

## TERMS OF REFERENCE FOR LOAN-FUNDED PROJECT IMPLEMENTATION CONSULTANTS

### A. Project Implementation

1. The consultants will assist with overall coordination of the project through relevant agencies at national, provincial, district, commune and tertiary level. They will also coordinate with the agencies involved in the Dau Tieng irrigation system (DTIS) under the Viet Nam Water Resources Assistance Project (VWRAP). The tasks covered in the terms of reference (TOR) require integrated management through the deployment of a team of specialists covering a wide range of disciplines, as summarized in the table below.

**Table 1: Summary of Consulting Services<sup>1</sup>**

Expertise	Person-months	
	International	Domestic
<b>Part A: Support for Institutional and Integrated Development</b>		
Team Leader/Integrated Management Specialist	30	
Deputy Team Leader/Irrigation System Management Specialist		48
Resettlement Specialist		16
PIM, Training, Agricultural Extension and Institutions Specialist	7	
PIM, Training, Agricultural Extension Specialist		60
Social Support Specialist	3	10
Environment Specialist	1	9
Unallocated Specialists	3	10
<b>Subtotal Part A</b>	<b>44</b>	<b>197</b>
<b>Part B: Water Resources Infrastructure</b>		
Senior Hydraulic Structures Design Engineer	1	1
Geotechnical Engineer	1	1
Mechanical Engineer		6
Irrigation Design Engineer		5
Contracts Engineer		28
Chief Resident Engineer (1 CRE)	28	
Resident Engineers ( 3 domestic)		84
Unallocated Specialists	2	4
<b>Subtotal Part B</b>	<b>32</b>	<b>129</b>
<b>Total</b>	<b>76</b>	<b>312</b>

### B. Project Management

2. The consultants will assist with overall management of project implementation, assisting to plan and implement an integrated approach. This will require:

<sup>1</sup> The expertise areas and inputs are indicative and are to be firmed up between MARD and the selected consultants based on an agreed methodology and work program.

- i. Working with the Ministry of Agriculture and Rural Development (MARD-the executing agency), the Hydraulic Investment and Construction Management Board (ICMB9) in Ho Chi Minh City (HCMC), and implementing agencies, the provincial departments of agriculture and rural development (DARDs), and their provincial project management boards (PPMBs) and irrigation management companies (IMCs) to itemize the key tasks and identify the resources and schedules required.
  - ii. Supporting the Project Steering Committee (PSC), the Project Consultative Committee (PCC), and the task force for sustainable system management.<sup>2</sup>
  - iii. Detailing the project's strategy for supporting the agriculture transformation in the project area and supporting its implementation.
  - iv. Ensuring that implementation schedules reflect the envisaged integrated approach, with phasing of all the interrelated activities.
  - v. Identifying tasks on the critical path, and ensure these are given particular attention. Assisting with all aspects of project administration, performance and monitoring, and preparation of project reports.<sup>3</sup>
  - vi. Providing on-the-job training and capacity building for counterparts.
3. The consultants will assist with implementation of the project's strategy to support the transformation of the present predominantly rain-fed agriculture to high-value irrigated agriculture production systems. This will be the main task of the consultants' core management team (team leader and deputy team leader). It will require establishing efficient working relationship with the central and provincial agencies directly and indirectly involved in implementation of the Project under the guidance of the PCC and the PSC. The team will also need to seek synergies between the project activities and programs being undertaken by non-project agencies (government and non-government) that would support the implementation of the project's agriculture transformation strategy. Furthermore, the core management team will assist in introducing mechanisms for sustainable management of the Dau Tieng-Phuoc Hoa.
4. **Monitoring Project Performance.** As part of the project management role, the consultants will assist to implement the agreed project performance management system (PPMS). This will include assisting IMC's and water user groups (WUGs) to monitor and evaluate implementation of their agreed operation plans, identify performance constraints, and formulate and implement practical remedial measures. Annual performance evaluations will be conducted as a basis for refined operation planning, and assessments of the project impacts on poverty.

## C. Preparatory Activities

5. The consultants will review water balance projections from the perspective of future cropping and irrigation systems, and prepare tentative operation plans for dissemination to farmers as a basis for their informed collective decision making. Indicative considerations include water requirements for different crops under different conditions and soil types.<sup>4</sup> The supply of irrigation for fruit trees and vegetables by re-pumping canal seepage losses, and

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<sup>2</sup> The consultants will also act as secretary for the committees and the task force.

<sup>3</sup> These reports will include, among others, quarterly progress reports and the Project Completion Report.

<sup>4</sup> This will include water requirements for rice percolation losses versus realistic operational losses and efficiencies to accommodate tertiary rotations for intermittent irrigation of crops other than rice.

practical alternatives for irrigating extensive areas of grain legumes at night will also be considered.

## **D. Support for Integrated Development and Management**

### **1. On-farm and Social Development<sup>5</sup>**

6. The consultants will assist the DARDs to implement an integrated program for community mobilization, agricultural and social support, and organizing farmers in WUGs - the On-Farm and Social Development Program (OSDP). The OSDP will be implemented by the PPMBs in association with other DARD organizations and the provincial IMCs through local organizations (such as social science institutes or NGOs<sup>6</sup>) and local consultants. The consultants will arrange and provide training, technical assistance, and monitoring.

7. To support the OSDP in each of the two irrigation subprojects, the consultants will monitor implementation of the OSDP programs and revise the Implementation Manual regularly during project implementation to incorporate the experiences and lessons learned. The consultants will also assist the PPMBs to monitor the performance of the local institutions contracted to implement the OSDP programs.

8. For design and construction of the tertiary, secondary, and primary canal systems (including drainage systems if required), the consultants will assist the PPMBs to:

- i. Supervise and monitor the contractors;
- ii. Ensure adoption of the participatory process in the construction of the canal systems.

9. For each of the two irrigation subareas, the consultants will assist provincial IMCs and WUGs to:

- i. Monitor and evaluate implementation of their operation plans, identify performance constraints, and formulate and implement practical remedial measures;
- ii. Conduct annual performance evaluations with the participation of the WUGs as a basis for refined operation planning.

10. **Baseline and Follow-up Surveys.** The consultants will assist the IMCs to prepare a TOR for the IMCs to contract to a local consultant in order to facilitate participatory baseline surveys in tertiary units during the year prior to their commissioning.<sup>7</sup> The surveys are intended to further stimulate demand, accelerate adoption of agricultural transformation, and provide a platform for subsequent WUG participation in operation planning and system management. Upon commissioning of the systems, follow-up surveys will be conducted to monitor project benefits and evaluate impacts. Special attention will be given during the design of the surveys to ensure that project impacts on the poor are captured, including quantitative and qualitative assessments of the levels and nature of poverty and vulnerability.

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<sup>5</sup> On-farm development includes the construction of tertiary canal infrastructure and the lower order (farm) distribution system, and investments by individual farmers (e.g. tubewells, perennial crops, etc).

<sup>6</sup> The organizations will have a proven track record in large-scale social mobilization and community development. Selection will take into consideration attitudes and values of the candidate organizations, as well as formal qualifications and experience.

<sup>7</sup> The program is for completion of tertiary units during the supplementary loan period.

11. **Social Support.** The consultants and community mobilizers will assist implementing agencies (IAs) in relation to the Duc Hoa main canal and the Duc Hoa and Tian Bien irrigation systems to develop a participatory social support program for disadvantaged and vulnerable groups, building on the program outlined in the feasibility study. Appropriate activities will depend on the specific needs of each group identified. Indicative activities include:

- i. Conduct preliminary screening of basic characteristics and issues in each commune including rapid social assessments to identify and locate the main target groups;
- ii. Conduct social and cultural assessments in each irrigation service area including focus group meetings to ascertain target group needs, aspirations and preferences;
- iii. Conduct baseline surveys and follow-up surveys, which should include monitoring and evaluation of the effects on poverty;
- iv. Facilitate participation of target groups in program development/implementation;
- v. Coordinate the program with activities of Government, NGO's, bilateral agencies and international donors working on poverty reduction in the project area.

## **2. Sustainable System Management**

12. The consultants will support the Task Force set up to guide the process of developing the System's overall management objectives and the management plans for the Dau Tieng IMC and the provincial IMCs. Discussion papers on issues will be prepared for consideration and further guidance by the concerned departments within MARD, the provincial peoples' committees, and when needed also from other government agencies.

## **3. Resettlement**

13. The consultant will assist the ICMB9, and the PPMBs to provide overall planning, coordination and supervision of the resettlement program, and establish project-wide consistent procedures for planning, implementing and monitoring resettlement activities for the Phase 2 implementation including those affected by construction of the Duc Hoa main canal, and the irrigation beneficiaries along the main, primary and secondary canal routes. These should be integrated into the holistic participatory agricultural transformation process to be implemented within the two irrigation service areas. The affected households may require compensation, relocation, and income restoration. However, relocation of irrigation beneficiaries will be minimized as there is some flexibility in locating the final alignment of canals which is to be done in a participatory way to minimize disruption to landholdings and property and minimize resettlement requirements. The consultant will also provide formal and on-the-job training and capacity building in resettlement and social assessment for the IAs, resettlement committees, community-based organizations, and the external monitoring organization.

14. The consultant will assist with the monitoring of resettlement activities for those adversely affected by Phase 1 activities including construction of the barrage, transfer and Tan Bien main canals, and impoundment of the reservoir. The consultant will also guide and assist the IAs, to operate management information systems (MIS) procedures and monitoring activities to track compliance with project policies.

## **E. Environmental Management**

15. The consultants will assist the ICMB9, and in particular the unit that is subcontracted to undertake responsibility for environmental issues, to:

- i. Design and implement technical studies to monitor key environmental issues that will fall within the responsibility of the ICMB9 including: a) monitoring of the environmental impact of the TBIS on the Lo Go Xa Mat National Park; b) continuation of a water quality monitoring network as recommended in the environmental management plan (EMP); c) monitoring local land-use patterns of the potential acid soils in and around the DHIS; and d) monitor the social and environmental benefits of the proposed fish pass at the Phuoc Hoa barrage;
- ii. Prepare proposals for inclusion in construction contracts to mitigate adverse impacts on forest areas, road networks, and community severance;
- iii. Assist with coordination of the EMP including reporting and coordination meetings with provincial departments of natural resources and environment (DONREs) and other interested parties;
- iv. Oversee preparation and approval of the construction contractor's site EMPs by reviewing and commenting on the draft versions to ensure they are to an adequate standard;
- v. Monitor implementation of the site EMPs through site visits, data review, and meetings, and ensure implementation is to government and ADB standards;
- vi. Take corrective management actions with construction contractors if monitoring of site EMPs reveals any deficiencies in the contractor's performance.

## **F. MAIN WATER RESOURCES INFRASTRUCTURE**

### **1. Detailed Design and Procurement**

16. The consultants will assist in the preparation of prequalification documents together with evaluation criteria for the international competitive bidding (ICB) contract of Duc Hoa main canal. All procurement documents will be prepared on the basis of ADB guidelines and sample documents for ICB procurement for the Duc Hoa main canal. The consultants will assist the ICMB9 in the prequalification of contractors and the bid evaluation following ADB guidelines.

### **2. Construction**

17. The consultants will assist ICMB9 to manage and supervise the ICB contractor for the Duc Hoa main canal. As "the Engineer", the consultants will ensure timely progress of the works, enforce specified materials and workmanship requirements, and control the quality of construction. This includes assessment of programs, materials, labor, construction methods, and monitoring compliance with specified construction methods, installation, and commissioning. It also includes supervision of contractor's programs, rates of progress, performance testing, compliance with specifications and drawings, health, safety, and environmental requirements. Specific tasks will include, but not limited to:

- i. Undertake day-to-day construction supervision and monitoring of quality control, application of Quality Assurance procedures, adequacy of contractor's designs and drawings, and preparation of progress and other reports;
- ii. Issue interim payment certificates for consideration to ICMB9;

- iii. Examine contractors' claims; decide on claims that fall within the authority of the Engineer; make recommendations for claims to be considered by ICMB9;<sup>8</sup>
- iv. Examine the need for contract variations; decide on contract variations within the delegated authority of the Engineer and for all other variations make recommendations to ICMB9;
- v. Monitor compliance of environmental mitigation and management plans by contractors;
- vi. Monitor preparation of as-built drawings by contractors;
- vii. Prepare partial, substantial and final completion certificates for consideration by MARD.

### **3. Commissioning and Operation**

18. The consultants will assist ICMB9 and the IMCs with the commissioning and operation phases of the ICB contract for Duc Hoa main canal and the commissioning and operation of the tertiary systems of the two irrigation systems. It will involve building capacity within the IMCs to manage the project facilities. Commissioning covers initial operation to identify and rectify any construction faults prior to official contractor's handover of completed systems to the IMCs. Particular attention will be given to establishment of a Phuoc Hoa subunit of the Dau Tieng IMC. The consultants will identify specific facilities needed, expertise and staffing requirements, and prepare detailed operating and management procedures, including those relating to minimizing the social and environmental impacts of the barrage (according to World Commission on Dams guidelines) which will be supported by a full operation manual. The operating and management procedures should be developed in consultation with stakeholders, including the Dong Nai River Basin Organization.<sup>9</sup>

### **4. Support for Project Performance Management System**

19. The Consultant will assist ICMB9 and the PPMBs to operationalize ADB's PPMS for monitoring and evaluating implementation performance and development impacts at various stages of the project cycle. The PPMS will include participatory baseline surveys in each of the irrigation subprojects shortly before commissioning, and follow-up surveys to evaluate changes. The Consultants are to prepare the TOR for monitoring and evaluation in order for the IMCs to contract out the work to a local consultant. Monitoring and evaluation of pro-poor effects of the Project will be integrated into the system. Benefits generated during the project period will be measured against these initial data.

### **G. Specific Deliverables**

20. The list of deliverables mentioned in this Section is not to be treated as a comprehensive list. Additional deliverables may be specified during contract negotiations between the selected Consultant and MARD.

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<sup>8</sup> For certain claims, ICMB9 may need to seek approval from MARD.

<sup>9</sup> During the performance of the services under the Consultant's contract, the Consultant may be requested by ICMB9 for render additional services related to and within the scope of the Project.

## 1. Project Management and Implementation Reports<sup>10</sup>

21. **Inception Report.** Two (02) months after the mobilization, the Consultant will submit to ICMB9 an Inception Report. The contents will include, but not limited to:

- Confirmation, and where necessary elaboration and/adjustment of the Consultants' approach and methodology based on the data and information gathered during the inception phase;
- Detailed plan for the Consultants' activities, and confirmation and/or adjustment of the tasks of each expert together with a further elaboration of the tasks where necessary;
- Detailed implementation plan for the Project's activities from commencement to finishing; and
- Issues identified during the inception phase and recommendations to address them.

22. **Draft Final Report.** The Draft final report will be submitted at least six months prior to the completion date of the Consultants' contract or at another date mutually agreed between the Consultants and the ICMB9. Details of the report's outline and its contents will be agreed upon between the Consultants and ICMB9 at least six months prior to the due submission date.

23. **Final Report.** The Final Report will be submitted not later than the completion date of the Consultants' contract.

24. **Special Reports requested by ADB and AFD.** The ICMB9 may request the Consultants to prepare special reports at the request of ADB and AFD.

25. **Quarterly reports.** The reports will be submitted to ICMB9 before the 15th of the first month of the next quarter. Quarterly reports will be concise, summarizing quarterly implementation status of the Project in terms of inputs and outputs, proposing plans and schedules for the next quarter respectively, as well as issues and problems identified and recommendations to resolve these. The reports will provide the information and data available to the Consultant that are required to operationalize the PPMS.

## 2. Other Deliverables

26. ICB pre-qualification and bidding documents for the Duc Hoa main canal following the ADB's sample bidding documents for ICB contracts.

27. The following reports shall be prepared by the Consultant in English and Vietnamese and 10 copies of each submitted to the Client, initially in draft followed by final copies and electronic copies after review and amendment.

No.	Deliverables	Submission date (Months after commencement)
1	Inception Report	2
2	Draft Completion Report of Consulting Services	30

<sup>10</sup> The ICMB9 may request the Consultant to submit an outline of the reports for approval prior to its preparation.

3	Final Completion Report of Consulting Services	36
4	Special Reports Requested by ADB and AFD	As required by ADB/AFD
5	Quarterly Progress Reports	Quarterly
6	Prequalification and Bidding Documents for ICB Contracts & Bid Evaluation Criteria	2
7	Project Completion Report	36
8	Briefing Progress Reports for ADB and AFD Missions	*
9	Annual Progress Reports	Every 12 months
10	Other reports requested by the Client for completion by BVI staff when they are in Vietnam	*

\* Submission dates as required by ICMB9

The content of all reports to be approved by the Client before preparation and to be in accordance with Section E of the ToR.

## H. Outline Terms of Reference for Individual Consultants

### Part A: Support for Institutional and Integrated Development

#### a. Team Leader/Integrated Management Specialist (International)

Key tasks:

- Itemize key tasks and identify the resources and schedules required
- Ensure that implementation schedules reflect an integrated approach
- Identify tasks on critical path. Oversee all aspects of project administration, performance and monitoring and preparation of reports
- Undertake a comprehensive review of the feasibility study, relevant background material and VWRAP
- Develop and operationalize sustainable management of the entire system
- Supervise the finalization of detailed designs, total cost estimates, Bill of Quantities & tender documents for bidding, construction drawings and cost estimates
- Provide training to counterparts

Qualifications: Graduate degree in engineering, water resources management or equivalent professional qualifications. At least 15 years experience in similar projects involving supervision of irrigation system design and construction, participatory water resources development and institutional reforms, and in establishing quality control and monitoring systems, preferably in Asia.

#### b. Deputy Team Leader/Irrigation System Management Specialist (Domestic)

Key tasks:

- Support PSC, PCC and the Task Force for sustainable system management
- Assist IMC's and WUG's to monitor and evaluate implementation of agreed operation plans

- Support Task Force to guide the process of developing the system's overall management objectives and plans
- Detail strategy for supporting agriculture transformation
- Assist with all aspects of project administration, performance and monitoring and preparation of reports
- Introduce mechanisms for sustainable management of the Dau Tieng – Phuoc Hoa System
- Monitor Project Performance – Assist in establishing the ADB's PPMS System
- Optimise the use of available water resources against changing demands
- Develop a Resource-Based Management Plan (RBMP) for each IMC
- Implement the management plans by developing management systems
- Provide on-the-job training and capacity building

Qualifications: Graduate degree in engineering, water resources management or equivalent professional qualifications. At least 15 years experience in similar projects involving supervision of irrigation system design and construction, and in establishing quality control and monitoring systems. Fluency in the English language is required and experience in participatory water resources development is highly desirable.

### **c. PIM, Training, Agricultural Extension and Institutions Specialist (International)**

Key tasks:

- Review feasibility study – Comprehensive review of FS, background material and VWRAP
- Advise PSC and prepare a policy brief for endorsement by the PSC relating to government policy, regulatory requirements and implementation approach for PIM;
- Advise ICMB9 and Project area PPC, DARD and PPMBs regarding the regulatory and organizational requirements to effectively implement PIM within the project area;
- Advise the OSDP consultants in the Tan Bien and Duc Hoa irrigation subprojects on organizational requirements for effective PIM and capacity building requirements for stakeholders to achieve the necessary knowledge and skill levels
- Develop a process to establish WUGs and model regulations to clarify the role of WUG in design and O&M
- Develop a model contract between WUG & IMC for delivery of irrigation supplies
- Arrange and provide training, technical assistance and monitoring
- Detailing strategy for supporting agriculture transformation
- Identifying tasks on critical path. Assist with all aspects of project administration, performance and monitoring and preparation of reports
- Prepare TOR and output-based service contracts to assist implementation of OSDP
- Prepare improved training programs for trainers, DARD/IMC staff, draw up an annual training plan, and arrange training for them;
- Provide technical assistance and on-the-job training

Qualifications: Graduate degree in participatory development or equivalent professional experience in particular in assisting the development of water user associations (WUAs). At least 15 years of international professional experience in managing participatory water resources and rural development projects in developing countries, preferably in Asia.

#### **d. PIM, Training, Agricultural Extension Specialist (Domestic)**

##### **Key tasks:**

- Assist with detailing strategy for supporting agriculture transformation
- Assist DARDs to implement integrated program for community mobilization, agricultural and social support
- Undertake a participatory diagnosis of farmer's production constraints
- Supervise OSDP consultants to develop packages for agriculture and social support

Qualifications: Relevant tertiary qualifications with over 20 years professional experience. The consultant should have intensive working experience in agriculture extension activities carried out by the Government and NGOs.

#### **e. Social Support Specialist (International)**

##### **Key tasks:**

- Assist DARDs to implement integrated program for community mobilization, agricultural and social support
- Develop a participatory social support program
- Preliminary screening of basic characteristics and issues
- Conduct social and cultural assessments
- Conduct baseline surveys and follow-up surveys
- Facilitate participation of target group
- Coordinate the program with relevant agencies and stakeholders
- Arrange training, provide technical assistance and on-the-job training

Qualifications: Degree in sociology or relevant subject with a minimum 15 years experience in carrying out sociological studies and implementation of social development programs in developing countries, preferably in SE Asia.

#### **f. Resettlement Specialist (Domestic)**

##### **Key tasks:**

- Provide overall planning, coordination and supervision of the resettlement program, establish consistent
- Provide formal and on-the-job training and capacity building in resettlement and social assessment
- Assist with updating of Resettlement Plans
- Assist in preparing and implementing an RP for each irrigation subproject
- Arrange training, provide technical assistance and on-the-job training

Qualifications: A qualified social scientist with a graduate degree and extensive professional resettlement administration and rural livelihood improvement experience.

#### **g. Environment Specialist (International)**

##### **Key tasks:**

- Review and update Environmental Management Plan

- Formulate grievance process to address environmental and social safeguards issues for adoption by the project
- Assist ICMB9 to supervise technical studies to monitor key environmental issues
- Prepare proposals for inclusion in construction contracts

Qualifications: Relevant degree with over 15 years professional experience. The consultant should have carried out environmental impact assessments related to water resource projects as well as preparation and implementation of an environmental management and monitoring plan.

## **Part B: Water Resources Infrastructure**

### **h. Senior Hydraulic Structures Design Engineer (International)**

Key tasks:

- Develop design criteria, standards and specifications
- Review the advance detailed design and ICB tender documents already completed for bidding & construction
- Review benchmark controls and detailed topographic surveys of the two irrigation systems
- Review Duc Hoa main canal trip surveys, cadastral mapping, cross-section plotting and long sections
- Review drawings completed ready for bidding & construction
- Finalize detailed designs, cost estimates, Bill of Quantities & ICB tender documents for bidding & construction, construction drawings and cost estimates
- Prepare a design report to explain rationale and methodology

Qualifications: Minimum of graduate degree in engineering specializing in hydrology with at least 20 years experience in the design and construction of hydraulic structures for water transfer and irrigation. At least 5 years of international professional experience in similar projects in developing countries, preferably in Asia.

### **i. Geotechnical Engineer (International)**

Key tasks:

- Review the advance detailed design and tender documents
- Review geotechnical investigations
- Review drawings, ready for bidding & construction

Qualifications: Minimum of graduate degree in engineering specializing in geotechnical engineering with at least 20 years experience in the geotechnical aspects of water transfer and irrigation. At least 5 years of international professional experience in similar projects in developing countries, preferably in Asia.

### **j. Mechanical Engineer (Domestic)**

Key tasks:

- Review the advance detailed design and ICB tender documents (Mechanical items)
- Review preparation of construction drawings, ready for bidding (Mechanical items)

- Finalize detailed designs, cost estimates, Bill of Quantities & ICB tender documents for bidding and construction, construction drawings and cost estimates
- Monitor quality control (Factory inspection & commissioning)

Qualifications: Minimum of graduate degree in engineering specializing in mechanical engineering with at least 20 years experience in the mechanical engineering aspects of water transfer and irrigation. At least 5 years of international professional experience in similar projects in developing countries, preferably in Asia.

#### **k. Irrigation Design Engineer (Domestic)**

Key tasks:

- Review the available information and recommend mapping standards to facilitate the participatory layout & design of the irrigation system for agreement during farmer visits
- Develop arrangements for the participation of the WUGs in the design of primary and secondary canal systems
- Develop performance objectives at the tertiary and higher order canals
- Review the advance detailed design and tender documents
- Review benchmark controls and detailed topographic surveys of the two irrigation systems
- Review drawings, ready for bidding and construction
- Finalize detailed designs, cost estimates, Bill of Quantities & tender documents for bidding & construction, construction drawings and cost estimates
- Prepare a design report to explain design rationale and methodology

Qualifications: Minimum of graduate degree in engineering specializing in mechanical engineering with at least 15 years experience in irrigation system design and construction supervision.

#### **l. Contracts Engineer (Domestic)**

Key tasks:

- Develop procurement documents, Terms of Reference and model contracts for selection of local consultants for design and construction supervision
- Develop procurement documents for civil works contracts for the canal systems
- Prepare prequalification documents together with evaluation criteria
- Examine contractors' claims
- Examine need for contract variations

Qualifications: Minimum of graduate degree in engineering specializing in mechanical engineering with at least 15 years experience in irrigation system design and construction supervision.

#### **m. Chief Resident Engineer (International)**

Key tasks:

- Management and supervision of contractors as Engineer
- Day-to-day construction supervision and monitoring of quality control
- Issue of interim payment certificates

- Examining contractors' claims
- Examining need for contract variations
- Monitoring compliance with environmental mitigation and management plans
- Monitoring preparation of as-built drawings
- Preparation of partial, substantial and final completion certificates
- Provide on-the-job training

Qualifications: B.Sc. or post graduate Civil Engineering with at least 20 years experience in increasingly responsible positions including at least five years in the construction of irrigation systems. Past experience shall include successfully completing a previous position as Construction Manager on project/s of similar nature and scope of work and five years experience with administration of FIDIC.

#### **n. Resident Engineers (Domestic) x 3**

Key tasks:

- Supervise and monitor the local consultants and contractors
- Review benchmark controls and detailed topographic surveys of the two irrigation systems
- Day-to-day construction supervision and monitoring of quality control
- Monitoring preparation of as-built drawings
- Provide on-the-job training

Qualifications: Minimum of graduate degree in civil engineering with at least 5 years experience in irrigation system development including design and construction supervision.

## **OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR CONSTRUCTION SUPERVISION**

### **A. Introduction**

28. The Phuoc Hoa Water Resources Project will develop water resources infrastructure, comprising the Phuoc Hoa barrage and transfer canal to divert and convey water from the Be river to the existing Dau Tieng reservoir on the Saigon river in the neighboring basin. From there it will be diverted through the existing Dau Tieng irrigation system for multiple uses: irrigated agriculture, supplementary water for urban and industrial use, and salinity control in the Saigon and Vam Co Dong river basins. Two new irrigation areas will be developed: Tan Bien irrigation system in Tay Ninh province, and Duc Hoa irrigation system in Long An province. For this purpose, Civil Works Contractors will be engaged who will be selected on the basis of National Competitive Bidding (NCB) basis. The civil works are carried out as per the technical specification as enshrined in the contracts with the civil works contractors.

29. The Government of Vietnam wishes to engage a firm of consultants to function as supervision consultants to supervise the detail design and construction of the Duc Hoa irrigation system and Tan Bien irrigation system. The main responsibilities of the supervision consultants include review and approval of design carried by the contractor, certification of all the works under the civil works contract for quality and quantity, civil works contract administration, and benefit monitoring and evaluation.

### **B. Objective**

30. The primary objectives of the consulting services are to:

- i. Function as the Engineer in administering the civil works contract (the Contract) in accordance with the FIDIC conditions of Contract;
- ii. Review and advise ICMB9 on approval of the detailed design prepared by Design Consultants Contractors;
- iii. Review and advise ICMB9 on approval of the construction methods and construction implemented by the Construction Contractors
- iv. Ensure that the permanent and temporary works have been designed and are constructed in accordance with the provisions of the Contracts and in accordance with the Vietnamese Design and Construction Standards; and
- v. Advise ICMB9 on all matters concerning implementation of the Contracts including quality control, work progress, implementation issues, and arbitration or litigation etc.

### **C. Scope of Work**

#### **1. Civil Works Contract Administration**

**31. Design review.** Detailed engineering designs have been prepared through a firm of consultants. The design review includes, but is not limited to, the following:

- i. Establish the schedule, methods and procedures for the review of detailed engineering design and construction drawings of the civil works provided by the Employer.

- ii. Review the detailed design and construction drawings in accordance with the design standards, criteria and conceptual design provided in the Contract. The Consultant will complete the review within 21 days after submission of the documents to enable finalization and commencement of construction.
- iii. Ensure that the Technical Specifications in the Bid Documents and the provisions of Vietnamese Design and Construction Standards have been duly accounted for in the detailed engineering design and construction drawings.

## **2. Contract Administration**

32. The construction works will be executed under the International Federation of Consulting Engineers (FIDIC) Conditions of Contract for Works of Civil Engineering Construction. Accordingly, ICMB9 will be the Employer and the consultant will function as the Engineer. The consultant will administer the civil works contracts and ensure that the irrigation system is constructed in accordance with the provision of the civil works contracts. The consultant will be required to nominate an engineer's representative who will be a full-time resident in the project area. The responsibility of the Engineer includes, but is not limited to, the following tasks:

- i. Give the order to commence the works;
- ii. Review and approve contracts proposed personnel for positions nominated in the Contract;
- iii. Inspect and approve all material sources identified by the Contractor;
- iv. Review and approve the Contractor's implementation schedule, and supervise the progress of construction works. The Consultant will keep the Employer informed of any delay or potential delays in the work schedule of the Contract, and will take all necessary actions to prevent potential delays;
- v. Review, approve and monitor the construction plan to minimize disruption to vehicular traffic and agricultural activities during construction, and to ensure that construction activities do not endanger safety of the public;
- vi. Regularly monitor and inspect the contractor's quality control and assurance program to ensure that quality of the finished works meet the contract standards and specifications. This includes regular checking of the materials testing program;
- vii. Advise and assist the Employer with respect to arbitration or litigation relating to the works, whenever required;
- viii. Monitor progress of the construction works through computer-aided project management techniques;
- ix. Convene regular site meetings with the Contractor to discuss issues and problems affecting the progress, and brief the Employer;
- x. Coordinate with the relevant local government authorities/agencies so as to minimize disruption to the works program, as required by the Contractor;
- xi. Review the contractor's insurance cover to ensure that the contractor has provided all the insurance required by the contract and such insurance are maintained throughout the contract period;
- xii. Prepare any required variation orders requested by the Employer and review any variation order proposed by the contractor and provide their advice to the Employer in accordance with the contract;

- xiii. Review all claims submitted by the Contractor and provide advice to the Employer of the validity of the claim, the effect of such claim on the construction schedule and the cost of the project;
- xiv. Review and comment on the monthly progress reports submitted by the contractor detailing the work undertaken during the previous month, the progress of the work against the approved schedule, the problems and difficulties encountered by the contractor and other issues requested by the Employer;
- xv. Issue completion certificate after satisfactory completion of the works in accordance with the contract provisions;
- xvi. Supervise updating of the Resettlement Plan, if necessary, and develop poverty monitoring impact monitoring systems;
- xvii. Review and advise ICMB9 whether the construction methods as proposed by the contractor for carrying out the works are satisfactory, with particular references to the technical requirements of sound environmental standards on the basis of ADB's Safeguards Policy Statement (2009), inspection of contractor's construction equipment, safety of the works, property, personnel, and general public;
- xviii. Assess and check the laboratory and field tests carried out by the contractor, and independent tests.
- xix. Issue orders to the Contractor to remove or improve any works that are not in accordance with the drawings and/or specifications;
- xx. Maintain records of all testing work, including cross-referencing of items of work to which each test refers and location from which any samples were obtained for testing.
- xxi. At the completion of the contract, verify the contractor's "as-built drawings" as a true record of the works as constructed;
- xxii. Measure the completed works and keep detailed records, including the measurement books;
- xxiii. Prepare quarterly cash flow projections for the Employer in an acceptable format, in which cash flow should identify budget estimates for all outstanding works;
- xxiv. Supervise the maintenance of records for all plant, labour and materials used in the construction of the works;
- xxv. Supervise the process of interim and final payments to the Contractor (interim monthly payment shall be based on interim payment certificate processed by the Consultant following claims filed by the Contractor);
- xxvi. The Consultant will be responsible for checking and monitoring the performance requirements in the Contract and ensuring the criteria and limits are met;
- xxvii. Maintain a day-to-day diary, which shall record all events pertaining to the administration of the contract, request forms, and order given to the contractor, and any other information which may at a later date be of assistance in resolving queries which may arise connecting execution of the works;
- xxviii. Supervise the the implementation of training programs of ICMB9 staff at the site on project management including quality assurance and contract administration.

33. In addition or as an expansion of the activities and responsibilities required of the engineer under the civil works contracts, the consultant will:

- i. Ensure that the construction methods proposed by the contractor for carrying out the works are satisfactory, with particular references to the technical requirements of sound environmental standards on the basis of the ADB's Safeguards Policy Statement (2009); inspection of contractor's construction equipment; safety of the works, property, personnel, and general public; and the recommendations of the Environmental Management Plan (EMP);
- ii. Supervise the implementation of the environmental monitoring plan and annual report of implementing this plan as part of project implementation report.
- iii. Supervise the provision of environmental management seminars for contractors and ICMB9 staff;
- iv. Supervise of resettlement plans as per ADB's Safeguards Policy Statement (2009);
- v. Monitor the Construction Contractors to ensure that no child labor is used for the execution of the civil works contracts as required by the civil works contracts;
- vi. Monitor the implementation of the health and safety program at camp site including the information and education campaign on sexually-transmitted diseases and HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome) as required by the civil works contracts; and
- vii. Supervise the implementation of training programs for ICMB9 staff at site on project management including quality assurance, contract administration, and irrigation system maintenance.

### **3. Actions Requiring Specific Approval of the Employer**

34. The consultant will be required to obtain prior approval of the employer in the following matters as specified in the civil works contracts:

- i. Recommending the subletting of any part of the works;
- ii. Certifying additional cost;
- iii. Determining an extension of time;
- iv. Issuing a variation having financial implications; and
- v. Fixing rates or prices.

## **D. Project Performance Monitoring/Benefit Monitoring and Evaluation**

35. The consultant will help ICMB9 establish a system for project performance monitoring in accordance with the project framework. The consultant will:

- i. Identify, on the basis of the project framework developed during project processing, performance indicators to be monitored during the implementation of the Project;
- ii. Advise on the establishment of systems for collecting data and statistics for such monitoring;
- iii. Advise on the carrying out a baseline survey on performance indicators including on poverty, socioeconomic survey, gender development, employment– generation amongst others to Project Affected Persons, and other social and economic development activities;

- iv. Advise on collection of required data and undertake other relevant surveys before construction and immediately after completion of the Project; and
- v. Incorporate findings and supporting data in the project completion report, in accordance with a schedule and terms of reference to be mutually agreed by ICMB9 and ADB.

## **E. Schedule and Resources**

36. The consulting services will require the following input:

<b>No.</b>	<b>Expertise</b>	<b>Person months</b>
1	Team Leader/Water Resources Engineer	18
2	Irrigation Design Engineer, Deputy Team Leader	16
3	Construction Engineer, Deputy Team Leader	18
4	Irrigation Design Engineer	16
5	Resident Engineer	18
6	Social Specialist	14
7	Environment Specialist	10
	Total	110

## **F. Qualification Requirements**

### **1. Team Leader**

- Professional standard: Qualified Water Resources Engineer or similar field
- Work experience: at least 20 years, including at least 10 years of project management.
- Extensive experience in a wide range of civil engineering activities and experience with ODA Funders (ADB, WB and other Funders)
- At least 5 years engaged in supervision of detailed design or construction of projects.
- English ability: Fluent oral and written English.
- Good health.

### **2. Deputy Team Leader: Design Supervision/ Construction Supervision**

- Professional standard: Qualified Water Resources Engineer or similar field
- Work experience: at least 15 years.
- Extensive experience in a wide range of civil engineering activities and experience with ODA Funders (ADB, WB and other Funders)
- At least 10 years experience in detailed design appraisal or in construction supervision (with Certificate) for water resources projects
- English ability: Good standard of oral and written English.
- Good health.

### **3. Irrigation Design Engineer**

- Professional standard: Qualified Water Resources Engineer or similar field
- Work experience: at least 15 years.
- Extensive experience in a wide range of civil engineering activities and experience with ODA Funders (ADB, WB and other Funders)
- At least 10 years experience in detailed design and at least 5 years of experience in design document appraisal for water resources projects
- English ability: Good standard of oral and written English.
- Good health.

### **4. Resident engineer**

- Professional standard: Qualified Water Resources Engineer or similar field
- Work experience: at least 15 years.
- Extensive experience in a wide range of civil engineering activities and experience with ODA Funders (ADB, WB and other Funders)
- At least 5 years experience in construction supervision (with Certificate) for water resources projects
- English ability: Good standard of oral and written English.
- Good health.

### **5. Social Specialist**

- Professional standard: Tertiary qualifications in sociology, anthropology or similar field
- Work experience: at least 15 years.
- Extensive experience in a wide range of civil engineering activities and experience with ODA Funders (ADB, WB and other Funders)
- At least 5 years experience in supervision of social aspects of construction.
- English ability: Good standard of oral and written English.
- Good health.

### **6. Environment Expert**

- Professional standard: Environment economics expert or similar field
- Work experience: at least 15 years.
- Extensive experience in a wide range of civil engineering activities and experience with ODA Funders (ADB, WB and other Funders)
- At least 5 years experience in supervision of environment aspects of construction.
- English ability: Good standard of oral and written English.
- Good health.

## **EXTENSION OF OSDP CONSULTANCY FOR DUC HOA AND TAN BIEN IRRIGATION SUB-PROJECTS**

### **A. Project Background**

37. The Phuoc Hoa Water Resources Project will develop water resources infrastructure, comprising the Phuoc Hoa barrage and transfer canal to divert and convey water from the Be river to the existing Dau Tieng reservoir on the Saigon river in the neighbouring basin. From there it will be diverted through the existing Dau Tieng irrigation system for multiple uses: irrigated agriculture, supplementary water for urban and industrial use, and salinity control in the Saigon and Vam Co Dong river basins. Two new irrigation areas will be developed: Tan Bien irrigation system in Tay Ninh province, and Duc Hoa irrigation system in Long An province.

38. The key to realizing the economic and social livelihood benefits of the Project is development of adequate institutional capacity for sustainable management of the irrigation system at all levels and the transformation from rain-fed to improved irrigated agriculture. There is also a need to provide social support for families in the irrigated areas who are unable to benefit directly from the irrigation development or who are adversely affected by construction work. Although the government supports these objectives with policies, regulations and programs, the capacity and resources available to local government units in the Project Area is insufficient to deliver effective support to project beneficiaries and affected persons.

### **B. Objectives of the Consultancy**

39. Two new irrigation areas will be developed under the Phuoc Hoa project; Tan Bien (Tay Ninh Province) and Duc Hoa (Long An Province). The development of irrigation in these sub projects will be implemented as a coordinated program of community mobilization, participatory design and construction, empowerment of the water user associations, agricultural and social support.

40. The program can be broken into five main groupings of activities as shown below:

- i. Participatory Irrigation Design (PID)
- ii. Establishment and Empowerment of the WUG
- iii. Agriculture Support
- iv. Social Support
- v. Construction Management and Supervision

41. Activities numbers 2, 3 and 4 are referred to as the On-Farm and Social Development Program (OSDP).

42. The Provincial Project Management Board (PPMB) is required to implement the On-farm and Social Development Program. The program is intensive and to implement the program within the limited time frame will require the PPMB to recruit consultants. The proposed consultancy termed the On-farm and Social Development Program (OSDP) will provide consultancy to support implementation of the wide range of activities under the OSDP. The OSDP Consultants will comprise a multi-disciplinary group of technical specialists including agriculture, resettlement specialist, community mobilizers as well as specialists for social support/ethnic minority and gender.

## C. Scope of the Consultancy

43. The proposed consultancy will extend the duration of the existing OSDP contracts in Long An and Tay Ninh provinces and provide additional consultant services to complete under Phase 2 the services provided for in the original project design and commenced under Phase 1. The following activities are described in the terms of reference of the existing contracts for OSDP consultants.

### 1. Establishment and empowerment of water user groups

44. Experience in Viet Nam and elsewhere has demonstrated that efficient and sustainable irrigation system management requires a high level of cooperation between system managers, operators and water users. A key element is the active involvement of water users in the seasonal planning, operation and maintenance of tertiary and on-farm irrigation systems. Their “ownership” and capacity to manage day to day activities is essential for sustainable operation of the lower level irrigation network. In addition to farmer participation in the design of the tertiary and on-farm irrigation system described above, the OSDP consultants will work with prospective water users to organize them into water user groups (WUGs) and transfer the knowledge and skills needed for them to operate the tertiary and on-farm irrigation systems.

45. Key steps in the establishment and empowerment of WUGs are:

- **Agreed Strategy for Development of WUG (WUG1)** A series of discussions and workshops with provincial, district, commune stakeholders and hamlet leaders leading to an agreed strategy for establishment of the WUG, empowerment and introduction to irrigation management.
- **Participatory Construction Plan for each WUG (WUG 2)** Following the formation of WUGs by the IMC the members will be guided to develop a plan for farmer contribution to the construction of tertiary and on-farm canals identifying the responsibilities for different work items. This will include agreement of farmer contributions (in kind or as labor), financing arrangements for project support, and approach to construction of structures including lining.
- **Institutional Development and Training for Participatory Design (TU1)** OSDP Consultants will cooperate with PST consultants to provide capacity building for irrigation stakeholders in the participatory design process (see above).
- **Training for the Establishment of Water User Groups (TU2)** OSDP Consultants will cooperate with PST consultants to provide training to WUG members to operate tertiary irrigation systems (see above).
- **Preparation of the Tertiary Development Plan and Agreements (TU3)** OSDP Consultants will cooperate with PST consultants to provide assistance and guidance in the preparation of the Tertiary Unit Development Plan and Agreement and documentation (see above).
- **Formal Establishment and Legalization Guidance (WUG 3)** Training and support will be given to each WUG to obtain legal status and the necessary prerequisites to obtaining full legal status. This will include the preparation and agreement by each WUG of their constitution, basic management structure and accounting skills and acquisition of a valid bank account.

- **Preparation of WUG for Commissioning (WUG 4)** Training workshops will be held just prior to commissioning (in 2013-2014) to develop the management capacities of the WUG to manage the completed irrigation works.
- **WUG Post-Commissioning Assessments (WUG 5)** Training workshops to review the commissioning and to update the WUG on developments for water use management (in 2104-2015).

## 2. Agricultural Support

46. The key to achieving the expected agricultural benefits of the Project is on-farm development. The project will support a sustainable transformation from rain-fed to irrigated agriculture. Farmers, as the key independent decision makers, will ultimately determine project success, so their participation is essential if the demand for irrigation services and diversified cropping is to reach the levels proposed under the Project.

47. The OSDP consultants contracted by the provincial PPMB are responsible for undertaking the planning and then providing technical supervision of the implementation of agricultural support activities. They are expected to work in close cooperation with provincial and district extension centers and other extension service providers within the necessary capacity and technology who will be contracted to delivery extension services. The tasks of the OSDP consultant are as follows:

- **Diagnosis of Farmer Production Constraints and Preparation of Agricultural Development Strategy (AS1).** A participatory diagnosis of farmers' production constraints with particular focus on the environmental aspects of plant protection (pesticide use) and production (fertilizer use). Joint formulation of an agricultural development strategy which will incorporate activities to encourage the safe and proper use of pesticides and fertilizers. Output: Farmer Diagnosis and Agreed Strategy for Agricultural Development for the subproject area.
- **Assessment of the Capacity of the Extension Services and Development of Improved Extension Service Delivery (AS2).** Employ a consultative process involving District Extension Centers and other extension service delivery agencies, and conduct a Training Needs Assessment. Participatory workshops, including farmer representatives as well as extension staff, will review present approaches, review alternative extension delivery mechanisms, and reach a consensus on the extension approach to be adopted. Outputs: (i) Assessment Report of the Capacity of the Extension Services, and (ii) Strategy for Improved Extension Delivery.
- **Market Surveys (AS3).** Review the current livelihood sources in the communes of the sub-project area, identify the farm, off-farm, and natural resource products, which may have potential advantages for profitable development, identify potential markets where these products may be profitably sold and identify such project support which would assist communities to effectively exploit the markets identified. The market survey shall include a review of the contribution of all the farm and off-farm products to the income of farm households to enable an analysis of their contribution to the rural economy.
- **Agricultural Development of the Pilot Area (AS4)** Plan and implement the agricultural development of a Pilot Area, in cooperation with the District Extension Centre. Activities

will include (i) consultative meetings with the farmers; (ii) the participatory design of the irrigation system; (iii) the implementation of the demonstration plots for food crop, livestock, cash crop diversification and aquaculture production; (iv) the conduct of farmer field schools; and (vii) consultative workshops to review the effectiveness of the extension approach (in consultation with farmer representatives).

- **Planning of Land Leveling Demonstration (AS5)** Planning, design and supervision of demonstrations on land leveling to be implemented by qualified Local Service Provider.
- **Extension Programs (AS6)** Plan the initial implementation of the extension program within the service area including the identification of the organizations that could be sub-contracted for delivery of the extension services. Assist the PPMB to prepare contracts for local support providers (LSP) and cost estimates for extension services delivery. Assist PPMB with supervision of extension service delivery.
- **Market Information Network (AS 7)** Plan the development of a market information network in each district to ensure that farmers have improved access to current market prices through the regular dissemination of this information through local radio and/or TV networks.

### 3. Resettlement and Social Support

48. The OSDP Consultant is responsible for overall participatory planning, design of social support and design of a gender action plan as well as the overall implementation of the social support programs for the following three target groups:

- i. All persons adversely affected by Resettlement, including Affected Persons (APs), Severely Affected Persons (SAPs) and Vulnerable Affected Persons (VAPs) adversely affected by Resettlement<sup>11</sup>;
- ii. Irrigation Beneficiaries who require assistance to take advantage of the improved opportunities provided by the Project; and
- iii. Disadvantaged Groups within the irrigation areas, including poor and landless households headed by women, and vulnerable ethnic minority households and communities.

49. Although these target groups will be the main beneficiaries of the Social Support programs designed under the OSDP framework, as identified in the ADB Handbook on Resettlement (p.61), the Phuoc Hoa Loan Agreement (p.31) and Project Administration Memorandum (p.3), all Affected Persons are entitled to income restoration support.

50. The tasks of the OSDP consultant are as follows:

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<sup>11</sup> SAPs are defined as losing residential structure, by losing more than 20% of total agricultural holdings or both. Other vulnerable APs (VAPs) are poor, landless, and/or female-headed households, disabled, war veterans, etc. Vulnerable groups are those likely to be particularly disadvantaged as a consequence of resettlement. Vulnerable groups include the poorest, those without legal title to assets, households headed by women, and households headed by the elderly and the disabled without means of support. Vulnerable households who are not severely affected through loss of assets will nevertheless receive assistance under the Social Support Program.

- **Resettlement Plans and Detailed Design and Implementation of Selected Programs for Social Support to APs, SAPs and VAPs (SS1)** Carry out an assessment, detailed design and implementation of the social support program for all persons adversely affected by Resettlement, paying particular attention to severely affected persons (SAPs) and vulnerable affected persons (VAPs) as identified in the Resettlement Plan documents prepared for the Project water resources infrastructure and irrigation systems..
- **Detailed Design and Implementation of Programs for Disadvantaged Irrigation Beneficiaries Area (SS2)** Detailed design of programs for Irrigation Beneficiaries who need assistance to take advantage of the improved opportunities provided by the Project and for Disadvantaged Groups within the irrigation areas, including poor and landless households headed by women, vulnerable women, and vulnerable ethnic minority households and communities. The nature of the assistance programs will be determined through a community consultation process.
- **Oversight and Management of LSP Assistance Programs (SS3)** Social support programs designed under SS1 and SS2 will be implemented by local service providers (LSP) contracted by the PPMB. The OSDP consultant will monitor and provide guidance for the activities of the LSP assistance program and provide to PPMBs and the project implementation consultant BVI on implementation progress.
- **Capacity Building for Social Support (SS4)** Develop capacity building for local staff at provincial, district, and commune levels to improve their capabilities for collection of data, social-gender analysis, participatory rural development approaches, informal education planning and curriculum building (especially in programs already targeted by the Government through Women's Union and MOLISA initiatives).
- **Monitoring the implementation of the Resettlement Plan (SS5)** Undertake the internal monitoring of the implementation of the Resettlement Plans. Reporting to PPMB and ICMB9 and coordinate with Project consultants (implementation and independent resettlement monitoring).
- **Determining the needs of ethnic minorities affected by the project and Plan Implementation (SS6)** Ensure that the specific requirements of households of the ethnic minorities affected by the project are addressed, including preparation of an Ethnic Minorities Development Plan (EMDP) if necessary.

51. Income restoration and social support programs are expected to include:

- i. Skills training and/or additional vocational training for working-aged family members in a current or new occupation and a training allowance ;
- ii. Provision of supplementary agricultural extension services to increase the productivity of remaining land;
- iii. Literacy training, and/or scholarship grants for children of APs / SAPs / VAPs;
- iv. Assistance to access existing credit programs ;
- v. Gender action based on AP/SAP/VAP community choices, and
- vi. Priority for project-related job opportunities.

## D. Implementation Arrangements

52. The OSDP consultants are contracted by PPMBs in Long An and Tay Ninh provinces respectively. Subject to satisfactory performance of the existing OSDP consultants the contract will be extended until March 2016 to complete the services. The work of the consultants will be monitored by the Project Implementation Consultants and supervised by ICMB9, and their outputs approved by provincial DARD after review by the Project Implementation Consultants and ICMB9 until the completion of construction in March 2014. Thereafter their performance will be monitored by DARD. In addition to community mobilization, capacity building and agricultural demonstrations, the main outputs of the OSDP consultant are the detailed design of implementation programs for social support, agricultural extension, and market information dissemination. These programs will be implemented by LSP contracted by the PPMB. The role of the OSDP consultants is to assist the PPMB to prepare TORs for LSP contracts, assist PPMBs, as required, in procuring LSP services, and monitor and report to PPMB on LSP program implementation.

## E. Staffing

53. The table below sets out the proposed list of domestic specialists to be extended under phase 2 of the project.

**Additional Inputs for Phase II OSDP Consultants in Long An and Tay Ninh provinces**

Position	Province (pers. Months)	
	Long An	Tay Ninh
Team Leader/Senior Community Mobilization Specialist	20	24
Senior Training Specialist		4
Senior Water User Specialist	5	15
Water User Trainer	5	5
Water User Specialist	5	10
Senior Agriculturalist	15	22
Agriculture Extension Specialist	5	12
Senior Social Support Specialist	10	10
Total person months	65	102

## F. Qualification Requirements

54. The following are the minimum qualifications for each of the consultants.

- i. **Senior Community Mobilization Specialist/Team Leader.** Will be an experienced person with appropriate qualifications and not less than 7 years experience in the management of community projects mainly in the water sector. Not less than 3 years experience in internationally funded projects. The community specialist will act as the team leader of the team.
- ii. **Senior Training Specialist.** Will have extensive experience of implementing training programs and workshops for community groups as well as for Government staff. The specialist should have not less than 7 years experience of planning and management of training programs relating to water programs with not less than 3 years experience in

internationally funded projects. Will be required to liaise and coordinate with the VWRAP training program.

- iii. **Senior Water User Specialist.** Will have not less than 5 years experience of planning and implementation of water user programs of which 2 years must be on internationally funded projects.
- iv. **Water User Training Specialist.** Will have not less than 3 years with experience in implementing water user training programmes.
- v. **Water User Specialist.** Will have not less than 3 years experience of planning and implementing water user training programmes.
- vi. **Senior Agricultural Specialist.** This will be a senior agronomist with at least a Masters degree in agronomy or other agricultural related discipline and with at least 10 years experience of irrigated agricultural development programs and the improvement of the delivery of extension support services, and a minimum of two years experience on internationally funded projects. He/she will be responsible for supervising the participatory review of farmer production constraints, the facilitation of the workshops to assess the capacity of local extension support service providers and to develop the extension approaches which will be applied within the sub-project area. He/she will be responsible for the supervision of the Agricultural Extension Specialist.
- vii. **Agricultural Extension Specialist.** An agronomist with a tertiary qualification in agricultural extension or other agricultural related disciplines and with at least five years experience of agricultural extension programs. Preferably should also have experience of working on internationally funded projects. He/she will be responsible for carrying out reviews of the extension facilities and services and preparation of material for the proposed extension programme.
- viii. **Senior Social Support and Ethnic Minority Specialist.** Must have relevant social support and ethnic minority and livelihoods restoration experience, minimum of 5 years experience including not less than 3 years experience on internationally funded projects. Must have at least a bachelor degree in one or more of the branches of the social sciences. Should be proficient in English.

## **OUTLINE TERMS OF REFERENCE FOR SITE ENVIRONMENTAL MITIGATION MEASURES**

### **A. Background**

55. The Phuoc Hoa Water Resources Project will develop water resources infrastructure, comprising the Phuoc Hoa barrage and transfer canal to divert and convey water from the Be river to the existing Dau Tieng reservoir on the Saigon river in the neighboring basin. From there it will be diverted through the existing Dau Tieng irrigation system for multiple uses: irrigated agriculture, supplementary water for urban and industrial use, and salinity control in the Saigon and Vam Co Dong river basins. Two new irrigation areas will be developed: Tan Bien irrigation system in Tay Ninh province, and Duc Hoa irrigation system in Long An province.

56. An Environmental Management Plan for the Project provides the basis for mitigating and monitoring project impacts during construction and operation of the completed facilities. An Addendum to the Environmental Management Plan for the Phuoc Hoa Water Resource Project was prepared in 2010. The Consultant should familiarize him/herself with this and also the detailed design reports and relevant parts of bidding documents prepared for each of the project component packages.

### **B. Objectives of the Site Environmental Mitigation Measures**

57. During the construction phase, Phuoc Hoa water resources project is likely to create some adverse impacts on the surrounding environment. These impacts should be controlled and mitigated during the construction phase through controlling the environmental conditions and the implementation of the site environmental mitigation measures of the construction contractors.

58. The objectives of the site environmental mitigation measures are to:

- Minimize and control all adverse impacts occurred during the construction phase at the constructing sites;
- Enhance the responsibilities and duties on environmental protection for contractors and workers;
- Increase the environmental protection awareness of construction contractors and local communities;
- Protect the baseline environmental condition and avoid any environmental adverse impacts and risks;
- Provide the on-site mitigation measures in time and to report to the ICMB9 and local authorities any risks to environment and to the project;
- Ensure the quality of construction structures.

### **C. Objectives of the Assignment**

59. The objectives of the assignment are to:

- Ensure the respective Contractors are complying with the obligations of their contracts with regard to the environment and that they are carrying out necessary mitigation measures all in accordance with the requirements of their contracts and the national environmental legislation.

- Make recommendations to remedy default by contractors in meeting the obligations of their contracts with regard to the environment.
- Advise and assist the Contractors in necessary testing, sampling and reporting.
- Compile the regular (quarterly) environmental data from the Contractors into a Quarterly Reports and submit these to ICMB9, provincial DONREs and the ADB.

#### **D. Scope of Works**

60. The proposed consultancy will extend the duration of the existing MT7 contract by 21 months until July 2013 to continue the General Tasks described below and extend the scope of the contract to provide additional consultant services as follows:

- Increase the presence of the EMP MT7 contractor in the field to provide one or two full time field personnel depending on the number and size of active contracts, transport and per diem, and basic monitoring equipment, to improve verification monitoring of contractor's reporting, provide regular visits to active construction zones, inspect basic provisions contained in the EMP and participate in activities related to the grievance redress mechanism.
- Report on verification monitoring in separate sections of the report from contractor-produced monitoring data.
- Prior to completion of the construction of all civil works, the consultant shall advise ICMB9 and PPMBs concerning implementation of the Environmental Management Plan (EMP) requirements in the operation phase.

#### **E. General Tasks**

61. The Consultants will assist the ICMB9 to implement the EMP in accordance with the existing regulations and procedures for environmental monitoring of construction contracts services, as required under the relevant ADB and GOV policies. The Consultants will receive and familiarize themselves with the relevant documents including the approved technical designs, specifications and bills of quantities prepared by design consultant as well as the Environmental Management Plan. Particular attention will be paid to the required mitigation measures required by the EMP and construction contracts.

62. The Consultant will review ICMB9, provincial DONREs and Contractor's arrangements for monitoring and enforcing compliance with the relevant national environmental quality standards with regard to the overall environmental impacts of the project activities, to complaints that may be received from the public, and to the adequacy of design and construction standards and, more particularly their application. Legal enforcement of environmental standards is the responsibility of the provincial DONRE. This assignment will establish internal controls within the ICMB9 to ensure that standards are being met for compliance of environmental mitigation measures described in the EMP.

63. The Consultant will also assist ICMB9 and the respective contractors in developing site environmental management plan (SEMP, see examples of mitigation monitoring reports as provided in the EMP) to be carried out by Construction Management Consultant (CMC) during the construction. Based on this SEMP, the Consultant will assist the ICMB9 in supervising the CMC on monitoring the SEMP so as to ensure that mitigation measures outlined in the EMP are implemented.

64. The Consultants will assist the communes in community-based monitoring and make recommendations to strengthen community involvement in environmental monitoring at the neighborhood level. The Consultant should liaise with relevant staff of the affected provinces and the OSDP consultants in this respect.

## F. Indicative Level of Effort

65. The indicative level of effort is summarized below. However the consultant must make his/her own assessment of staffing and other requirements in order to carry out the required tasks.

Discipline	National Staff Months
<b>Senior Professional Staff (All National)</b>	
Team Leader/Senior Environmentalist	3
Deputy Team Leader/ Environmental Engineer	2
Civil Engineer	2
Senior Environmental Engineer for Sampling/Testing	4
Field Teams (2 persons) for Sampling	12
<i>Sub-Total professional staff</i>	23
Secretary/Administrative Assistant	21
Translator	5

## G. Qualification Requirements

66. Monitoring consultants will be specialized in environmental science and/or environmental engineering all with at least 5-year experience in a similar field and with experience in EMP monitoring. Preferably monitoring consultants should have experience in EMP monitoring for projects funded by ADB or other international sponsors such as WB, and JBIC.

67. The following are the minimum qualifications for each of the consultants.

- i. **Team Leader/Senior Environmentalist.** Postgraduate qualifications in environmental science or related field with at least 15 years experience in the monitoring of environmental parameters in the water resources sector, including experience in EMP monitoring for projects funded by ADB or other international sponsors such as WB, and JBIC.
- ii. **Environmental Engineer.** Qualified engineer specialised in environmental engineering with at least 10 years experience in the monitoring of environmental parameters in the water resources sector, including experience in EMP monitoring for projects funded by ADB or other international sponsors such as WB, and JBIC.
- iii. **Civil Engineer.** Qualified engineer with at least 10 years experience in the monitoring of environmental parameters associated with construction in the water resources sector, including experience in EMP monitoring for projects funded by ADB or other international sponsors such as WB, and JBIC.
- iv. **Environmental Engineer (testing).** Qualified engineer specialised in environmental engineering with at least 5 years experience in the collection and analysis of environmental parameters in the water resources sector.
- v. **Field team Environmentalist.** Tertiary qualification in environmental science and/or environmental engineering all with at least 3-year experience in a similar field and with experience in EMP monitoring.

## **OUTLINE TERMS OF REFERENCE FOR ENVIRONMENTAL CAPACITY BUILDING, TECHNOLOGY TRANSFER AND AWARENESS RAISING PROGRAMME**

### **A. Background**

68. The Phuoc Hoa Water Resources Project will develop water resources infrastructure, comprising the Phuoc Hoa barrage and transfer canal to divert and convey water from the Be river to the existing Dau Tieng reservoir on the Saigon river in the neighboring basin. From there it will be diverted through the existing Dau Tieng irrigation system for multiple uses: irrigated agriculture, supplementary water for urban and industrial use, and salinity control in the Saigon and Vam Co Dong river basins. Two new irrigation areas will be developed: Tan Bien irrigation system in Tay Ninh province, and Duc Hoa irrigation system in Long An province.

69. As basis for the project environmental management an Environmental Impact Assessment (EIA) study was prepared by the Project feasibility consultants Black & Veatch International (BVI) in September, 2001, and was presented as Annex H of the Feasibility Study Report. The Asian Development Bank (ADB) approved the Project EIA Report in March 2003. In accordance with Vietnamese environmental law, and on contract to ICMB9 and the project over the 2005-2007 period, a third Project EIA report was prepared by the Environmental Technology Centre (ENTEC) in April 2007. This was revised and submitted to the Ministry of Natural Resources and Environment (MONRE) for approval in September 2007, with MONRE approval of the project EIA issued in early 2008. As required by ADB, a follow-up Environmental Management Plan (EMP) for the Project was prepared by BVI project implementation consultants over the late 2006 – 2007 period, and was approved by ADB in early 2008. The EMP document provides details of all the Project's environmental protection, monitoring and management programs as required to address the environmental impacts identified within the above Project EIA's. An Addendum to the Environmental Management Plan for the Project was prepared in 2010. The Consultant should familiarize him/herself with these and other relevant project documentation.

### **B. Objectives of the Environmental Capacity Building, Technology Transfer and Awareness Raising Program**

70. The project is likely to create some adverse impacts on the surrounding environment. The impacts have been fully detailed and documented within the above-mentioned Project EIA and EMP document. These impacts should be controlled and mitigated and programs for such control and mitigation, and to generally protect and manage the environment, are required. To support the implementation of environmental control and mitigation programs, Project, government and local community stakeholders, managers and counterparts who are involved in EMP activities will require environmental management capacity building, technology transfer and awareness raising training.

71. The objective of Environmental Capacity Building, Technology Transfer and Awareness Raising program is to enhance the capability of Project, government and local community stakeholders to implement EMP environmental, water and natural resource management. This is to be done via:

- raising EMP stakeholder's and manager's understanding of fundamental concepts and background science of environmental, water resource and natural resource management, as needed within the Project development sites, surrounding areas and

affected river basins in order to protect environmental, water and natural resources (objective of 'core course' component);

- providing training in, and transfer of, appropriate management technologies and implementation approaches as needed by Project EMP stakeholders to address and mitigate the Project environmental impacts as identified within EIA and EMP documents;
- enhancing the awareness of Project and EMP stakeholder's and manager's of: the potential environmental impacts the Project; the content and function of the EMP framework and mitigation and monitoring sub-programs applied to address these impacts; and the role of involvement of Project managers, contractors, government agencies and local communities in implementation of the Project EMP and in protection of the local and regional environment, water and natural resources.

### **C. Scope of Work**

72. The proposed consultancy will extend the duration of the existing MT10 contract by 10 months until April 2012 and extend the scope of the contract to provide additional consultant services as follows:

- Extend the scope of the contract to provide public consultation during the implementation phase and facilitate disclosure of the grievance mechanism. This will include the creation and administration of a grievance redress mechanism for environmental complaints include:
  - Facilitate access through appointment of a Grievance Point Person (GPP) in the ICMB9 prior to construction to handle grievances and to disclose the grievance procedure to local communities.
  - Include in construction EMPs that contractors will include the grievance procedure in the construction EMP, appoint a GPP under the contractor during construction, and will follow the procedures prescribed in Sec. 4.4.3 with respect to documenting the grievance; informing the complainant; review, investigation and resolution; and monitoring, reporting and evaluation.
  - Inform commune people's committees (CPCs) of their role in assisting the grievance mechanism.
  - Assure that Operating Enterprises (the Irrigation Management Committees) are familiar with and facilitate the grievance mechanism during the operations stage of the project.
- Extend the scope to provide training in IPM and nutrient management alongside other topics to members of the downstream communities within target irrigation areas. This will include preparation and presentation of a training-of-trainer's workshop to address integrated pest management (IPM) and nutrient management, with duration of one week and attendance of 60 persons from provincial and district agencies. The consultants will ensure that recommendations found in the *WB/IFC Environmental, Health and Safety Sector (Agriculture) Guidelines* incorporated into training: agricultural biodiversity, nutrient management and IPM.
- Disseminate printed literature on key environmental topics in the respective areas of the project.

- Assure that reporting under MT10 and its follow-on reporting (OP4 and Implementation Consultant reporting) explicitly address discussions, comments, questions, complaints and follow-up actions arising from workshops organized under the contract.

#### D. Indicative Level of Effort

73. The indicative level of effort is summarized below. However the consultant must make his/her own assessment of staffing and other requirements in order to carry out the required tasks.

	Discipline	Estimated person months
1	Workshop Facilitator / Training Specialist	6
2	Environmental Management Specialist	2
3	Agronomist, Crop Protection & IPM Specialist	2
4	Soil Scientist / Acid Sulphate Soil Specialist	2
	Total	12

#### E. Qualification Requirements

74. The Consultant should propose a team of specialists who would prepare workshop presentations, deliver the presentation material at the workshop, and prepare notes on the workshop. Consultants should preferably have experience in EMP monitoring for projects funded by ADB or other international sponsors such as WB or JBIC.

75. The following are the minimum qualifications for each of the consultants.

- i. **Workshop Facilitator / Training Specialist.** Tertiary qualifications in agricultural or environmental science or related field with at least 10 years experience in training in the agriculture and/or rural sector, including experience for projects funded by ADB or other international sponsors such as WB, and JBIC.
- ii. **Environmental Management Specialist.** Tertiary qualifications in environmental science or environmental engineering specialized in natural resource and water resource management with at least 10-years experience in these or similar fields and with experience in EMP monitoring.
- iii. **Agronomist, Crop Protection & IPM Specialist.** Tertiary qualifications in agriculture science specializing in agronomy and IPM with at least 10-years experience in these or similar fields including training experience.
- iv. **Soil Scientist / Acid Sulphate Soil Specialist.** Tertiary qualifications in agriculture science specializing in soil science and the management of acid sulphate soils with at least 10-years experience in these or similar fields including training experience.

## **OUTLINE TERMS OF REFERENCE FOR REGULATION, SUPERVISION AND SYNTHESIS FOR PACKAGES OF ENVIRONMENTAL MANAGEMENT**

### **A. Background**

76. The Phuoc Hoa Water Resources Project will develop water resources infrastructure, comprising the Phuoc Hoa barrage and transfer canal to divert and convey water from the Be river to the existing Dau Tieng reservoir on the Saigon river in the neighboring basin. From there it will be diverted through the existing Dau Tieng irrigation system for multiple uses: irrigated agriculture, supplementary water for urban and industrial use, and salinity control in the Saigon and Vam Co Dong river basins. Two new irrigation areas will be developed: Tan Bien irrigation system in Tay Ninh province, and Duc Hoa irrigation system in Long An province.

77. As a basis for Project environmental management, an Environmental Impact Assessment (EIA) study was prepared by the Project feasibility consultants Black & Veatch International (BVI) in September, 2001 (BVI 2001a). The Asian Development Bank (ADB) approved Project EIA Report followed in March 2003 (ADB 2003a). In accordance with Vietnamese environmental law a third Project EIA report (ENTEC 2007) was prepared in April 2007 by the Environmental Technology Centre (ENTEC), under contract (A41) to ICMB9 over 2005 - 2007. This EIA was revised and submitted to Ministry of Natural Resources and Environment (MONRE) for approval in September 2007. MONRE approved the project EIA in early 2008. As required by ADB, a follow-up Environmental Management Plan (EMP) for the Project was prepared by BVI project implementation consultants over the late 2006 – 2007 period (BVI 2007c). The EMP was approved by MARD and ADB in January 2008. The EMP document provides details of all the Project's environmental protection, monitoring and management programs as required to address the environmental impacts identified within the above Project EIA's. An Addendum to the Environmental Management Plan for the Phuoc Hoa Water Resource Project was prepared in 2010. The Consultant should familiarize him/herself with these and other relevant project documentation.

### **B. Objectives of EMP Coordination, Supervision and Monitoring**

78. The project is likely to create some adverse impacts on the surrounding environment. These impacts should be controlled and mitigated and programs for such control and mitigation, and to generally protect and manage the environment, are required.

79. To address the potential environmental issues, the current environmental management program of the project has been undertaken with three broad operational objectives in mind.

- Firstly, to set-up and maintain a multi-river basin water resource-related Environmental Monitoring Network focusing on the four Project-affected river basins - Bé, Sài Gòn, Đồng Nai, and Vàm Cỏ Đông river basins (EMP Annexes 8, 9 and 10; packages MT5, MT6 and MT8, Appendix 1). The network is to focus upon measurement of: water flow, surface water quality, pollution and salinity levels, groundwater conditions, aquatic biodiversity, and fishery and aquaculture production levels upstream, downstream and adjacent to the proposed Project developments.
- Secondly, to set-up and manage the various Project-wide focused Environmental Management and Supervision programs, to ensure Project compliance with donor environmental loan covenants, safeguards and guidelines, Vietnamese environmental law and MONRE EIA approval conditions.

- Thirdly, to set-up and manage the various Site-specific EMP Environmental Action (management) and Monitoring programs, to ensure Project compliance with donor environmental loan covenants, safeguards and guidelines, Vietnamese environmental law and MONRE EIA approval conditions.

80. The Environmental Officer engaged under this contract, working under supervision of ICMB9, will be responsible for EMP management, and will act independently of the environmental contractors implementing packages MT1 to MT10

### **C. Scope of Works**

81. The proposed consultancy will extend the duration of the existing OP4 contract by 9 months until July 2013 to continue the tasks described below: The Scope of Works consists of:

- i. Overall management, co-ordination, supervision and monitoring of the Phuoc Hoa Water Resource Project environmental and EMP implementation programmes;
- ii. Supervision and monitoring of the environmental programme and of EMP implementation Contractors and contracts;
- iii. Collection, storage and distribution of EMP monitoring data, technical reports and contract, construction-site or Project-wide EMP technical, progress and budgeting reports, from EMP contractors and other Provincial sources, and presentation of this data to the Project in the appropriate form;
- iv. Conduct site-visits to inspect the environmental aspects of ongoing construction works and visit the sites of the EMP monitoring field program and other sites related to the EMP of the project; and conduct visits to the Provincial, Commune and community-level liaison meetings, to monitor environmental condition of Project sites, site surrounds and downstream area, and ensure Contractor, EMP and Project compliance with environmental laws, safeguards and covenants;
- v. Provision of reporting output and advise to ICMB9 on problems and solutions relating to EMP implementation, EMP Contractor performance, environmental trends at Project sites or within Project river-basins and Project environmental impacts;
- vi. Conduct the tasks and liaison duties of the Project environmental spokesperson, in representation of ICMB9, within public and official forums, and with regard to ministerial, provincial, commune-level and media liaison; and
- vii. Prepare Overall EMP Monitoring (Progress) reports (every Six Months) and submit to ICMB9. After review by ICMB9, these Monitoring Reports will be distributed to MARD, ADB, AFD, MONRE and to Participating Provincial People's Committees and Agencies on the environmental status of the Project, concerning all above duties and responsibilities of the Environmental Officer, ICMB9 Environmental Section, Consultants, Contractors, Project environmental compliance and site- and river-basin based environmental trends.

### **D. Indicative Level of Effort**

82. The indicative level of effort is summarized below. However the Consultant must make his / her own assessment of staffing and other requirements in order to carry out the required tasks.

	<b>Discipline</b>	<b>National Staff Months</b>
	Senior Professional Staff (National)	
	Environmental Officer / Environmental Specialist	3.6 months (intermittent) over a period of 9 months
	Total : National Expert	3.6 months

## **E. Qualification Requirements**

83. The Environmental Officer will be specialized in environmental science preferably with experience in EMP and natural resource and water resource management and monitoring program. The Environmental Officer / Senior Environmental Specialist is to have at least 10 years of related experience in water resource-related environmental management, monitoring and hydrology. He shall be experienced in report preparation in English and Vietnamese languages. The Environmental Officer should preferably have experience in EMP management and monitoring for projects funded by ADB or other international sponsors such as WB or JBIC.