

# Environmental Assessment Report

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## **ENVIRONMENTAL ASSESSMENT AND REVIEW FRAMEWORK**

Project Number: 38560-01

**June 2009**

## CAM: Second Rural Water Supply and Sanitation Sector Project

The environmental assessment and review framework is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.



## ABBREVIATIONS

|          |  |
|----------|--|
| ADB      | Asian Development Bank                                     |
| CC       | Commune Council  |
| CMDG     | Cambodian Millennium Development Goal                      |
| DORD     | District Office of Rural Development                       |
| DRHC     | Department of Rural Health Care                            |
| DRWS     | Department of Rural Water Supply                           |
| EA       | Executing Agency   |
| EARF     | Environmental Assessment And Review Framework              |
| EIA      | Environmental Impact Assessment                            |
| EMP      | Environmental Management Plan                              |
| HH       | Household  |
| IEIA     | Initial Environmental Impact Assessment                    |
| IEE      | Initial Environmental Examination                          |
| MIME     | Ministry of Industry, Mines And Energy                     |
| MOE      | Ministry of Environment                                    |
| MOH      | Ministry of Health   |
| MOWRAM   | Ministry of Water Resources And Meteorology                |
| MRD      | Ministry of Rural Development                              |
| NGO      | Non-Government Organization                                |
| O&M      | Operation and Maintenance                                  |
| PDRD     | Provincial Department of Rural Development                 |
| PMU      | Project Management Unit                                    |
| RWSS     | Rural Water Supply and Sanitation                          |
| TA       | Technical Assistance                                       |
| TSRWSSSP | Tonle Sap Rural Water Supply and Sanitation Sector Project |
| WSS      | Water Supply and Sanitation                                |
| WSSVP    | Water Supply and Sanitation Village Plan                   |
| WSUG     | Water Supply User Group                                    |



## I. Introduction

1. This document sets out the responsibilities, procedures and recommended measures for the environmental assessment of subprojects of the Second Rural Water Supply and Sanitation Sector Project (the Project). They are intended to provide for effective integration of environmental assessment and environmental management planning into subproject preparation and implementation, in accordance with the laws of Cambodia, and the requirements of ADB.

## II. Overview of Type of Projects to be Assessed

2. The proposed Project will be designed as a sector investment project, and will include the 5 TSRWSSP provinces (Kompong Thom, Kompong Chhnang, Pursat, Battambang, and Siem Reap) and 1 new province (Banteay Meanchey). It will promote community participation and ownership in technology choice, planning, and implementation of improved village RWSS facilities and in household water management and hygiene education. It meets the criteria for sector lending as (i) the Government's 2003 Policy remains valid and relevant; (ii) an update of the 2005 sector investment plan is in place; and (iii) MRD, the Executing Agency, has enough capacity to implement rural water and sanitation projects. The project outputs are as follows:

**Table 1: Project Outputs**

|   |  |   |
|---|--|---|
| 1 | Improved community health and hygiene practices                          | (i) increased community mobilization and action; (ii) preparation of village water supply and sanitation plans; (iii) formation and training of Water and Sanitation User Groups (WSUGs); (iv) strengthened community groups and individuals for effective deliver of health and hygiene messages; and (v) improved household management of water supply and sanitation.  |
| 2 | Rehabilitated, upgraded and developed water points                       | existing water supply points are rehabilitated or upgraded to "improved" water supply facilities; (ii) new improved water supply points are developed; and (iii) improved monitoring of water quality for all water facilities rehabilitated, improved or developed.<br><br>Water supply technology options include:<br>Communal: Deep wells, Gravity spring source piped water supply<br>Mainly rehabilitation of communal pond, Communal water filters (e.g., dug wells, dug well with tube well, drilled wells if no other options are available):<br>Household: rainwater collection system |
| 3 | Improved public and household sanitation                                 | (i) construction of public latrines at schools, pagodas, health centers and commune offices (2 per commune); and (ii) the provision of household latrines.  |
| 4 | Strengthened sector planning and development                             | (i) improved monitoring and supervision of RWSS facilities; (ii) strengthened private sector involvement in RWSS development through training in technical and management fields; (iii) improved RWSS monitoring and evaluation for health outcomes.  |
| 5 | Improved capacity for project implementation, operations and maintenance | (i) project orientation workshops in each province and at the sub-national levels; and (ii) capacity development program for MRD, PDRDs, DORDs, commune councils and WSUGs.   |

### **III. Cambodia Environmental Assessment and Review Procedures**

3. The primary legislation for environmental assessment in Cambodia is the Law on Environmental Protection and Natural Resource Management (December 1996), further guidance is provided in the Subdecree on Environmental Impact Assessment No. 72.ANRK.BK of August 1999. Article 6 of the Law on Environmental Protection and Natural Resource Management states that environmental impact assessment shall be done on every project and activity, private or public, and shall be reviewed and evaluated by the Ministry of Environment before being submitted to the Royal Government for decision. General provisions for EIA, institutional responsibilities, requirements for EIA procedure and conditions for approvals are covered in the Subdecree. A two stage process is specified for environmental assessment, similar to that required by the ADB, whereby an Initial Environmental Impact Assessment (IEIA) is prepared for most project that may either suffice for environmental clearance, or form the basis for a more substantial EIA. An Annex of the Subdecree specifies the types of project that require an IEIA and if appropriate, EIA. The required scope and format of the IEIA resembles that of the IEE required under ADB requirements (ADB Environmental Assessment Guidelines, 2003).

4. Under the subdecree, the Ministry of Environment (MoE) is responsible for review of IEIAs and EIAs and to collaborate with the line ministries. The MoE has the authority to approve or reject a project. The Council for the Development of Cambodia (CDC) has overall jurisdiction over projects and also has the power to comment and require amendments or additions to IEIAs and EIAs. The MoE has further responsibility in the monitoring project implementation. The MoE implements these responsibilities through its Department of Environmental Impact Assessment and Monitoring. Besides the MoE, other ministries with responsibility for the project have the right to examine and approve projects, following MoE review. Provincial and Urban authorities with responsibility for the project are required to ensure that Project Owners prepare EIAs and submit them to the Provincial Environmental Office.

5. The primary responsibility for undertaking environmental assessment of projects lies with the project owner, and the assessment work is carried out by the project owner or consultants retained for the purpose. The specified IEIA / EIA process consists of the identification of environmental impacts, review and examination of alternatives to the proposed project and the communication of information to stakeholders. A report format is also specified in Annex 7 of the subdecree. In the case of both IEIAs and EIAs, the MoE is required to respond, providing findings and recommendations to the Project Owner, within thirty working days of submission.

6. Article 1 of the Subdecree states that public participation is to be encouraged in the implementation of EIA process that the conceptual inputs and suggestions of the public are to be taken into account for consideration prior to the implementation of any project.

7. Because of the small scale interventions likely impacts associated with civil work is temporary and minor. None of the interventions will require IEIA.

### **IV. Specific Procedures to be used for Subprojects under the Proposed Project**

#### **A. Responsibilities and Authorities**

8. MRD is the Executing Agency for the Project and a Project Steering Committee will provide policy guidance and inter-ministry coordination. Overall Project planning and coordination, financial control and implementation of safeguards will be the responsibility off the Project Coordination Unit (PCU) within the Department of Rural Water Supply, a department of

MRD. The Project will be implemented by Provincial Department of Rural Development (PDRD) in each of the eight participating provinces. Commune Councils will play a key role, including decision-making on the approval of plans for village water supply and sanitation and will manage community mobilization with the assistance of NGOs. NGOs will work as facilitators and trainers at commune and village level.

9. The environmental assessment of the subprojects will be carried out by PDRD staff after receiving training from the Project Consulting Team (PCT). The PCT will provide ongoing support to PDRD on safeguard, including environmental issues, as required. Environmental screening checklists will be part of the subproject feasibility report. If the result of an environmental screening checklist shows need for further environmental analysis, Initial Environmental Examination with environmental management plan will be prepared by the PDRD. All construction supervisors and contractors will be aware of, and conform to, the EMMP.

### **B. Environmental Criteria for Subproject Eligibility**

10. The selection of communes for inclusion in the Project commenced with a ranking exercise carried out in the early stages of Project preparation. Ranking criteria were based on (i) number of households; (ii) poverty score; (iii) percentage of households with access to improved water in the dry season; and (iv) percentage of households with access to toilets. Beyond ranking criteria, each commune will need to satisfy eligibility criteria to be included in the Project. One criterion is that no significant negative environmental or social impacts are identified during the feasibility study. Potential subprojects that may be excluded under this criterion are those that may be sited within protected areas. Ten protected areas occur in the Project area: one national park (Phnom Kulen), five wildlife sanctuaries, two protected landscapes and two multiple-use areas.

### **C. Procedures for Environmental Assessment of Subprojects.**

11. **Lessons Learned.** On previous sector projects in Cambodia, environmental assessment of subprojects by the executing and implementing agencies is often weak: often there is no evidence of considering potential impacts (for example by using a checklist), and a robust EMMP that clearly provides for mitigation of impacts is often missing. Staff members often have difficulty understanding the process of making meaningful predictions of environmental impacts and of arranging for mitigation to address them. The situation appears to be true of TSRWSSP, where staff have a tendency to rely on consultants to complete environmental assessments of subprojects. The difficulties appear to be due to (i) a tendency to regard environmental assessment as a reporting requirement, rather than as a planning tool and (ii) a lack of understanding of the basic process. Previous projects have attempted to address the issue of poor environmental assessments by EA and IA staff by providing for training during the early stages of project implementation, and of on-going consultant support over the course of the project. While this has helped a number of individuals to understand the principles of environmental assessment, few staff of line agencies in Cambodia have direct experience of undertaking simple assessments and using them to make implementable and effective environmental management. Because of the small scale interventions, unnecessary procedural and documentation requirements need to be reduced. The recommended approach is therefore to (i) provide simple guidelines, based on checklists of likely impacts to guide the process and (ii) to provide local consultant support, where the role of the local consultants is to provide feedback and guidance.

12. **Environmental Classification.** The environmental categorization for each subproject will be determined by the commune councils in collaboration with the appropriate PIU, drawing on consultant support if necessary. Environmental categorization will be based on the checklists provided in the attached appendix 1: Environmental Assessment Guidelines for Communes.

13. **IEE and EMMP.** If any environmental screening results indicate need to conduct an IEE, respective PDRD will conduct an IEE and develop appropriate environmental management and monitoring plan. IEE should be submitted to ADB and CPMU prior to approval of a subproject.

14. **Environmental Monitoring.** Environmental monitoring will be conducted by the community and PDRD (for water quality monitoring). Environmental monitoring to be conducted by the community including the Water User Group (WUG) will provide community feedback during construction and operation. The water quality monitoring (Appendix 2) to be conducted by the PDRD will require water sampling and laboratory testing. The findings from both monitoring will be summarized and included in quarterly project progress reports prepared by the Provincial Project Teams, These will be submitted to the PCU for consolidation and reporting to the ADB and other co-financers. Any issues that arise that call for further monitoring activities or other investigation will be raised by the PCU in the quarterly progress reports and discussed at review missions.

#### **V. Public Consultation and Information Disclosure Plan**

15. Since the proposed Project takes a community-driven planning and implementation, consultation and information sharing are integrated part of the process. During an environmental screening process, relevant a relevant subproject management committee to be composed of commune staff and villagers will conduct an environmental assessment in an participatory manner to document process, discussion, feedback. The results of the environmental screening will be made available for the public at the commune office.

#### **VI. Staffing Requirements and Budget**

16. The international RWSS specialist (42 person-months, intermittent) will be required to develop a detailed guideline for environmental assessment preparation and intermittent support for the first two years of the Project, supported by a national environment specialist (4 person-months, intermittent) who will provide direct training support to PDRD Project Teams in environmental assessment preparation. A national RWSS Engineer (40 person-months, intermittently) can be recruited through a service contract to support the PDRD Project Team, as needed. NGO facilitators, that will be recruited by the PDRDs, will be responsible for checking subproject feasibility reports, and ensuring the environmental assessments and checklists are completed during village preparation of water supply and sanitation plans, and consolidation at the commune level.

### Environmental Assessment Guidelines for Communes

| Environmental Analysis Form                  |   |
|--|---|
| Province                                     | Commune   |
| District                                     | Commune GIS Code  |
| Name of Project                              |   |
| Date of participatory environmental analysis | Name of official responsible for analysis                       |
| Place of doing the analysis                  | How many local people took part in the analysis (attach a list) |

### Environmental Impact Checklist

| Impact Number                       | Problem  | Severity    |                          | Explanation:<br>1) Is the impact during construction or operation?<br>2) What causes the impact? |
|-------------------------------------|--|-------------|--------------------------|--|
| <b>Impacts on Natural Resources</b> |  |             |                          |  |
| 1                                   | <b>Impact on natural trees</b><br>(cutting at project site or access road to site)                               | Big impact  | <input type="checkbox"/> |  |
|                                     |  | Some impact | <input type="checkbox"/> |  |
|                                     |  | No impact   | <input type="checkbox"/> |  |
| 2                                   | <b>Impact on wild animals</b><br>(removing animals habitats)   | Big impact  | <input type="checkbox"/> |  |
|                                     |  | Some impact | <input type="checkbox"/> |  |
|                                     |  | No impact   | <input type="checkbox"/> |  |
| 3                                   | <b>Impact on fish stocks</b><br>(damage to fish habitat, changing water flow, water pollution from oil etc)      | Big impact  | <input type="checkbox"/> |  |
|                                     |  | Some impact | <input type="checkbox"/> |  |
|                                     |  | No impact   | <input type="checkbox"/> |  |
| 4                                   | <b>Impact on agricultural land</b><br>(from waste water, oil, moving soil, solid waste, loss of agric. land etc) | Big impact  | <input type="checkbox"/> |  |
|                                     |  | Some impact | <input type="checkbox"/> |  |
|                                     |  | No impact   | <input type="checkbox"/> |  |
| 5                                   | <b>Impact on soil erosion</b><br>(from removing vegetation or changing slopes etc)                               | Big impact  | <input type="checkbox"/> |  |
|                                     |  | Some impact | <input type="checkbox"/> |  |
|                                     |  | No impact   | <input type="checkbox"/> |  |

| Impact Number                       | Problem  | Severity    |  | Explanation:<br>1) Is the impact during construction or operation?<br>2) What causes the impact? |
|-------------------------------------|--|-------------|--|--|
| 6                                   | <b>Impact on water resources</b><br>(Conflicting demands for water)  | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| 7                                   | <b>Impact on water bodies</b><br>(from wastewater, solid waste, soil, etc in lakes, streams, ponds)                        | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| 8                                   | <b>Impact on flooding</b><br>(houses, crop land from changes to waterways, dams, roads etc)                                | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| <b>Impacts on People and Health</b> |  |             |  |  |
|                                     | <b>Drinking water contamination</b><br>Risk of damaging the area around the water outlets                                  | Yes         |  |  |
|                                     |  | No          |  |  |
|                                     | <b>Impact on drinking water</b><br>Distance between latrines and homes; separation of latrines and water wells             | Yes         |  |  |
|                                     |  | No          |  |  |
| 9                                   | <b>Impact on drinking water quality</b><br>(pollution of drinking wells or streams from animal, sewerage, solid waste etc) | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| 10                                  | <b>Dust</b><br>(from vehicles, machinery, waste etc)   | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| 11                                  | <b>Noise</b><br>(from vehicles, machinery etc)   | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| 12                                  | <b>Impact on cultural sites</b> (construction near ancient temple etc)   | Big impact  |  |  |
|                                     |  | Some impact |  |  |
|                                     |  | No impact   |  |  |
| 13                                  | <b>Infrastructure/Road Damage</b><br>(from vehicles transporting materials to the site)                                    | Big impact  |  |  |
|                                     |  | Some impact |  |  |

| Impact Number   | Problem  | Severity    | Explanation:<br>1) Is the impact during construction or operation?<br>2) What causes the impact? |
|---|--|-------------|--|
|   |  | No impact   |  |
| 14  | <b>Impact on road safety</b><br>(from construction vehicles, or increased speed of cars etc) | Big impact  |  |
|   |  | Some impact |  |
|   |  | No impact   |  |
| 15  | <b>Impact on in-migration</b><br>(people coming to use water, natural resources, roads etc)  | Big impact  |  |
|   |  | Some impact |  |
|   |  | No impact   |  |
| 16  | Are <b>landmines</b> suspected to be at the proposed site or access road to the site?        | Yes         |  |
|   |  | No          |  |
| <b>Other Impacts on Natural Resources, People or Villages</b> |  |             |  |
| 17  | Other problem (describe)   | Big impact  |  |
|   |  | Some impact |  |
|   |  | No impact   |  |

### Recommendation

| No | Descriptions   | Check 1 |
|----|--|---------|
| 1  | If the subproject is implemented following the existing design, there will not be any unacceptable impacts on the environment.                             |         |
| 2  | The subproject can have unacceptable impacts on the environment. However, if the recommendations are followed, there will not be any unacceptable impacts. |         |
| 3  | The subproject will cause unacceptable impacts on the environment and will require IEE   |         |

Date:.....

**Commune Chief**





### Water Quality Monitoring Plan

| Impact to be Monitored            | Means of Monitoring   | Pre-Construction         |                    |  | During Operation        |                       |                        |
|-----------------------------------|---|--------------------------|--------------------|--|-------------------------|-----------------------|------------------------|
|                                   |   | Frequency                | Responsible Agency | Indicative Annual Cost per subproject (US\$) | Frequency               | Responsible Agency    | Indicative Annual Cost |
| Water Quality                     | Changes in treated water quality as perceived by project beneficiaries                            | N/A                      |                    |  | daily                   | Community PDRD        | Operational Cost       |
|                                   | Laboratory testing of water samples (groundwater, or filtered/treated water from surface sources) | 1 test for 12 parameters | MIME Laboratory    | \$240 <sup>1</sup>                           | 1 test for 6 parameters | Field Testing by PDRD | Normal Operating Cost  |
| Adequacy of water supply quantity | Continuity of supply and system pressure as reported by project beneficiaries under CAP           | N/A                      |                    |  | periodic                | PDRD                  | Minor                  |

**Note:**

- (i) The Water Quality test undertaken by the MIME Laboratory includes the following 16 parameters: Chlorides (Cl); Fluorides (F); Manganese (Mn); Iron (Fe); Nitrates (NO<sub>3</sub>); Turbidity; Calcium Carbonate (CaCO<sub>3</sub>); Sulfates (SO<sub>4</sub>); Aluminum (Al); Zinc (Zn); Ammonia (NH<sub>4</sub>); Nitrites (NO<sub>2</sub>); Acidity/Alkalinity (pH); Electric Conductivity; Coliform Bacteria; and Fecal Coliform (E-coli).
- (ii) The Water Quality test undertaken by the PDRD in field testing includes the following 6 parameters: Arsenic (As); Iron (Fe); Acidity/Alkalinity (pH); Electric Conductivity; Total Dissolved Solids (TDS); and Temperature.
- (iii) Estimated 3,000 water points (new and rehab) for 12 parameters. Each test costs \$60. Total=\$180,000. No capacity development needed.
- (iv) Estimated 3,000 water points (new and rehab) for 6 parameters. Each test costs \$5 (and includes replacement equipment). Total=\$45,000. No capacity development needed.

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<sup>1</sup> This testing is required for feasibility study and system design, as well as for environmental monitoring. The cost estimation assumes that a total of four tests will be required for each subproject prior to construction and that the cost per test is US\$60.