report. Finalized 4th and 5th Year Milestone and Work Plans	September 1, 2007 December 1, 2007 March 1, 2008 March 1, 2008
Phase Three Payments				
8	9,716	October 2008	4th Year: Three-Month Milestone Report	June 1, 2008
9	5,616	April 2009	4th Year: Six-Month Progress Report 4th Year: Nine-Month Milestone Report 4th Year: End-of-Year Annual Report.	September 1, 2008 December 1, 2008 March 1, 2009
10	4,493	October 2009	5th Year: Three-Month Milestone Report	June 1, 2009
11	1,123	April 2010	5th Year: Six-Month Progress Report 5th Year: Nine-Month Milestone Report 5th Year: End-of-Project Completion Report.	September 1, 2009 December 1, 2009 March 1, 2010

Table of Third Party IP to be Used in the Project

Description of Third Party IP	Source of Third Party IP	Owner of Third Party IP	IP Rights Owned by Third Party	Status of Third Party IP Rights
1. Tangible Property – “Things”				
Not applicable*				
2. Methods of “Doing Something”				
Not applicable*				
3. Written Text and Computer Code				
Not applicable*				

*Please note that during the Project Inception Workshop held on 7-10 June 2005 at the WorldFish Center, the participants (principal investigators and national partners) have determined and signified that no *private property*, tangible or not, would be used in the project that would infringe on intellectual property rights of owners. They further signify that any output of the project would be global public good.