

## MEMORANDUM OF AGREEMENT

Between

Sunamganj Community Based Resources Management Project  
(SCBRMP)

Local Government Engineering Department (LGED),  
Sher - e - Bangla Nagar, Agargaon,  
Dhaka - 1207  
Bangladesh.

And

International Center for Living Aquatic Resources Management  
(ICLARM)

also known as The WorldFish Center with its headquarters  
at Jalan Batu Maung, Batu Maung,  
11960 Bayan Lepas, Penang,  
Malaysia.



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also known as  
**The WorldFish Center**

### A. Background and Introduction

Sunamganj Community Based Resource Management Project (SCBRMP), Bangladesh, with funding by the International Fund for Agricultural Development (IFAD) has been implemented by Local Government Engineering Department (LGED) in Sunamganj district. The overall objective of SCBRMP is to alleviate poverty of 90,000 households of Sunamganj through ensuring their access to resources and building their other livelihoods capitals. The project comprises five components: a) Labor Intensive Infrastructure Development; b) Community Based Fisheries Management; c) Agriculture and Livestock Development; d) Microfinance Services; and e) People Centered Institution Building. The project commenced in January 2003 and will end in June 2014. The total funding of the project is BDT 20,046.63 Lk.

The Fisheries is a very challenging component to the project. The component has a plan to access a large number of beels of different sizes and bring those under community based sustainable resource management. The project has the obligation to maintain conservation and biodiversity of beel fisheries in its process of intervention. Along with other activities the intervention includes some studies for assessing the impacts of project activities on biodiversity of beel fisheries. SCBRMP, being convinced by the capacity and scope of WorldFish Center and further taking into account of IFAD Final Design Document (FDD) of the CBFM-SSEA project mentioned about the particular scope for cooperation between CBFM-SSEA and SCBRMP notably in the field of research, training and communication, takes interest to invite WorldFish Center for conducting some of those studies in the project's working area.

The WorldFish Center is an international, non-profit, research organization that works to reduce poverty in developing countries through enhancing fish production in open and closed water-bodies available for food and income. The Center provides the



appropriate scientific knowledge required to increase fish production, guide the management of fisheries and other aquatic ecosystems, reverse habitat degradation, and influence policies involving fish and the people who depend on them. In Bangladesh the Center has been working for nearly 30 years to develop sustainable, equitable and participatory fisheries management practices in beels, haors, rivers and floodplains and a pioneer in introducing community based fisheries management (CBFM) types of action research project in South and Southeast Asia.

#### **B. Objectives**

The objectives of this project component are:

- i) assessing the impact of community based fisheries of SCBRMP on fish catch (by volume and value) and biodiversity through a regular catch survey at 60 sites;
- ii) estimating and simulating sustainable level of yield and corresponding fishing efforts and developing management models for scaling up;
- iii) livelihood impact analysis of Beel User Group members in beel fisheries involved in 25 sites; and
- iv) Disseminate findings to a wider level national and international audience

#### **C. Terms of Reference**

WorldFish Center will take the responsibilities to carry out the tasks that agreed upon by both parties (Annex A, B and C).

#### **D. Duration**

This agreement will commence from the date of the last signature herein, and will continue until June 2011 Therefore the first contract is for almost four years and a subsequent contract will be made for the following two more years without any interruption,

#### **E. Contractual Sum**

The SCBRMP of LGED will pay WorldFish Center a total of no more than TK 37,274,000 as contractual sum for the activities listed in Section C. No other fees, reimbursements, allowances or benefits will be paid under this agreement other than those specified herein. Payments will be made on quarterly basis with one quarter in advance amounting to BDT and liquidation report will be submitted within next month of the completed quarter. The yearly breakdown of total fund has been shown below:

1. BDT 6854000 First year budget ( As per approved DPP and allocation in the ADP)



2. BDT 6084000 Second year budget
3. BDT 6084000 Third year budget
4. BDT 6084000 Fourth year budget
5. BDT 6084000 Fifth year budget
6. BDT 6084000 Sixth year budget

Before the starting of each financial year WorldFish Center will submit the AWPB for the coming year with detail Action/procurement plan that should be mutually agreed by the both parties.

Any unspent amount of the contractual sum held by WorldFish Center at the completion or sooner termination of the contract shall be returned to the SCBRMP-LGED within 60 days after the completion or sooner termination of the contract.

**F. WorldFish Center's Bank Information**

Name of Bank	: Standard Chartered
Bank Postal Address	: Gulashan North Branch, Dhaka
Name of Account	: ICLARM- WORLD FISH
Bank Account Number (BDT)	: 01-5625130-04
Account Type	: Non-Convertible A/C

**G. Reporting:**

Regional Director of the WorldFish Center, Bangladesh and South Asia Office will submit quarterly financial & physical report to the Project Director of SCBRMP using WorldFish standard format. Apart from this Sr. Research Associate and Fisheries Scientist of the WorldFish Center will contact with Fisheries Sector Specialist and responsible person of the SCBRMP PMU for regular coordination. In addition WorldFish Center and SCBRMP will carry out separate internal audit in each fiscal year.

**H. Contact person:**

Project Director  
SCBRMP project  
LGED Bhaban,  
Sher - e - Bangla Nagar, Agargaon  
Dhaka

Regional Director  
WorldFish Center  
Bangladesh and South-Asia Office  
Dhaka 1213







#### **I. Indemnity and Liability**

The indemnity and liability arising from or incidental to the partner's work specified in Section C herein will be settled through the clauses mention in this agreement and also reciprocated understanding. The partner (WorldFish Center) will arrange for his/her own team (Annex C) engaged under this contract medical, life, and professional liability insurance and shall be responsible for any damage, loss, suit, claim and demand whatsoever that may arise from and related to this project. The WorldFish Center shall indemnify and keep indemnified at all times SCBRMP of LGED against such damage, loss, suit, claim and demand. This indemnity shall continue even after the termination of this agreement or after the completion of the project.

#### **J. Intellectual Property**

All information, findings, data, results and benefits arising from the project/collaboration shall be treated as, whether or not registered, intellectual property created in the course of this contract as mentioned in the Annex A.

#### **K. Amendments and Modifications**

This MOA may not be amended or modified unless mutually agreed upon in writing by the parties, and the changes shall then form part of this MOA.

#### **L. Termination**

Either party may terminate this MOA by giving 60 days notice in writing to the other party stating the reasons for such termination, after a reasonable effort to salvage it has failed. Upon the expiry of the notice, this MOA shall be terminated and become null and void. If this Agreement is terminated by SCBRMP-LGED, WorldFish is entitled to claim payment due and payable for work done until and before the date of the termination subject to WorldFish Center's submission of any reports or manuscripts that are due before the termination of the MOA.

#### **M. Choice of Law**

The laws of Bangladesh shall apply and the parties herein agree to be bound by the Court of competence jurisdiction of Bangladesh.

In implementation of this contract will be guided by regular IFAD supervision missions' recommendations for the SCBRMP-LGED.



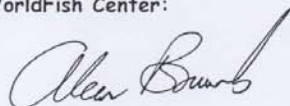
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#### N. Ownership of Physical Assets

SCBRMP-LGED shall have the legal ownership of any assets that are purchased under this contract. The transfer of assets shall be documented through a signed deed after successful completion of contract.

Signed

WorldFish Center:



Alan C. Brooks for  
Stephen J. Hall  
Director General  
The WorldFish Center  
Penang, Malaysia

Date: 4<sup>th</sup> October 2007

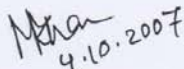
LGED:



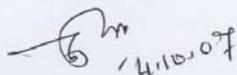
Md. Shahidul Hassan  
Chief Engineer  
LGED, Dhaka  
Bangladesh

Date:

Witness of WorldFish Center:

  
4.10.2007

A K M Firoz Khan,  
Senior Research Associate  
WorldFish Center

  
4.10.07

Golam Mostofa  
Senior Fisheries Coordinator  
WorldFish Center  
Dhaka

Witness of IFAD/LGED:



Nigel Brett  
Country Programme Manager  
IFAD

  
4.10.07

Sk. Md. Mohsin  
Project Director  
SCBRMP-LGED  
Dhaka

## **Annex A: Intellectual Property**

### **1. Intellectual Property: Definition**

"Intellectual property" means information, ideas, inventions, innovations, art work, data, designs, literary texts and any other matter or thing whatsoever as may be capable of legal protection or the subject of legal rights and includes the following:

- Patents;
- Information which is of a kind and which has been communicated in such a way as to give rise to a duty of confidentiality;
- Copyright vesting in literary works (including computer programs), dramatic works, musical works, artistic works, films, photos, sound recordings, multi media works, broadcast, published editions and certain types of performance;
- Registered trademarks;
- Unregistered trademarks used or intended for use in business;
- Registered designs and designs capable of being registered;
- New fish (or other biological organisms) varieties and the rights of breeders of such varieties;
- Layout designs of integrated circuits;
- Databases;
- Other rights resulting from intellectual activity in the industrial, commercial, scientific, literary and artistic fields.

### **2. Intellectual Property Rights**

All intellectual property rights arising from the partnership must be treated in the following manner:

- a) If all or a substantive majority of the cost of the collaborative project are borne by the SCBRMP, the SCBRMP reserves the right to own all intellectual property rights resulting from the project but the SCBRMP permit the partner to use the information, and vice versa;
- b) If the partner contributes approximately 50% of the cost, the intellectual property rights will be shared jointly and cross-licensed.

### **3. Intellectual Property Rights Protection**

The WorldFish Center, who believes that intellectual property rights protection should be sought by the WorldFish Center in relation to aspects of the collaborative work, must discuss this with their SCBRMP counterpart.

*Hla*



## **Annex B: Terms of reference for fish catch monitoring, biodiversity and livelihood studies**

### **Background**

The International Fund for Agricultural Development (IFAD) has been providing assistance to the People's Republic of Bangladesh to implement the Sunamganj Community Based Resource Management Project (SCBRMP) in the district of Sunamganj. The project is being implemented in three phases, phase 1 from 2002-3 to 2006-7, phase 2 from 2007-8 to 2010-11 and phase 3 from 2010-11 to 2013-14 maintaining fiscal year that started from 1 July and ended on 30 June. The total funding of the project is BDT 20,046.63 Lak.

The overall objective of SCBRMP is to alleviate poverty of 90,000 households of Sunamganj district through ensuring their access to resources and building their livelihood scope and capacities. The project comprises five components: a) Labor Intensive Infrastructure Development; b) Community Based Fisheries Management; c) Agriculture and Livestock Development; d) Microfinance Services; and e) People Centered Institution Building.

The Project is intervening fisheries resources through group approach Called a Beel User Group (BUG). The BUG comprises 20 to 310 members each. It is expected out of final target of 300 BUGs by the end of year 2007 around 93 BUGs will be formed. The project requires to study the effect of its intervention on fish Catch and Biodiversity, and livelihoods of BUG households..

### **Component 1. Catch Monitoring and Biodiversity Impacts study**

#### **Introduction**

The *haor beel* environments of Bangladesh are extremely complex and their understanding requires thorough investigative studies to add value to existing community-led approaches through ongoing SCBRMP in Sunamganj district. This study will provides us clear understanding of the impact of the dynamics of fishing activities (or other interventions) on *haor beel* resources and their sustainable management efficiency and consequence impact on the biological growth performances as well as BUGs identify their own resource monitoring approaches. The study will determine alternative management options to mitigate negative impacts and add value to existing approaches.

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### Study Objective

The objective of the study is to assess the impact on fish catch (by volume and value) and biodiversity of SCBRMP interventions in forming Beel User Groups. This assessment should be made in the context of environmental conditions (including but not necessarily limited to hydrology, connectivity and size of beel), fishery management practices (with special reference to the use and abuse of Fish Aggregating Devices such as kathas and closed seasons) and external pressures.

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### Key Indicators

The study should focus on the following key indicators:

Indicators	Explanatory Variables
CPUA (Catch per Unit Area)	Habitat type, hydrology, management type, years under SCBRMP, production potentials, closed season duration, gear bans, fish sanctuary area, fishing intensity, illegal fishing/poaching, closed season fishing, destructive fishing
SYPUA (Stocking Yield per Unit Area)	Habitat type, production potential, stocking intensity, stocking size, stocking density, number of species stocked, stocking duration, stocking cost, harvest revenue
CPD (Catch per Fisher Day)	As for CPUA
VPD (Value per Fisher Day)	As CPD + % sold and price received
CPUE (Catch per Unit Effort)	As for CPUA
VPUE (Value per Unit Effort)	As CPUE + % sold and price received
DFER (Destructive Fishing Effort Ratio)	Habitat type, fishing intensity, destructive fishing
DPUA (Person Fishing Days per Year per Unit Area)	Habitat type, management type, fishing intensity
EPUA (Mean Gillnet Effort per Unit Area)	Habitat type, management type, fishing intensity
Biodiversity ('H')	As for CPUA
Exploitation Rate ('E')	Asymptotic length, growth parameter, fishing and natural mortality, yield and biomass ratio
Incidence of closed-season fishing (on study site by outsiders)	number of incidence per year
Incidence of closed-season fishing (by study site fishers on other beels)	number of incidence per year

*Naba*

### Technical Approach

Fishing effort and catch measurement should be conducted through a regular catch survey for a sample of the fishing gears/teams in operation. At each site, measurements should be taken from a sample of teams/gears on four days per month, distributed to take account of changing fishing conditions due to the moon phase. On each sampling day a gear census should be conducted a basis for sampling and to provide a multiplier for deriving total catch estimates.

Organized fishing is one of the major contributions to the total catch and all records (total production, harvesting cost, harvest revenue, consumption etc.) should be collected during harvesting period.

Length-frequency data collection should be conducted through a regular survey from four potential sites in four Upazilas. At each site measurement should be taken four days per month. This study will provide us growth co-efficient, mortality, recruitment pattern, exploitation rate of important species which will be used to support decision-making process for sustainable fisheries management as well as an indicator to compare the performance of BUGs management with time.

Catches at all Fish Aggregating Devices (FAD - *kathas*) on each study site should be recorded with census (100%) coverage because of their major contribution to total catch and the scope they offer for abuse. At each site where *katha* constructed measurements should be taken from a sample of teams/gears on three to five days per months.

Details stocking and harvesting records (number of stocking species, stocking rate, stocking size, duration, cost, harvest revenue etc.) from stocking sites should be collected twice a month from BUGs record book.

On each sampling day or at the earliest opportunity thereafter data should be obtained on proportion of catch consumed, catch sold and average price received, as a basis for estimating value per fisher-day and per unit effort. Place and method of sale (direct to consumer, to wholesaler, etc.) should also be recorded.

At each study site the number, size and type of fish sanctuaries should be measured, at a minimum each season (more often if within-season changes occur).

Important hydrological parameters (water depth, water temperature, turbidity should be measured twice per month.





### Site Sampling

Subject to modification in the light of an initial detailed assessment of site typology, the study should cover 60 sites. The total number of sites under SCBRMP (planned eventually to reach 300) should be grouped according to their typology (hydrology, connectivity, depth, area). A random sample of 60 sites should be taken such that each type of site is represented in proportion to its representation in the project area. However, WorldFish Center will select 30 samples from the existing 68 waterbodies and remaining 30 samples will be selected from new batch of SCBRMP waterbodies.

### Data collection and analysis process

The fish catch monitoring program will be implemented independently on 60 SCBRMP sites. At each site, a local "Community Enumerator" will conduct i) catch monitoring survey for 4 days per month, ii) *Khata* census and *khata* catch survey for 3 to 5 days per month during *katha* harvesting season, iii) Organized fishing data collection during harvesting season for 3 to 5 days, and iv) environmental data collection for 2 days per month. Furthermore, length-frequency data of important species will be collected for 4 days per month from 4 potential and representative sites in four Upazilas. In each Upazila the Research Assistant (responsible for that Upazila) will collect all filled-up data-sheets twice a month from "Community Enumerator". Furthermore Research Assistant will verify and encoded all collected data-sheets, and enter into the data-base using Microsoft-Access based software developed by the WorldFish Center. Research Assistant will also work with data-base and duly check for error, null cell, missing data etc through using time log frame and submit monthly report to Research Fellow (Research Associate)/Research Scientist. Research Fellow will verify data-base regularly and prepare data tables and also conduct analysis. Research Scientist will cross-check and validate data-base and prepare output tables for secondary analysis and report preparation. Research Scientist will also look after all research activities and provide suggestions for improvement and result disseminations at field level. Research Fellow will supervise all monitoring activities and staff movement, management and implementation. Research Fellow (Research Associate) will coordinate and liaison all program related activities with SCBRMP management.

### Outputs

The study shall produce the following outputs:

- A consolidated Annual Report to SCBRMP by the end of June each year, covering:
  - Catch statistics analysis (CPUE, CPOA, Catch per fisher's day, etc.)
  - Monthly species distribution pattern
  - Seasonal variation of catch composition
  - Annual biodiversity level for each site

*NTA*



- Fishing activity and seasonal distribution of efforts
  - Estimated catch and total fishing gear/device for each site
  - Fish population dynamics
  - Growth dynamics
  - Natural, fishing and total mortality parameters
  - Recruitment pattern, gear selectivity
  - Yield and biomass, length-cohort analysis and yield-value-biomass prediction
  - Fish consumption
  - Fisheries income
  - Lessons from above for fisheries management
- Working papers or technical papers will be prepared using baseline, impact survey and trends analysis
  - Booklets and policy briefs
  - Peer reviewed journal papers

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## Component 2 Livelihood Impact Assessment of Beel User Groups

### Introduction

In order to monitor changes in livelihoods it is important to identify and monitor key livelihood indicators that enable SCBRMP to understand how fisheries management programs impact upon the lives of the project participants. These indicators need to verify at different stage of the project work to ascertain effectively fisheries management components impacts on the poor participants. Assessment of changes in livelihoods and capital assets (especially of the poor), the extent that any changes are due to the project intervention and the factors contributing to livelihoods changes for these of stakeholders in the communities.

### Scope of Work

The WorldFish Center will collect, analyze and report impact data from a randomized sample of members of the existing BUGs. The baseline for impact measurement shall be the Household Profiles compiled for each member household on enrolment. A random sample of members shall be taken from the list of existing profiles and impact shall be measured by re-interview to obtain updated values of the profile indicators.

The WorldFish Center shall be responsible for drawing the samples for interview from lists of BUGs and BUG members supplied by SCBRMP. The samples shall be drawn by two-stage sampling. The first-stage sample shall consist of 25 BUGs selected by Linear Systematic Sampling from the list of BUGs. The second-stage sample shall consist of 125 BUG members selected by Simple Random Sampling from the members of the BUG selected in the first stage. The second-stage sample shall consist of 5 members per first-stage BUG.

The survey is required to measure changes in the indicators recorded for each BUG member's household, at the time of, on the SCBRMP Household Profile format (copy attached). The original Household Profiles of all selected sample members shall be made available to the WorldFish Center by SCBRMP. The WorldFish Center shall develop a questionnaire to measure the present status of the indicators, giving maximum attention to securing comparability with the original Profiles.

The WorldFish Center shall analyze the data to show the extent of changes in the indicators since the groups were formed. The WorldFish Center shall employ statistical testing to verify the reality of differences in performance over time.

The WorldFish Center shall prepare a report setting out the results of the study. The report shall also include details of the methodology used, including copies of questionnaires and details of the sampling method.

*Hda*

#### Timing of BUG Livelihood Impact Assessment

Impact survey will be carried out by existing staffs (Research Assistants and capable community resource persons). Sample size and methodology has already been determined by the SCBRMP mission. There will be three cycle of BUG livelihoods impact study within the project period. A sequence of tentative timing of the assessment has given in following table:

	Sampling and interviewer training	Survey and questionnaire checking coding	Data Entry and Analysis	Report writing
First cycle	November 2007	December 2007	January to February 08	March 2008
Second cycle	April 2009	May 2009	June - July 2009	August 2009
Third cycle	October 2010	November 2010	December 10 to January 11	February 2011

#### Need Based Support

Through implementation and coordination of CBFM approach in Bangladesh and other parts of East Asia within last decade WorldFish Center has the capacity to deliver requisite skills and knowledge to stakeholder groups for establishing effective fisheries management. Training will be needs based and financed separately by the SCBRMP project. Curriculum of the training program will be jointly prepared by WorldFish Center staff allocated to the project and SCBRMP project management.

The training to trainers, field staffs and CBO members may be extended beyond research work upon securing budgetary provision for the WorldFish Center by the SCBRMP.

#### Communications

SCBRMP will bear the costs for the development and publication of all communications products and information sharing events according to their need. The WorldFish Center will provide the necessary content for these products and events. The WorldFish Center may use the source data to publish science based materials.

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## **Annex C: Terms of Reference**

### **1. Terms of Reference for Fisheries Resources Scientist**

The specific responsibilities are:

- to facilitate technical activities including planning, designing and scheduling of the catch monitoring and population dynamics related research activities;
- to develop questionnaires for catch monitoring and biological surveys and prepare comprehensive schedule for data collection;
- to facilitate and conduct relevant training for all Community Enumerator and Research Assistant;
- to communicate all implementation of the research activities;
- to develop Access-based data entry software;
- to oversee verification and validation of the data-base;
- to analyze and interpret all catch monitoring and biological data including biodiversity indices and prepare relevant reports;
- to finalise quarterly and annual reports as required by this component; and
- to prepare relevant science based material and communication documents.

### **2. Terms of Reference for Research Associate/Research Fellow**

The specific responsibilities are:

- to facilitate and support technical activities including planning and scheduling of the fisheries monitoring and livelihood impact studies;
- to liaise with SCBRMP counterpart staff as required;
- to supervise implementation of all project management activities, both catch monitoring and livelihoods impact study;
- to facilitate and conduct relevant training for all Community Enumerator and Research Assistants;
- to verify and validate data-base to complement data management requirements of Fisheries Scientist;
- to compile and analyze livelihoods data and prepare reports;
- to provide relevant input to quarterly and annual reports; and
- to provide inputs for science materials and assist in preparation of communication document.

*Adrian*



### 3. Terms of Reference for Research Assistant

The specific responsibilities are:

- to oversee the method of collection and ensure data accuracy for all information collected from project participants by respective Community Enumerators;
- to facilitate and conduct relevant training for all Community Enumerator including frequent coaching and mentoring support;
- to coordinate with SMS (Subject Matter Specialist) fisheries of the SCBRMP to get information on fisheries management related activities in the sample water-bodies;
- to disburse monthly salary and field expenses fro respective Community Enumerator;
- to verify data sheet, data encoded, data entry, data checking and primary analysis.
- to prepare data tables; and
- to prepare short monthly report issues and events of the assigned water-bodies.

### 4. Terms of Reference for Community Enumerator

The specific responsibilities are:

- to collect biological and livelihoods data at field level;
- to check all data sheets before submitting to the Research Assistant; and
- to submit all data sheets to Research Assistant before the 7<sup>th</sup> of each month.

*Alha*