Terms of Reference

Review and Rehabilitation of on-site Sanitation Systems
ETESP Housing Component

Revised 21/02/2008, Banda Aceh, NAD

Objective of the Assignment

1. The objective of the assignment is to ensure compliance of the on-site household sanitation systems constructed under the ETESP Housing Component with relevant GoI National Standards and BRR Sustainable Sanitation guidelines, thereby reducing the incidence of preventable diseases like dengue fever, typhoid, encephalitis, chronic skin conditions and gastro-intestinal illnesses, and upgrading the living conditions of the housing beneficiaries.

2. The assignment will be limited to ETESP Housing Component subprojects in Nanggroe Aceh Darussalam Province (Aceh), and will not include Nias.

Background

Aceh Housing Reconstruction

3. The Agency for Rehabilitation and Reconstruction of Aceh-Nias (BRR) is leading the $5.8 billion reconstruction program for the regions affected by the tsunami and earthquake disasters in Aceh and Nias. The housing and human settlement component is the largest component of the reconstruction program with an estimated cost of almost $1 billion. The component aims to complete the construction of 128,000 housing units and the associated village and settlement infrastructure by mid 2008. By October 2007, 100,000 houses were complete leaving close to 28,000 units still to be completed within the next 7 to 8 months. Besides the houses, essential neighborhood and village infrastructure such as roads, drains, sanitation and water supply systems, and power distribution networks are still to be completed at numerous locations.

4. BRR's Housing and Human Settlements (HHS) Department is responsible for the planning and implementation of the housing and human settlement component. The houses are built by national and international NGOs, bilateral and international funding agencies, and BRR.

5. The ADB's ETESP component has allocated $72 million to the housing reconstruction and rehabilitation program. This consists of $70 million from the ETESP grant and an additional $2 million allocated from the Japanese Fund for Poverty Reduction (JFPR). The ETESP program expects to complete at least 6,000 new houses and rehabilitate 1,500 and the JFPR program foresees the construction of another 150 seismically upgraded houses. As of November 2007, the ETESP component has over 3,500 houses under construction and more than 1,000 handed over to the beneficiaries. Part of the ETESP housing program is being executed "off-budget" through UN-HABITAT and four NGOs, i.e. Cordaid, German Agro Action, Help eV and Muslim Aid. The JFPR housing program is commencing with the construction of 15 prototype units. The overall ETESP housing program is targeted to be substantially completed by the end of the third quarter of 2008.

Sanitation and Aceh Housing Reconstruction

6. Pre-tsunami Aceh community infrastructure, including sanitation systems, were generally of a very low standard. Toilets and septic tanks were often unavailable in rural communities, and instead the population defecated outside housing areas e.g. in paddy fields, rivers and beaches. The post-tsunami reconstruction program aims at upgrading living conditions including installation of appropriate and sustainable sanitation facilities. Sustainable sanitation

is a prerequisite for achieving the Millennium Development Goals and as such is deserving of strong commitments from Government, Aid and Development agencies.

7. Provision of sanitation systems that meet GoI National Standards and ensure protection of human health has been a major challenge for BRR and donors active in the housing sector. Bringing sustainable sanitation into densely populated settlements with high water tables and frequent flooding is extremely challenging, and in the early stages of the reconstruction process little attention was paid to sanitation. Traditional "cin-cin" systems were installed that did not include water tight septic tanks and led to direct contamination of ground water and nearby surface water areas. Despite the issue receiving more attention in the latter part of 2006, a random sampling of reconstruction projects undertaken by GTZ and BRR showed that sanitation and drainage standards, in general, remained very low (May 2007), and many current installations are contaminating ground and surface waters and creating extensive breeding habitat for disease vectors. Preventable diseases like dengue fever, typhoid, encephalitis, chronic skin conditions and gastro-intestinal illnesses are likely to become entrenched in resettled communities as a direct result of poor sanitation and drainage installations.

8. In recognition of this challenge BRR, with support from GTZ, Oxfam, IFRC, ESP-USAID and UNICEF, released *Guidelines for the Selection and Implementation of Sustainable Sanitation Systems for the Reconstruction in Aceh and Nias* (hereafter referred to as *BRR Sustainable Sanitation Guidelines*) in May 2007. The *BRR Sustainable Sanitation Guidelines* are based on relevant Indonesian national standards and provincial building codes (e.g. *SNI-03-2398-2000* and the *Building Code Matrix for NAD Province* (2005)), and are specifically designed for the social and physical conditions prevailing in tsunami affected areas of Aceh and Nias..

9. Since its inception ETESP's Housing Component has also struggled to provide adequate sanitation systems, especially in high water table areas of Aceh, which meet National Standards and the *BRR Sustainable Sanitation Guidelines*. Problems encountered include lack of sanitation awareness amongst beneficiaries, small household plot sizes which limit sanitation options, limited technical know-how of Implementation Consultants and contractors, and low construction quality standards. As a result concern has been raised on numerous occasions by the ETESP Housing Component Oversight Consultants and Environmental Safeguards Advisors about the quality of the on-site sanitation systems. Although the situation is improving and ETESP subprojects implemented from mid-2007 demonstrate improved quality, many of the systems installed to date are unsatisfactory. In addition, ETESP Environmental Safeguards Advisors continue to express concerns about some sanitation system designs that are currently in use in the on-budget housing subprojects.

Scope of Work

10. The assignment will be delivered in two phases. The first phase will undertake a detailed survey of existing ETESP on-site sanitation facilities and design a detailed program of remediation works; the second phase will implement all aspects of the remediation work program. The commencement and implementation of Phase II will be contingent upon the approval of the consultant's Phase I outputs, including the proposed Phase II work program, by ADB and BRR.

11. The assignment will focus on houses constructed or under construction through the "on-budget" process, which includes almost 3000 houses in Banda Aceh, Aceh Besar, and Aceh Barat (Meulaboh). Given limited time and resources, it is anticipated that the remediation program may need to focus on the "worst cases" covered by ETESP Housing, likely to be the earlier housing sites in and around Banda Aceh. Beyond non-compliance with GoI National Standards and BRR Sustainable Sanitation guidelines, "worst case" situations are tentatively defined as on- site sanitation systems that:

- are observed to leak, or based on design or construction quality are likely to leak; and/or
- do not provide treatment of grey water; and/or
- do not have adequate final disposal;

and

- are in an area with high water tables and/or a reliance on well water.

12. The assignment will require in the order of 93.5 person-months of consulting time, comprising 11 person-months of international and 82.5 person-months of domestic consultants, in the areas of project management, sanitation engineering, sanitation and hygiene behavioral change (SHBC) outreach, and contract management and supervision. Table 1 presents an indicative team composition and anticipated level of effort.

13. It is anticipated that both phases will be implemented by a consulting company with the requisite experience in post-disaster developing-country large scale civil works design, construction and QA/QC. It is also anticipated (but not guaranteed), that contingent upon approval of the Phase I outputs and proposed Phase II program, the Phase I Consultant will manage the implementation of the Phase II remediation works. If ADB and BRR do not approve the Phase II program, the assignment will be terminated.

14. The Consultant will work under the overall direction of BRR's Deputy for Housing and his team, with advice from the EMS/PMO Housing and Environmental Safeguards Advisors and the ETESP Housing Oversight Consultants.

Table 1: Indicative Team Composition and Level of Effort

Indicative Team Composition	**Indicative Level of Effort** (No Person Months)
Phase I: Sanitation Survey and Remediation Program Design	
International	
Team Leader/Sanitation Engineer	3
Domestic	
Sanitation Engineer/Deputy Team Leader (Team 1)	3
Sanitation Engineer/CAD Specialist (Team 1)	3
Sanitation Engineer (Team 2)	3
Sanitation Engineer/CAD Specialist (Team 2)	3
Hygiene Outreach Specialist	3
Contract Specialist/Quantity Surveyor	1.5
Subtotal	**19.5**
Phase II: Remediation Program Implementation	
International	
Team Leader/Sanitation Engineer	8
Domestic	
Sanitation Engineer/Deputy Team Leader	8
Construction Supervisors (6)	36
Hygiene Outreach Specialist (2)	16
Contract Specialist/Administrator	6
Subtotal	**74**
TOTAL	***93.5***

Phase I: Sanitation Survey and Remediation Program Design

15. In Phase I the Consultant will: i) review sanitation guidelines and regulations relevant to Aceh; ii) assess sanitations designs used to date and currently being proposed for both on and off-budget ETESP housing programs; iii) conduct a house-by-house sanitation quality survey of all ETESP on-budget housing subprojects substantially undertaken to date (estimated to be 2,500 houses); iv) develop a costed Phase II remediation program to bring existing ETESP housing subprojects in compliance with relevant sanitation standards, and v) make recommendations for ETESP Housing subprojects in the early stages of implementation or still in the planning stage. Given limited time and resources, it is anticipated that the remediation program may focus on the "worst cases" covered by ETESP Housing, likely to be the earlier housing sites in and around Banda Aceh.

16. All location maps of ETESP Housing areas and other relevant information are available in the Office of the ETESP Housing Oversight Consultant.

Detailed Tasks

1. Review all relevant Indonesian National Standards and Provincial Building Codes, and the *Guidelines for the Selection and Implementation of Sustainable Sanitation Systems for the Reconstruction in Aceh and Nias.*

2. Consult with relevant implementing partners, NGOs, consultants and stakeholders active in the implementation of ETESP on and off-budget Housing Component subprojects, including ETESP EMS PMO staff, BRR HHS Department, partner NGOs, etc.

3. Design and conduct a comprehensive quality and compliance survey of all ETESP Housing Component subprojects either completed or currently underway, and identify remediation works required in order to bring sanitation systems into compliance with relevant Indonesian National Standards and Provincial Building Codes, and the *Guidelines for the Selection and Implementation of Sustainable Sanitation Systems for the Reconstruction in Aceh and Nias.* The survey should be implemented in conjunction with a community sanitation outreach.

4. Design a costed sanitation remediation works program to rehabilitate existing on-site sanitation systems and bring them into compliance with *BRR Sustainable Sanitation Guidelines*. This should include an overall implementation modality strategy, as well as Detailed Engineering Design drawings, Bill of Quantities and tender documents with Engineer's Cost Estimates in compliance with GoI and ETESP procurement procedures.

5. Recommend improvements, if required, to current sanitation systems designs being used by on and off-budget subprojects in order to bring them into compliance with *BRR Sustainable Sanitation Guidelines* and enhance public health benefits.

Phase II: Remediation Program Implementation

The Phase II implementation modality and scope of work will be defined in detail during Phase I. However, it is anticipated that Phase II will include all aspects of management and supervision of the remediation works, including but not limited to:

1. Management of tendering and award of civil works contracts. It is anticipated that the works will be implemented through a series (two or more) geographically focused contract packages. These are tentatively identified as Civil Works Packages A, B and C.

These may be implemented in a staggered fashion as indicated in the schedule (below) or simultaneously.

2. Implementation of Civil Works Packages, to be carried out by local civil work contractors.

3. Detailed supervision and QA/QC of Civil Works Packages, including final approval of all works. Verification of pertinence of invoices submitted by the contractors.

4. Liaison with stakeholders and beneficiaries, including organize sanitation and hygiene behavioral change (SHBC) outreach for the beneficiaries of improved sanitation systems.

5. Reporting and wrap-up.

Reporting

Phase I

17. A brief inception report shall be prepared at the end of month one, and a final report at the end of month three. A Subproject Preparation Report (SPPR) prepared in accordance with ETESP requirements shall also be prepared covering the scope of remediation works. The SPPR shall include the results of the quality and compliance survey, the proposed remediation works program, the implementation modality strategy, Detailed Engineering Design drawings, Bill of Quantities, and tender documents with Engineer's Cost Estimates.

Phase II

18. A brief inception report shall be prepared at the end of month four, a mid-term report at the end of month seven, and a final report upon completion of the assignment.

Cost Estimate

19. The Phase I cost is estimated at $167,900. Phase II cost is estimated at $ 476,100, though this will be refined during Phase I once the survey is complete and the remediation works program has been designed. Total cost (Phase I and II including contingency and MOSS security provisions) is estimated at $ 681,450. This does not include the cost of the civil works, which is roughly estimated at a maximum of $2.5 million. The assignment and the associated civil works will be financed out of the Housing Component of ETESP.

Comment [ah1]: Figures in this para are different than those indicated earlier. I have no problem with the revised figure, however.

Consultant Qualifications and Experience

Corporate Qualifications

20. The assignment will be implemented by a consulting company, NGO or other suitable organization with extensive requisite experience in post-disaster developing-country large scale civil works and WatSan design, construction and supervision. Experience in Aceh housing construction and WatSan is an advantage.

Team Qualifications

A. International Consultant: Team Leader/Sanitation Engineer (Phase 1 and 2)

21. He/she should hold a Master's degree in Civil Engineering or Sanitation (WatSan) Engineering. He/she should be qualified and experienced in analysis, design and supervision of construction of on-site sanitation systems, with significant experience in community

development in general. The International Consultant should have a minimum of 5 years related technical and project management experience in developing countries, preferably in Indonesia. Experience in Aceh housing and WatSan is a definite advantage.

B. Domestic Consultant: Sanitation Engineer/Deputy Team Leader (Phase 1 and 2)

22. He/she should hold a Bachelor's degree (preferably a Master's degree) in Civil Engineering or Sanitation (WatSan) Engineering. He/she should be qualified and experienced in design, supervision and construction of on-site sanitation systems as well as project management, preferably in similar environment as in Aceh (post disaster, high water table), and should have at least 5 years relevant experience. Experience in community development in general is an advantage.

C. Domestic Consultants: Sanitation Engineers (3 Persons, Phase 1)

23. He/she should hold a Bachelor's degree (preferably a Master's degree) in Civil Engineering or Sanitation (WatSan) Engineering. He/she should be qualified and experienced in design, supervision and construction of on-site sanitation systems, preferably in similar environment as in Aceh (post disaster, high water table). Experience in community development in general is an advantage. At least two of the Sanitation Engineers should have AutoCAD design skills.

D. Domestic Consultants: Hygiene Outreach Specialist (1 Person in Phase 1; 2 Persons in Phase 2)

24. He/she should hold a relevant degree, such as Civil Engineering, Sanitation (WatSan) Engineering or Public Health. He/she should have extensive experience in organizing sanitation and hygiene behavioral change (SHBC), preferably in similar environment as in Aceh (post disaster, high water table). Experience in community development in general is an advantage.

E. Domestic Consultants: Implementation (Construction) Supervisors (6 persons in Phase 2)

25. He/she should hold a Technician degree (preferably a Bachelor's degree) in Civil Engineering or Sanitation (WatSan) Engineering. He/she should be qualified and experienced in supervision of construction of on-site sanitation systems, preferably in similar environment as in Aceh (post disaster, high water table). The Supervisor should at least 5 years relevant work experience. Experience in community development in general is an advantage. At least two of the Supervisors should have AutoCAD skills.

F. Domestic Consultant: Contract Specialist/Administrator (Phase 1 and 2)

26. He/she should hold a Bachelor's degree in Civil Engineering. He/she should be qualified and experienced in Quantity surveying, drafting and analyses of Contract documents and proposals. He/she should have experience in book keeping and analyses of Contractors´ invoices. The Contract Specialist should have at least 5 year of relevant work experience. Experience in tasks of Administration in general such as drafting letters is an advantage.

Indicative Schedule

Phases and Tasks	1				2				3				4				5				6				7				8				9				10				11			
Phase I																																											
1. Review Standards and Guidelines																																											
2. Consultation, Survey Design and Preparation																																										
3. Quality and Compliance Survey																																										
4. Community Liaison																																										
5. Develop Remediation Works Program																																										
6. Recommendations for Ongoing Subprojects																																										
7. Reporting																																										
Phase II																																										
1. Tendering and Award of Civil Works Contracts																																										
2. Implementation of Civil Works																																										
Contract Package A																																										
Contract Package B																																										
Contract Package C																																										
3. Supervision and QA/QC																																										
4. Beneficiary and Stakeholder Outreach																																										
5. Reporting																																										
ADB/BRR Progress Review				∀				∀				∀															∀														∀	∀

Decision by ADB/BRR on proceeding with Phase II.

Note: There may be a delay of several weeks or more between Phase I completion and Phase II commencement.