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FOR A BETTER URBAN FUTURE

Mekong Region Water and Sanitation Initiative
MEK-WATSAN

Assessment Report for the Roll Out Phase 1

Towards Achieving the MDGs in Water and Sanitation in Secondary Towns in Cambodia, Lao PDR and Vietnam

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Acronyms

ADB – Asian Development Bank
CA – Cooperation Agreement
CBO – Community-based organisation
CEDS – Center for Environment and Development Studies
CfD – Center for Development (Cambodia)
CSCS – Cooperation for a Sustainable Cambodian Society (Cambodia)
DHUP – Department of Housing and Urban Planning
DoS – Department of Statistics (Lao PDR)
DPWS – Department of Potable Water Supply
GM – Gender Mainstreaming
GMS – Greater Mekong Sub-region
GoN - Government of the Netherlands
GSO – General Statistics Office (Vietnam)
GRET – Group of Research and Technological Exchange
GWA – Gender Water Alliance
HDI – Human Poverty Index
HVWSHE – Human Values-based Water Sanitation and Hygiene Education
IDWA – Index of Drinking Water Adequacy
IUCN – International Union for Conservation of Nature
IEE – Initial Environmental Examination
JICA – Japan International Cooperation Agency
JMP – WHO-UNICEF Joint Monitoring Programme
MDGs – Millennium Development Goals
MIME – Ministry of Industry, Mines and Energy (Cambodia)
MoC – Ministry of Construction (Vietnam)
MOLISA – Ministry of Labor, Invalids and Social Affairs (Vietnam)
MoP – Ministry of Planning (Cambodia)
MoU – Memorandum of Understanding
MPWT – Ministry of Public Works and Transport (Lao PDR)
MRC – Mekong River Commission
MRD – Ministry for Rural Development (Cambodia)
MTSIP – Medium-Term Strategic and Institutional Plan
NGPES – National Growth and Poverty Eradication Strategy (Lao PDR)
O&M – Operation and Maintenance
NPSE – Nam Papa State-owned Enterprise (Lao PDR)
PMU – Project Management Unit
PPME – Project Performance Monitoring and Evaluation
PPP – Public-Private Partnership
QTWASUCO – Quang Tri Water Supply and Construction One Member Limited Company (Vietnam)
RBM – Results based Management
SC – Steering Committee
TNA – Training Needs Assessment
ToT – Training of Trainers
UIS – Urban Inequities Survey
VHLSS – Vietnam Household Living Standards Survey
WCDM – Water Conservation and Demand Management
WDM – Water Demand Management
WSSD – World Summit on Sustainable Development
WTTC – Waterworks Technical Training Center (Lao PDR)
WWF – World Wildlife Fund

Executive Summary

The Mekong Region Water and Sanitation (MEK-WATSAN) Initiative was formulated in response to the GMS initiative as a collaborative effort between UN-HABITAT, the Governments of the Greater Mekong Sub-region and ADB. The objective of the MEK-WATSAN Initiative is to support the participating countries in the Greater Mekong Sub-region (GMS) attain their water and sanitation related Millennium Development Goals (MDGs).

The Water and Sanitation Programme at UN-HABITAT

UN-HABITAT is the "city agency" of the UN system. Through a multi-donor supported, the Water and Sanitation Trust Fund of UN-HABITAT provides assistance to support community-based water and sanitation projects in urban and peri-urban areas of Africa, Asia and the Latin American and the Caribbean Regions. These projects demonstrate innovative approaches that can effectively and sustainably improve access for poor people to adequate sanitation and clean water.

Millennium Development Goals on Water and Sanitation

Lack of access to basic services by the world's poor is an enormous barrier to development. Yet in 2000, more than 830 million people in the Asia Pacific region did not have access to safe drinking water. More than 2 billion lacked sanitation facilities. These problems are worsened by high rates of urbanization worldwide, with the highest levels in the poorest countries.

To meet the MDG targets for sustainable access to water, the challenge is to provide 30,000 people per day with access to improved water during 2005-2015. This calls for stepping up the current efforts by one third; for sanitation, doubling the current rate is needed.

The Mekong Region Water and Sanitation Initiative (MEK-WATSAN)

The MEK-WATSAN initiative is a collaborative effort between UN-HABITAT and the Governments of the Mekong region to support participating Governments attain their water and sanitation related MDGs agreed in 2000, **to halve the proportion of people without access to improved water supply and sanitation services by 2015.**

MEK-WATSAN promotes:
Pro-poor urban water governance,
Urban water conservation and demand management,
Integrated urban environmental sanitation, and
Income generation for the urban poor through community-based water and sanitation services.

This initiative provides an ideal opportunity for targeting water and sanitation investments to secondary cities linked to sector reforms and capacity building within a process of decentralization to enable them to achieve the Millennium Development Goals (MDGs).

First Phase Ground Work in Cambodia, Lao PDR and Vietnam

A rapid town assessment involving local communities, Governments, utilities and stakeholders was carried out. This involved questionnaire surveys and focus group discussions. This resulted in a refined understanding of gaps in water supply and sanitation services for the poor. It was found that the engagement with the community will also provide an opportunity to build wide support for the project including its objectives and implementation methodology. The rapid assessment also provided preliminary data for the water and sanitation indicators for the Project Performance Monitoring and Evaluation (PPME) data base.

Table 1 - List of proposed interventions

Proposed Interventions	Proposed Target Area	Population in Target Towns	Main Opportunities / Challenges	Facilitating Government Entity
Cambodia				
Community-based water supply (system expansion), capacity building, MDG monitoring and improved sanitation	Kampong Cham town	43,799	Significant Government investments to upgrade water supply systems. Increased capacity of the system creates opportunities for expansion including the poor. High cost of connection fees prevent poor households from connecting to the network Low sanitation coverage	Ministry of Industry Mines and Energy (MIME)
	Kampong Thom town	52,743		
	Pursat town			
	Svay Rieng town	45,174		
Lao PDR				
Extension of water supply and improved access to sanitation towards reaching the MDGs	Xieng Ngeun district (6 villages in northern area), Luang Prabang province	3,006	Significant Government investments to upgrade water supply systems. Increased capacity of the system creates opportunities for expansion including the poor. High cost of connection fees prevent poor households from connecting to the network Low sanitation coverage	Department of Housing and Urban Planning (DHUP), Ministry of Public Works and Transport (MPWT)
	Sayabouly district (peri-urban areas), Sayabouly province	4,406		
	Kongsedone district, Saravane province	3,327		
Rehabilitation of the water supply system and improved access to sanitation services towards reaching the MDGs	Lamam district and Thateng district, Sekong province	18,213	Deteriorated pipes impact the quality of the water and have more than double the percentage of water losses Significant investments already made to expand and increase capacity of the system Low sanitation coverage	
	Samakhixay district, Attapeu province	12,313		
Establishment of a water supply system and improved access to sanitation services	Atsaphangthong district, Savannakhet province	5,863	No water supply system in place High costs to access safe water or reliance on unsafe surface water Low sanitation coverage	
Improved access to sanitation towards reaching the MDGs	Urban and peri urban areas of Paksan district, Bolikhamxay province	11,782	Low sanitation coverage	
	Peri urban areas of Thakkek district, Khammouane province	8,424		
PPP – Models	Thabok area in Thaphabath district, Bolikhamxay province	4,228	Opportunity to set up a small-scale piped water supply system under public-private partnership to inform future initiatives	
Vietnam				
Community-based water-supply (expansion of water supply system) and improved sanitation	Lao Bao town	37,740	Significant Government investments to upgrade water supply systems. Increased capacity of the system creates opportunities for expansion including the poor. High cost of connection fees prevent poor households from connecting to the network Low sanitation coverage.	People's Committee of Quang Tri's Province
	Dong Ha city	109,208		
	Cua Viet town	22,486		
	Quang Tri town	72,070		

A Monitoring framework, i.e "Monitoring Protocol and Sustainability Checks" and a Project Performance Monitoring and Evaluation (PPME) methodology has been developed. Activities will be monitored in accordance with this framework. A PPME database has been developed so as to record and monitor the project progress. MDG monitoring in some towns will be carried out in partnerships with national statistics offices and/or line ministries/provincial departments.

Hanoi Regional Consultation and signing of the Hanoi Declaration

Prior to the town level implementation of the MEK-WATSAN Roll Out Phase projects supported by the Government of the Netherlands, UN-HABITAT organized high-level regional stakeholders' consultations in Hanoi in April 2009. The key objective of the consultations was to obtain broad consensus from participating Governments on the objectives and implementation modalities of the UN-HABITAT supported MEK-WATSAN initiative as well as on the challenges and opportunities in the water and sanitation sector in the three countries, as well as in the Mekong region. The main objectives were achieved through: consensus-building on the challenges and opportunities in the water and sanitation sector in the three countries and region as a whole; development and agreement on country-level action plans and, obtain policy level endorsement of the action plans developed.

Regional and Country Assessments Roll Out Phase 1

On 12 December 2008, UN-HABITAT received a commitment of funding support from the Government of the Netherlands (GoN) in an amount of USD6.6 million for implementing the MEK-WATSAN programme. The MEK-WATSAN programme with funding assistance of the GoN is focusing on improving water supply and environmental sanitation in 18 selected small and medium towns spread over Lao PDR, Kingdom of Cambodia and SR Vietnam. It is expected that during the 'Roll Out Phase 1' of the programme 97,253 people will benefit from increased access to improved water supply and 199,521 people will benefit from access to improved sanitation facilities.

The selected towns are located in the high growth economic corridors. Sanitation coverage is markedly poor in all towns and appreciably lags behind water supply. Infrastructure improvements in the towns will include, setting up of integrated water supply system, rehabilitation of dilapidated networks and extension of transmission and distribution lines, installation of household connections, installation of bulk and consumer water meters and construction of toilets.

This report presents the technical and capacity building assessments carried out towards developing the final project proposals for the implementation of activities towards reaching these beneficiaries. The report describes the water and sanitation conditions in the targeted towns as well as the proposals from implementing partners. Furthermore, it presents the way forward for the implementation of the projects and initiatives presented in this report.

Capacity Building and Training Needs Assessment

The rapid training needs assessment for the three countries in Mekong region viz, Cambodia, Lao PDR and Vietnam aims to consider the new paradigms, the country's objectives and goals, the current performance of the cities in providing Training Needs Assessment Study for the nine towns in Lao PDR, four towns in Cambodia and four towns in Vietnam water and sanitation services, the causes for the performance gap leading to problems in urban development and management and the knowledge and the skill gap of the officials and the other stakeholders in the performance of the tasks assigned.

The objective of the TNA is to obtain data for designing the capacity enhancement programme which defines capacity enhancement through its demand orientation. The capacity enhancement programme shall not be seen as an end in itself but as a contribution for the improved performance of the utilities and their officials and other stakeholders in the project cities. In that respect the capacity enhancement shall be customized to meet the specific needs and demands of cities, their stakeholders as well as communities and groups.

Capacity Building Needs Analysis for the MEK-WATSAN initiative

A review of the MEK-WATSAN programme and an inventory of existing knowledge and skills served to identify capacity building and training needs of UN-HABITAT's current and potential partner

organizations (utilities, local authorities, Government line departments NGOs and the media) and also of UN-HABITAT's Staff.

The consultations and discussions conducted under the assessment focused on key issues and challenges confronting the cities in the areas of water supply and sanitation as well as on the possible solutions to be adopted. Stakeholders also indicated key areas to be covered during the capacity enhancement programme. A series of qualitative discussions were held during the mission and field visits to explore perceptions and experiences of elected representatives and policy makers' on the service delivery mechanisms. The skill set of the elected representatives and other senior officials were identified to orient them towards water and sanitation sector reform initiatives and enable them to undertake the required role in the fully reformed municipality.

Table 2 - Focus Areas of Discussion during TNA

Provincial level	**District/City level**	**Community level**
Provincial level policy aspects and programs ADB Projects and project details Status of project implementation Programme Management Capacity enhancement requirements	Current water and sanitation scenario Gaps in service delivery Management aspects Pricing and cost recovery Operation and maintenance Collection efficiency Community participation Coverage and access to services (Water supply, Sanitation and Solid waste management) Capacity enhancement needs / expected inputs	Citizens' expectations Willingness to pay for services

Priority Capacity enhancement Areas

During the TNA assessment, the most frequently identified sets of skills that needs strengthening are those related to the knowledge base on concepts, approaches and technologies as well as customer service/ relationship and management in urban service delivery. Another area was "trouble shooting". The training needs assessment revealed the following common areas for training in the Mekong region:

Appropriate Technology Options for Sanitation

- Water Conservation and Demand Management
- Rainwater Harvesting
- Solid Waste Management (options and technologies)
- Orientation Programmes for HVWSHE
- Financial Administration & Management of partner Water Utilities and/or agencies providing sanitation services (including GIS mapping)
- Project Management and Implementation
- PPP models
- Community mobilization
- Micro financing and revolving funds for water and sanitation

Chapter 1: Introduction

In 1992, with assistance from the Asian Development Bank (ADB), countries of the Greater Mekong Sub-region (GMS)[1] entered into a programme of sub-regional economic cooperation, designed to enhance economic relations among the counties. In 2001, a ten year strategic framework for the GMS programme was formulated by the six countries with a vision to achieve enhanced connectivity, increased competitiveness and greater sense of community in the GMS. The Mekong Region Water and Sanitation (MEK-WATSAN) Initiative was formulated in response to the GMS initiative as a collaborative effort between UN-HABITAT, the Governments of the Greater Mekong Sub-region and ADB. The objective of the MEK-WATSAN Initiative is to support the participating countries in the Greater Mekong Sub-region (GMS) attain their water and sanitation related Millennium Development Goals (MDGs).

1. The Water and Sanitation Programme at UN-HABITAT

UN-HABITAT is the "city agency" of the UN system. Through a multi-donor supported, the Water and Sanitation Trust Fund of UN-HABITAT provides assistance to support community-based water and sanitation projects in urban and peri-urban areas of Africa, Asia and the Latin American and the Caribbean Regions. These projects demonstrate innovative approaches that can effectively and sustainably improve access for poor people to adequate sanitation and clean water. Typically, such projects are implemented through a partnership between UN-HABITAT and implementing partners which include urban local bodies, public or private non-for-profit agencies, water supply and sanitation utilities, Government line departments at the local, national and provincial levels, academic institutions and NGOs.

In line with the Medium-Term Strategic and Institutional Plan (MTSIP) Focus Area 4, UN-HABITAT's Water and Sanitation Programme aims at providing expanded access to environmentally sound basic urban infrastructure and services with a special focus on the unserved and under-served populations.

2. Millennium Development Goals on Water and Sanitation

Lack of access to basic services by the world's poor is an enormous barrier to development. Yet in 2000, more than 830 million people in the Asia Pacific region did not have access to safe drinking water. More than 2 billion lacked sanitation facilities. These problems are worsened by high rates of urbanization worldwide, with the highest levels in the poorest countries.

World leaders meeting at the United Nations Millennium Summit in 2000 committed themselves to attaining the Millennium Development Goal 7, Targets 9, 10 and 11. The aim of Target 9 is to ensure environmental sustainability; Target 10 aims to reduce by half the proportion of people without sustainable access to safe drinking water by 2015 and Target 11 aims to improve the living conditions of slum dwellers. In 2002, the World Summit on Sustainable Development (WSSD) in Johannesburg added another target: to halve by 2015 the proportion of people without access to basic sanitation. Although the task is enormous, it is not insurmountable. Improving access to water and sanitation in low-income urban settlements is possible. Renewable energies as well as energy efficiency measures can contribute effectively to the provision of affordable access to these basic needs.

To meet the MDG targets for sustainable access to water, the challenge is to provide 30,000 people per day with access to improved water during 2005-2015. This calls for stepping up the current efforts by one third; for sanitation, doubling the current rate is needed. The burden of meeting such an enormous challenge rests with the key players in the water and sanitation sector, and particularly those in urban areas where an increasing proportion of the developing world's population resides.

[1] Greater Mekong Sub-region (GMS) comprises Cambodia, Yunnan and Shuangjin Provinces (the People's Republic of China), Lao People's Democratic Republic, Myanmar, Thailand, and Vietnam.

3. The Mekong Region Water and Sanitation Initiative (MEK-WATSAN)

The MEK-WATSAN initiative is a collaborative effort between UN-HABITAT and the Governments of the Mekong region to support participating Governments attain their water and sanitation related MDGs agreed in 2000, **to halve the proportion of people without access to improved water supply and sanitation services by 2015.**

MEK-WATSAN promotes:

- Pro-poor urban water governance,
- Urban water conservation and demand management,
- Integrated urban environmental sanitation, and
- Income generation for the urban poor through community-based water and sanitation services.

This initiative provides an ideal opportunity for targeting water and sanitation investments to secondary cities linked to sector reforms and capacity building within a process of decentralization to enable them to achieve the Millennium Development Goals (MDGs).

The following approaches have been considered under MEK-WATSAN:

Participatory development of detailed projects using the following criteria:

i. Water supply and sanitation projects for towns in Greater Mekong Sub-Region (GMS) randomly selected on the basis of: a) need expressed in terms of service coverage; b) poverty incidence; c) consistency with the Government's plans and policies; d) accessibility; e) availability of raw water source; and f) commitment and ability of local authorities to support the proposal.

ii. Water supply and sanitation projects for selected towns along one or more than one of the economic corridors (EC) selected on the same basis as delineated above. Economic corridors, expected to be completed by 2012, are being developed along transport routes of the six GMS countries to link infrastructure with production and trade. These corridors are developed through planned and systematic project, policy and institutional interventions. Much progress has been made in the three major GMS economic corridors: *a) East-West corridor; b) North-South corridor; and c) Southern economic corridor.* The economic corridors are developed to realize the GMS vision to achieve **enhanced connectivity, increased competitiveness, and a greater sense of community** in the GMS.

Implementation of quick-win (fast-track) initiatives on community-based water supply and sanitation pilot projects for supporting the small and medium towns to achieve the MDG targets related to water and sanitation by UN-HABITAT under the Mekong Region Water and Sanitation Initiative (MEK-WATSAN).

Government of the Netherlands funding for MEK-WATSAN - The programme with funding assistance of the Government of the Netherlands will focus on improving water supply and environmental sanitation for the poor in small and medium towns.

The towns range in population from a lowest in Setamouak Lao PDR of 6,400 to the highest in Dong Ha, Vietnam of 80,024. The towns are located in the high growth economic corridors. Sanitation coverage is markedly poor in all towns and except for one town sanitation appreciably lags behind water supply. Infrastructure improvements in the towns will include rehabilitation and expansion of water treatment plants, extension of transmission and distribution lines, installation of household connections, installation of bulk and consumer water meters, construction of toilets, improvements of drainage and provision of handcarts and other equipment for better solid waste management.

The implementation methodology is built upon the experience gained on implementation of the fast-track projects and overall, a community-based and participatory approach will be followed during implementation. Implementation is expected to be completed in three years.

4. Rationale

The countries of the Mekong region are now home to some 250 million people. Following the opening up of the transitional economies of Cambodia, Lao People's Democratic Republic and Vietnam, the economic growth of the GMS has consistently been upwards of 5% since the late-1980s. This has led to very high urbanization rates, ranging up to 4-5% per annum. This has particularly created major problems for the local authorities in secondary towns, which are often weak and unprepared for this additional burden. Existing water supplies, sanitation and other urban services are only provided on a sporadic basis or are defunct, and in some cases do not exist at all.

Poverty in the urban areas of GMS is most marked in Lao PDR, Cambodia and Vietnam, where its incidence ranges from 9-26% of the urban population. New migrants arriving from rural areas make up much of this figure. Not only are they financially poor, but they have little or no access to water supply and other basic urban services, which adversely impacts on their health and productivity, thereby perpetuating their poverty.

Growing demand for adequate water supply and sanitation services as well as the lack of financial resources and capacity among local authorities will lead to an increasing need to address water and sanitation issues to bridge service provisions gaps in this sector and thus to achieve MDGs. The gaps in service provision are probably grossly underestimated. At the same time, it may be wrongly assumed that the water and sanitation infrastructure rehabilitation in secondary towns would require huge investments/capital expenditure. This is not necessarily the case, as rehabilitation of existing infrastructure and provision of capacity building to ensure efficient operation of the utilities, as well as to provide the revenue base to operate and maintain the systems, may not require large investments.

By targeting the rehabilitation and the upgrading of water and sanitation infrastructure, this initiative aims to improve the living conditions of the urban and peri-urban poor living in secondary towns. In particular, the initiative focuses on improving livelihoods of low-income urban population that lack adequate water and sanitation facilities.

Figure 1 - MEK-WATSAN countries

5. First Phase Ground Work in Cambodia, Lao PDR and Vietnam

A rapid town assessment involving local communities, Governments, utilities and stakeholders was carried out. This involved questionnaire surveys and focus group discussions. This resulted in a refined understanding of gaps in water supply and sanitation services for the poor. It was found that the engagement with the community will also provide an opportunity to build wide support for the project including its objectives and implementation methodology. The rapid assessment also provided preliminary data for the water and sanitation indicators for the Project Performance Monitoring and Evaluation (PPME) data base.

Table 3 - List of proposed interventions

Proposed Interventions	Proposed Target Area	Population in Target Towns	Main Opportunities / Challenges	Facilitating Government Entity
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	Dong Ha city	109,208		
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A Monitoring framework, i.e "Monitoring Protocol and Sustainability Checks" and a Project Performance Monitoring and Evaluation (PPME) methodology has been developed. Activities will be monitored in accordance with this framework. A PPME database has been developed so as to record and monitor the project progress. MDG monitoring in some towns will be carried out in partnerships with national statistics offices and/or line ministries/provincial departments.

6. Hanoi Regional Consultation and signing of the Hanoi Declaration

Prior to the town level implementation of the MEK-WATSAN Roll Out Phase projects supported by the Government of the Netherlands, UN-HABITAT organized high-level regional stakeholders' consultations in Hanoi in April 2009. The key objective of the consultations was to obtain broad consensus from participating Governments on the objectives and implementation modalities of the UN-HABITAT supported MEK-WATSAN initiative as well as on the challenges and opportunities in the water and sanitation sector in the three countries, as well as in the Mekong region. The main objectives were achieved through: consensus-building on the challenges and opportunities in the water and sanitation sector in the three countries and region as a whole; development and agreement on country-level action plans and, obtain policy level endorsement of the action plans developed. The three day consultations involved a wide range of participants and stakeholders in the water and sanitation sector in the Mekong Region, and were divided into plenary sessions. Key issues discussed included:

Challenges in the water and sanitation sector in the Mekong region and results of other regional programmes. The aim of this session was for participants to gain an understanding of the various water and sanitation programmes being implemented by other stakeholders in the region. Presentations were made by representatives from the Asian Development Bank (ADB), the Water and Sanitation Programme of the World Bank (WB-WSP), the International Union for the Conservation of Nature (IUCN), the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and UNICEF's Water, Environment and Sanitation Programme. In addition, presentations were also made by partners of UN-HABITAT engaged in cross-cutting activities on water and sanitation:

(a) Southeast Asia Ministers of Education Organisation (SEAMEO) on Human Values-based Water Sanitation and Hygiene Education (HVWSHE);
(b) Water Integrity Network on transparency in water and sanitation;
(c) Gender Water Alliance on gender mainstreaming;
(d) Asian Water on advocacy and awareness raising; and
(e) Lao Department of Statistics on MDG monitoring.

Issues on capacity building were also discussed. The outcome of this session was the creation of synergies through experience sharing with different agencies working in water and sanitation in the region aiming at ensuring that the Mekong countries achieve their water and sanitation related MDGs. Similarly, it was to ascertain that infrastructure development needs go hand in hand with other cross-cutting software activities like HVWSHE, gender, advocacy and awareness raising and transparency in delivery of services in order to ensure sustainability.

Discussions on the water and sanitation situations in the programme countries – This session focused on presentations of the water and sanitation situations in the participating countries, including country strategies for improving access to water and sanitation services. The high officials gave presentations on their country water and sanitation situation and related policies promulgated by their Governments to ensure adequate water supply and improved sanitation. For example, the Royal Government of Cambodia has developed its own CMDGs in which they expect to raise the access to safe water source to 80%, and access to improved sanitation among urban population to 74% by 2015. In Vietnam, current reforms aim at decentralizing responsibility for urban Water Supply and Sanitation

(WSS) services to provincial Governments, strengthening sector institutions, increasing cost-recovery through user charges, and gradually eliminating Government subsidies. Similarly, the Government of Lao PDR has adopted a National Growth and Poverty Eradication Strategy (NGPES) under which all of its development programmes are to be implemented. NGPES has identified water supply and sanitation as one of four high priority sectors to be developed in order to meet the Government's economic growth and poverty eradication objectives. The Government's national goal set for 2020 is to provide 24-hour per day access to safe water for 80% of the urban population. This session proved to be important in helping align related project activities to the various governmental sectoral strategies.

Brief presentations on the selected towns and presentation of action plans for implementation – Directors from the various participating water utilities from the project towns gave an overview of the current water and sanitation situation in their towns. These presentations included information on the socio-economic status of the towns, population figures, existing water supply capacities, numbers of people with and without access to water and sanitation, tariff structures and challenges faced in regards to provision of adequate water supply and sanitation services, especially to the poor people. The utility directors also outlined their need for further capacity building support, especially along the lines of Water Demand Management (WDM) and project management, and which were included in the final project proposals prepared.

High-level segment – This segment involved discussions and dialogue with the high officials from the three countries, based on the proceedings of the previous days. The high officials gave comments on the action plans, and on the draft Memoranda of Understanding (MoUs). The high officials praised UN-HABITAT for the MEK-WATSAN initiative which they felt was an innovative approach with simple solutions, which are effective and efficient, to complex issues. They also appreciated that the initiative was in line with the national development strategies, while appreciating the chance to learn more about MEK-WATSAN and find a way to formulate cooperation in order to achieve water and sanitation related MDGs in the Mekong region. In this respect, the high officials sealed their commitment to the MEK-WATSAN initiative by signing the "Hanoi Declaration".

The consultations also highlighted the need for strengthening South-to-South cooperation through study visits and peer-review mechanisms in order to build capacities at the local levels and promote local wisdom and knowledge sharing. These recommendations were also incorporated into the final cooperation agreements prepared with the water utilities.

Chapter 2: Regional and Country Assessments Roll Out Phase 1

1. Introduction

On 12 December 2008, UN-HABITAT received a commitment of funding support from the Government of the Netherlands (GoN) in an amount of USD6.6 million for implementing the MEK-WATSAN programme. The MEK-WATSAN programme with funding assistance of the GoN is focusing on improving water supply and environmental sanitation in 18 selected small and medium towns spread over Lao PDR, Kingdom of Cambodia and SR Vietnam. It is expected that during the 'Roll Out Phase 1' of the programme 97,253 people will benefit from increased access to improved water supply and 199,521 people will benefit from access to improved sanitation facilities.

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2. Country Assessment Cambodia

2.1. Country Background

The Royal Government of Cambodia is located in Southeast Asia spreading over 181,035 Km², bordering Thailand to the West, Lao PDR to the North and Vietnam to the East. The population of Cambodia is 13,388,910[2] inhabitants of which 51.5% are female. 2,614,440 people (19,5%) live in urban areas.

Provinces and municipalities are Cambodia's first level administrative divisions. Rural areas are divided among Cambodia's twenty provinces and urban areas are divided among Cambodia's four municipalities. The population in towns and cities in Cambodia is growing at a very fast pace and as a result population-density is increasing with an annual population growth estimated to be 1.54%. Water and sanitation are mostly overlooked, and this creates environmental and health problems, which directly affects the Cambodian population and primarily the poor.

Cambodia's Human Development Index (HDI) is 0.598, which ranks the country 131 out of 177 countries with data. The GDP per capita (PPP USD) is USD2,727. With a Human Poverty Index (HPI)[3] of 38.6, Cambodia ranks 85 out of the 108 developing countries for which the index has been calculated[4]. According to Government statistics, the country's poverty rate in the country is one of the highest in Southeast Asia. 35% of the population lived below the poverty line in 2004 and 30% lived below the poverty line in 2007[5]. According to the Cambodia Economic Survey (CSES) 2004 and 2007, the national poverty line is defined by an earning of 1,826 Riels per person per day line (USD0.45 approximately). 15-20% of the population lives in extreme poverty[6].

[2] According to preliminary results of the 2008 Census.
[3] The Human Poverty Index for developing countries focuses on the proportion of people below a threshold level in the same dimensions as the HDI – living a long and healthy life, having access to education and a decent standard of living.
[4] Source: Update 2008 HDR 2007/2008 UNDP.
[5] Data from the Cambodia Economic Survey (2004 and 2007).
[6] Source: UN Cambodia Country Information.

Cambodia has suffered from internal conflicts and an autocratic regime for decades. The quality of life of Cambodians is low due to the lack of access to basic needs. Cambodia is currently moving from a long period of war and civil disturbances towards a more stable situation and is making important progress for ensuring peace and security, including rebuilding institutions, establishing a stable macroeconomic environment and a liberal investment climate.

2.2. MEK-WATSAN in Cambodia

A fast track project under MEK-WATSAN is being implemented in the small town of Kampot with 7,500 direct beneficiaries. The project has an integral approach that includes the implementation of as the expansion water supply system expansion, the establishment of revolving funds to promote private connections among poor households, as well as water and sanitation related education programmes.

As part of the 'Roll Out Phase 1' of MEK-WATSAN, four towns along the Mekong river basin were identified for intervention, namely Svay Rieng, Kampong Cham, Kampong Thom and Pursat. These towns have been proposed and selected by the Ministry of Industry, Mines and Energy (MIME) with the following criteria: public utilities are operative, the water systems do not have capacity to serve the population in the town, and low service coverage is low.

2.3. The Water and Sanitation Sector in Cambodia – Institutional Framework

As part of the Government strategy, it is important to highlight that the Government sees the access to clean water as a right for people. Rectangle II, Side 2:- Point 68 states: *"The Royal Government will pay more attention to the right of access of people to clean water supply to ensure food safety and better livelihoods in accordance with the Cambodia Millennium Development Goals (CMDGs) and will also preserve the ecosystem of unpolluted water and clean environment."* However, the water and sanitation sector in the country is complex, as different ministries have different responsibilities and mandates, as shown in table 2.

Table 4 - Ministries responsible for water and sanitation

Ministry	Mandate
Ministry of Water Resources Management and Meteorology	Water resources management
Ministry of Environment	Water environment
Ministry of Industry, Mines and Energy	Urban water supply and sanitation (off site)
Ministry of Rural Development	Rural water supply and sanitation
Ministry of Health	Community health care

The Ministry of Industry, Mines and Energy manages the water service provision in the urban areas through the water supply utilities. There are 104 utilities, 87 of which are private and 16 are public. Public water supply utilities manage 79% of the water connections. The main responsibilities of MIME are: a) develop and implement water sector policy and strategy; b) develop urban water supply statistic and development plan; c) regulate and support the sector; d) develop water standards, procedures and guidelines; and e) administrate and monitor of public water supply utilities.

The main challenges that have been identified in the water and sanitation faces are: a) limited human resource; b) low coverage for access to clean and safe water and adequate sanitation; c) access to water and sanitation is linked to poverty; d) improvement needs are significant; and e) availability of financial resources still low.

Most public utility companies in Cambodia want to be able to expand and improve service coverage, improve level of service standard, improve technical and economic efficiency and financial viability, address the specific need of the poor, and protect the environment. However, some of the main challenges they face are: human resources' skill and experience are low; infrastructure is in limited

condition; non-revenue water is too high; and revenues are not large enough for significant improvements.

2.4. The Water and Sanitation Sector in Cambodia – Current Conditions

With reference to MDG Targeting and MDG Report by the Ministry of Planning, Cambodia has one of the lowest levels of coverage in terms of access to improved water supply and improved sanitation in the East Asia Pacific Region. This contributes to the high infant and under-five mortality rate report for the country.

Table 5 - Sanitation coverage according to improved and unimproved sanitation

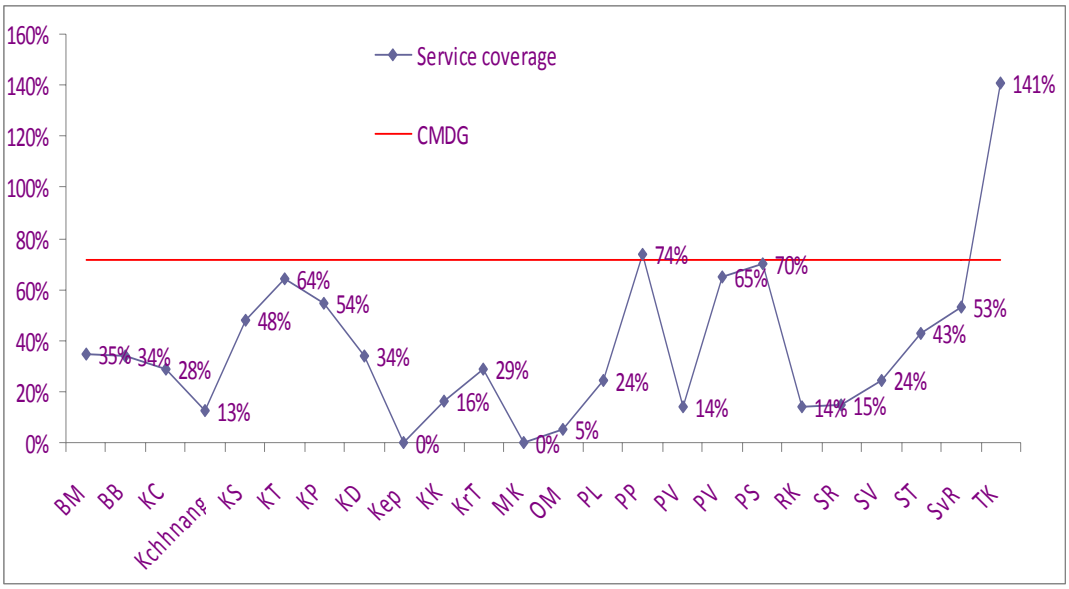
	Improved sanitation (%)			
	House	Septic Tank	Pit Latrine	Total
Rural	1.1	12.6	2	15.7
Urban	28.9	25.8	1.5	56.2
Total	**5.2**	**14.5**	**1.9**	**21.6**

	Unimproved sanitation (%)			
	Pit Latrine (unimp.)	Open	Other	Total
Rural	0.9	78.1	5.2	84.2
Urban	0.7	32.3	10.8	43.8
Total	**0.9**	**71.4**	**5.9**	**78.2**

Source: CDHS 2005

In urban areas, over 50% of the total urban population has access to water and sanitation services. When taking into account the JMP's definition for improved sanitation the coverage in urban areas is 56.2%. In secondary towns, however, only 16 % of the population has access to safe water while 11% has access to improved sanitation[7].

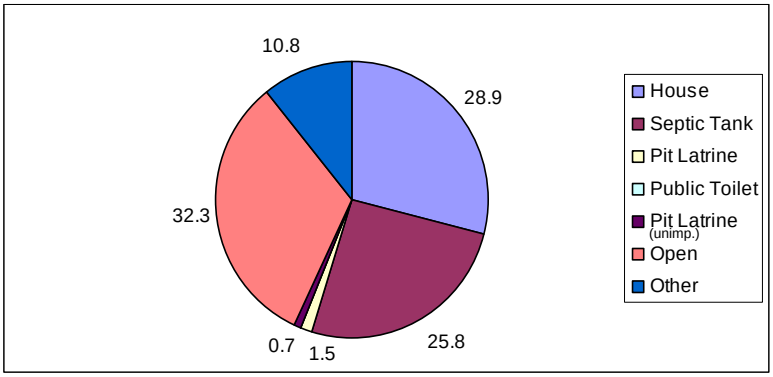
Figure 2 - Water service coverage in urban areas by provinces (2008)



Source: MIME.

[7] Source: Government, UNDP and ADB reports 2005.

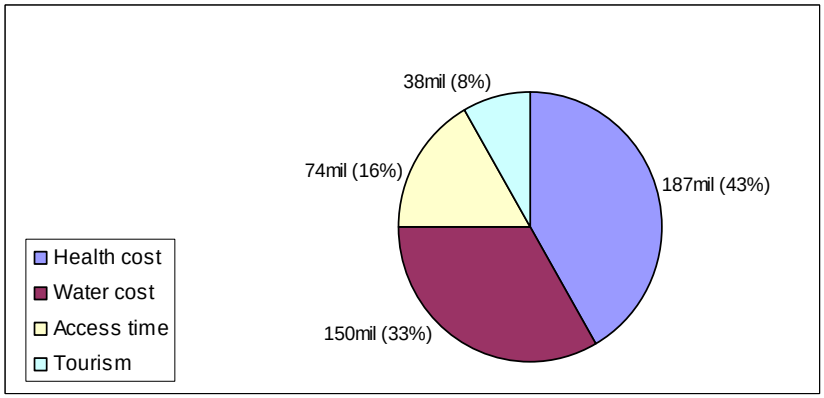
Figure 3 - Improved vs. unimproved sanitation in urban areas



Improved Sanitation = 56.2 Unimproved sanitation = 43.9
Source: CDHS, 2005.

The Government recognizes the importance o the sector since the economic loss of poor sanitation and hygiene has been estimated to almost USD500 million.

Figure 4 - Economic loss of poor sanitation and hygiene

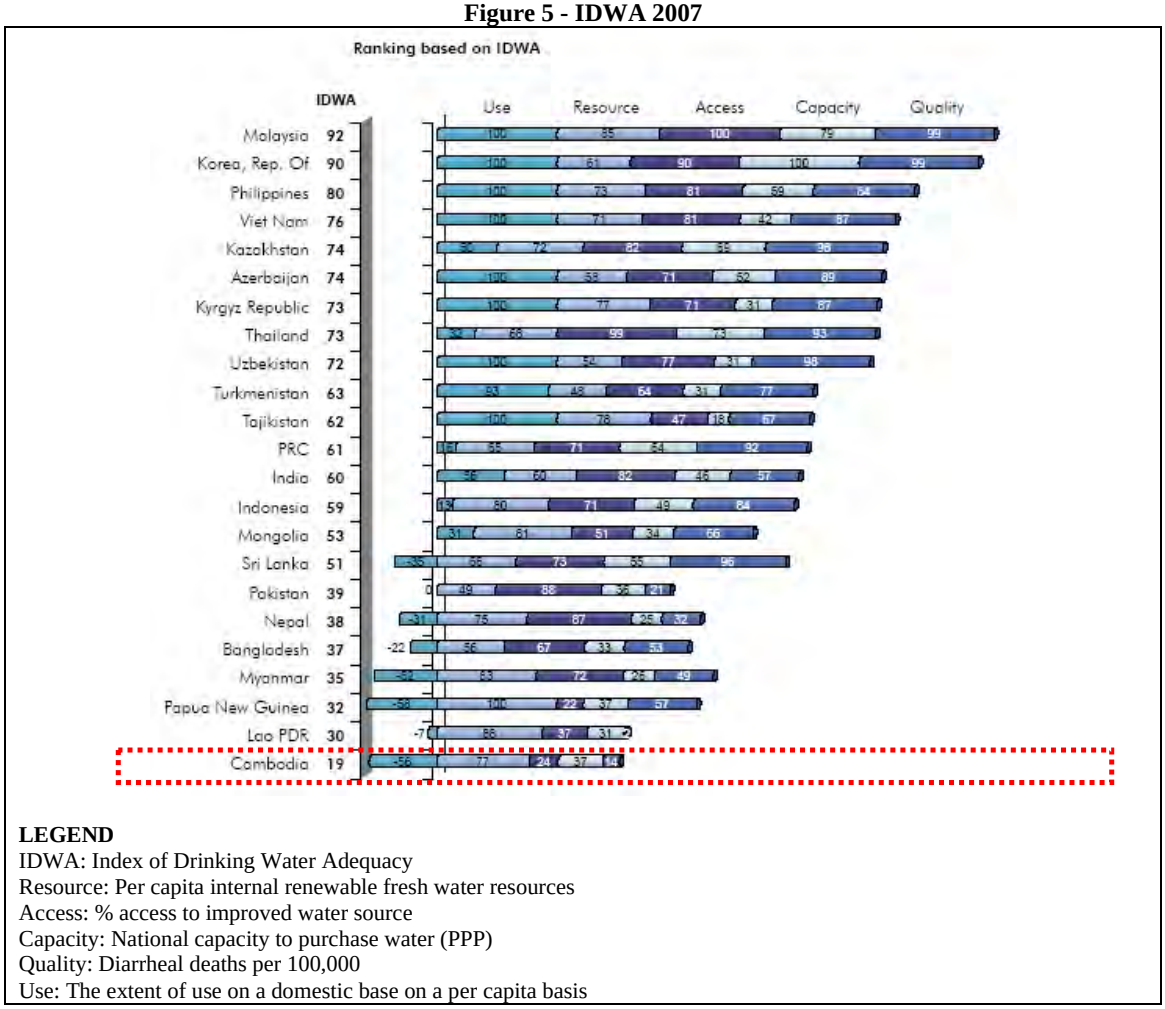


Source: CDHS, 2005.

Nonetheless, access to safe water is not the only challenge in Cambodia. The Index of Drinking Water Adequacy (IDWA) proposed by the Asian Water Development Outlook (AWDO) 2007 to have a global overview of the water sector in Asian countries considers five components: (1) per capita internal renewable fresh water resources; (2) percent of population with general access to a sustainable improved water source as per the JMP definition; (3) national capacity to purchase water based on the measure per capita GDP in PPP USD; (4) the extent of use of water by the domestic sector measured on a per capita basis; (5) diarrheal deaths per 100,000 people used as an indirect measure of water quality. The index is an average of the five component indicators on most relevant variables[8].

[8] Source: ADB 2007, WWF5 Istanbul, 2009.

Figure 5 - IDWA 2007



LEGEND
IDWA: Index of Drinking Water Adequacy
Resource: Per capita internal renewable fresh water resources
Access: % access to improved water source
Capacity: National capacity to purchase water (PPP)
Quality: Diarrheal deaths per 100,000
Use: The extent of use on a domestic base on a per capita basis

Source: Asian Water Development Outlook, 2007.

According to this index, Cambodia lies at the bottom of the ranking. While availability of the water resource is ranked high, access and capacity for purchasing power are relatively low. However, the main problems are the use of water and the quality of the resource.

2.5. The MDGs on Water and Sanitation in Cambodia

Towards achieving the MDGs, Cambodia has launched several initiatives, as the National Poverty Reduction Strategy. Priority sectors are education, health, rural development and agriculture. In the National Strategic Development Plan 2006/2010 for the country, priority goals focus on good governance, agriculture, human resource development, private sector development and employment and rehabilitation and construction of physical infrastructure.

The Government of Cambodia has defined some high priority strategic macro-goals and targets, including the Cambodian MDGs to raise the access to safe water source to 80%, and access to improved sanitation among urban population to 74% by 2015. Towards achieving these goals, the Government has launched different initiatives, such as the right for all citizens to have access to clean water and the protection from water related diseases, which were included in the national policy approved in July 2004. Implementation of a water reform programme has also started, under which a major utility (the Phnom Penh Water Supply Authority) has been given autonomy and is now operating successfully under business principles, while also addressing the needs of the poor. Recently the Siem Reap Water Supply also obtained autonomy, and water utilities of other major

towns may take a similar approach. Table 4 below indicates Cambodia's established MDG benchmarks and goals for some of the relevant MDGs.

Table 6 - Relevant MDG benchmarks & targets for Cambodia[9]

Cambodia	Percentage (%) with access to improved water sources		Percentage (%) with access to improved sanitation		Infant mortality *(per 1,000 live births)*	Under-five mortality *(per 1,000 live births)*
	Rural	Urban	Rural	Urban		
Benchmark year 1998	24	60	8.6	49	95	124
2005	30	68	12	59	75	105
2010	40	74	20	67	60	85
2015	50	80	30	74	50	65

Nevertheless, the water and sanitation sector in Cambodia faces constraints with regard to raising needed investment capital: the internal tax revenue generated is far too small for that and therefore, loans from major governmental lenders like the World Bank and the Asian Development Bank were taken to finance investments in infrastructure. Taking this into account, drawing additional capital into the water and sanitation sector through attracting the private sector, and other innovative concepts are now being tested and undertaken. Also, work is being undertaken to involve affected communities more than it was done in the past.

3. Country Assessment Lao PDR

3.1. Country Background

Lao PDR is one of the poorest countries in Southeast Asia. It shares borders with Thailand, Vietnam, China, Cambodia and Myanmar. The country has a total population of 6.5 million people[10] with a population density of 25 people per Km^2. The urban population comprises 27% of the total population (1,755,000 people). Lao PDR is divided in 16 provinces and a capital city. It comprises 142 districts (1,176 Villages). The area of the country is 236,800 Km^2.

Lao PDR is classified by the United Nations as a Least Developed Country (LDC). However, Lao PDR has shown consistent improvement in the UNDP Human Development Index (HDI), being ranked 141st out of 173 countries in 1993, and climbing to 130th by 2007. Lao PDR has experienced advances in social development in recent years and has made significant progress towards achieving the Millennium Development Goals (MDGs). Nevertheless, the country yet faces many development challenges[11].

In 1986, the Government introduced a new economic mechanism, which implied a transition to a market-oriented economy. Since then the economy has grown at an impressive rate. The estimated per-capita income is of USD580[12], with agriculture as the main sector contributing 42% to the GDP in 2006 and employing nearly 80% of the labor force[13]. With a sustained annual growth of more than 4% since 1998, poverty declined from 46% to 33% during the decade 1992-2002[14]. The country is on track to meet the MDG Goal Target 1, of reducing the extreme poverty by half. Still, inequalities are growing among rural and urban contexts, and geographically among provinces. Paradoxically, due to other factors as food insecurity, inadequate care practices and poor environmental health, malnutrition is one of the main problems and the country is off track to meet Target 2 of reducing hunger by half.

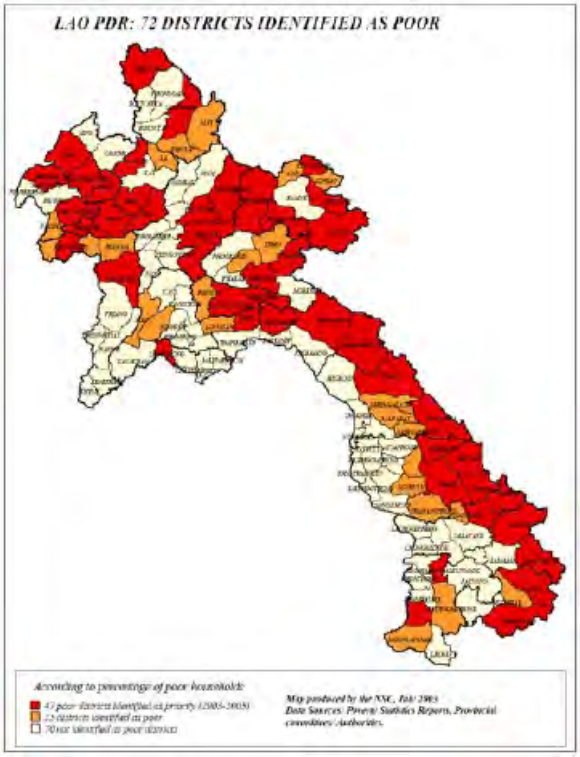
[9] Source: Ministry of Planning (MoP) Cambodia Millennium Development Goals Report, 2003.
[10] Source: Ministry of Public Works and Transport, 2008 estimates.
[11] Source: World Bank 2008, MDG Progress Report for Lao PDR, 2008.
[12] Source: World Bank, 2008.
[13] Source: MDG Progress Report, 2008.
[14] MDG Progress Report, based in national poverty line, and results from Lao Expenditure and Consumption Surveys 1,2,3.

According to Government data, poverty in rural areas rates reached 38% in 2002/2003 while in urban areas it reached 20%. Thus rural poverty is almost twice urban poverty. The Government of Lao PDR uses five criteria to define poverty: a) people who do not have good housing condition (zinc roof, wooden floor and wooden/bamboo wall); b) people who do not have latrine; c) people who do not have education (at least primary school); d) people whose household income is less than 450,000 kip/month; and e) people who cannot afford health services (like medicines or go to hospital).

The Government of Lao is making strong efforts to eradicate extreme poverty in the country. Based in the Interim Poverty Reduction Strategy 2002 and the 5th National Socio Economic Development Plan (NSEDP), the National Poverty Eradication Programme (NPEP) was prepared and upgraded in 2004 to the National Growth and Poverty Eradication Strategy (NGPES). This strategy provides the framework and establishes the outlines for programes needed for Lao PDR to overcome the LDC status by 2020. The NGPES is also aligned with the MDGs which are an integral part of the plan in overall poverty reduction as well as in sector strategies, especially in the four key sectors (agriculture and forestry; education; health; infrastructure)[15]. Based on the NGPES, the Government has completed the 6th National Socio Economic Development Plan 2006/2010.

The NGPES endorses a strategy of poor area development to reach its ambitious poverty reduction targets. The Government proposes to boost investments to initially 47 ("first") priority districts, later to be extended to another 25 ("secondary") priority districts, out of a total of 143 districts. These districts were identified based on a set of household, village, and district level indicators of basic minimum needs. While the 47 priority districts make up about one third of all districts, they are home to less than a quarter of the population. The three district categories are marked by sharp differences in infrastructure, geographic, and environmental conditions. The first priority districts are less urbanized and have less road access than other districts. Almost half of population in the 47 priority districts lives along the Vietnamese border, while almost one third of the people in non-priority districts are located along the Thai border[16].

Figure 6 - Priority districts for Lao PDR



[15] Source: UN Lao PDR.
[16] Source: Lao PDR Poverty Assessment Report, World Bank, 2006.

3.2. MEK-WATSAN in Lao PDR

MEK-WATSAN started in Lao PDR in 2006. Some of the initiatives of the fast-track approach included the following:

In Paksan district, Bolikhamxay province, there is an ongoing community-based water supply and sanitation project for urban cluster villages. The project components include the provision of a water supply system with pro-poor connection charges and tariff; the implementation of innovative financing mechanisms to increase access for the poor; environmental sanitation awareness campaigns; establishment of a water quality monitoring system and a Water Conservation Demand Management (WCDM) strategy; and demonstrative pilot projects on waste and wastewater management. The implementing partner is the provicial water supply, Nam Papa - State-owned Enterprise (NPSE) Bolikhamxay.

In New Phiang district, Sayabouly province, a similar project is on-going although not including the demonstrative pilots on waste and wastewater management. In Sayabouly district of the same province, a community-based water and sanitation pilot project is on-going for increasing the access to safe piped water to four villages with a target population of 4,100 people in 759 houses. The implementing partner is the NPSE – Sayabouly.

In Phine district, Savannakhet province, similar interventions are ongoing to increase access to basic services for 5 villages with a target population of 5,400 people in 840 households. Sanitation projects are ongoing in Vilabouly, Dansavanh and Kaysone Phomvihane districts. The implementing partner is the NPSE – Savannakhet.

In the province of Luang Prabang, a community-based water supply and sanitation pilot project was completed in the Xieng Ngeun district. 83.5% of households in target villages are now connected to the water supply network compared to 0% before project. 90.0% of households now have a latrine compared to 68% before project.

In collaboration with the French NGO GRET, UN-HABITAT is also promoting Public Private Partnerships (PPPs) in the small town of Houay Khoun, Bolikhamxay province. The objective of the project is to improve access to water supply and sanitation for 650 households, through public-private partnerships and explore possibilities for replication and scaling up across other towns in the country.

Soft activities include the development of a Water Conservation Demand Management Strategy for Xieng Ngeun, Sayabouly and Phine towns, in partnership with the Centre for Environment and Development Studies (CEDS).

3.3. The Water and Sanitation Sector in Lao PDR – Institutional Framework

In line with its national development policy to graduate from the status of least-developed country, the Government of Lao PDR has adopted a National Growth and Poverty Eradication Strategy (NGPES) under which all of its development programmes are to be implemented. NGPES has identified water supply and sanitation as one of four high priority sectors to be developed in order to meet the Government's economic growth and poverty eradication objectives.

The Government has also formulated the National Socio-Economic Development Plan (2006-2010), whose main focus is to bring about changes in the quality and quantity of basic socio-economic conditions, which will create the strong foundation for Lao PDR to move towards an industrial and modern state thereafter. In it, the Government proposes to increase the distribution of sanitized water to the population in urban and suburban areas. It will also work towards solving the issue of wastewater and solid waste in the provincial capitals, industrial centers and hospitals

The mandates and responsibilities to provide adequate water and sanitation services in Lao PDR are distributed as follows:

The Department of Housing and Urban Planning (DHUP), within the Ministry of Public Works and Transport (MPWT) is responsible for urban water supply and sanitation. Rural water supply and Sanitation is the responsibility of the Center for Environmental Health and Water Supply (Nam Saat) or Ministry of Health, which is also responsible for awareness campaigns and hygiene education.

In each province, there is one water supply utility- Nam Papa - State-owned Enterprise (NPSE) for urban water supply, which includes branches in main towns. In some provinces, there are also PPP models under 25 year concession contracts between the chief of the district and a concessionaire holder through competitive bidding process. There are three experiences of this model, and four more under study[17]. In regards to sanitation at the local level, there are ambiguities of responsibilities in small towns which the Government is working to coordinate.

3.4. The Water and Sanitation Sector in Lao PDR – Current Conditions

Water resources are one of Lao PDR's principal assets. The total surface water is annually more than 55,000 m^3 per capita. Although this vital resource is available in the country, the use of water resources remains a critical factor[18]. Water resources are used for agriculture, fisheries, hydropower, navigation, tourism and municipal supply[19]. According to estimates in 1987, 82% of the water resources was used for agriculture, while 10% for industry and 8% for domestic use. These proportions are currently maintained.

Regarding the current coverage for adequate water and sanitation services, urban areas are likely on track to meet the MDGs goal for water and sanitation, while rural areas are off track. The official information provided by the Government for the evolution of Target 10 at national level is as follows:

Table 7 - MDG Target 10

Target 10					
Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation					
	1990	1995	2000	2007	2015 Target
Proportion of people with access to improved water source (%)	28		52	74	80
Proportion of people using an improved sanitation facility (%)		29	37	49	60

Source: Population Census (1995), Nam Saat.

There are different sources of information regarding water and sanitation coverage. Tables 6 and 7 present the national coverage estimates of UNICEF and the JMP.

Table 8 - UN coverage estimates for water services (JMP Target 10 Monitoring 2009) [20]

	Urban population (thousands)	**Rural population (thousands)**	**Urban population using improved drinking water sources**	**Rural population using improved drinking water sources**	**Total**
1990	629	3,447	-	-	38%
1995	807	3,885	78%	37%	43%
2000	985	4,239	77%	40%	48%
2008	1,299	4,664	72%	51%	57%
2015	1,669	5,030	-	-	-

[17] Source: Ministry of Transport and Public Works, 2008.
[18] Source: MDG Progress Report 2008, UN.
[19] UNEP, 2001.
[20] Population Data: UN Population Division, World Population Prospects, 2008 Revision Coverage Estimates: Preliminary Estimates WHO/UNICEF JMP, 2009.

Table 9 - UN coverage estimates for sanitation services (JMP Target 10 Monitoring 2009) [21]

	Urban population (thousands)	Rural population (thousands)	Urban population using improved sanitation facilities	Rural population using improved sanitation facilities	Total
1990	629	3,447	-	-	8%
1995	807	3,885	52%	9%	16%
2000	985	4,239	59%	15%	25%
2008	1,299	4,664	86%	38%	53%
2015	1,669	5,030	-	-	-

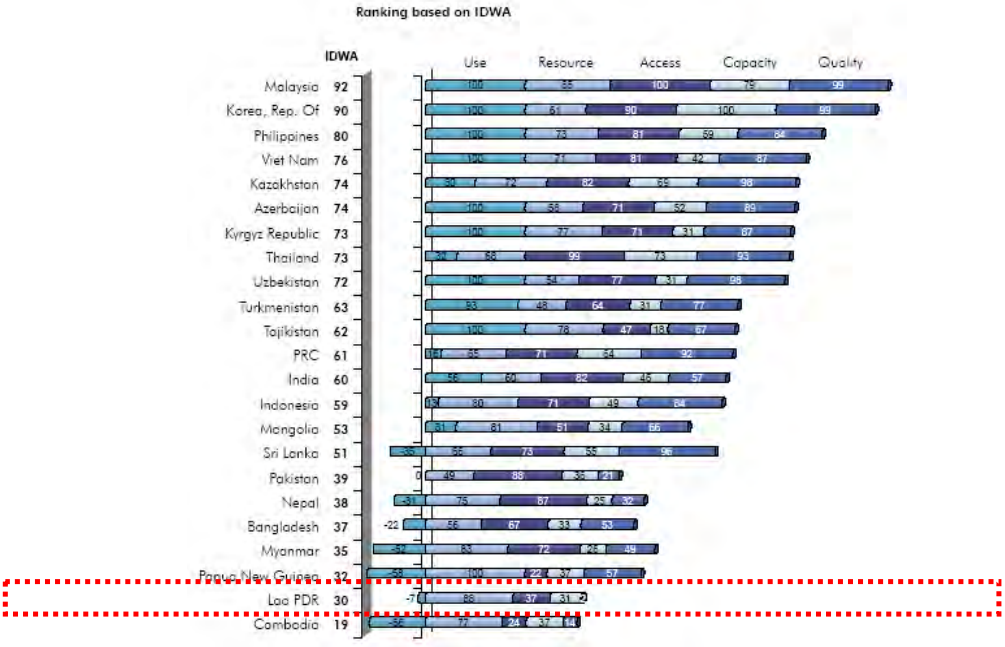
However, access to adequate water and sanitation services varies widely among provinces and contexts. More remote areas with poor roads tend to have lower coverages. Water sources vary from springs and streams in mountain areas to shallow tube wells and dug wells in low-lying areas. In urban areas, water is delivered through pipes from streams, rivers and groundwater[22].

According to Department of Housing and Urban Planning (DHUP) under the Ministry of Public Works and Transport (MPWT), there are 57 water supply systems in the country serving a total of 788,471 peoples in 53 districts. Water supply systems contribute to 50% of the urban coverage.

One constraint to capital investments in Lao PDR is that the country has comparatively high per capita capital investment costs for water supply. With a small industrial base, it needs to import almost all equipment and materials from overseas, leading to higher costs. In addition, the population density in its urban areas is very low, which undermines efforts to achieve any economy of scale.

Nonetheless, access to safe water is not the only challenge. According to the Index of Drinking Water Adequacy (IDWA), Lao PDR lies on the bottom of the ranking, only higher than Cambodia.

Figure 7 - IDWA 2007



LEGEND
IDWA: Index of Drinking Water Adequacy
Resource: Per capita internal renewable fresh water resources
Access: % access to improved water source

[21] Population Data: UN Population Division, World Population Prospects, 2008 Revision Coverage Estimates: Preliminary Estimates WHO/UNICEF JMP, 2009.
[22] Source: MDG Progress Report, 2008.

Capacity: National capacity to purchase water (PPP)
Quality: Diarrheal deaths per 100,000
Use: The extent of use on a domestic base on a per capita basis
Source: Asian Water Development Outlook, 2007.

In Lao PDR, access and capacity for purchasing power are relatively low, but in the main problems are the use of water and the quality of the resource. The main sources of water vary in the rainy and dry season, and between poor and non-poor districts. Generally, it can be said than 50% of the people in poor districts access water from surface water and unprotected groundwater in the rainy seasons, increasing to 55% during the dry season. In non-poor districts the use of surface and unprotected groundwater falls to 40% in rainy season and 45% in dry season. Harvesting rainwater is not very common in Lao PDR and only 10% of the population obtains water in this manner during the raining seasons. About 24% of the population in poor districts and 34% in non-poor districts has access to piped water systems and protected groundwater[23]. Small provincial towns usually served with piped water do not have a continuous supply, and general problems are lack of the required pressure to serve the entire network as well as deterioration of the infrastructure.

In the sanitation sector, there has been a trend to steadily increase access to adequate sanitation facilities but the coverage still remains below that of water. In areas with access to water, the most used technology is the pour-flushed toilets.

3.5. The MDGs on Water and Sanitation in Lao PDR

The Government's national goal set for 2020 is to provide 24-hour per day access to safe water for 80% of the urban population. In order to meet this goal, the Water Supply Authority (WASA), under the jurisdiction of the Department of Housing and Urban Planning (DHUP), within the Ministry of Public Works and Transport (MPWT) has prepared an Urban Water Sector Investment Plan to guide development for the period 2005-2020, particularly in small-to medium-sized towns.

Regarding sanitation and according to the most recent MDG Progress Report for Lao PDR (2009), the Government aims for 70% sanitation coverage in urban areas by 2015. According the preliminary estimates from UNICEF, WHO and JMP (2009), the national sanitation coverage in urban areas has progressed as presented in table 7. Although urban areas seem to have high coverage rates, this is not necessarily the case for peri-urban areas, whose conditions are closely reflected in the coverage of rural areas.

4. Country Assessment Vietnam

4.1. Country Background

Since Vietnam launched its economic reform process in 1986, the country has gone through various growth stages, with GDP more than doubling in the last decade, to attain an average per capita income of USD640 in 2005. The annual growth rate since 2000 has averaged at 7.4%, one of the highest in the region. Vietnam remains a predominantly *agricultural* country, with almost three quarters of the population living in the countryside. The agricultural sector is a sensitive one, as rural areas account for over 90% of the poor and provide few off-farm employment opportunities. It is also prone to natural disasters such as flash floods and droughts[24].

[23] Source: MDG Progress Report 2008, Joint Report of the National Statistics Centre of the Committee for Planning and Investment, 2006.
[24] Source: Vietnam – European Community Strategy Paper 2007/2013.

Table 10 - Basic country information

Data Profile	2000	2005	2006	2007
World view				
Population, total (millions)	77.64	83.11	84.14	85.15
Population growth (annual %)	0.2	1.3	1.2	1.2
Surface area (Km^2) (thousands)	329,2	329,3	329,3	329,3
GNI per capita, PPP (current international USD)	1.390	2.100	2.310	2.530
People				
Life expectancy at birth, total (years)	72	74	..	74
Fertility rate, total (births per woman)	2.4	2.2	2.2	2.1
Mortality rate, under-5 (per 1,000)	30	18	..	15
Malnutrition prevalence, weight for age (% of children under 5)	27	..	20	..
Primary completion rate, total (% of relevant age group)	96	..	..	..
Ratio of girls to boys in primary and secondary education (%)	93	..	..	..
Environment				
Forest area (Km^2) (thousands)	117,3	129,3	..	..
Agricultural land (% of land area)	28.2	30.9	..	..
Renewable internal freshwater resources per capita (cubic meters)	..	..	..	4.304
Improved water source (% of population with access)	77	..	92	..
Improved sanitation facilities, urban (% of urban population with access)	78	..	88	..
Energy use (Kg of oil equivalent per capita)	479	617	621	..
CO_2 emissions (metric tons per capita)	0.7	1.2	..	..
Electric power consumption (KWh per capita)	295	573	598	..
Economy				
GDP (current USD) (billions)	31.17	52.80	59.84	68.64
GDP growth (annual %)	6.8	8.4	8.2	8.5
Inflation, GDP deflator (annual %)	3.4	8.2	7.3	8.2

Source: World Development Indicators Database, April 2009.

4.2. MEK-WATSAN in Vietnam

MEK-WATSAN started in Vietnam in 2008 and is benefitting 48,275 people in water supply and 120,735 people in sanitation. Currently, under the MEK-WATSAN initiative, UN-HABITAT is undertaking projects in the towns along the East West Economic Corridor, including Dong Ha, Lao Bao, Cua Viet and Quang Tri of Quang Tri province in partnership with Ministry of Construction, the Asian Development Bank, the local Government and water utilities and the communities.

Some of the ongoing activities undertaken under the MEK-WATSAN Roll Out Phase 1 include:

- rapid assessment, Initial Environment Examination (IEE) and poverty mapping;
- access to improved water and sanitation services;
- provision of grant and revolving fund for water supply connections for the poor;
- establishment of revolving fund for latrine construction for the poor; and
- sanitation improvement.

4.3. The Water and Sanitation Sector in Vietnam – Institutional Framework

In Vietnam, sector reforms currently aim at decentralizing responsibility for urban Water Supply and Sanitation (WSS) services to provincial Governments, strengthening sector institutions, increasing cost-recovery through user charges, and gradually eliminating Government subsidies. However, the legal mechanisms required to achieve these aims have been slow to evolve and some have not been fully implemented as they have proven to be impractical. Key problems that need to be addressed in the short to medium term are: inadequate investment in the sector, WSS service providers' lack of

autonomy and business focus, unsustainable tariffs, poor operation and maintenance of infrastructure systems, lack of management capacity and weak sector regulation.

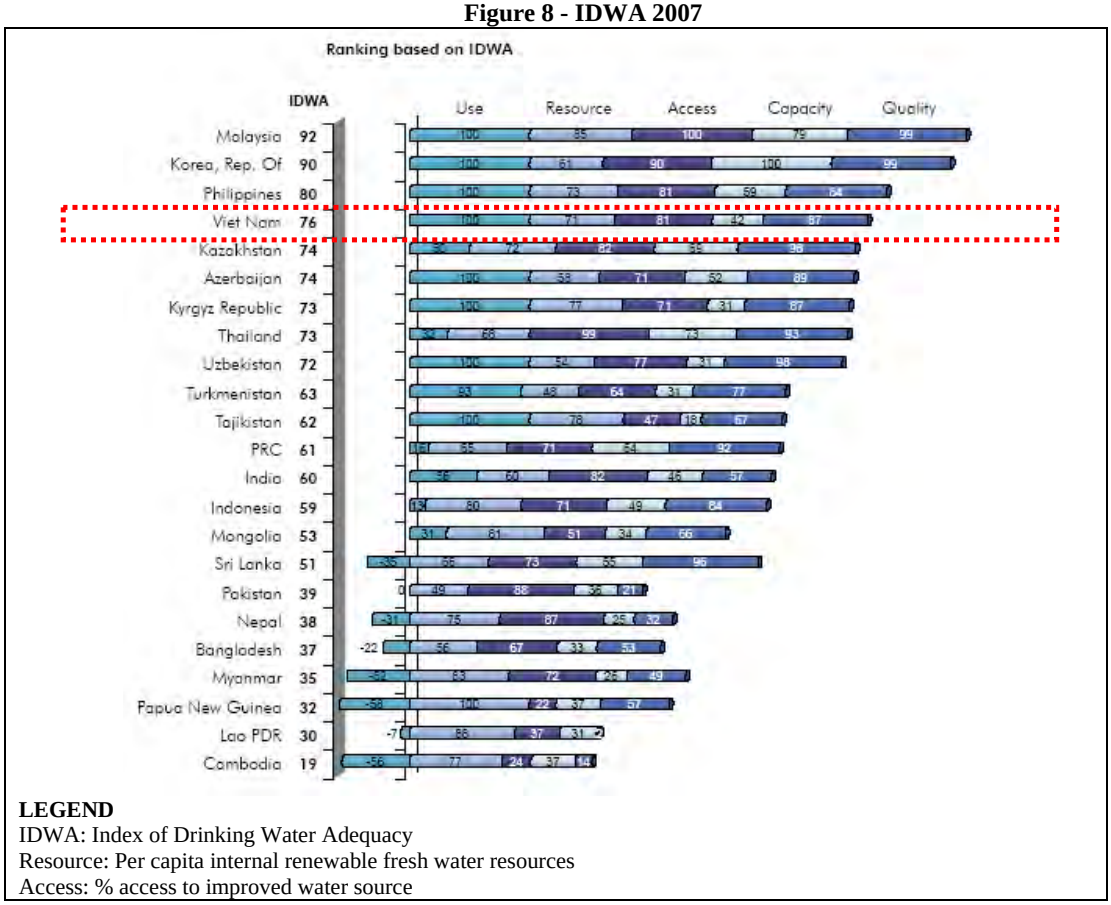
In terms of sector financing, the Government of Vietnam's policy aims at: i) adopting full cost recovery tariffs for water supply; ii) introducing drainage charges, incorporated into water tariff structures; iii) applying drainage and solid waste tariffs that are sufficient to cover operation and maintenance costs, and; iv) gradually increasing tariffs to cover capital investment requirements, and reduce the need for Government subsidies. While the authority to set WSS tariffs continues to be held by the Provincial People's Committees (PPC), the tariff guidelines issued initially in 1999 and then in 2004 guidelines (Directive 04/2004), provide the framework and methodology for use by PPCs in establishing these tariffs.

Regarding Vietnam's water supply management, there are 68 urban water supply entities. Over 420 water supply systems with a total design capacity of 5.48 million m^3/day. The operational capacity is 4.3 million m^3/day, or 80% of the design capacity (as compared to only 2.1 million m^3/day in 1998). The average service coverage rate is 70%, as for big cities, this figure is between 85 – 90%. The average non-revenue rate was reduced down to 32% (as compared to over 42% in 1998).

4.4. The Water and Sanitation Sector in Vietnam – Current Conditions

According to the Index of Drinking Water Adequacy (IDWA)[25], Vietnam lies in the fourth position, just after Malaysia, Korea and Philippines. The main challenges facing the sector are: increasing the purchasing power for treated water and assuring water quality, since the main sources are from river basins which might have been polluted upstream.

Figure 8 - IDWA 2007



LEGEND
IDWA: Index of Drinking Water Adequacy
Resource: Per capita internal renewable fresh water resources
Access: % access to improved water source

[25] ADB 2007, WWF5.

Capacity: National capacity to purchase water (PPP)
Quality: Diarrheal deaths per 100,000
Use: The extent of use on a domestic base on a per capita basis

Source: Asian Water Development Outlook, 2007.

Perhaps one of the biggest challenges in the sanitation sector is the diversity of information. Although official sanitation coverage is high in urban areas, these figures differ widely among different sources. The World Bank reports sanitation coverage in urban areas to be 92%, while sewage system coverage is only 14%. According to the Vietnam Household Living Standards Survey (VHLSS) carried out by the General Statistics Office (GSO), urban and rural access to sanitation in 2004 was 89% and 50% respectively, with an overall national coverage of 61%. Other studies have indicated lower coverage levels. For example, the Vietnam MDG Report for 2004 indicates 68% sanitation coverage for urban areas and 11.5% sanitation coverage for rural areas. Alternatively, the WHO-UNICEF Joint Monitoring Program (JMP) indicates 84% and 26% sanitation coverage for urban and rural areas respectively. Much of the disparity in information lies in the different types of technology that are used and whether improved or unimproved sanitation facilities were considered. For the purpose of the project proposals, sanitation facilities will need to meet the JMP definition for improved sanitation which looks at the proportion of the population that has access to house connections (sewers), septic tanks, and improved pit latrines. Overall, sanitation coverage in small towns is low and significantly lower in peri-urban areas where the focus of intervention is currently shifting.

In addition, there are considerable disparities in sanitation coverage between different regions. In general, sanitation coverage in the Northwest, the Central Highlands and the Mekong River Delta are much lower than in the rest of the country. The coverage in those regions is 22.8%, 42.9% and 31.4% respectively. In terms of other aspects of sanitation, there are fewer data available. Data on solid waste management, indicates relatively poor sanitation levels in Vietnam. Only 60% of solid waste from urban areas and industrial zones is collected and disposed of in dumpsites, and only 12 out of 61 cities and provincial capitals have engineered or sanitary landfills. Data on solid waste disposal practices of households reveal only 22% of households have their solid waste collected by garbage truck, with over 50% of households burning their rubbish, 20% burying it, and 13% throwing into a river[26]. The coverage of sewerage and drainage services in urban areas is estimated to be about 40-50% (from 0% in some small towns to 70% in larger towns).

Table 11 - Comparison of sanitation type and coverage values (%) measured in different national surveys in Vietnam

Survey	Improved sanitation (%)			Unimproved sanitation (%)			
	House sewer connection, Septic tank (Flush/ pour-flush)	Ventilated improved pit latrine, pit latrine with slab, composting toilet	Total	Public or shared toilet, Pit latrine without slab	Open (No facilities)	Other	Total
Demographic & Health Survey 1997							
Rural	6.0	9.4	15.4	58.4	26.2	na	84.6
Urban	67.4	7.3	74.7	16.9	8.3	na	25.2
Total	17.7	9.0	26.7	50.5	22.8	na	73.3
Vietnam National Health Survey 2001 - 2002							
Rural	13.8	15.1	28.9	48.3	21.3	1.5	71.1
Urban	70.8	8.2	79	12.4	8.2	0.4	21
Total	28.4	13.3	41.7	39.1	18.0	1.2	58.3
Joint Monitoring Program 2002							
Rural	na	na	26.0	na	na	na	74.0
Urban	na	na	84.0	na	na	na	16.0
Total	na	na	na	na	na	na	na
Vietnam Household Living Standard Survey 2002							
Rural	14.3	29.8	44.1	na	18.5	37.4	55.9
Urban	73.5	11.5	85.0	na	4.9	10.1	15.0
Total	30.2	24.9	55.1	na	14.8	30.1	44.9
Vietnam Household Living Standard Survey 2004							
Rural	20.5	29.5	50.0	na	16.3	33.7	50.0
Urban	80.8	8.8	89.6	na	3.2	7.2	10.4
Total	37.2	23.8	61.0	na	12.6	26.4	39.0
Joint Monitoring Program 2004							
Rural	na	na	50.0	na	na	na	50.0
Urban	na	na	92.0	na	na	na	18.0
Total	na	na	61.0	na	na	na	39.0

na = not available

[26] Source: Economic impacts of sanitation in Vietnam, World Bank.

4.5. The MDGs on Water and Sanitation in Vietnam

According to the Vietnam's Development Goals, set to be met before 2015, the Government aims at ensuring that 85% of the rural population and 95% of the urban population have access to clean and safe water by 2010. Although water coverage in urban areas is high, 98% as registered in 2006, there are many peri-urban areas not yet covered by the water supply networks. Thus one main focus is to increase the water coverage in peri-urban areas of secondary towns.

Table 12 - ADB analysis for Target 10 MDG

Goal 7: Ensure Environmental Sustainability
Goal 7 Targets and Indicators

Asian Development Bank (ADB)
Key Indicators for Asia and the Pacific 2008
www.adb.org/statistics

Table 7.3 Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

	7.8 Population Using Improved Water Sources (percent)				7.9 Population Using Improved Sanitation Facilities (percent)			
	1990		2006		1990		2006	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Southeast Asia								
Cambodia	47 (1995)	14 (1995)	80	61	43 (1995)	2 (1995)	62	19
Lao PDR	73 (1995)	34 (1995)	86	53	48 (1995)	6 (1995)	87	38
Viet Nam	87	43	98	90	62	21	88	56

Source: ADB Statistics.

In addition, the Government of Vietnam has set up the following goals to strengthen the water service delivery[27]:

- To make an additional investment of 4 million m^3/day to achieve 9.2 million m^3/day in capacity and to double this by 2025,
- To achieve 90% of service coverage,
- To reduce non-revenue rate down to 25% in 2015 and 15% in 2025, and
- To increase the drainage/sewerage service.

Poverty Rates and Poverty Criteria[28]

Household survey data from 2006 confirms the continued reduction of poverty in Vietnam, with the fraction of households living below the poverty line attaining 16%, compared to 28.9% in 2002, and 58.1% in 1993. Poverty remains much higher among the ethnic minorities than among the Kinh and Chinese majority. Most of the poor live in rural areas. On the other hand, urban poverty rates appear to have stagnated, and could even be for the first time on an upward trend. The Northwest, the Central Highlands and the North Central Coast remain much poorer than the rest of the country.

One way to assess the speed of this decline is based on data on household expenditures from five surveys on living standards conducted by the General Statistics Office (GSO) in 1993, 1998, 2002, 2004 and 2006. One international methodology to produce a number of indicators that are consistent over time is to compare household expenditures per capita with a poverty line. The latter is defined as the cost of a food and non-food consumption basket allowing a healthy life. In the case of Vietnam, it has been customary to consider the poverty line as the cost of a basket allowing a daily intake of 2,100 calories per person per day. Based on this measure, it appears that poverty has fallen dramatically between 1993 and 2006, both in rural and in urban areas and for both Kinh and for ethnic minority groups. According to these estimates, over a thirteen-year period Vietnam has seen 42% of the population (equivalent to about 35 million people) move above the poverty line[29].

[27] Source: Ministry of Construction.
[28] Source: 2006 Vietnam Development Report, World Bank.
[29] Source: Vietnam development report, 2008.

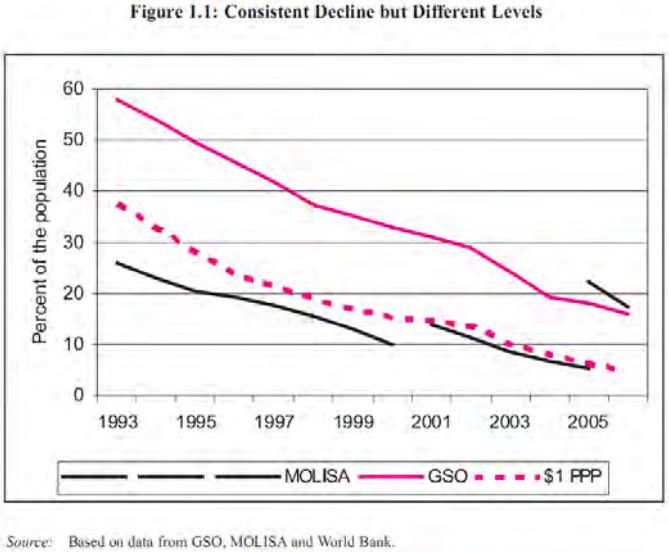
Table 13 - Poverty rates and the poverty gap in Vietnam

	1993	1998	2002	2004	2006
Poverty rate	58.1	37.4	28.9	19.5	16.0
Urban	25.1	9.2	6.6	3.6	3.9
Rural	66.4	45.5	35.6	25.0	20.4
Kinh and Chinese	53.9	31.1	23.1	13.5	10.3
Ethnic minorities	86.4	75.2	69.3	60.7	52.3
Food poverty	24.9	15.0	10.9	7.4	6.7
Urban	7.9	2.5	1.9	0.6	1.2
Rural	29.1	18.6	13.6	9.7	8.7
Kinh and Chinese	20.8	10.6	6.5	3.5	3.2
Ethnic minorities	52.0	41.8	41.5	34.2	29.2
Poverty gap	18.5	9.5	6.9	4.7	3.8
Urban	6.4	1.7	1.3	0.7	0.7
Rural	21.5	11.8	8.7	6.1	4.9
Kinh and Chinese	16.0	7.1	4.7	2.6	2.0
Ethnic minorities	34.7	24.2	22.8	19.2	15.4

Source: Based on preliminary GSO data. Estimate for 2004 not unofficial

In Vietnam's case, at least two other ways of measuring poverty receive considerable attention. One of them considers a poverty line set at one dollar per person per day. On the one-dollar-a-day metric, poverty in Vietnam has declined at the same rapid pace suggested by the 2,100-calories metric. As of 2006, only 4.9% of the population was below this poverty line. Other commonly reported poverty figures for Vietnam are produced by the Ministry of Labor, Invalids and Social Affairs (MOLISA), using an alternative methodology. Again, the underlying principle is to compare some indicator of household living standards with some minimum acceptable benchmark. But both household living standards and the poverty line are measured in ways that differ from the international methodology. The poverty line used by MOLISA was originally conceived as a certain amount of rice. Back in 1993, people were considered poor if they could not afford 20 kilos of rice per person per month in urban areas, and 15 kilos in rural areas. These amounts were increased to 25 and 20 respectively in 1995, and a threshold of 15 kilos was introduced in 1997 for mountainous areas. In 2001 rice amounts were converted into money terms, at 150, 100 and 80 thousand dong per person per month, respectively. A major update took place in 2006, when the poverty line was set at 260 thousand dong for urban areas and 200 thousand dong for all rural areas. Based on these criteria, poor households are then targeted as beneficiaries under Government programs designed to reduce poverty[30].

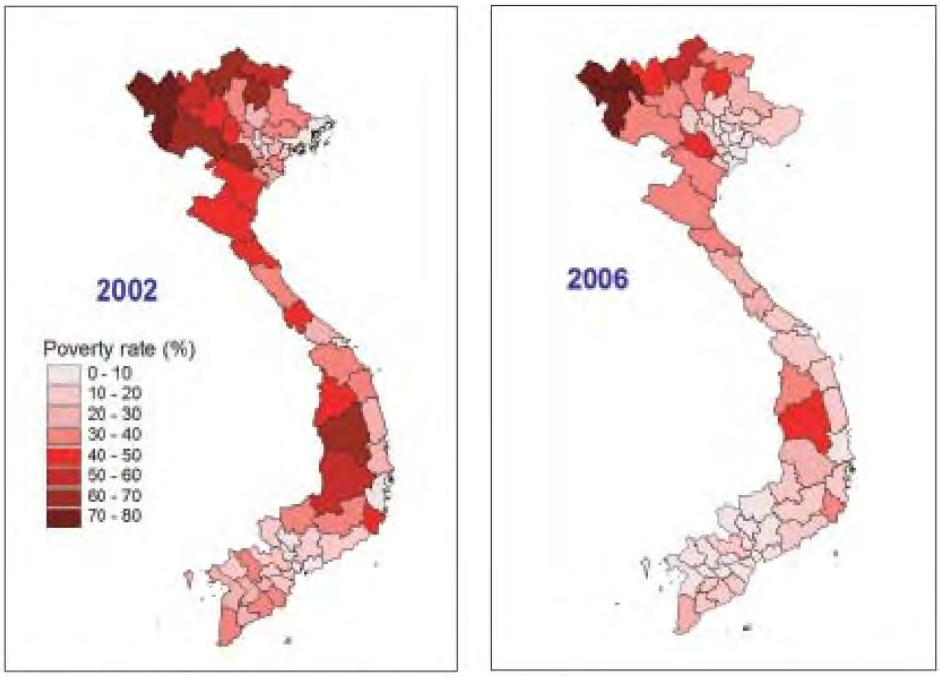
Figure 9 - Different poverty rates and trend for Vietnam



Source: Based on data from GSO, MOLISA and World Bank.

[30] Source: Vietnam Development Report, 2006.

Figure 10 - Districts and geographical distribution of poverty in Vietnam



Source: Based on preliminary data from GSO. Estimates for 2006 are unofficial.

5. Capacity Building and Training Needs Assessment

5.1. Overview and Purpose

Training needs assessment (TNA) is a systematic attempt to analyze the current scenario and identify the performance gaps, in order to evolve creative need based effective capacity enhancement programmes. It will provide direction to the institution to design appropriate curriculum and the material.

The rapid training needs assessment for the three countries in Mekong region viz, Cambodia, Lao PDR and Vietnam aims to consider the new paradigms, the country's objectives and goals, the current performance of the cities in providing Training Needs Assessment Study for the nine towns in Lao PDR, four towns in Cambodia and four towns in Vietnam water and sanitation services, the causes for the performance gap leading to problems in urban development and management and the knowledge and the skill gap of the officials and the other stakeholders in the performance of the tasks assigned.

The objective of the TNA is to obtain data for designing the capacity enhancement programme which defines capacity enhancement through its demand orientation. The capacity enhancement programme shall not be seen as an end in itself but as a contribution for the improved performance of the utilities and their officials and other stakeholders in the project cities. In that respect the capacity enhancement shall be customized to meet the specific needs and demands of cities, their stakeholders as well as communities and groups.

5.2. Scope, Approach and Methodology

The approach has been to collect and analyze the water supply and sanitation scenario in 18 project cities of three countries in Mekong where interventions have been planned under the Dutch supported project to extract meaningful conclusions about the capacity enhancement needs. This involves discovering discrepancies in the system and considering changes in policies, programmes and services that will require new knowledge and skills if they are to be carried out effectively. In the

current scenario, water and sanitation service delivery is becoming more complex and this methodology helps in assessing the knowledge and skills required for initiating sector reforms to provide services more effectively.

The exercise of training needs assessment covered the following activities:

- Identifying and analyzing the gaps between the desired performance levels and the existing levels of urban service delivery based on discussions and available data.
- Defining the scope and developing the course curriculum to cater to the knowledge and skills required to increase the performance levels of the officials of utilities and other stakeholders.

Table 14 - MEK-WATSAN Towns and Partners covered under the TNA

Cambodia	Lao PDR	Vietnam
Towns/ Districts		
▪ Kampong Cham Town, ▪ Kampong Thom Town ▪ Pursat Town ▪ Svay Rieng.	▪ Xieng Nguen District Town in Luang Prabang Province ▪ Sayabouly District, Sayabouly Province ▪ Paksan District and Thaphabath District, Bolikhamsay Province ▪ Thakkek Town, Khammouane Province ▪ Atsaphangthong District, Savannakhet Province ▪ Kongsedone, Saravane Province, ▪ Lamam and Thateng Districts, Sekong Province ▪ Samakhixay District, Attapeu Province	▪ Dong Ha City/District ▪ Quang Tri Town ▪ Lao Bao Town ▪ Qua Viet Town
Partner Organizations		
▪ Ministry of Industry Mines and Energy (MIME) ▪ Centre for Development (CfD)	▪ Department of Statistics – for the Development and establishment of a baseline database on water and environmental sanitation indicators for eight intervention areas ▪ The Water Works Technical Training Centre (WTTC) – for capacity building of the provincial NPSEs ▪ Eight Nam Papa State-owned Enterprises (NPSEs) in nine towns ▪ Department of Housing and Urban Planning, Ministry of Public Works and Transport, Vientiane ▪ Group of Research and Technological Exchange, GRET – Developing decentralized PPP approaches	▪ Quang Tri Water Supply and Construction Company (QWATSUCO), Quang Tri Province

5.3. TNA Methodology

The Capacity Buildings & Training Needs assessment was conducted adopting the following methods:

1) Interviews and meetings with key personnel and consultations with various stakeholders and persons in key positions, and/or with specific knowledge.
2) Direct interaction with the staff involved in the project implementation from various Government and non-government organisations and also UN-HABITAT team.
3) Meetings and Interviews with selected persons.
4) Focus groups discussions organised for identifying and analyzing the training needs and eliciting response.
5) Group Meetings organized for intensive consultation with key stakeholders, partner NGOs and experts to elicit response, views and information on the various aspects.
6) Review and survey of relevant literature of the overall situation of water and sanitation and policies and programmes in the country.

7) Study of various project initiatives under MEK-WATSAN and capacity requirements for project implementation.
8) Study and analysis of existing organizational and institutional capacities and identification of gaps in existing and required capacities.

The assessment included visits to the three countries GMS countries to have insight on the capacity enhancement needs and add value inputs to the proposed capacity enhancement events. To design an effective capacity building programme, it became important to gather valuable inputs from the meetings and discussions with key personnel at national, provincial and city levels. The analysis involved identifying and analyzing the gaps between the existing and the desired performance levels of urban service delivery, based on the collected information and discussions.

5.4. Capacity Building Needs Analysis for the MEK-WATSAN initiative

A review of the MEK-WATSAN programme and an inventory of existing knowledge and skills served to identify capacity building and training needs of UN-HABITAT's current and potential partner organizations (utilities, local authorities, Government line departments NGOs and the media) and also of UN-HABITAT's Staff.

The consultations and discussions conducted under the assessment focused on key issues and challenges confronting the cities in the areas of water supply and sanitation as well as on the possible solutions to be adopted. Stakeholders also indicated key areas to be covered during the capacity enhancement programme. A series of qualitative discussions were held during the mission and field visits to explore perceptions and experiences of elected representatives and policy makers' on the service delivery mechanisms. The skill set of the elected representatives and other senior officials were identified to orient them towards water and sanitation sector reform initiatives and enable them to undertake the required role in the fully reformed municipality.

Table 15 - Focus Areas of Discussion during TNA

Provincial level	District/City level	Community level
▪ Provincial level policy aspects and programs ▪ ADB Projects and project details ▪ Status of project implementation ▪ Programme Management ▪ Capacity enhancement requirements	▪ Current water and sanitation scenario ▪ Gaps in service delivery ▪ Management aspects ▪ Pricing and cost recovery ▪ Operation and maintenance ▪ Collection efficiency ▪ Community participation ▪ Coverage and access to services (Water supply, Sanitation and Solid waste management) ▪ Capacity enhancement needs / expected inputs	▪ Citizens' expectations ▪ Willingness to pay for services

5.5. MEK-WATSAN Capacity Building and Training Needs Assessment Observations and Conclusions

Focus Group Discussions provided the opportunity to identify and analyze the training needs from the officials of the utilities and other implementing partners. The officials emphasized on challenges and issues confronting the delivery of effective water and sanitation services. They identified huge gaps in the service delivery mechanisms and felt that the change in the mind-set of the people, elected representatives and policy makers would bridge the gaps.

In addition to the meetings with key utility personnel, focus group discussions were also held with citizens and senior officials to capture the existing water and sanitation service delivery mechanisms. These discussions enhanced further insights into the knowledge gained through literature review and

meetings. These Focus Group Discussions also identified the problems faced by the citizens with the services and the officials with respect to delivery of water supply and sanitation services. A majority of citizens do not seem to be satisfied with the quality of services delivered by the local bodies and suggested the need for drastic improvement in the service levels especially water supply.

Some observations from field visits are summarized below:

- Project cities are experiencing rapid urbanization and most of the growth is concentrated in informal or slum areas. Formal service providers have not been able to keep up with the growing demand for water supply and sanitation services. They tend to serve only a small portion of the population with piped water supply.

- Service providing agencies are seldom commercial or customer-orientated and proved to be inefficient, requiring enormous subsidies for operations.

- There are problems of accountability and transparency.

- As piped water supply systems age, they begin to leak water from joints, cracks, holes from rust and so on. Many of the piped water systems currently operating are undoubtedly losing a large proportion of the water contributing to non-revenue water.

- Sanitation presents an even greater challenge than water supply. Many poor people lack access to hygienic sanitation facilities and only a small proportion of wastewater is collected or disposed properly.

- Funds for sanitation improvements are often spent in sub-optimal way – to subsidize individual household toilets or to construct public toilets, which are often under-utilized and fail to benefit poorer segments of the population.

- Household are often reluctant to connect to sewerage systems because they have invested in on-site disposal systems. In the absence of proper regulation and monitoring, these are not functioning properly and end up contributing to pollution of the urban environment and creating unhealthy conditions.

- Many household toilets or latrines are not utilized or maintained. There are no effective behaviour change campaigns preceding construction. Public toilet facilities have been constructed to serve the poor but these are often not properly managed and fall into disrepair and disuse.

- The present system of garbage disposal is unsatisfactory and proper mechanism is not available for safe disposal of garbage.

Based on the inputs from the key personnel, officials and citizens, problems related to performance have been identified at different levels. The identification of problems and gaps in service delivery contributed to an analysis of the requirements in terms of knowledge, skill and attitude required for successful performance of the task. It also contributed to the selection and prioritization of the areas/fields of capacity enhancement to update knowledge, upgrade skills and reorient the attitude of the elected representatives and officials.

Table 16 – Areas and fields of capacity enhancement

Key Indicators	Cambodia	Lao PDR	Vietnam	
Water Supply	Need for Urban Water Demand Management	Low number of households with access to tap water Need of Water Audit & no water conservation policy	Challenge - Water Conservation & Water Demand Management	Poor & inadequate distribution system resulting in substantial water losses Low no. of registered house service connections & many Unauthorized connections.
Sanitation	Lack of Integrated Urban Environmental Sanitation.	Lack of Infrastructure in Municipality	Interventions must involve civil society, NGO's, CBOs & others	Inadequate public toilets & their usage
SWM		Lack of Infrastructure in Municipality	Interventions must involve civil society, NGO's, CBOs & others	SWM reforms needed

A. Priority Capacity enhancement Areas

During the TNA assessment, the most frequently identified sets of skills that needs strengthening are those related to the knowledge base on concepts, approaches and technologies as well as customer service/ relationship and management in urban service delivery. Another area was “trouble shooting”. The training needs assessment revealed the following common areas for training in the Mekong region:

- Appropriate Technology Options for Sanitation
- Water Conservation and Demand Management
- Rainwater Harvesting
- Solid Waste Management (options and technologies)
- Orientation Programmes for HVWSHE
- Financial Administration & Management of partner Water Utilities and/or agencies providing sanitation services (including GIS mapping)
- Project Management and Implementation
- PPP models
- Community mobilization
- Micro financing and revolving funds for water and sanitation

The assessment has also shown that there are needs in the areas of institutional arrangements, multi-sector involvement, private sector involvement, community involvement in infrastructure planning customer relationship management and funding mechanisms.

Institutional Arrangements

Effective legal and institutional frameworks are key to the successful implementation of Water and Sanitation and Solid Waste Management options. The measures include the set up of quality standards, monitoring, surveillance and inspection measures, incentives and penalties.

Financial Arrangements

The water sector faces two critical financing challenges while expanding services to urban poor:

The need to fill the financing shortfall between available public (including donor) resources and needed investments for new capital works and rehabilitation— leveraging additional domestic resources.

The need to ensure that resources—public and private—are used efficiently, well targeted, and result in sustainable service provision.

Multi-sector involvement

The Water, Sanitation and Solid Waste Management in the cities is fragmented, involving multiple agencies. Lack of cooperation, among the various agencies, hinder proper coordination, thereby weakening efforts to address the problems. Moreover, there appears to be poor dialogue between the stakeholders. There is therefore a strong need to train practitioners on how best to involve different sectors in management.

Public Private Partnerships

There is very limited Public Private Partnership (PPP) in water and sanitation and solid waste management in the project cities. In most cases institutions responsible for water and sanitation and solid waste management are state owned or affiliates. There is a need to create awareness among practitioners of the need to involve the private sector in water and sanitation and solid waste management. This can also be achieved through capacity building and equipping the teams with the appropriate knowledge of how best to involve the private sector.

Financial Management

There is a need for evolving other innovative financing options such as those offered by public-private partnership, community participation etc.

B. Recommended Capacity Enhancement Approach

From TNA, it is clear that there is a strong need for change in the mind set of the policy makers and service providers in improving Water and Sanitation services in the project cities. It also concludes that one of the principal factors that contribute to poor water and sanitation service delivery in the project cities is lack of awareness on various innovative approaches in service delivery mechanisms. Thus, there is widespread recognition of the urgent need for capacity building at different levels in water and sanitation sectors.

It is proposed that a majority of the participants should be comprised of elected representative of respective departments since they are the main players in decision/policy making activities in water and sanitation sector in the city. Other participants should come from the different utilities and agencies working on water and sanitation.

C. Need for articulating a road map

The following is a sample proposed training programme that broadly covers five modules:

Module 1: Need and Urgency for Change

The module presents features of and approaches to change management of the water and sanitation sector, the need to move towards sustainable water supply and sanitation service delivery, key issues and challenges faced by the sectors as well as options for achieving high quality service delivery.

Module 2: Water Demand Management

The module discusses and analyzes various principles and approaches to water supply management. It aims to enhance understanding on the need and benefits of continuous water supply. It has also outlines key concepts of investment analysis, economic theory of pricing, rational tariff fixation and cost recovery aspects, as well as the crucial steps to make continuous water supply achievable.

Module 3: Urban Environmental Sanitation

The module examined the current status and challenges in the urban sanitation sector and aimed to enhance understanding of the role of public private community partnerships. It aims at presenting key elements of effective infrastructure planning, sharing national experiences in environmental Sanitation and formulating strategies to achieve universal urban sanitation and make the cities open defecation free.

Module 4: Integrated Solid Waste Management

The module enhances understanding on the current solid waste management scenario in the countries of the region, key issues and challenges faced by the sector and broad option for effective management of the service especially for the urban poor. It focuses on various reforms adopted by cities to improve the solid waste management service through effective public private partnerships. The module also outlines national experiences in creating creditworthy cities through effective resource mobilization and sound fiscal management for effective and adequate service delivery.

Module 5: Action Plan for Change

The module presents effective communication strategies that will draw upon a range of communication channels needed for successful implementation of change management process. The module also focuses on benefits and key concepts of good customer services in the water and sanitation sector and methods to develop robust customer relations' management protocol especially for pro-poor.

Study Visits

Study visits are recommended during the capacity enhancement programme. The specific objectives of the field visits are to expose the participants on the practical aspects and post implementation benefits of various initiatives and best practices taken up in the country and in the region. The participants should have an opportunity to formulate a broad road map to meet the strategic vision of achieving sustainable water supply and sanitation service delivery for their respective cities.

Expected outcomes of the capacity enhancement program are;

1) Acceptance of water demand management principles and practices
2) Improved understanding on innovative urban management practices in key areas related to urban governance, service delivery.
3) Increased awareness among participants on the initiatives being taken to improve water and sanitation service delivery.
4) Inspired and encouraged elected representatives and officers from the utilities on these initiatives with a view to broaden their application.
5) Motivated Mayors/Governors, officers of municipalities with vision to act as change managers in their respective local bodies to implement the project effectively as per the time schedule.

Chapter 3: Town Assessments

1. Overview of Technical Assessments

After receiving the proposals from the Government of the countries for the towns to be selected for the intervention of MEK-WATSAN, a field mission was prepared for assessing the concrete situation in these towns in reference to the water and sanitation sector.

This chapter presents the technical assessments for water and sanitation physical investments in the proposed towns for the intervention. For each province and town, a general description of the demographics and socio-economic data is presented as well as a brief description of conditions of the water and sanitation sector including basic water supply system technical description as well as off-site and on-site sanitation systems description. Finally, a brief summary of the proposal for intervention received by the field mission team are presented and analyzed. For target areas with a sanitation project, the information is shorter including general description of the target population. A detailed section of the proposed sanitation technologies will be provided at the end of each country assessment.

The rapid assessment was followed by national consultation with the Governments, local utilities and target communities, covering affordability and the role of the community in implementation and operation and maintenance and result in the establishment of user groups and community-based project implementation plans, identifying roles of the utility and the community in implementation and cost sharing modalities.

The technical assessments explored a variety of options and paved the way for further negotiation and studies to help the utilities determine how to best allocate financial and human resources. Thus, the proposals presented in this chapter are not “set in stone”. Additional studies have been carried out since then.

1.1. Purpose and Objectives

The main objectives of the field mission for the Technical Town Assessments were:

- Perform rapid assessment of current water and sanitation conditions in selected towns (baseline)
- Undertake a review of the current the water and sanitation service levels in the towns particularly focusing on the poor.
- Propose recommendations for target service levels to be achieved against the current service levels in liaison with relevant stakeholders
- Review current and new proposals prepared by national/local authorities and agencies for their technical appropriateness and adequacy
- Review associated cost estimates, designs and schedule of quantities and adjust these as required as well as propose additional or new infrastructure components
- Undertake consultations with communities in the towns
- Prepare draft “Project Documents”

1.2. Scope and Methodology of the Town Assessments

Following the High-level consultations in Hanoi, UN-HABITAT prepared a comprehensive term of reference for detailed town-level water and sanitation situation assessments in the three countries.

The mission visited the proposed towns in the three countries and undertook a comprehensive review of water and sanitation infrastructure condition in the target towns, particularly trying to identify the

poor people in each town. Based on the service levels and current infrastructure provisions in the towns, a review of existing and new proposals, prepared by the utilities/ local authorities for their technical appropriateness and adequacy was conducted. Other key details assessed included: review of associated cost-estimates, designs and schedule of quantities and proposed additional or new infrastructure components together with indicative cost estimates, designs and schedules of quantities. The recommendations were then consolidated through identifying the related implementation schedule and contract management /procurement methodologies.
Against the existing service levels, clear recommendations were made for target service levels to be achieved by the project through liaison with the relevant stakeholders in each of the towns. Since MEK-WATSAN's focus is community-based, consultations were also undertaken with the potential beneficiaries of the activities – the communities in the towns.
The field missions for technical assessments took place from 26 May to 4 June 2009 in Cambodia, from 6 June to 19 June 2009 in Lao PDR and from 20 June 2009 to July 3 in Vietnam. The technical Assessments analyzed the conditions of water and sanitation services and proposed interventions for improvements. It is important to clarify that although current conditions of waste water and drainage in many of the towns were also assessed, no intervention proposals were developed since such activities are not part of the scope of the first roll-out phase due to funding constraints. The field team visited ten towns in eight provinces in Lao PDR, four towns in four provinces in Cambodia and four towns in four provinces in Vietnam.

The technical assessments were conducted with a participatory approach with the involvement of Government authorities, officials, utility staff, NGOs and community representatives. The process undertaken to carry out the town assessments included the following:

- visits to target areas
- meetings with implementing partners
- field visits to project sites
- meetings with communities and potential beneficiaries
- meetings with public officials
- desk research
- drafting of project documents (Cooperation Agreements)

At the end of each mission, National Stakeholders Consultations took place in each of the country. The consultations provided the opportunity for the participants to validate the main findings and proposed interventions to move to the development of an Action Plan for Implementation and Investments Plans.

1.3. Challenges

The following are some of the main challenges of the town assessments such as gaps in information, inconsistency of information coming from many different sources and institutions, different mandates, different definitions related to improved sanitation services, and so on.

Differing definitions of improved sanitation
The lack of agreement for defining what is improved sanitation. For the purpose of the project proposals, sanitation facilities will need to meet the JMP definition for improved sanitation which looks at the proportion of the population that has access to house connections (sewers), septic tanks, and improved pit latrines.

Different institutions involved with different/several mandates
Water and sanitation sector in the country is complex, as different ministries have different responsibilities in the resource management. Water resources management lies under the Ministry of Water Resources Management and Meteorology, while water environment lies under the Ministry of Environment. Rural Water and Sanitation Service provision lies under Ministry of Rural Development, while urban water supply and sanitation lies under Ministry of Industry, Mines and Energy (MIME). Thus in Cambodia, there are five different Ministries in the watsan sector.

A similar situation is seen in Lao PDR as rural water supplies are the responsibility of the National Centre for Environmental Health and Water Supply (Nam Saat), who are responsible as well of awareness campaigns and hygiene education. The urban water supply is responsibility of the Ministry of Transport and Public Works. There is an ambiguity of responsibility for small towns and sanitation, which the Government is trying to solve.

The water utilities in Vietnam also expressed a challenge when it comes to the responsibilities to provide private household level sanitation.

Lack of legislative framework
In Vietnam, sector reforms currently aim at decentralizing responsibility for urban Water Supply and Sanitation (WSS) services to provincial Governments, strengthening sector institutions, increasing cost-recovery through user charges, and gradually eliminating Government subsidies. However, the legal mechanisms required to achieve these aims have been slow to evolve and some have not been fully implemented as they have proven to be impractical. Key problems that need to be addressed in the short to medium term are: inadequate investment in the sector, WSS service providers' lack of autonomy and business focus, unsustainable tariffs, poor operation and maintenance of infrastructure systems, lack of management capacity and weak sector regulation.

Inconsistency of information sources
In all the three countries, the diversity of sources for information and the different data obtained depending on the source, makes difficult to fix or validate some of the basic information of the towns, as total population, household size and annual growths. Due to this reason, when official data from the Government was available it has been used. In other cases, the source is included and incongruences in some cases highlighted.

In Vietnam, for example, for the case of sanitation, it is very difficult to find official data regarding the current situation at national level, due to the differences in the definition of improved sanitation and lack of data. Depending on the source different figures are presented.

Limited human and capital resources to meet the demands of the watsan sector
In Lao PDR for example, the country has comparatively high per capita capital investment costs for water supply. With a small industrial base, it needs to import almost all equipment and materials from overseas, leading to higher costs. In addition, the population density in its urban areas is very low, which undermines efforts to achieve any economies of scale.

Taking this into account, drawing additional capital into the water and sanitation sector through attracting the private sector, and other innovative concepts are now being tested and undertaken. Also, work is being undertaken to involve affected communities more than it was done in the past.

Poor project management and other skills to complement infrastructure development
Meetings with utilities revealed a lot of technical training has been provided by agencies such as ADB and JICA. The training has been related to technical issues as water quality monitoring, O&M and installation of pipes. However, there is need to complement this technical training with management and business (utilities are not economically sustainable at the moment), energy efficiency (all utilities have approximately 40% of expenditures in electricity) or water demand management.

Need to complement the intervention of basic services provision (hardware activities which imply new infrastructure) with interventions in public spaces.
In all towns, the improvement of services in public places like schools has been requested to the mission. The situation of facilities in schools is very poor in all towns. Future interventions should fulfill these needs, as school sanitation (integrating facilities with water and hygiene education) has a long-term impact and related costs are relatively low.

Poor wastewater management and solid waste management investment in most of the towns visited
It was noted that future interventions components related to waste water management and treatment and solid waste management need to be considered. These two areas are very weak in the countries and in the towns assessed, and the impact in the environment is currently important and may be vital in the future. Decentralized and low cost technologies can support for improving these systems in the towns.

2. Town Assessments in Cambodia

2.1. Summary of Water Supply Systems

The tables below present a brief overview of the demographics in the proposed areas for intervention in each town as well as a summary of the water supply systems in the four selected towns in Cambodia.

Table 17 - Population overview of selected towns in Cambodia

Town	Town population	Population in identified areas for intervention	Population projected 2011	HH	Poverty rate
Kampong Cham	43,799	7,894	8,139	1,628	30%
Kampong Thom	52,743	9,183	9,468	2,014	25%
Pursat	39,836	8,000	8,248	1,793	23%
Svay Rieng	45,174	3,680	3,794	812	30%

Source: Meetings with the water utilities

Table 18 - Summary of water supply systems

Town	Technical							Operation			Management		
	Source and yield	WTP capacity/ treatment	Reservoirs no. and total volume (m^3)	Length of main / secondary distribution lines (m)	No. of HH connections	Connection fee (USD)	Hours of service	Water production/ water capacity (m^3/day)	Water losses (%)	Water quality monitoring / standards	Tariff type/ rate (USD/m^3)	Water utility staff	Average per capita consumption (lpd)
Kampong Cham	Groundwater (240 m^3/hour)	5,760 m^3/day Sed/Chlor	2 (675 m^3)	15,546/ 13,670	3,915	110	24	4,000/11,520	14.39	Daily/ OK	Per blocks/ 0.132/ 0.216	30	107*
Kampong Thom	Surface	5,760 m^3/day Sed/Chlor	1 (500 m^3)	32,573/ 18,890	1,916	110	24	1,379/5,760	25	Daily/ OK	Flat/ 0.2	24*	129*
Pursat	Surface (240 m3/hour)	5,780 m^3/day Sed/Chlor	1 (350 m^3)		3,192	110	24	2,138/ 5,780	22	Daily/ OK	Flat 0.31	21*	125*
Svay Rieng	Groundwater	5,760 m^3*/day Sed/Chlor	2 (400 m^3*)		1,097*	100	24	1,760*/ 5,280*	20	Daily/ OK (Color, Mn)	Flat	19*	127*

Sources: Meetings with the water utilities and 2008 ADB Evaluation Report*

2.1.1. Summary of Proposals for Increasing Access to Water Services

The interventions in Cambodia focus on the expansion of the water supply systems particularly to poor areas. The Government of Cambodia has made significant investments to upgrade the water supply systems in the secondary towns along the economic corridors. Thus, the increased capacity of the systems has created opportunities for further expansion to include the poor. Given that the high cost of the connection fees have prevented poor households from connecting to the network in the past, the MEK-WATSAN proposals incorporate innovative financial mechanisms such as revolving funds to facilitate the connection of poor families to the water supply system. The following table presents the compilation of all the proposals as presented by the water utilities during the town assessment discussions.

Table 19 - Summary of proposals presented by the water utilities

Town	Population in identified areas for intervention	Population projected 2010	HH	Pipe extension						Total cost	Unit cost (USD/ capita)	Household connection (USD)	Total cost per town (USD)
				160		110		63					
				Length (m)	Cost (USD)	Length (m)	Cost (USD)	Length (m)	Cost (USD)				
Kampong Cham	7,894	8,139	1,628	1,500	75,728	6,110	191,224	9,960	155,240	422,192	53.49	10,000	432,192
Kampong Thom	9,183	9,468	2,014	0	0	4,080	142,800	10,411	208,210	351,010	38.22	10,000	361,010
Pursat	8,000	8,248	1,793	0	0	5,000	175,000	12,000	240,000	415,000	51.88	10,000	425,000
Svay Rieng	3,680	3,794	812	0	0	7,000	245,000	7,000	140,000	385,000	104.62	10,000	395,000
TOTAL	**28,757**	**29,649**	**6,247**	**1,500**	**75,728**	**22,190**	**754,024**	**39,371**	**743,450**	**1,573,202**	**54.71**	**40,000**	**1,613,202**

Source: Meetings with water utilities

Per the above proposals, the total number of beneficiaries by the end of the project (2011) would be 29,649 inhabitants and the total cost of the interventions for the expansion of networks would be USD1,573,202, which includes USD40,000 to establish the revolving funds in the intervention areas. Under the above scenarios, the water coverage in each town would increase as follows:

Table 20 - Increase in coverage in towns

Town	Current coverage (%)	Increased population	Future coverage (%)
Kampong Cham	47%	7,894	67%
Kampong Thom	18%	9,183	36%
Pursat	37%	8,000	55%
Svay Rieng	26.55%	3,680	34.55%

The coverage would remain low in most cases but for Kampong Cham, mainly due to fact that Kampong Cham has built different trunks of distribution line in the last years since 2006.

The unit costs per capita are similar in most of the cases but for Svay Rieng. This is mainly because the proposal presented by this town covered some areas that have a low density population. Svay Rieng was requested by both MIME and UN-HABITAT to revise the proposals presented and focus in more populated areas, particularly since this town has the lowest coverage and the biggest needs.

Not all proposals are to be implemented at this moment with the support of UN-HABITAT due to budget constraints. Within the identified areas for intervention, communes were selected based on the unit cost per capita with preference given to communes with the lower costs per capita. For the case of Svay Rieng the number of beneficiaries has been recalculated using the average unit cost for the rest of the towns while Svay Rieng revises its proposal. The following table presents the selection of proposals per commune.

Table 21 - Selection of proposals per communes

Town	Commune	Population in areas of intervention	Population projected 2011	HH by 2011	Total cost (USD)	Unit cost (USD/ capita)	Projects selected
Kampong Cham	Boeung Kok (KC24)	2,153	2,220	444	93,868	43.60	Y
	Boeung Kok (KC23)	639	659	132	43,997	68.81	Y
	Veal Vong	179	185	37	17,222	96.00	N
	Sambuormeas (KC5)	3,662	3,775	755	187,862	51.31	Y
	Sambuormeas (KC13)	1,260	1,300	260	79,243	62.87	N
Kampong Thom	Damrei chanklar	2,077	2,141	456	95,440	45.95	N
	O'kanlor	2,762	2,848	606	142,610	51.63	Y
	Kampong Rotesh	2,465	2,542	541	52,400	21.26	Y
	Kampong Kabrao	1,879	1,937	412	60,560	32.23	Y

Pursat	Svay Ath	4,000	4,124	897	205,000	51.25	Y
	Lolok Sar	2,500	2,578	560	80,000	32.00	Y
	Chlang Kat	1,250	1,289	280	110,000	88.00	N
	Peat Mhakt	250	258	56	20,000	80.00	N
Svay Rieng	Svay Rieng	6,848	7,061	1,535	327,769	47.86	Y

The following table presents the summary of revised proposals per towns.

Table 22 - Summary of revised proposal per town in Cambodia

Town	Population in identified areas for intervention	Population projected 20100	HH by 2011	Pipe extension						Total cost	Unit cost (USD/ capita)	Household connection (USD)	Total cost per town (USD)
				160		110		63					
				Length (m)	Cost (USD)	Length (m)	Cost (USD)	Length (m)	Cost (USD)				
Kampong Cham	6,454	6,654	1,331	1,500	75,728	4,280	131,281	7,640	118,718	325,727	50.47	10,000	335,727
Kampong Thom	7,106	7,327	1,559	0	0	3,600	126,000	6,479	129,570	255,570	35.97	10,000	265,570
Pursat	6,500	6,702	1,457	0	0	5,000	175,000	5,500	110,000	285,000	43.85	10,000	295,000
Svay Rieng	6,848	7,061	1,535	0	0	0	0	0	0	327,769	47.86	10,000	337,769
TOTAL	**26,908**	**27,743**	**5,882**	**1,500**	**75,728**	**12,880**	**432,281**	**19,619**	**358,288**	**1,194,066**	**44.38**	**40,000**	**1,234,066**

The total cost of the project would be USD1,234,066, which includes USD40,000 for the establishment of revolving funds to promote household connections for the poor. The total number of beneficiaries the end of the program would be 27,743 and water coverage would increase as follows:

Table 23 - Increase in coverage in towns after revision of proposals

Town	Current coverage (%)	Increased population	Future coverage (%)
Kampong Cham	47%	6,454	64%
Kampong Thom	18%	7,106	32%
Pursat	37%	6,500	52%
Svay Rieng	26.55%	6,848	41.55%

The contribution in cash from both UN-HABITAT and MIME has been distributed proportionally as 80% and 20% respectively. Thus, UN-HABITAT's contribution to the water supply systems in Cambodia would be USD987,253. The following table shows the distributions of costs between partners.

Table 24 - Distribution of costs between partners for selected communes

Town	Total cost (USD)	UN-HABITAT net contribution (USD)	MIME net contribution (USD	UN-HABITAT revolving funds (USD)	MIME revolving funds (USD)	UN-HABITAT total (USD)	MIME total (USD)
Kampong Cham	335,727	260,582	65,145	8,000	2,000	268,582	67,145
Kampong Thom	265,570	204,456	51,114	8,000	2,000	212,456	53,114
Pursat	295,000	228,000	57,000	8,000	2,000	236,000	59,000
Svay Rieng	337,769	262,215	65,554	8,000	2,000	270,215	67,554
TOTAL	**1,234,066**	**955,253**	**238,813**	**32,000**	**8,000**	**987,253**	**246,813**

If MIME was to increase its contribution to implement all interventions proposed by the utilities, MIME would need to increase its participation to 40% instead of the current 20% and the distribution would be the following:

Table 25 - Distribution of costs between partners for all proposals

Town	Total cost (USD)	UN-HABITAT total (USD)	MIME total (USD)
Kampong Cham	432,192	268.582	173.611
Kampong Thom	361,010	212,456	158,554
Pursat	425,000	236,000	199,000
Svay Rieng	395,000	270,215	134,785
TOTAL	**1,613,202**	**987,253**	**665,949**
Percentage		60%	40%

2.2. Summary of Sanitation Conditions and Proposals

The sanitation coverage in Cambodia is generally low, particularly in secondary towns. Improvements in sanitation are expected to be achieved through a demand-led approach involving the promotion of sanitation, building capacity of the communities to construct their own toilets through artisans' training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as community-based revolving funds. The provision of basic on-site sanitation services will be focused particularly in areas which have already been targeted to benefit from increased access to safe piped water through a complementary project undertaken by MIME through the respective water supply utilities.

Based on an assessment carried out by the Center for Development (CfD) in the MEK-WATSAN selected towns, the total number of needed facilities in the four towns is 22,162 which would benefit 115,242 people. As shown in table XX, the differences in coverage among towns are high, ranging from 22% to 76%.

Table 26 - Needed sanitation facilities in the towns

Town	Total families	Total population	Existing facilities	Coverage (%)	Needed facilities	Beneficiaries
Kampong Cham	8,438	43,602	6,428	76%	2,010	10,452
Kampong Thom	14,280	70,084	3,211	22%	11,069	57,558
Pursat	11,872	67,610	4,202	35%	7,670	39,884
Svay Rieng	4,356	21,677	2,943	67%	1,413	7,347
TOTAL	**38,946**	**202,973**	**16,784**	**43%**	**22,162**	**115,242**

Source: CfD

The following table presents the number of proposed facilities under MEK-WATSAN, the number of beneficiaries and expected increase in sanitation coverage per town.

Table 27 - Proposed sanitation facilities and beneficiaries

Town	Total families	Total population	Existing facilities	Coverage final (%)	Proposed facilities	Beneficiaries	Increased coverage
Kampong Cham	8,438	43,602	6,428	84.3%	1,959	10,186	8.3%
Kampong Thom	14,280	70,084	3,211	63.5%	6,984	36,316	40.5%
Pursat	11,872	67,610	4,202	60.6%	5,341	27,773	25.2%
Svay Rieng	4,356	21,677	2,943	91.1%	1,291	6,713	23.5%
TOTAL	**38,946**	**202,973**	**16,784**		**15,575**	**80,990**	

The following table describes the distribution of cots between UN-HABITAT and the implementing partner which includes the contribution of the beneficiaries. The contribution of the beneficiaries is mainly in-kind, with labor for the construction of the sanitation facilities.

Table 28 - Distribution of costs between UN-HABITAT, implementing partners and beneficiaries

Activities	Kampong Cham			Kampong Thom			Svay Rieng			Pursat		
	UN-HABITAT	Partner & community	Sub-total	UN-HABITAT	Partner & community	Sub-total	UN-HABITAT	Partner & community	Sub-total	UN-HABITAT	Partner & community	Sub-total
Mobilizing community and local authorities	994	249	**1,243**	1,369	331	**1,700**	655	164	**819**	1,471	397	**1,868**
Awareness raising and capacity building	2,172	1,310	**3,482**	2,377	1,736	**4,113**	1,431	864	**2,295**	3,503	2,675	**6,178**
Provision of improved sanitation services	99,216	140,413	**239,629**	285,064	452,466	**737,530**	65,387	92,538	**157,925**	223,069	349,456	**572,525**
Development of CBES Masterplans	4,000	580	**4,580**	4,000	580	**4,580**	4,000	580	**4,580**	4,000	580	**4,580**
Project monitoring and evaluation	4,762	168	**4,930**	3,950	141	**4,091**	3,138	111	**3,249**	3,950	141	**4,091**
Grand total	**111,143**	**142,720**	**253,864**	**296,760**	**455,254**	**752,014**	**74,612**	**94,257**	**168,868**	**235,993**	**353,249**	**589,242**

Upon the completion of all interventions 80,990 people will benefit from improved sanitation services through the construction of 15,575 new on-site sanitation facilities. The total cost of the sanitation projects in Cambodia is USD1,763,988 with UN-HABITAT contributing USD718,508.

2.2.1. Technological options for on-site sanitation

Different technical options will be presented to the beneficiary communities to explore their appropriacy to the conditions of the areas. Some of the options include sanitation facilities for dry areas and sanitation facilities for flooding areas. Detailed assessments will be conducted, complemented with awareness campaigns. Following is a collection of proposed technological options.

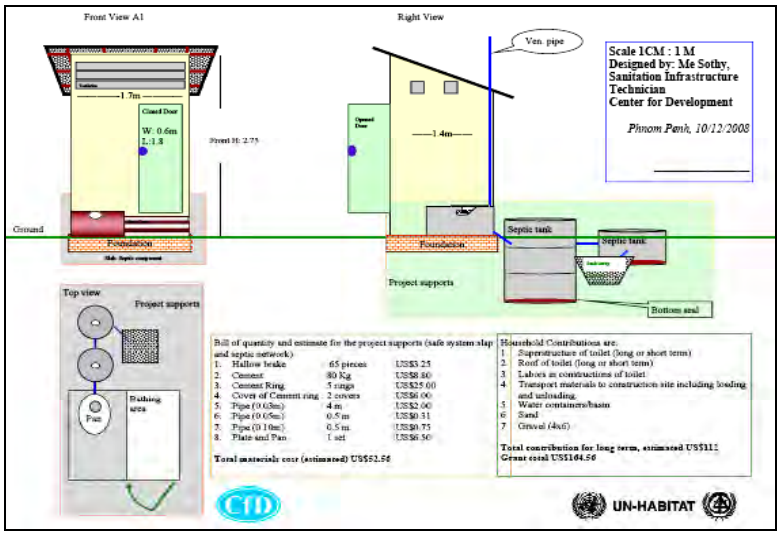


Figure 11 - Bill of quantities for improved sanitation facility which is regularly implemented

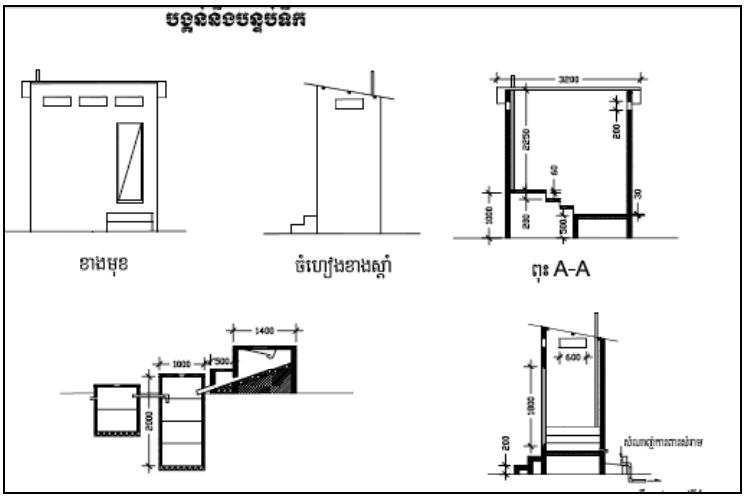


Figure 12 - Elevated latrine - Technology proposed for urban areas with usual flooding

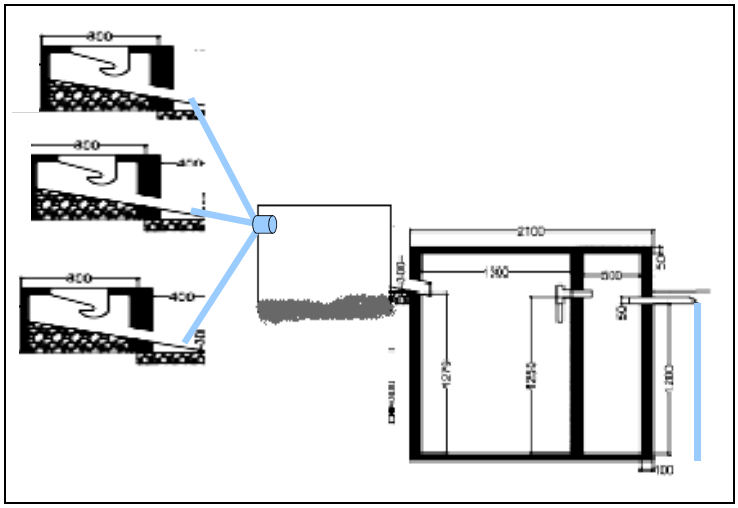


Figure 13 - Technology proposed for crowded areas. There is a maximum of ten latrines per septic tank

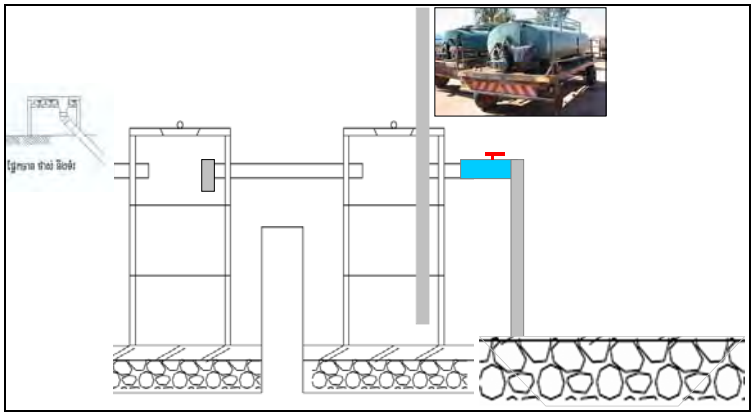


Figure 14 - Technology proposed for urban areas with floods. A service for sludge removal is required.

2.3. Considerations

There was some inconsistency among the data and information provided given the diversity of sources of information. This presented some challenges for the technical assessments. As much as possible, official Government information and data were used when available.

An important aspect to consider is the land tenure status of the target areas, information which can be sensitive in some instances but which is essential to exploring the right type of interventions.
Complementing of the provision of basic services at the household should be the provision of basic services in public facilities such as schools, an aspect that was highlighted at several meetings with different stakeholders. The condition of school sanitation facilities is very poor in all towns and there is an opportunity to integrate the provision of adequate sanitation facilities with water and hygiene education in the schools.
Investments in infrastructure need to be complemented with software activities. It has been demonstrated that hygiene education and awareness campaigns can have stronger impact in the decrease of water-borne diseases than the provision of basic services as highlighted in many studies (i.e. HDR 2006 UNDP). Thus, the incorporation of awareness raising campaigns and HVWSHE would increase the impact of the proposed interventions.
Technical training for the water utilities has been provided by both ADB and JICA mainly on water quality monitoring, operation and maintenance and installation of pipes. Since utilities are not yet economically sustainable, one important contribution of the MEK-WATSAN interventions would be to complement the technical training with training on management and business, water demand management, and also energy efficiency, as many utilities have approximately 40% of expenditures in electricity.
The promotion of low cost technologies for water supply systems in the country would help increase access for all. Current systems need big capital investments and operation costs are high which make the utilities unsustainable. Demand-driven approaches and low cost technologies could help assure the sustainability and replicability of interventions in other areas of the country while increasing access to adequate basic services.
In future interventions, there is a need to integrate components related to waste water management and treatment and solid waste management, particularly with the introduction of decentralized and low cost technologies.

3. Town Assessments in Lao PDR

3.1. Summary of water supply systems

The tables below present a brief overview of the demographics in the proposed areas for intervention in Lao PDR as well as a summary of the water supply systems in seven provinces in Lao PDR where districts have been selected for interventions by the NPSEs.

Table 29 - Population overview of selected towns in Lao PDR

Province	Target districts	Population in target areas within the district	HH	Population projected 2011	Poverty rate
Attapeu	Samakhixay District	12,313	2,417	13,260	31.0%
Sekong	Lamam District	10,625	1,808	11,442	55.5%
Savannakhet	Atsphangthong District	5,863	943	6,314	57.0%
Sayabouly	Sayabouly District	4,406	881	4,745	36.0%
Luang Prabang	Xieng Ngeun District	3,006	601	3,266	30.0%
Saravane	Kongsedone District	3,327	665	3,583	21.0%
Bolikhamsay	Paksan District	11,782	2,356	14,652	10.0%

Source: Meetings with the NPSEs

Table 30 - Summary of water supply systems

Area of intervention/ Province	Technical						Operation			Management		
	Source / System type	WTP – capacity	Reservoir (m^3)	Main/ Secondary distribution lines (m)	Current coverage (%)	Connection fee (USD)	Monthly water production (m^3)	Water losses (%)	Water quality	Tariff type/Rate	Collection rate (%)	Monthly water consumption (m^3)
Samakhixay District, **Attapeu**	River/ Pump system	2,000 m^3/day	320 m^3 and 200 m^3	3,000 (300mm) uPVC/ 44,466 (20,090 steel pipe)	93	105	101,221	52	OK but for turbidity	Flat 2,950 Kip/ m^3 (approx. 0.34 USD/m^3).	80	93,121
Lamam District**, Sekong**	River/ Gravity system	2,000 m^3/day	200 m^3	12,500(steel pipe) and 2,500 uPVC 7,000 uPVC transmission	94	147	55,000 (1,833/ day)	25	Daily monitoring/ OK	Stepped tariff 0 -10 m^3:.2,250 Kip/m^3 (USD0.26) 10-20 m^3: 2,800 Kip/m^3 (USD0.33) 21-30 m^3: 3,600 Kip/m^3 (USD0.42) > 31 m^3: 4,500 Kip/m^3 (USD0.53)	98	35,463 (1,183/ day)
Atsphangthong District, **Savannakhet**	No system in place	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sayabouly District, **Sayabouly**	River/ Pump system	5,200 m^3/day	500 m^3	-	60.5	110	82,680 (2,756/ day)	19	OK – meets WHO standards	Regular domestic: 2,500 Kip/m^3 (USD0.29) For poor households: 2,000 Kip/m^3 (USD0.23)	-	-
Xieng Ngeun District, **Luang Prabang**	Spring/ Gravity system		450 m^3	-	70	-	-	-	-	Stepped tariff 0-10m³ 1,000 Kip/m^3 11-30m³ 1,100 Kip/m^3 31-50m³ 1,200 Kip/m^3 >50m³ 1,300 Kip/m^3	-	-
Kongsedone District, **Saravane**	-	1,500 m^3/day	200 m^3	-	78	-	-	-	-	Flat 3,500 Kip/m^3 (approx 0.41 USD/m^3).	-	-

3.1.1. Summary of proposals for increasing access to water services

There are three different types of MEK-WATSAN interventions in Lao PDR: rehabilitation of dilapidated water supply networks, expansion of water supply networks to poor areas, and establishment of a new water supply system.

In Samakhixay and Lamam districts (in Attapeu and Sekong provinces respectively), the old sections of the water supply system which were built with non-galvanized steel pipes are in need of repair and rehabilitation corrosion and pipes laid out at ground level have contributed to high water loses and have compromised water quality. The rehabilitation of the old system will contribute to the significant Government investments that have already been made to increase the capacity of the systems.

In Sayabouly, Xieng Ngeun and Kongsedone districts (Sayabouly, Luang Prabang and Saravane provinces respectively), the proposed expansion of the water supply network will complement the Government investments to increase to capacity of the water supply systems to reach more people and particularly the poor.

In Atsphangthong District, Savannakhet Province, a new water supply system will be established by the provincial NPSE. Currently residents access untreated water from open hand dug wells and boreholes that are more than 12 m deep and need hand or electric pumps. Wealthier households buy bottled water at 15 USD/m^3, which is about 100 times higher than the average tariff of the formalized system.

The following table presents and overview of the proposals from the NPSEs, their rationale and number of beneficiaries.

Table 31 - Overview of proposals and rationale

Province	Area of intervention	Intervention	Beneficiaries	Scope of physical works	Estimated cost for physical works (USD)	Rationale
Attapeu	Samakhixay District	Rehabilitation of water supply system	10,608	Replacement of 32,000 m of steel pipe of varying diameters by uPVC pipes	**220,66**	Deteriorated pipes impact the quality of the water and have more than doubled the percentage of water losses Significant investments already made to expand and increase capacity of the system
Sekong	Lamam District	Rehabilitation of water supply system	9,154	Replacement of 13,200 m of steel pipe of varying diameters by uPVC pipes	**218,932**	
Savannakhet	Atsphangthong District	Construction of a new system	5,051	- 6 deep wells of about 40 m (four wells in operation and two stand by) - Submersible electric pumps per well (pumping head of 60m and discharge of 9 m^3/h) - Elevated reservoir (200 m^3 capacity) with a water chlorination unit - 6,000 m (200 mm) collector pipe connecting the wells field to the elevated reservoir - 16,500 m of gravity fed distribution pipe network (dia. 200/150/100/75/50mm)	**448,000**	No water supply system in place High costs to access safe water or reliance on unsafe surface water
Sayabouly	Sayabouly District	Expansion of water supply	3,796	22,000 m GS, uPVC, PE expansion	**242,649**	Significant Government investments to upgrade water supply systems. Increased capacity of the system creates opportunities for expansion including the poor. High cost of connection fees prevent poor households from connecting to the network
Luang Prabang	Xieng Ngeun District	Expansion of water supply	2,613	30,000 m uPVC, PE expansion		
Saravane	Kongsedone District	Expansion of water supply	2,866	17,000 m uPVC, PE expansion		

Detailed Bill of Quantities (BoQs) of the proposals can be found in Annex 3.

3.2. Summary of Sanitation Conditions and Proposals

The sanitation coverage in Lao PDR remains low and most people rely on on-site sanitation facilities like pit latrines. However, the existence of pit latrines does not necessarily mean that the sanitation facilities meet adequate standards. Some facilities are either dry latrines or pour-flush latrines with only one pit lined with concrete rings and have not been adapted for floods. This has created many problems during the rainy season rendering the latrines useless. These facilities have further deteriorated due to flooding and are therefore not environmentally sustainable. The single pit latrine is also difficult to clean. Also, there is no easy access to facilities for the proper disposal of sludge from facilities with septic tanks. Most poor households have none or inadequate sanitation facilities.

Improvements in sanitation are expected to be achieved through a demand-led approach involving strong awareness campaigns to engage communities, the promotion of behavior changes regarding sanitation and hygiene, building capacity of the community to construct their own toilets through artisans' training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as revolving funds. The NPSEs are expected to facilitate the construction of improved sanitation facilities in selected areas with the active participation of the community. The involvement of influential stakeholders in this process is vital for the success of the intervention.

Table 32 - Summary of sanitation conditions and on-site sanitation proposals

Province	Area of intervention	Total population in target areas	Total HH in target areas	Sanitation coverage	Needed facilities	Total population 2011	HH in 2011	Proposed facilities per family	Beneficiaries	Final coverage after intervention (%)
Attapeu	Samakhixay District	12,313	2,417	51%	1,179	13,377	2,626	1,327	6,762	98%
Sekong	Lamam District	10,625	1,808	31%	1,249	11,543	1,964	1,227	7,208	91%
Sekong	Tatheng District	7,588	1,247	63%	463	8,243	1,355	501	3,050	95%
Savannakhet	Atsphangthong District	5,862	943	40%	565	6,368	1,024	609	3,788	96%
Sayabouly	Sayabouly District	4,406	825	54%	379	4,787	896	409	2,183	95%
Luang Prabang	Xieng Ngeun District	3,006	555	39%	339	3,266	603	368	1,992	97%
Saravane	Kongsedone District					-			1,756	
Bolikhamsay	Paksan District	9,077	1,681	79%	357	9,861	1,826	461	2,491	98%
Khammouane	Thakhek Peri-urban	8,424	1,732	53%	822	9,152	1,882	884	4,301	95%
TOTAL		**61,301**	**11,208**		**5,353**	**66,597**	**12,176**	**5,786**	**33,531**	

3.2.1. Technological options for on-site sanitation

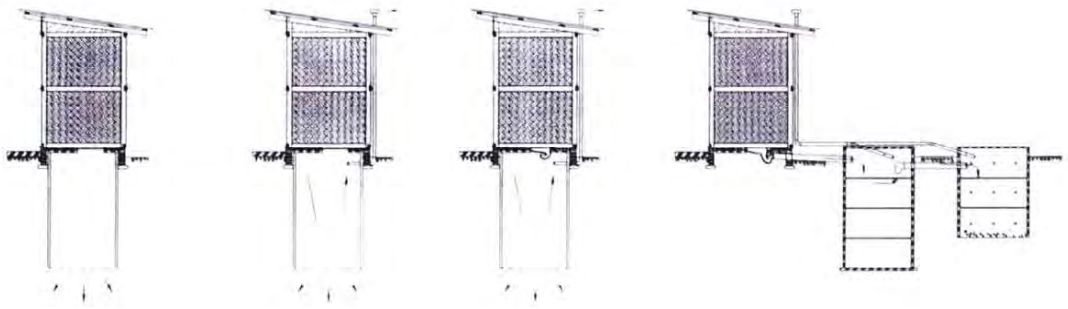
Different technological options will be presented to the community as well as the available community-based financing mechanisms such as revolving funds and grant for the most vulnerable. Beneficiaries are expected to also contribute with funds for materials and labor. It is the responsibility of the local authorities and leaders to identify the households that can either access the grants or revolving funds.

In the context of Lao PDR, the general requirements for the design of sanitation systems are:

- low cost;
- application of simple tools and technology;
- easy to maintain and use;
- acceptable within the institutional and socio- cultural context; and
- minimized air, water and soil pollution.

The different technological options relevant to the Lao PDR context are presented below:

Figure 15 - Sanitation ladder in Lao PDR



Pit latrine | **Ventilated Improved Pit (VIP) latrine** | **Pour flush toilet** | **Septic tank with soakaway**

Table 33 - Technological options for sanitation in Lao PDR

Sanitation option	Advantages	Disadvantages	Material costs (USD)
Pit latrine – Squatting hole and a collection pit with a toilet house, usually made of local materials	▪ Simple technology ▪ Lesser chance for transmission of excreta related diseases ▪ Cheapest type of latrine ▪ Water is not needed	▪ Risk of groundwater and surface water contamination. It should be at least 15 m away from a well or ground water source. ▪ Once filled the latrine has to be moved to another location. ▪ Not fully sanitary, bad smell	**40**
Ventilated Improved Pit (VIP) latrine – Improvement of the Pit latrine with ventilation to avoid bad odor	▪ Good health and hygiene practice ▪ Little odor ▪ Water is not needed	▪ Risk of groundwater and surface water contamination. It should be at least 15 m away from a well or ground water source. ▪ Once filled the latrine has to be moved to another location. ▪ Meets the JMP definition for improved sanitation facilities	**60**
Pour flush toilet – It uses Water for flushing the toilet	▪ Appropriate where water is available ▪ Odor free ▪ Little for transmission of excreta related diseases	▪ Water necessary for flushing (1-2 liters) ▪ Risk of groundwater and surface water contamination. It should be at least 15 m away from a well or ground water source. ▪ Desludging of toilet required every 3-5 years ▪ Meets the JMP definition for improved sanitation facilities	**90 - 100**
Septic tank toilet with soakaway – The sanitary units consist of three main components: toilet, septic tank and soak pit. The excreta is disposed into an underground watertight tank for digestion. The effluent is taken to a soak pit for soaking into the ground.	▪ More aesthetic and less contamination of water resources ▪ Can be installed close to the house and suitable in density populated areas ▪ Appropriate where water is available	▪ Water necessary for flushing (3-4 liters) ▪ Desludging of toilet required every 3-5 years ▪ Technical support required during installation ▪ The soil around the soakpit has to absorb the affluent ▪ Meets the JMP definition for improved sanitation facilities	**135 – 150**

Note: When necessary, the slab has to be elevated to adapt it for flooding.

Other considerations for the design of the latrines are:

- **For areas with low population density,** every household in the town that has a population density not exceeding 30 persons/hectare is required to have an approved standard latrine.

- **For areas with medium-high population density,** every household in the town that has a population density exceeding 30 persons/hectare is required to have an approved pour-flush latrine with a septic tank.

- **The location of soak pits and septic tanks must comply with the following conditions:**
  - Must be located in a place that is not prone to flooding.
  - Must be located at least 15 m away from wells, underground water and streams. In the case of latrines with septic tanks, the distance may be reduced to at least 12 m. For the households not currently in compliance with their distances, a variance may be granted on a case by case basis.
  - For latrines without septic tanks, must be located at least 3 m from the building. For latrines with septic tanks the approved distance is 1.5 m.

- Must not be located under a road, parking lot or any permanent construction.

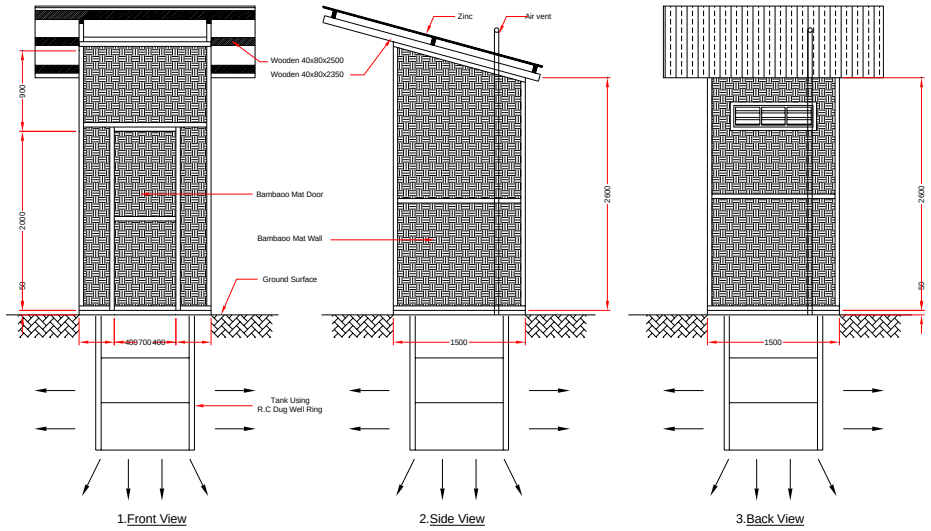


Figure 16 - Pour flush latrine

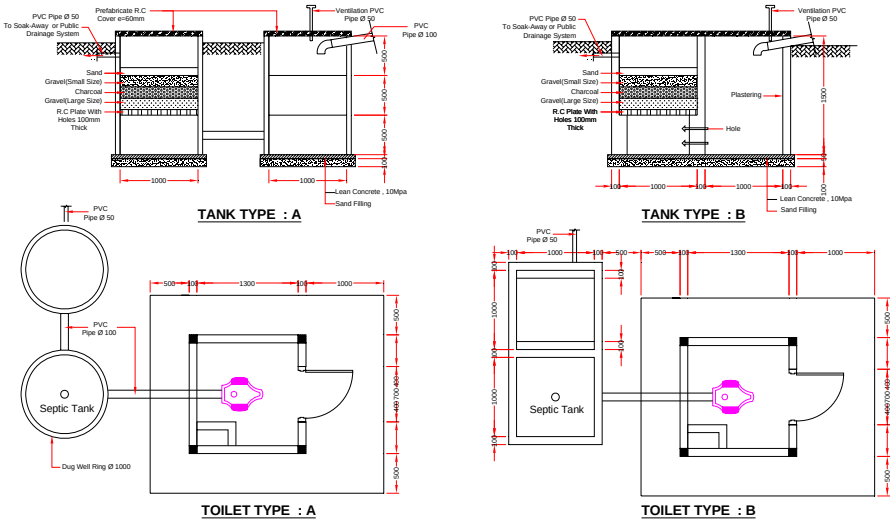


Figure 17 - Pour flush latrine with septic tank

3.3. Considerations

- The provision of adequate sanitation facilities in schools has been shared by many community representatives as an important concern among residents in target areas.
- Although the technological aspects are important, the quality and effectiveness of investments in water and sanitation are not about the technologies themselves. It is critical to match supply with demand. Furthermore, demand response approaches increase sustainability. This is particularly the case for sanitations projects.
- Willingness to pay is usually clearer for water services than for sanitation facilities. Thus, campaigns for demand raising become more critical.
- The promotion of low cost technologies for water supply systems in the country would help increase access for all. Current systems need big capital investments and operation costs are high which make the utilities unsustainable.

- Sanitation technologies need to take into account the context of the place. In Lao, PDR, flooding conditions needs to be taken into consideration. It is also important to assure the safe removal of sludge.
- Capacity building and training can have a big impact in operation. Technical training can help reduce water losses, improve water quality, and increase energy efficiency. Technical training should be complemented with training on management and business and water demand management.
- Other identified needs in the assessed areas are big investments in drainage and sewerage systems as well as waste water treatment. Drainage coverage is very low in secondary towns. Furthermore, waste water is discharged into water bodies untreated which has a high impact in environmental sustainability and the ecosystem.
- There is a need for integrated and comprehensive approaches covering the whole water cycle from the water source to the treatment of wastewater including off-site sanitation.
- Although a significant compenent of the MEK-WATSAN interventions is the provision of basic services through investments in infrastructure and sanitation facilities, these needs to be complemented by other software interventions to guarantee the sustainability of interventios.
- Urban development plans should incorporate integrated and comprehensive approaches covering
- the whole water cycle as well as software interventions.

4. Town Assessments in Vietnam

4.1. Summary of water supply systems

The tables below present a brief overview of the demographics in the proposed areas for intervention in Vietnam as well as a summary of the water supply systems in the four selected towns in Quang Tri Province, Vietnam.

Table 34 - Population overview of selected towns in Vietnam

Targat areas	Population in target areas	Total number of HH in target areas	Poverty rate
Lao Bao/ Khe Sanh (selected urban and peri-urban areas)	37,740	8,295	40.0%
Dong Ha (selected urban and peri-urban areas)	109,208	24,550	42.5%
Cua Viet (selected urban and peri-urban areas)	22,486	5,380	20.0%
Quang Tri (selected urban and peri-urban areas)	72,070	17,053	45.0%

Source: Meetings with provincial water utility

Table 35 - Summary of water supply systems

Town	Technical							Operation			Management		
	Source / System type	WTP – capacity/ Treatment	Reservoir number/ Total volume (m^3)	Main/ Secondary distribution lines (m)	Current coverage (%)	HH connections	Connection fee (USD)	Water production (%)	Water losses (%)	Water quality	Tariff type/ Rate	Collection rate (%)	Average HH water consumption (m^3)
Lao Bao/ Khe Sanh	River	2 WTP (6,000 m^3/day)/ Sedimentation, filtration, chloro	5/ 3,000 m^3	3,600 (cast iron)	52%	4,318	111	70/ 50	30	OK	Flat for domestic rate/ 3,904 Dong / m^3. Exempt from paying taxes (5%)	97	12/ 14
Dong Ha	River / Groundwater (boreholes)	2 WTP (30,000 m^3/day)/ Sedimentation, filtration, chloro	2/ 5,000 m^3		68.7%	16,848	111	Dong Ha (90%) Boreholes (50%)	32	OK	Flat for domestic rate/ 3,904 Dong/m^3	97.5	14
Cua Viet	Dong Ha System			14,000 (uPVC)	28%	1,535	111	10% Dong Ha	15	OK	Flat for domestic rate/ 3,904 Dong/m^3	97	9
Quang Tri	River	1 WTP (3,500 m^3/day)/ Sedimentation, filtration, chloro	1/ 1,000 m^3	600 (cast iron)	29%	1,987	111	50	22	OK	Flat for domestic rate/ 3,904 Dong/m^3	97.5	11

4.1.1. Summary of proposals for increasing access to water services

The MEK-WATSAN physical interventions in Vietnam focus mainly on the expansion of water supply networks to poor areas in selected urban and peri-urban areas. The proposals also include the establishment of revolving funds to facilitate household connections for poor families who have had constraints connecting to the network due to the high cost of connection fees. The proposals complement the investments the Government of Vietnam has already made to upgrade the water supply systems. The following table summarizes the proposals presented by QTWASUCO, the provincial water utility in the selected towns in Quang Tri Province.

Table 36 - Summary of proposals presented by the provincial water utility (QTWASUCO)

Town	Population in target areas	Total number of HH in target areas	Proposed HH beneficiaries	Total beneficiaries	Pipe Expansion			Estimated cost of expansion (USD)	Unit cost (USD/ capita)	Existing coverage	Expected final coverage after intervention
					Diameter DN	Length (m)	Material				
Lao Bao/ Khe Sanh	37,740	8,295	1,518	7,590	DN 50/80	8,800	HDPE	120,000	16	52%	72%
Dong Ha	109,208	24,550	1,446	7,230	DN 50/80	11,600	HDPE	171,000	24	68.7%	75%
Cua Viet	22,486	5,380	1,620	8,100	DN 50/80	6,000	HDPE	85,000	10	28%	64%
Quang Tri	72,070	17,053	1,740	8,700	DN 50/150	11,000	HDPE	220,000	25	29%	41%
TOTAL	**241,504**	**55,278**	**6,324**	**31,620**		**37,400**		**596,000**			

Source: Meetings with the Provincial Water Utility

Under these scenarios, the total number of beneficiaries totals 6,324 households. Considering a mean household size of five, the total number of beneficiaries is 31,620 people. The estimated costs for the expansion of the systems include labor and the transportation of materials.

4.2. Summary of sanitation conditions and proposals

The sanitation coverage in small towns in Vietnam is low predominantly in peri-urban areas where there is the most need for adequate sanitation facilities particularly in poor communities. QTWASUCO plans to facilitate the construction of improved sanitation facilities in selected areas

with the active participation of the community. Some of the technologies proposed have been pour-flushed toilets and septic tanks. Three types of beneficiaries will be identified according to their financial capacity to cover the construction costs of the sanitation facilities. The poorest families, as identified by the community leaders and councils, will receive grants; other poor families will participate in the revolving funds; while other residents of the target areas will be able to gain access to adequate sanitation facilities with counterpart contribution. Grants will mainly consist of construction materials for the sanitation facilities

One of the main challenges identified by the provincial utility QTWASUCO from previous experiences working on water and sanitation projects is the need for strong awareness campaigns to engage communities, promote the use and raise the demand for adequate sanitation facilities at the household level.

Improvements in sanitation are expected to be achieved through a demand-led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as revolving funds. The involvement of influential stakeholders in this process is vital for the success of the intervention.

Table 35 presents an overview of the sanitatin conditions and proposals for on-site sanitation.

Table 37 - Summary of sanitation conditions and on-site sanitation proposals

Town	Total population in target areas	Total HH in target areas	Sanitation coverage	Proposed facilities per HH	Beneficiaries	Final coverage after intervention (%)
Lao Bao/ Khe Sanh	37,740	8,295	54.9%	1,518	8,800	70.3%
Dong Ha	109,208	24,550	74.4%	3,640	18,200	74.6%
Cua Viet	22,486	5,380	38.7%	2,700	13,500	58.1%
Quang Tri	72,070	17,053	29.9%	8,900	44,500	39.2%
Total	**241,504**	**55,278**		**15,240**	**85,000**	

Source: Provincial Water Supply Utility

Some of the peri-urban areas visited are also benefiting from a housing improvement programme implemented by the Government.

4.2.1. Technological options for on-site sanitation

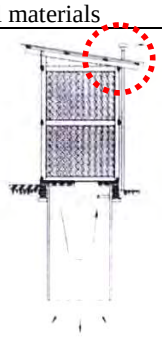
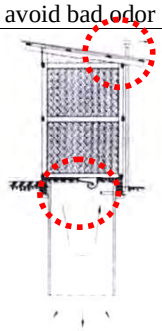
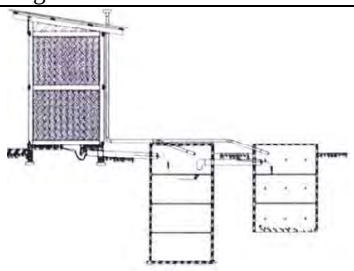
Alternative technological options for latrines have been explored particularly in regards to cost-savings and environmental impact. These options will be presented to the community as well as the available community-based financing mechanisms such as revolving funds and grant for the most vulnerable. Beneficiaries are expected to also contribute with funds for materials and labor. The local authorities and community leaders have been asked to help identify the households that can either access the grants or revolving funds.

In the context of Vietnam, the general requirements for the design of sanitation systems are:

- low cost
- application of simple tools and technology
- easy to maintain and use
- acceptable within the institutional and socio- cultural context
- minimizes air, water and soil pollution

The different technological options relevant to the Vietnam context are presented below:

Table 38 - Technological options for sanitation

Sanitation Option	Advantages	Disadvantages	Material Costs
 **Pit Latrine** – Squatting hole and a collection pit with a toilet house, usually made of local materials	• Simple technology • Lesser chance for transmission of excreta related diseases • Cheapest type of latrine • Water is not needed	• Risk of groundwater and surface water contamination. It should be at least 15 m away from a well or ground water source. • Once filled the latrine has to be moved to another location. • Not fully sanitary, bad smell	**USD40**
 **Ventilated Improved Pit (VIP) Latrine** – Improvement of the Pit latrine with ventilation to avoid bad odor	• Good health and hygiene practice • Little odor • Water is not needed	• Risk of groundwater and surface water contamination. It should be at least 15 m away from a well or ground water source. • Once filled the latrine has to be moved to another location. • Meets the JMP definition for improved sanitation facilities	**USD60**
 **Pour Flush Toilet** – It uses Water for flushing the toilet	• Appropriate where water is available • Odor free • Little for transmission of excreta related diseases	• Water necessary for flushing (1-2 liters) • Risk of groundwater and surface water contamination. It should be at least 15 m away from a well or ground water source. • Desludging of toilet required every 3-5 years • Meets the JMP definition for improved sanitation facilities	**USD90 – 100**
 **Septic Tank Toilet with Soakaway** – The sanitary units consist of three main components: toilet, septic tank and soak pit. The excreta is disposed into an underground watertight tank for digestion. The effluent is taken to a soak pit for soaking into the ground.	• More aesthetic and less contamination of water resources • Can be installed close to the house and suitable in densely populated areas • Appropriate where water is available	• Water necessary for flushing (3-4 liters) • Desludging of toilet required every 3-5 years • Technical support required during installation • The soil around the soakpit has to absorb the affluent • Meets the JMP definition for improved sanitation facilities	**USD135 – 150**

Note: Under certain geographic conditions, the slab has to be elevated to adapt it for flooding.

Other considerations for the design of the latrines are:

- **For areas with low population density,** every household in the town that has a population density not exceeding 30persons/hectare is required to have an approved standard latrine.

- **For areas with medium-high population density,** every household in the town that has a population density exceeding 30persons/hectare is required to have an approved pour-flush latrine with a septic tank.

- **The location of soak pits and septic tanks must comply with the following conditions:**
  - Must be located in a place that is not prone to flooding.
  - Must be located at least 15 meters away from wells, underground water and streams. In the case of latrines with septic tanks, the distance may be reduced to at least 12 meters. For the households not currently in compliance with there distances, a variance may be granted on a case by case basis.
  - For latrines without septic tanks, must be located at least 3 meters from the building. For latrines with septic tanks the approved distance is 1.5 meters.
  - Must not be located under a road, parking lot or any permanent construction.

4.3. Considerations

- Although the technical aspects are important, the quality and effectiveness of investments are not about the technologies themselves. The technology used is important but it is not the main objective. It is critical to match supply with demand. Furthermore, demand response approaches increase sustainability. This is particularly the case for sanitations projects.
- Investments in infrastructure need to be complemented with software activities. It has been demonstrated that hygiene education and awareness campaigns can have stronger impact in the decrease of water-borne diseases than the provision of basic services on their own. Thus, the incorporation of awareness raising campaigns and HVWSHE would increase the impact of the proposed interventions.
- Complementing of the provision of basic services at the household should be the provision of basic services in public facilities such as schools, an aspect that was highlighted at several meetings with different stakeholders.
- Willingness to pay is usually clearer for water services than for sanitation facilities. Thus, strong awareness campaigns to engage communities, promote the use, and raise the demand for adequate sanitation facilities at the household level become more critical.
- Technical training should be complemented with training on management and business and water demand management.
- Other identified needs in the assessed areas are big investments in drainage and sewerage systems. The drainage and sewerage systems are combined and the current national coverage is 60%.
- There is a need for integrated and comprehensive approaches covering the whole water cycle from the water source to the treatment of wastewater including off-site sanitation.
- Although a significant compenent of the MEK-WATSAN interventions is the provision of basic services through investments in infrastructure and sanitation facilities, these needs to be complemented by other software interventions to guarantee the sustainability of interventions.

5. National Stakeholders' Consultations

The National Stakeholders' Consultation is a follow-up to the MEK-WATSAN Regional Consultations organized on 20-22 April 2009 in Hanoi, Vietnam, whereupon the "*Hanoi Declaration"* was signed by the high officials of the participating countries - Cambodia, Lao PDR and Vietnam. Representatives from the three countries including officials from the Governments, donor community and partner organizations participated in the consultations to facilitate joint planning and discuss on the design and tools and methods to be used to ensure success of the MEK-WATSAN programme within the framework of regional cooperation.

Following the regional consultations, technical assessments of water and sanitation of selected towns in Cambodia, Lao PDR and Vietnam were carried out which will be followed by development of project documents for infrastructure investment and capacity building needs in these towns.

For more information on the National Stakeholders' Consultation in the three participating countries, please refer to Annex 8.

Chapter 4: Action Plan for Implementation

MEK-WATSAN Activity Plan and Budget: 2010-2011

Programme	Mekong Region Water and Sanitation Initiative (MEK-WATSAN)
Government of the Netherlands Contribution	USD6.6 million
WSTF contribution	USD2 million
Counterpart contribution (in-kind/cash)	USD3 million (approx)
Beneficiaries	97,253 people with improved access to water supply and 199,521 people with access to improved sanitation facilities
Coverage	Kingdom of Cambodia, Lao PDR and Vietnam 17 towns to be covered

Cambodia	Lao PDR	Vietnam
4 towns	9 towns	4 towns

1. Introduction

In 1992, with assistance from the Asian Development Bank (ADB), countries of the Greater Mekong Sub-region (GMS)[31] entered into a programme of sub-regional economic cooperation, designed to enhance economic relations among the counties. In 2001, a 10 year strategic framework for the GMS programme was formulated by the six countries with a vision to achieve enhanced connectivity, increased competitiveness and greater sense of community in the GMS. The MEK-WATSAN programme was formulated in response to the GMS initiative as a collaborative effort between UN-HABITAT, the Governments of the Greater Mekong Sub-region and ADB. The objective of the MEK-WATSAN initiative is to support the participating countries in the Greater Mekong Sub-region (GMS) attain their water and sanitation related Millennium Development Goals (MDGs).

On 12 December 2008, UN-HABITAT received a commitment of funding support from the Government of the Netherlands (GoN) in an amount of USD6.6 million for implementing the MEK-WATSAN programme. The agreement between GON and UN-HABITAT, among other things, requires that UN-HABITAT, submit by 15 October an activity plan and budget for the calendar years 2010 and 2011. This report has been prepared in compliance with this requirement.

2. Overview of Activities

The MEK-WATSAN programme with funding assistance of the Government of the Netherlands is focussing on improving water supply and environmental sanitation in 17 selected small and medium towns spread over Lao PDR, Kingdom of Cambodia and SR Vietnam.

The towns are located in the high growth economic corridors. Sanitation coverage is markedly poor in all towns and appreciably lags behind water supply. Infrastructure improvements in the towns will include, setting up of integrated water supply system, rehabilitation of dilapidated networks and extension of transmission and distribution lines, installation of household connections, installation of bulk and consumer water meters and construction of toilets.

The implementation methodology is built upon the experience gained on implementation of the fast-track projects and overall, a community-based and participatory approach will be followed.. Implementation is expected to be completed within the given time frame, with some delays envisaged in Cambodia. .

[31] Greater Mekong Sub-region (GMS) comprises Cambodia, Yunnan and Shuangjin Provinces (the People's Republic of China), Lao People's Democratic Republic, Myanmar, Thailand, and Vietnam.

A rapid town assessment involving local communities, Governments, utilities and stakeholders was carried out. This involved questionnaire surveys and focus group discussions. This resulted in a refined understanding of gaps in water supply and sanitation services for the poor. It was found that the engagement with the community will also provide an opportunity to build wide support for the project including its objectives and implementation methodology. The rapid assessment also provided preliminary data for the water and sanitation indicators for the Project Performance Monitoring and Evaluation (PPME) data base.

The rapid assessment was followed by more detailed consultation with the Governments, local utilities and target communities, covering affordability and the role of the community in implementation and operation and maintenance and result in the establishment of user groups and community-based project implementation plans, identifying roles of the utility and the community in implementation and cost sharing modalities. The detailed towns' assessment also included technological options to be considered, and resulted in development of town by town project documents on project implementation.

The extension of the water supply network and other improvements in infrastructure, such as installation of household and bulk water supply meters will closely follow the establishment of the revolving fund and agreement with the community on implementation and cost-sharing arrangements. The design and implementation of the infrastructure improvements and accompanying management arrangements is to be done with a view to also demonstrating the practical application of Water Conservation and Demand Management.

Improvement in sanitation will be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets based on sample designs, models and training to be provided through the project. The financial resources required will be available through revolving funds which will be established by the project. However, the poorest households, in some cases, will in some case receive direct assistance from the project for toilet construction, but even in these cases, their participation in implementation will be ensured.

Income generation, particularly from water and sanitation related activities will also be promoted.

Overall, the project will seek to stimulate and build on the initiative and creativity of the community. A programme to enhance awareness and more sustainable use of water resources, based on the "Human Values-based Water, Sanitation and Hygiene Education" (HVWSHE) principles, has been started in the project, involving the participating utilities, will complement other activities.

In addition to the above the project will also build the capacity of the service providers in managing water supply and sanitation services through better consumer focus, billing and collection and financial management. Through the demonstration and capacity building aspects of the project and through the knowledge sharing and dissemination networks developed by UN-HABITAT with Governments and other partners a much larger number of people are expected to benefit indirectly from the project. A detailed capacity building needs assessment exercise involving partners and stakeholders had been carried out in 2009, which besides articulating capacity building needs have also mapped potential capacity building partners. Project documents with partners have thus been developed to cater to the needs of the implementing partners of this project.

It is expected that the support from the Government of the Netherlands will, within three years, enable 97,253 people with improved access to water supply and 199,521 people with access to improved sanitation facilities

3. MEK-WATSAN Activity Plan

This activity plan is based on the funding proposal submitted to the Government of the Netherlands. The proposal included a detailed description of activities and a logical framework. The plan presented below is structured in accordance with the logical framework.

Activity 1: Extend water and sanitation systems to achieve MDG target 10 through improved infrastructure and management systems

High-level regional stakeholders' consultations were held in Hanoi in April 2009. The "Hanoi Declaration" jointly issued by the representatives of the Governments of Lao PDR, Kingdom of Cambodia and SR Vietnam, further reaffirmed the commitment of the participating Governments to the MEK-WATSAN programme. Following these high-level consultations, UN-HABITAT undertook over the period May-July 2009, a detailed assessment and project preparation Mission across the three countries. This resulted in the development of community-based water supply and sanitation projects in nine towns in Lao PDR, four in Cambodia and four in Vietnam. Overall, these projects will benefit 97,253 people with improved access to water supply and 199,521 people with improved access to adequate sanitation facilities. Activities will include the design and construction of new water supply system (2 towns) and distribution networks (11 towns) as well as rehabilitation of dilapidated pipelines (2 towns) and other water supply infrastructure (e.g. water tanks and pumping equipment) in fifteen settlements. In the case of sanitation, activities will include the selection of appropriate on-site sanitation options with reference to social and environmental consideration and support for construction of sanitation infrastructure, including training of masons. These will cover seventeen settlements. Annex 1 provides a more detailed breakdown of activities: country by country.

Memorandum of Understanding (MOUs) between UN-HABITAT and the Government of Lao PDR has been signed and two MOUs with the Government of Cambodia[32] are currently under negotiations. Negotiations have been completed with the Government of SR Vietnam on the MoU, and it is expected that the MoU will be signed soon. The MOUs describe the implementation modalities and the roles of Government, implementing partners and of UN-HABITAT. The MOUs provide the basis of town level "Cooperation Agreements" signed with implementing agencies in Lao PDR and SR Vietnam and implementation of water and sanitation projects in these two countries are expected to be completed over two years starting between October – December 2009. In the case of Cambodia, some delay is anticipated as the MOUs are still being negotiated.

It is further noted that whilst the UN-HABITAT proposal submitted for funding to Government of the Netherlands had earlier identified eight particular towns, the respective Governments had identified other sources of funding for some of these towns and settlements. The project will now support improved water supply and sanitation in 17 towns, which have been identified in consultation with the Governments and formalised through the MOUs. However, the target numbers of beneficiaries remain the same as earlier proposed.

Activity 2: Enhance Institutional and Human Resource Capacities at local and regional levels to sustain water and sanitation services.

A Training Needs Assessment of water supply utilities and other relevant stakeholders was conducted in the three countries over 2009. This comprehensive study mapped capacity building resources available within the region. Several training activities have been identified and form an integral part of the town level water supply and sanitation projects mentioned under activity 1 above. These include, financial and project management, training in community development and participatory methodologies, operations and water demand management, training of craftsmen and masons and Human Values-based Water Sanitation and Hygiene Education. Over 2010 and 2011, it is also planned to strengthen the training and capacity building capabilities of the Water Works Technical

[32] Two MoUs are required since two different ministries namely Ministry of Industry Mines and Energy (MIME) and Ministry of Rural Development (MRD) respectively are separately responsible for water supply and on-site sanitation.

Training Centre (WWTC) in Lao PDR with view to positioning the institution as a centre of excellence in the region. Similarly training institutions in Kingdom of Cambodia and SR Vietnam will be utilised for capacity building activities for the countries.

Gender mainstreaming training for stakeholders in the MEK-WATSAN programme has been completed in Lao PDR and Kingdom of Cambodia with the partnership of Gender and Water Alliance (GWA). The training programme in Vietnam will be undertaken in early November. Further activities will be conducted in the three countries on Gender Mainstreaming in the 3 countries over 2010. Part of the gender trainings undertaken in 2009 are being done in cooperation with the Mekong River Commission (MRC). Regional exchanges to share knowledge and experiences have been undertaken in 2009 through the Hanoi Consultations (April 2009) and Regional Sanitation Workshop (to be organised in late October 2009). In addition also under the "Cooperation Agreements" for each town, awareness raising programmes will be carried out. Details of training and capacity building activities planned over 2010 and 2011 can be seen in Annex 1.

Activity 3: Operationalise upstream sector reforms at the local level;

Ongoing experience and country level consultations have specifically emphasised the need for pro-poor tariff systems. This will be operationalised in the specific context of the town level Cooperation Agreements. The specific projects also demonstrate an alternative approach to the provision of services addressing the needs of the poor as opposed to large capital intensive projects. In 2009, country level consultations in the 3 countries have been conducted, involving central line ministries, local Governments and other project stakeholders. During 2010-and 2011 a series of national and policy level consultations will be conducted. These will provide an opportunity to inform policies and also conversely support reforms at the local level. Indicative details of these consultations are provided in Annex 2. A water and sanitation monitoring programme will be developed which will include database on water and environmental sanitation indicators for MDG monitoring, to inform sector policies and strategies as well as to create opportunities for local solutions and decisions.

Activity 4: Enhance capacities of local private sector entities in service delivery;

A project to demonstrate private sector involvement in the investment and management of water supply and sanitation is currently under the final stages of preparation and implementation is expected to commence from November 2009. This demonstration project will also develop the capacities of the local authorities to partner with the private sector and also inform the development of the regulatory framework. Lessons from this project, including a film will be disseminated at the regional and national levels by 2011.

In addition, a scoping study of the private sector will also be carried out. This will result in a database of current and potential private sector involvement in the water and sanitation sector. Discussions have also been held with the Water and Sanitation Programme (WSP) to analyse the potential of developing sanitation as a business. A guidance manual on this is expected to be brought out by late 2010.

Activity 5: Reduce the adverse environmental impacts of urbanisation on local river catchments;

Each of the Cooperation Agreements (please refer Activity 1 above) for Lao PDR and Vietnam include the development and preparation of an environmental management strategy and an Initial Environmental Examination with reference to the target areas. The environmental management strategy is expected to provide the basis for improved management of environmental sanitation at the town-wide and local catchment level and thereby contributing to the mitigation of the environmental impacts of urbanisation. The process of developing the strategies and IEEs will create opportunities to further increase communities' awareness on water issues and environmental sanitation thus contributing to long-term and progressive attitude changes regarding the importance of good water

use and good sanitation conditions and the impact on their living environment, health and overall quality of life.

In the case of Cambodia it is planned for the implementing partner of the sanitation component, an NGO, to facilitate the development and preparation of community-based environmental sanitation master plans, with similar results as indicated above.

Activity 6: Support economic development in secondary towns through improved water and sanitation, and related income generating activities.

The focus under this activity will be on developing water and sanitation related enterprises. As presented under Activity 4 above, the opportunity of developing sanitation as a business will be explored. The training of masons will also contribute to the development of enterprise at the community level. Strengthening of the utilities through capacity building as described under Activity 2 above, will contribute to securing their positions as viable enterprises promoting further economic development in the target towns. Cooperation agreements include monitoring activities, the scope of which also covers monitoring of economic status and livelihoods in the target towns. This also provides a basis for economic planning.

Activity 7: Support cooperation between the countries of the Mekong region, and thus economic development

UN-HABITAT cooperates with the Asian Development Bank under the aegis of a MOU. UN-HABITAT will continue to work closely with ADB which functions as the secretariat of the GMS. UN-HABITAT will also closely liaise with the Mekong River Commission. UN-HABITAT will support a number of regional exchange programmes and conferences in the context of the MEK-WATSAN programme. A tentative list of such country and regional consultations planned over 2010-2011 is presented in Annex 2.

Monitoring

A Monitoring framework, i.e “Monitoring Protocol and Sustainability Checks” and a Project Performance Monitoring and Evaluation (PPME) methodology has already been presented to the Government of the Netherlands. Activities described above will be monitored in accordance with this framework. A PPME database has been developed so as to record and monitor the project progress. MDG monitoring in some towns will be carried out in partnerships with national statistics offices and/or line ministries/provincial departments.

4. MEK-WATSAN Budget

The MEK-WATSAN budget (2009-2011) is presented in the following table. It is noted that the bulk of the costs i.e. approximately USD5.8 million of the total GoN commitment of USD6.6 million or nearly 80% is attributed to Activity 1 for provision of water and sanitation (to benefit 97,253 people with improved access to water supply and 199,521 people with improved access to adequate sanitation facilities). Training and Capacity Building is the other significant item of expenditure. Sufficient allocations have also been made for monitoring and travel.

Table 39: Detailed Project Budget in US Dollars (including USD 2 Million WSTF contribution towards capacity building and monitoring)

Activities	MEK-WATSAN Budget (2009 - 2011)	Total Contribution from the GON	2009 MEK-WATSAN BUDGET			2010 MEK-WATSAN BUDGET			2011 MEK-WATSAN BUDGET		
			GON and WSTF contributions for 2009	GON Contributions for 2009	WSTF Contributions for 2009	GON and WSTF contributions for 2010	GON Contributions for 2010	WSTF Contributions for 2010	GON and WSTF contributions for 2011	GON Contributions for 2011	WSTF Contributions for 2011
	A+B+C+D+E+F	A+C+E	A+B	A	B	C+D	C	D	E+F	E	F
Capital Investments											
Lao PDR	2,395,610	1,964,156	1,386,646	1,164,782	221,863	654,971	445,380	209,591	353,993	353,993	
Vietnam	2,540,866	2,066,952	1,135,558	953,869	181,689	913,204	620,979	292,225	492,104	492,104	
Cambodia	2,214,502	1,799,390	1,149,349	965,453	183,896	722,553	491,336	231,217	342,600	342,600	
Sub total Capital Investments	***7,150,979***	***5,830,497***	***3,671,554***	***3,084,105***	***587,449***	***2,290,728***	***1,557,695***	***733,033***	***1,188,697***	***1,188,697***	-
Training and Capacity Building											
Lao PDR	59,000	30,856	38,451	19,226	19,226	14,864	5,946	8,918	5,685	5,685	
Vietnam	82,200	44,663	39,225	19,613	19,613	29,875	11,950	17,925	13,100	13,100	
Cambodia	67,972	35,209	39,414	19,707	19,707	21,761	8,704	13,056	6,797	6,797	
Workshops	100,000	10,000	70,000	-	70,000	20,000	-	20,000	10,000	10,000	
Subtotal Training and Capacity Building	***309,172***	***120,727***	***187,091***	***58,545***	***128,545***	***86,499***	***26,600***	***59,900***	***35,582***	***35,582***	-
Monitoring											
Lao PDR	80,130	7,721	55,222		55,222	17,187		17,187	7,721	7,721	
Vietnam	102,000	16,256	51,674		51,674	34,071		34,071	16,256	16,256	
Cambodia	55,800	5,580	35,356		35,356	14,864		14,864	5,580	5,580	
Regional	-	-	-		-	-		-	-	-	
Subtotal Monitoring	***237,930***	***29,556***	***142,252***		***142,252***	***66,122***	-	***66,122***	***29,556***	***29,556***	-
Travel											
Subtotal Travel	***72,000***	***19,500***	***27,000***		**27,000**	***25,500***	-	***25,500***	***19,500***	***19,500***	-
Totals	**7,770,081**	**6,000,280**	**4,027,896**	**3,142,650**	**885,246**	**2,468,850**	**1,584,295**	**884,555**	**1,273,335**	**1,273,335**	-
UN HABITAT Programme Support Cost @ 10% from GON		600,028		314,265			158,430			127,333	-
UN-HABITAT Programme Support Cost @ 13% from WSTF					115,082			114,992			
UN-HABITAT Programme Support Cost	830,102		429,347			273,422			127,333		
Grand Total	***8,600,183***	***6,600,308***	***4,457,243***	***3,456,915***	***1,000,328***	***2,742,272***	***1,742,725***	***999,547***	***1,400,668***	***1,400,668***	-

Notes:
GON: Government of the Netherlands
WSTF: Water and Sanitation Trust Fund
"Capital Investments" include supervision costs

5. Country Activity Plans

A. Activity Plan for Cambodia

Activities	Months (2009-2011) 2009 2010 2011: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Outputs
A. Inception Workshop and Participatory Assessment of Beneficiaries and Poor Households		
Stakeholders' Inception Workshop		Report on Stakeholder's Inception Workshop
Assessment of target beneficiaries and poor households with the support of local authorities		Report on Poverty Mapping with the Distribution and Location of Poor Households, Baseline Water Indicators and Financing Options
A. Mobilizing Community and Local authorities for Community-based Sanitation Projects		
Conduct training and facilitate participatory assessments of beneficiaries and poor households.		Report on Participatory Assessment Training and Registration of Beneficiaries and poor Households
Establish sanitation groups and conduct community consultation to develop community-based implementation plan and discuss cost-sharing arrangements.		Report on the Establishment of Sanitation Groups, Community-based Implementation Plan and Copy of MOU
B. Awareness Raising and Capacity Building for Communities		
Selection of appropriate technological options for sanitation facilities in consultation with the beneficiaries, and household-level artisan's training on the construction, operation, and maintenance of the facilities including on-site demonstration.		Fact sheet on Selected Technological Option(s) for Sanitation Facilities Report on Technical Training on the Construction of Sanitation Facilities
Conduct awareness and training sessions and activities on sanitation and hygiene to promote behaviour changes and "open defecation-free areas".		Report on Awareness and Training Sessions on Sanitation and Hygiene
Support local display of information and IEC materials to promote behaviour changes.		Report on Display of Information and IEC materials
Conduct Gender Mainstreaming Workshop		Report on Gender Mainstreaming Workshop

Activities	Months (2009-2011) 2009 2010 2011 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Outputs
C. Provision of Improved Sanitation Services		
Monitor and mobilize local contributions and establish revolving funds.		Report on Mobilization of Local Contributions and the Implementation of Revolving Funds
Procurement of construction materials and supplies and construction of approximately 6,984 new on-site sanitation facilities		Report on the Construction of Adequate Sanitation Facilities
Conduct on-going monitoring and technical assistance for the construction of sanitation facilities.		Report on Monitoring and Technical Assistance for the Construction of Sanitation Facilities highlighting Main Lessons Learned
D. Development of CBES Masterplans		
Assist communities in the development and preparation of CBES Masterplan including IIE		IIE Document CBES Masterplan
B. Provision of Safe Piped Water		
Develop, establish and implement "Revolving Fund" Mechanism for water supply based on agreement on cost sharing modalities with community		Report on the Development and Establishment of a "Revolving Fund" Mechanism for Water Supply and Cost Sharing Modalities agreed with Community
Conduct engineering survey and design in consultation with community, procure materials and works needed to extend the pipe network, and connect households to the existing network in Kampong Cham Town		Final Design Documents, Drawings and Tender Documents prepared Report on Household Connections in Kampong Cham, Percentage of Poor Households with Improved Access to Water, and Completion of Physical Works
Develop and prepare a Water Quality Control and Monitoring Plan		Water Quality Control and Monitoring Plan prepared
C. Monitoring Achievements towards Reaching the MDGs		
Stakeholder workshop to discuss and plan the MDG monitoring for water and sanitation, design of survey and formulation of action plan		Report on Survey design

Activities	Months (2009-2011)																								Outputs
	2009 2010 2011																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Baseline data collection exercise in beneficiary towns.																									Report on Baseline Data Collection Exercise in Kampong Cham Town
Follow up monitoring																									Report on the Follow-up Exercise and Report of Findings
D. Capacity Building for Water Supply Utility																									
Develop and conduct training sessions on operational management for water supply utility staff																									Report on the Operational Management Training
Develop and conduct training sessions on Water Conservation and Demand Management (WCDM) for water supply utility staff																									Report on the Water Conservation and Demand Management (WCDM) training
E. Project Monitoring and Evaluation																									
Prepare half-yearly progress reports to indicate progress of project implementation																									Three Half-yearly progress reports prepared
Project Completion Meeting to discuss and disseminate main achievements and lessons learned																									Report on Project Completion Meeting
Conduct Client's survey and prepare final evaluation report																									Final evaluation report including the results of Client's Survey

B. Activity Plan for Lao PDR

Activities	Months (2009-2011)																								Outputs
	2009 2010 2011																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A. Participatory Planning and Assessments																									
Stakeholders' Inception Workshop																									Report on Stakeholder's Inception Workshop
Rapid-town assessment, participatory assessments of beneficiaries and poor households in selected target areas and development of Work Plan for project implementation																									Report on Rapid Town Assessment and Poverty Mapping with the Distribution and Location of Poor Households in Selected Target Areas Report on Work Plan for Implementation including Financing Arrangements
Identification of poor households through socio-economic survey as well as financial analysis for PPP																									Report on socio-economic field survey, technical field survey and financial analysis
B. Community Mobilization, Awareness Raising and Capacity Building																									
Selection of appropriate technological options in consultation with the beneficiaries for sanitation facilities and household-level artisan's training on their construction, operation, and maintenance including on-site demonstration																									Fact sheet on Selected Technological Option(s) for Sanitation Facilities (in Lao and translated into English) Report on Technical Training on the Construction of Sanitation Facilities
Facilitate awareness and training sessions and activities on sanitation and hygiene and gender mainstreaming as well as support local display of information and IEC materials to promote behaviour changes.																									Report on Awareness and Training Sessions on Sanitation and Hygiene and Gender Mainstreaming
Assist communities in the development and preparation of IEE and Environmental Management Strategy																									Report on IEE and Environmental Management Strategy
Film on PPP-project in Lao PDR – joint UN-HABITAT and GRET initiative																									Film on PPP-project in Lao PDR
C. Preparatory Activities for Capacity Building and MDG Monitoring																									

Activities	Months (2009-2011)	Outputs
	2009 2010 2011 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	
Stakeholders' inception workshop to discuss capacity building activities, assess main needs and formulate an action plan.		Report on stakeholders' inception workshop and Action Plan for Capacity Building activities and Report of Action Plan for MDG Monitoring
Design of survey, identification and selection of enumerators (including community members)		Report on survey design Report on selection of enumerators
Training of enumerators on the monitoring exercise in Lao PDR		Report on the training exercise for enumerators
Selection of personnel participating in the different training sessions		Report on selection of training participants
Preparation of training programmes and development of IEC materials to support capacity building activities related to values based water, sanitation and hygiene education		Training Session Outlines Developed and printed IEC materials
B. Selection of Small-Scale Private Entrepreneur/Investor		
Training on tendering process, preparation of tender documents and bidding process		Report on selection of small-scale private entrepreneur/investor including training on tendering process, tender documents and bidding process
C. Detailed Physical Work Design Preparation and PPP Contract		
Detailed design works including selection of local consulting firm, preparation of detailed designs and validation process with public authorities		Report on detailed design of physical works for small scale water supply
PPP contract negotiation (including training to District authorities and heads of village on concessionaire contracting) and set up of financing mechanisms.		Report on PPP contract negotiations and of financing mechanisms
Design works for solid waste management system		Report on final design works for solid waste management system
C. Provision of Safe Piped Water (by the NPSEs and under PPP)		

Activities	Months (2009-2011)																								Outputs
	2009 2010 2011																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Develop, establish and implement revolving funds to support household connection fees based on cost-sharing agreements with the community.																									Report on the Development and Establishment of Revolving Funds for Water Connection Fees as Agreed with the Community
Investigation of Ground Water Source for the new water supply system (when a new water supply system is established)																									Report on the Investigation of Ground Water Source
Conduct engineering survey and design in consultation with the community, procure materials and works needed to extend the pipe network, and connect households to the existing network in selected secondary towns																									Report on the Final Designs, Drawings and Tendering Documents including their Copies Report on Household Connections, Percentage of Poor Households with Improved Access to Water, Grant Allocation, and Completion of Physical Works
Construction works including: training to District authorities about work supervision, preparation of follow-up documents and construction works under PPP																									Report on the construction and supervision works
Develop and prepare a Water Quality Control and Monitoring Plan.																									Water Quality Control and Monitoring Plan prepared
D. Community-Based Provision of Improved Sanitation Facilities																									
Develop, establish and implement revolving funds as well as mobilize local contributions for the construction of appropriate sanitation facilities																									Report on the Implementation of Revolving Funds and on the Mobilization of Local Contributions
Procurement of construction materials and supplies, grant allocation and construction of appropriate on-site sanitation facilities																									Report on the Construction of Sanitation Facilities and Grant Allocation
Establishment of solid waste management service (including waste disposal facilities)																									Report on small-scale solid waste management equipments and facilities
X. Capacity Building Activities																									

Activities	Months (2009-2011)																								Outputs
	2009 2010 2011																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
First training programme (approx 16 participants per session)																									Report on the first training programme
Second training programme (approx 16 participants per session)																									Report on the second training programme
Third training programme (approx 16 participants per session)																									Report on the third training programme
Fourth training programme (approx 16 participants per session)																									Report on the fourth training programme
Fifth training programme (approx 16 participants per session)																									Report on the fifth training programme
X. MDG Target 10 and 11 Monitoring Activities																									
Baseline data collection exercise covering eight intervention areas in seven provinces of Lao PDR.																									Report on baseline data collection exercise
Follow up monitoring in the eight areas of intervention																									Report on the follow-up exercise
Data analysis, assessment and preparation of report of main findings																									Report of Main Findings for the monitoring of MDG Targets 10 and 11
E. Project Monitoring and Evaluation																									
Prepare half-yearly progress reports to indicate progress of project implementation.																									Three Half-yearly Progress Reports prepared
Stakeholders' Project Completion Meeting to discuss and disseminate main achievements and lessons learned																									Report on Stakeholders' Project Completion Meeting
National Project/ Policy Dissemination Workshop on PPP experience																									Report on National Project/ Policy Dissemination Workshop
Conduct Client's survey and prepare final evaluation report.																									Final Evaluation Report including the result of Client's Survey

C. Activity Plan for Vietnam

Activities	Months (2009-2011)																								Outputs
	2009 2010 2011																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A. Participatory Planning and Assessment of Beneficiaries																									
Stakeholders' Inception Workshop																									Report on Stakeholder's Inception Workshop
Rapid-town assessment and baseline survey of water and sanitation coverage, participatory assessments of beneficiaries and poor households in selected target areas and development of Work Plan for project implementation																									Report on rapid town-assessment and baseline survey of water and sanitation coverage with the distribution and location of poor households in selected target areas Report on Work Plan for Implementation including financing arrangements
B. Community Mobilization, Awareness Raising and Capacity Building																									
Selection of appropriate technological options in consultation with the beneficiaries for sanitation facilities and household-level artisan's training on their construction, operation, and maintenance including on-site demonstration																									Fact sheet on selected technological option(s) for sanitation facilities Report on technical training on the construction of sanitation facilities
Facilitate awareness and training sessions and activities on sanitation and hygiene and gender mainstreaming as well as support local display of information and IEC materials to promote behaviour changes.																									Report on awareness and training sessions on sanitation and hygiene and gender mainstreaming
Development and preparation of IEE and Environmental Management Strategy																									Report on IEE and Environmental Management Strategy
GIS Mapping																									Report on baseline survey and GIS mapping
Training and Capacity Building																									Report on capacity training
C. Provision of Safe Piped Water																									
Develop, establish and implement revolving funds to support household connection fees based on cost-sharing agreements with the community.																									Report on the development and establishment of revolving funds for water connection fees as agreed with the community

Activities	Months (2009-2011)																								Outputs
	2009 2010 2011																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Conduct engineering survey and design in consultation with the community, allocate grants for household connection fees, procure materials and works needed to extend the pipe network, and connect beneficiaries to the existing networks in selected towns.																									Final design documents, drawings and tender documents prepared Report on household connections, percentage of poor households with improved access to water, grant allocation, and completion of physical works
Develop and prepare a Water Quality Control and Monitoring Plan.																									Water Quality Control and Monitoring Plan prepared
D. Community-Based Provision of Improved Sanitation Facilities																									
Develop, establish and implement revolving funds as well as mobilize local contributions for the construction of sanitation facilities and HH water treatment when necessary.																									Report on the implementation of revolving funds and on the mobilization of local contributions
Procurement of construction materials and supplies, grant allocation and construction of adequate on-site sanitation facilities.																									Report on the construction of sanitation facilities and grant allocation
E. Project Monitoring and Evaluation																									
Prepare half-yearly progress reports to indicate progress of project implementation.																									Half yearly progress reports prepared
Stakeholders' Project Completion Meeting to discuss and disseminate main achievements and lessons learned																									Report on Stakeholders' Project Completion Meeting
Conduct Client's survey and prepare final evaluation report.																									Final evaluation report including client's survey

6. Tentative Country and Regional Workshops

Regional/Country initiative	Purpose	Time Frame	Status
High-level Regional Consultations (Hanoi)	Launch of the current phase of the project; reaffirmation of Government Commitments; joint signing of the "Hanoi Declaration" by high-level Government representatives	April 2009	Completed
National consultations in Cambodia	National level launch of the programme; discussions on town assessments; technological options and implementation modalities	May 2009	Completed
National consultations in Lao PDR	National level launch of the programme; discussions on town assessments; technological options and implementation modalities	June 2009	Completed
National consultations in Vietnam	National level launch of the programme; discussions on town assessments; technological options and implementation modalities	June 2009	Completed
First Gender ToT Workshop with Mekong River Commission (MRC) and Gender Water Alliance (GWA) – Lao PDR	Mainstreaming Gender	August 2009	Completed
First Gender ToT Workshop with Mekong River Commission (MRC) and Gender Water Alliance (GWA) – Cambodia	Mainstreaming Gender	October 2009	Completed
Regional Sanitation Workshop in Lao PDR	Discussions with implementing partners and stakeholders on mobilising communities and for exploring technological options for sanitation	October 2009	Completed
Inception Workshop in Vietnam	Consultations on implementation modality, activities, financial and administrative arrangements	October 2009	Completed
First Gender ToT Workshop with Mekong River Commission (MRC) and Gender Water Alliance (GWA) –Vietnam	Mainstreaming Gender	October 2009	Completed
Workshop on enhancing awareness of HIV/AIDS issues in water and sanitation sector – Lao PDR	Enhance the awareness amongst participants on linkages between HIV/AIDS and water, sanitation and hygiene	November 2009	Completed
Workshop on enhancing awareness of HIV/AIDS issues in water and sanitation sector – Vietnam	Enhance the awareness amongst participants on linkages between HIV/AIDS and water, sanitation and hygiene	November 2009	Completed
Workshop on enhancing awareness of HIV/AIDS issues in water and sanitation sector – Cambodia	Enhance the awareness amongst participants on linkages between HIV/AIDS and water, sanitation and hygiene	November 2009	Completed
Inception Workshop in Vietnam	Consultations on implementation modality, activities, financial and administrative arrangements	December 2009	Completed
Inception Workshop in Cambodia	Consultations on implementation modality, activities, financial and administrative arrangements	May 2010	Completed
Country-level consultations in Lao PDR, Vietnam and Cambodia	Mid-term Review of Progress; dissemination platform for other partners and stakeholders	September 2010	Planned
Gender mainstreaming workshops in Lao PDR,	Review of progress of implementation as per action plans	September 2010	Planned

Vietnam and Cambodia			
Regional Consultations (Phnom Penh)	Regional exchanges of the participating countries on progress of project implementation; dissemination platform to other partners and stakeholders	November 2010	Planned
Country-level consultations in Lao PDR, Vietnam and Cambodia	Preparation for Evaluation	June 2011	Planned

ANNEX 1 – Capacity Building and Training Needs Assessment

A. Resource Mapping of Institutions for Water & Sanitation Training & Capacity Building

The key objectives of identifying training and capacity development institutions/organisations at country and local levels is to facilitate the dissemination of knowledge products and services relating to sustainable water, sanitation and hygiene service delivery for the poor communities.

These training and capacity building institutions are expected to facilitate the training, information dissemination and sharing of knowledge about the local actions/best practices in water and sanitation which are successfully implemented in various countries of the region.

In general, a water and sanitation training and capacity building institution should be able to demonstrate a strong leadership in the water and sanitation sector through its vision and mission statements and programme implementation. Its areas of excellence should be related to water, sanitation and hygiene or a combination of these three.

The following qualifying criteria have been considered:

- Should be a resource centre engaged in the conduct of water and sanitation training – this is an important requisite. By resource centre, this means that the entity is a learning or training institution and is actively engaged in water and sanitation training whether formal or informal in nature.
- Should have a pool of water and sanitation trainers – as a resource centre, it is a must that team of water and sanitation experienced specialist and trainers is available who are responsible for the development and implementation of water and sanitation training modules for urban areas. These pool of resource persons may be in-house specialist or part of the bigger network of external consultants that can be tapped when need arises.
- Develops and implements water and sanitation training programme – the key of being a resource centre or learning organisation is its ability and active involvement in the development and implementation of water and sanitation training programmes. They must have capacity for knowledge development and sharing and must be active in water and sanitation research and development.
- Willingness to share knowledge, experiences, expertise and products and services on water and sanitation – a capacity building institution should be willing to provide access to their WASH resources, experiences, products and services to the whole community of water and sanitation practitioners to be able to contribute to capacity building but at the same time enrich its own WASH holding.
- Successful track record.

However, it must be noted that to be able to carry out the identification of potential capacity building hubs, it is necessary to conduct and carry out a detailed Scoping Study that would identify and further assess the initial listing of would be candidate for capacity building hubs. The objective of the scoping study is to review in detail the performance and capacities of potential water and sanitation hubs taking into account details of the resource centers track record and accomplishments for the past few years.

B. Regional Training and Capacity Building Institutions in Asia and the Pacific

Institute of Water Policy, Singapore

About 700 million people in the Asia Pacific region lack access to safe water and about 2 billion lack access to basic sanitation facilities. Countries such as China, India, Indonesia, Vietnam, Pakistan and the Philippines face significant water challenges. Reducing poverty, improving the levels of food, nutrition and public health cannot be achieved without a safe and reliable water supply. Efficient water management is also essential for sustainable economic development, ensuring energy security and protecting the environment.

To meet these challenges, the Lee Kuan Yew School of Public Policy established the Institute of Water Policy in June 2008. The mission of the school is to provide opportunities for the education and training the next generation of Asian policy-makers and leaders, with the objective of raising the standards of governance and improving the lives of the people in the region and, in so doing, contribute to the transformation of Asia.

Vision

- Inspiring leaders, improving lives, transforming Asia through robust water policy research and education.

Mission

- Inspire policy-makers to prioritize and integrate water into decision-making at and across all levels.
- Conduct leading research and provide policy advice on pressing water governance issues.
- Train the next generation of water leaders.
- Build a strong global water policy network to provide sound consulting services to transform Asia.

The IWP undertakes research, education, advice and consultancy and provides a forum for a dialogue on water policy and governance. The research program will initially cover several thematic areas namely:

- Structural, macro and long term water policy and governance issues
- Emerging global trends affecting water policy
- Legislative, regulatory and institutional frameworks
- Inter-linkages between water, energy and food policies
- Water, poverty alleviation and environmental conservation
- Economic instruments for water management
- Water resources management
- Water quality management

The IWP plans to work with a network of collaborators in key countries to research on these water policy issues and communicate the research results to policy-makers and professionals in the region. The IWP will share its research findings in conferences, publications, and lead discussions in forums and seminars to ensure the applications of its research. The Institute is also actively involved in the development of the curriculum at the Lee Kuan Yew School of Public Policy and has been responsible for developing the following modules:

- Water Policy & Governance (PP5257)
- Dynamic Modeling of Public Policy (TBD)

WaterHub, PUB, Singapore

Paving the way for a thriving, vibrant water industry and greater ownership of Singapore's strategic water resources, more than 200 like-minded individuals joined Dr Yaacob Ibrahim, Minister for the Environment and Water Resources on 10 December 2004 to celebrate the launch of WaterHub, Singapore Water Association (SWA) and Water Network.

WaterHub, Singapore Water Association and Water Network are important elements in their journey towards maintaining a sustainable water supply for all. Much more than just a training centre, WaterHub crystallizes the key elements of technology, learning and networking under one roof, for the water industry.

The Singapore Water Association plays a vital role in the development of a vibrant water industry. Through its vast networks and connections, SWA provides an excellent platform for member companies to establish partnership with different segments of the local water value chain. The aim is to facilitate and enhance collaborative efforts of these partners so as to promote the capabilities of Singapore's water industry.

In addition, more networking opportunities will root from the water network, which is a partnership panel that provides value insights and feedback to PUB's policies and programmes.

WaterHub is the centre of excellence for building the professionalism and competence of PUB and Singapore's water industry workforce. It is a unique concept which brings technology, learning and networking (TLN) under one roof for the water industry.

WaterHub signifies PUB's continual commitment to facilitate Singapore's development as a global HydroHub for water-related services and technologies. Positioned as the premier centre for research and development, WaterHub is in close partnership with in-house R&D experts, local and international academia and industry players to bring technology to the workforce.

With the support of PUB's R&D arm - the Centre for Advanced Water Technology (CAWT) housed at WaterHub, PUB is able to bring in cutting-edge water technologies, best available water, used water technologies and cost-effective solutions to the water industry.

Through PUB's wide spectrum of expertise and vast networks in the water industry, WaterHub provides capacity building programmes to countries around the world. In its continual pursuance of manpower development excellence, WaterHub, will continue to tap on industry resources, academia and water experts to develop niche training programmes to help raise the professionalism of PUB and the water industry workforce.

Equipped with advanced state-of-the-art facilities well-equipped for a variety of training deliveries, WaterHub aims to provide a holistic and conducive learning environment that encompasses R&D, classroom-based learning, practical hands-on sessions and networking opportunities amongst industry partners based at WaterHub. These partners include IWA, SWA and Corporate Research Institutes such as SIEMENS and KONZEN, and other potential partners from the water industry in the near future.

A strong networking arm enables WaterHub to provide cutting-edge water technologies and current market trends of the water industry to the workforce; moving Singapore towards a global HydroHub.

Through TLN, PUB WaterHub, partnered with 3P (people, public and private) sectors, aims to support the development of the water industry, break new ground with advanced technologies and research and development work, build industry capabilities, as well as provide opportunities for industry players to network locally and internationally.

Regional Centre on Urban Water Management, RCUWM, Tehran (Iran)
(Under the auspices of UNESCO)

Improving freshwater management within the urban environment is currently seen with a sense of urgency. Urban water problems are mounting throughout the world. Widespread mismanagement of water resources, growing competition for the use of freshwater, degraded sources – sometimes by pollutants of unpredictable effect – and the explosive growth of urbanization only heighten the acuteness of the problems.

These problems are of a complex nature and can only be properly addressed with a concerted effort involving scientific, social and institutional approaches. In addition to addressing scientific and technological aspects, suitable urban water management strategies will be explored in the context of poverty alleviation. In this way three main concerns: water, poverty and urban areas are to be linked.

In compliance with the above-mentioned challenges, finally, an agreement between the Government of I.R. Iran and UNESCO with the presence of Mr. Matsuura, the Director General of UNESCO in February 2002 was signed based on which the Regional Centre on Urban Water Management, under the auspices of UNESCO, was officially inaugurated and launched its activities.

The mission of the centre is to transfer applicable scientific knowledge, and to increase know-how and capacities in all cases and dimensions of UWM in order to promote sustainable development, and to undertake activities in this field in order to enhance human welfare within the region states.

Functions

- To promote scientific research on the issues and problems related to UWM of the region.
- To create and reinforce networks for the exchange of scientific, technical and policy information on UWM issues among the institutions and individuals in the region and in other countries.
- To develop and co-ordinate co-operative research activities on UWM issues, taking advantage particularly of the installed scientific and professional capacity of the region and of the relevant IHP networks and NGOs.
- To organize knowledge and information transfer activities on the subject, including international training courses, symposia or workshops, and to engage in appropriate awareness raising activities.
- To develop a strong program of information and communication technology to further the Centre's objectives.
- To provide technical consulting and advisory services in the region and beyond as required.
- To produce technical publications and other media items related to the activities of the centre

Southeast Asian Water Utilities Network (SEAWUN), Hanoi, Vietnam

SEAWUN is based on an initiative of water supply and sanitation utility leaders from Southeast Asia which recognized the potential benefits of regional networking. As a result, twelve water utilities from five countries agreed to found the Southeast Asian Water Utilities Network in August 2002. A year later the network started its operation after the secretariat was established and officially registered in Hanoi, Vietnam.

Since then, SEAWUN has grown into a strong regional, non-profit and self-governing organization. It expanded its membership into more than 80 utilities in seven countries, namely Indonesia, Lao PDR, Malaysia, Philippines, Singapore, Thailand and Vietnam. SEAWUN membership is complemented by a number of associating members. These are organizations and companies with an interest in urban water supply and sanitation and whose link with the network is mutual beneficial.

Member utilities represent a wide range of water and sanitation service providers; from large private companies that operate several utilities in different countries to small government owned enterprises that provide water for a single city. This diversity of members creates the framework for benchmarking initiatives, exchange of knowledge and experiences, and utility-to-utility support programs such as twinning partnerships. SEAWUN and its member utilities are committed to continuously improve their service coverage and delivery, financial sustainability, and other aspects of their performance.

SEAWUN's mission is to help its members improve their performance in the delivery of water supply and sanitation services for all, including operation and management efficiency, achieving financial viability, and advocating for sector reforms for improved policy environment, contributing to realize the goal `Water for All'. SEAWUN operates in accordance with a set of five principles:

- *Demand driven* - Members determine the key issues to be addressed in the SEAWUN programs.
- *Self-sustainability* - within four years membership fees should cover operating costs
- *Networking* - with members, relevant associations and other organizations, using website & email as the communication basis, supplemented by regular regional conferences and meetings.
- *Performance Improvement* - concentrating activities in the technical, financial and institutional fields of Water Supply Utilities operation
- *Regional Focus* - covering Southeast Asia, initially six countries, but gradually expanding within the whole ASEAN region

SEAWUN will use a variety of operation strategies to make optimal use of current communication technology and to fit within existing / new donor strategies:

- Sharing experience/expertise in operations/management and new technologies,
- Develop and maintain a website, discussion forum and email contact,
- Organize specialized conferences/workshops/seminars for SEAWUN members,
- Provide publications and regular newsletter on member activities,
- Arrange exchange visits, study tours and regional training programs,
- Encourage twinning programs of member utilities from different countries,
- Seek co-operation with other (international) organizations with similar objectives,
- Support consultancies between SEAWUN members and for other water utilities.

Asian Institute of Technology (AIT), Bangkok, Thailand

Established in 1959 in Bangkok Thailand, AIT emerges as a leading international institute in the region that offers higher education in management and engineering. Annually, around 2,000 students from over 40 countries and territories in the world receive high-quality education from AIT. In nearly 50 years of AIT's operation, 15,000 masters and doctors from 80 countries have graduated from AIT; among whom, 2,000 are Vietnamese. Internationally, AIT has been recognized as an ideal educational institution for research, training and technology transfer to maintain sustainable development in the region. AIT also has a centre in Vietnam and Indonesia to meet specific local or sub-regional requirements of training, education and capacity building.

School of Engineering and Technology

Today's major challenges for water engineers and managers include securing water for people and for food production: protecting vital ecosystems: and dealing with variability and uncertainty of water in space and time. The Water Engineering and Management (WEM) field imparts education and training toward an understanding of the complexity of water use and water resources management problems. It

offers a balanced curriculum, which covers both the engineering and management aspects of water resource development. Students are trained to acquire knowledge and hands-on practice in tools and techniques to come up with viable and sustainable solutions within the framework of the integrated water resources management at the river basin scale.

Water Engineering and Management covers five major areas - Agricultural Water, Coastal Water, Urban Water, Water Resources, and Extreme Events and Risk Management. The courses are designed in such a way that students can specialize according to their interests. Courses on watershed hydrology, hydrodynamics, water resources systems, and concepts in water modeling provide the solid foundation to the advanced courses. The field emphasizes on tools and techniques in resource planning and management in addition to laboratory and field practices.

Urban Water courses relate to water supply and sanitation, storm water, and domestic wastewater and urban drainage for sustainable management of urban areas. The research in relation to urban water focuses on application of state-of-the-art theory in water demand forecasting and management, design and management of water distribution systems in urban and rural areas, real-time hydrological information systems for urban flooding and drainage.

Given the ever-growing importance of water quality, an integrated water quantity-quality approach is essential. Courses in Water Resources focus on techniques to assess the occurrence and availability of surface and groundwater. Students acquire a sound understanding of basic principles in river engineering and modeling, water resources planning, conjunctive use of surface and groundwater; integrated water resources management and social and environmental impact assessment of water resources projects. In-depth knowledge and hands-on practice on mathematical modeling of water resources systems is provided.

The Southeast Asian Ministers of Education Organization (SEAMEO)

The Southeast Asian Ministers of Education Organization (SEAMEO) was established on 30 November 1965 as a chartered international organisation whose purpose is to promote cooperation in education, science and culture in the Southeast Asian region.

The SEAMEO has 19 specialist institutions that undertake training and research programs in various fields of education, science, and culture. Each Regional Centre has a Governing Board composed of senior education officials from each SEAMEO Member Country. The Governing Board reviews the Centres' operations and budget and sets their policies and programmes. The Southeast Asian Ministers of Education Council, during the 39th SEAMEO Council Conference in Brunei Darussalam in March 2004, has formally adopted the Ministerial Declaration on Values-based Water Education.

SEAMEO–UN-HABITAT HVWSHE Partnership - Integrating human values in water, sanitation and hygiene in education is a necessary approach towards a new and sustainable water use ethic in Southeast Asia. SEAMEO is working closely with the UN-HABITAT and the Institute for Sathya Sai Education to introduce this initiative among Southeast Asian schools through the SEAMEO-UN HABITAT partnership on Human Values-based Water, Sanitation and Hygiene Education (HVWSHE) in Southeast Asian schools. On 31 October 2007, the Sathya Sai School in Lobburi province, Thailand, opened its Institute of Water Education.

C. Capacity and Training Needs Assessment at the Country Level in Cambodia

- **Meeting for Focus Discussion in the Ministry of Industry, Mines and Energy (MIME)**

The mission team met with Mr. Tan Sokchea, Director of Potable Water Supply Department; Mr. Sorn Savnin, Deputy Director, MIME; Mr. Mak Chhorvannarey; and Mr. Va Vannak of MIME. The representatives from MIME welcomed UN-HABITAT's support for capacity building. Although, capacity building activities are a component of water and sanitation components, it is felt that it PPWSA could also complement JICA's capacity building on technical issues.

- **Focus Discussion in Phnom Penh Water Supply Authority (PPWSA)**

The meeting with Dr. Chea Visoth, Assistant General Director was very fruitful. Dr. Chea Visoth raised the issue if the capacity building activities would be only limited to the four towns where UN-HABITAT activities will be undertaken. Questions arose whether it would be limited to the public sector partners or also include private and NGO sector.

- **Meeting with Partners and Stakeholders: Center for Development (CfD) an NGO**

The mission team met Mr. Sovann Narak, Executive Director, CfD and Mr. Alex Campbell, Project Coordinator, BORDA. CfD has partnered with UN-HABITAT for the implementraion of community-based sanitation projects in Cambodia. Recognizing the challenges the organization faces during implementation, CfD presented as key points for discussion the technological options for sanitation, micro financing and revolving funds.

- **Meeting with JICA: an Important Country Partner in Training and Capacity Building**

JICA is an important player in Cambodia for undertaking and supporting capacity building activities for both public and private sector water supply undertakings. According to JICA, there are 18 public sector water supply undertakings and more than 80 private sector undertakings. JICA has been organizing training activities mainly in technical areas such as water quality testing, leakage control etc. Meeting with Mr. Kiyama Satoshi, Chief Advisor and Mr. Nonaka Hiroyuki was very helpful. JICA welcomed the proposed UN-HABITAT initiative in capacity building. JICA indicated that there were other international partners including GTZ and ADB who are contributing to this effort. Therefore JICA requested MIME to convene a meeting of all the donors in October 2009 so that the efforts of all agencies get fully coordinated and there is no overlap.

- **Capacity Building & Training Needs Assessment of Kampot Water Supply Authority**

The mission team visited Kampot Town and had meeting with Mr. Bun Chan Kong, Director, Kampot Water Supply, Department of Industry, Mines and Energy, Mr. Sorn Savnin, Deputy Director, MIME, Mr. Neak Sovannary (MDM), the Governor of Kampot Municipality and Mr. Teang Sokhom, Consultant for the UN-HABITAT Kampot Project. The Provincial Governor welcomed the efforts of UN-HABITAT not only for implementing the ongoing project but also for capacity building. The table below gives a complete list of persons present for the full day. The mission team also met with the Project Steering Committee as well as with the Project Implementing Committee.

Table 1 - Meeting Participants in Cambodia

Name	Position
▪ Mr. Sorn Sanin	Deputy Chief, Department of Potable Water
▪ Mr. Te Chinnarith	Deputy Chief of Kampot Provincial Department of Clean Water
▪ Mr. Bun Chankong	Chief of Kampot Water Authority
▪ Mr. Som Sith	Officer, Clean Water Authority

- Mr. Roeun Sokha Deputy Chief of Sangkat Kampong Kandal
- Mr. Se Cheang Deputy Chief of Teuk Chhou district
- Mr. Svay Mit Chief Department, Kampot Municipality
- Mr. Pav Sonn Chief of Sangkat Treuy Koh
- Mr. Vong Samonn Deputy Chief of Kampot Water Authority
- Mr. Tieng Sokhum Geographic Information System Specialist
- Ms. Son Somolin Community Specialist
- Mr. Mak Chhorvannarey MIME
- Mr. Va Vannak MIME
- Mr. Ty Kien Deputy Chief of Water Authority
- Mr. Korng Masreum Officer, Kampot Water Authority
- Mr. Non Vanny Deputy Chief of Water Authority
- Mrs. Heta Tenno UN-HABITAT
- Dr. Kulwant Singh UN-HABITAT
- Mr. Somethearith Din Habitat Programme Manager, UN-HABITAT

- **Resource Mapping of Institutions for Water & Sanitation Training & Capacity Building**

Following is the profiles organizations working on water and sanitation training and capacity building:

JICA has been funding capacity building for eight provincial water utilities. In 2009, the Ministry of Industry, Mines and Energy (MIME) has been implementing projects on training with JICA's funding for eight local water supply authorities in Pursat, Battambang, Kampong Thom, Kampong Cham, Svay Rieng, Kampot, Sihanoukville, and Siem Reap. Training is given on electricity, plumbing system, production system, chloride usage and monitoring water quality, main plumbing fixing technique, and safety. Officers were sent also out for training, workshops in Japan and other countries on water treatment management and pipe networking; on public policy management for leadership; on administration of environment and social consideration process for implementation of Japanese ODA Loan Project, on SWAT IQQM Model; and on private sectors in clean water supply and sanitation.

CfD, the Center for Development is one of UN-HABITAT's local implementing partner organisations in MEK-WATSAN. They are experienced in developing sanitation solutions for the most vulnerable groups in urban poor communities. CfD is experienced especially in community participatory and management tools.

BORDA, Bremen Overseas Research Development Agency is a German based NGO, specialized in South and Southeast Asia region especially in decentralized waste water treatment. The mandate includes raising awareness in sanitation and waste management within communities.

VBNK is a Cambodian NGO (a consultation company with NGO background) with a focus in learning and capacity development. VBNK works with a wide range of civil society, public and private sector organisations specialized in social development.

SNV, the Dutch development cooperation agency also has a regional programme in the Mekong countries, including water, sanitation and hygiene. The WASH activities in Cambodia is just about to start and will concentrate largely in capacity development, mostly with rural focus. They have submitted a sectoral country review in water and sanitation in late 2008.

Phnom Penh Water Supply Authority's (PPWSA) Training Centre

PPWSA's Training Center was established as a part of the project on Capacity Building for Water Supply in Cambodia started in October 2003 supported by JICA Technical Cooperation Programme. The training courses have been organised based on the activities of off-the-job training and on-the-job

training, with the objective of making improvements of the operation and maintenance capacity in PPWSA by JICA experts and their counterparts. The training courses covered limited areas of training needs.

Most trainers are PPWSA staffs who have been working as counterparts of JICA experts, selected based on technical knowledge and who received support from JICA's expert to deliver the specific knowledge to their colleagues. The training areas include the following:

- Role of water works
- Water quality management
- Water loss reduction
- Basic chemicals knowledge
- Water quality monitoring
- Daily operation of electrical equipment
- Daily O&M electrical facilities
- Maintenance of telemeter
- Data analysis
- Water treatment process
- Basic pump maintenance

The training centre has four staff of PPWSA and two JICA Experts.

SILAKA

SILAKA is a long term training agency with the aim to educate, encourage and prepare Cambodians to reach their individual potential in a transparent group setting to improve their organization effectiveness. SILAKA works to strengthen the capacity of local public, private and government institutions through linkage(s), education and training in core skills and concepts (administration, management and finance) as well as participating or developing and implementing projects for the advancement of transparent and accountable organizations and institutions. Their services cover training of trainers, project management, personnel management, general management, project monitoring and evaluation. They have previous experience working with Siem Reap Water Authority in their planning and supporting for public communication plans. They have also cooperated with agencies in health centres. Silaka's past partnerships include ILO, UNDP, WFP, UNIFEM and several ministries, to mention a few. They also have been involved in community training.

Some of the training courses they provide are:

- Project Planning and Design
- Project Management
- Effective Meeting and Minute Taking
- Internal Financial Controlling
- Project Monitoring and Evaluation
- Communication Skills for Group Building
- Problem Solving Skills
- General Office Skills
- General Management
- Training of Trainers
- Basic Financial Management
- Gender in Project Development
- Proposal Writing
- Participatory Rapid Appraisal (PRA)
- Effective Facilitation Skills
- Advanced Training of Trainers
- Strategic Planning
- Report Writing Skills
- Problem Solving Skills
- Proposal Writing

Other courses available at SILAKA are:

- Active Non-Violence
- Coalition Building
- Community Development
- Customer Service
- Community Participation
- Grass Root Advocacy Strategy
- Impact Monitoring
- Leadership Skills
- Logistic Management
- Managing Yourself

- Community Organizing
- Conflict Resolution
- Board Governance
- Basic Gender in Project Development
- Base Line Data Field Research
- Business Accounting and Finance
- Business Marketing
- Gender-Sensitive Exploring Masculinities
- Operacy
- Performance Reporting
- Project Cycle Management
- Staff Supervision
- Gender Sensitization
- Team Building
- Working with Community
- Social Accountability (Concept, Method, and Tools)

VBNK

VBNK is a dynamic Cambodian learning organisation at the forefront of capacity development. VBNK works with a wide range of civil society, public and private sector organisations so that they can contribute more effectively to sustainable social development. VBNK wants to see positive social change, where all people are empowered to learn and grow with dignity, respect and confidence, and where the social development sector is contributing to the development process in a creative and effective manner. VBNK's mission is to be a centre of learning, working creatively with others to generate and share innovative practice and local knowledge that can contribute to positive social change. VBNK's goal is improved effectiveness and quality of development practice and management in the social development sector

VBNK is able to tailor training and learning services to meet organisation's specific needs. VBNK can adapt one of their standard courses to reflect the sector in which any organisation works, or an organisation may need something that is 'pick and mix' from a number of their courses. Areas where VBNK has worked on are:

- Accountability Boards and Governance
- Decentralisation - Strengthening Commune Council Partnerships
- Strategic Planning Organisational Structure and Policy
- Financial Management Managing Organisational Change
- Impact Assessment Human Resource Management

VBNK's experience of delivering management training for NGOs and social development sector organisations has been developed over several years. All training courses are delivered in either Khmer or English by VBNK's team of experienced trainers. VBNK Clients in the past included International Organisations Local NGOs and Government Agencies[1].

- **Resource Mapping of Institutions for Water & Sanitation Training & Capacity Building**

Following is the profiles organizations working on water and sanitation training & capacity building:

Institute of Environmental Science and Engineering (IESE): Hanoi University of Civil Engineering (HEU)

IESE was established by merging of Centre for Environmental Engineering of Town and Industrial Areas (CEETIA) and Faculty of Environmental Engineering in December 2007. The functions of IESE are as follows:

[1] Contacts: Programme Unit Manager (pu.vv@vbnk.org); Director (director@vbnk.org).

- Scientific research and technology transfer on engineering and management of environment
- Environmental observations
- Provide consultancy and engineering services on environmental areas
- Collaboration with international organizations and universities in education, research, and technology transfer on environmental issues.
- Education and Training activities on the environmental issues for Engineering, Master, and PhD degrees

The existing training facilities of IESE are as follows:

- Laboratory with the area of 700 m^2,
- Test centre with an area of 500 m^2,
- Library with a lot of handbooks and manual, area of 60 m^2,
- Meeting hall with the area of 200 m^2,
- Multi purposes classroom with the area of 150 m^2,
- Administration building with the area of 600 m^2.

Some of the activities undertaken in collaboration with other stakeholders are

- Developed curriculum, manual for training in HEU on environmental areas,
- About 4,200 environmental engineers, 120 environmental masters, 19 PhD in water supply and sanitation educated,
- 120 short term training courses in environmental observation, water supply and wastewater treatment, environmental management, O&M organized for local authorities and water utilities,
- Conducted a lot of engineering services in water supply and wastewater treatment facilities, undertaken environmental impact assessment of projects, and environment and solid waste management in Vietnam,
- Cooperate and implement in capacity strengthening in education, training, research in environmental science and technology project funded by SDC (Switzerland) in period of 1998-2007,
- Key partner in collaboration with other european universities in develop the manual of Low Cost Sanitation Technology (LCST) funded by EU,
- Cooperate with other international partners including EU; UNDP; WB; ADB; JICA; SDC; DANIDA; IDRC; SIDA; DFID; private sector companies as Nippon Koei, PCI, EBARA, ESA, COLENCO, Carl-Bro, EWAG, and closely work with universities in Japan, Sweden, Belgium, Germany, and Denmark.

Faculty of Infrastructure and Urban Environment (FIUE), Hanoi Architectural University (HAU)

FIUE was established in 1969 with history of more than 40-year experience in water and sanitation and environment. Subjects to be studied in FIUE of HAU are the same in HEU.
The functions of FIUE are as follow:

- Science research and technology transfer on engineering and management of environment,
- Environmental observations,
- Provide the consultancy and engineering services on environmental areas,
- Collaboration with international organizations and university in education, research, and technology transfer on environmental issues,

- Educate and training activities on the environmental issues for engineer, mater, and PhD degrees.

The Existing facilities of FIUE are as follow:

- Laboratory of hydraulic, equalization and micro organic,
- Administration building of faculty.

Some of the activities undertaken in collaboration with other stakeholders are

- FIUE has a lot of experiences in the field of water supply and small scale of WWTP as well as training. The students are not only from Vietnam but also from Lao PDR and Cambodia.
- The short training courses of water supply have been organized every year for water utility staffs on O&M to improve their capacity.
- The research activities at the national level and ministry level have been implemented in recent years focus on the water supply and sanitation.

College of Urban Works Construction (CUWC)

CUWC was established in 1976 with history of more than 30-year experience in urban works construction.
The functions of CUWC are as follow:

- Educate and training activities on the domestic and industrial construction,
- Domestic and industrial electricity,
- Welding,
- Tree management in urban,
- Urban management,
- Retraining and upgrade of skills of staffs and workers in urban works field,
- Organize the short training courses for provincial water utilities and urban works and environment companies in Vietnam and overseas.

Some of the activities undertaken in collaboration with other stakeholders are:

- In the college, the one of the main training activities is water supply and sanitation. With the support of French Government, the Center for water supply and Environment was established and developed in the period 1997-2006, training a lot of local water utility's staffs on business management, O&M of water supply system, O&M of wastewater system, management of mechanical and automatic equipments in water supply and wastewater system, monitoring staffs of system.
- Provide the technical assistance to water utilities under project funded by Danish Government.

Center for Water and Environment at CUWC is equipped with a lot of new equipments for education and training such as:

- Mechanical workshop with the area of 450 m^2,
- Small water supply treatment station with capacity of 50 m^3/h,
- Small scale of water supply network with the area of 1600 m^2,
- Demonstration workshop for water pipe installation with the area of 1800 m^2,

- Technical building including classroom, water meter testing workshop, electricity workshop, automatic equipment workshop, etc… with the area of 2000 m^2,
- Administration building with the area of 1250 m^2.

Vocational Training School of Quang Tri Province (QTVTS)

QTVTS was established in 2007 and provides the following training:

- Domestic and industrial electricity
- Auto Technology
- Welding
- Construction technologies
- Garment and fashion design
- Excavator operation
- Mechanical cutting
- Agriculture equipment technical
- Organize the short training courses for construction works and urban works within province.

QTVTS is located in 3.4 HA campus and includes:

- Administration building with the area of 500 m^2,
- Classroom with the area of 2,100 m^2,
- Demonstration workshop with the area of 2,500 m^2,
- Hostel for student with the area of 400 m^2,
- Hostel for lecturers with the area of 150 m^2.

QTVTS has educated and trained about 500 workers per year

Construction Technical College No.3

It was established in 1976 with history of more than 30-year experience in construction. The training areas provided are:

- Domestic and industrial construction,
- Environmental and water supply and sanitation construction,
- Infrastructural technical,
- Transportation construction,
- Construction economy,
- Business finance,
- Business management,
- All levels of technical workers,
- Organize the short training courses for construction works and urban works for provinces a long Vietnam..

The Existing facilities of FIUE are as follow:

- Administration building,
- Classroom area,
- Library with the area of 200 m^2.

Some of the activities undertaken in collaboration with other stakeholders are:

- 8,500 people educated with college degree,
- 2,500 technical workers trained,
- 2,500 certificates issued to participants in short training courses,
- Research activities in teaching methods, management reform, etc…
- Develop the manual for teaching, models and teaching equipments,
- Transfer the new construction technologies to users.

Asian Institute of Technology Center in Vietnam (AITCV), Hanoi, Vietnam

AITCV, established in 1993, is the first International Institution in Vietnam and the first center of AIT out of its headquarters in Thailand. Its mission is to become an International Institution that aims at providing **Vietnam and regional countries** with high quality education and training, consultancy and research in sciences, education, engineering and management.

In over 15 years of operations, AITCV has trained approximately 800 masters in the fields of Industrial System Engineering; Environment Technology and Management; IT; Business Management; Civil Engineering and Development Research. More than 15,000 participants from many national and international agencies, organizations take part in our short training courses. Many of them are managers and executives.

AITCV commits to cater the highest training quality with flexible training programs to International standard. A winning combination of theory and practice, learner-centered approach are the key factor to our success. AITCV offers renovated and customized training programs to cater various training needs of the customers. Quality of training, responsiveness of staff and high-quality, professional services nurture the core values that AITCV brings to its clients.

AITCV offers the following training programs:

- Two-stage masters, doctors programs,
- One - stage master programs in Vietnam: master of administration program for executives; professional masters programs,
- International masters of advanced studies,
- Short-term training courses specialized in many fields, including management and business, environment and development, language and training, advanced technologies, etc.
- Customized training courses,
- Seminars,
- Consultancy services.

The relevant water and sanitation related fields offered are: Information Technology (IT), Environment Technology Management (ETM), International Executive Master of Business Administration (IEMBA), Industrial System Engineering Management (ISE), Construction, Engineering and Infrastructure Management (CEIM), Geo-Engineering and Management

AITCV offers short training courses in 16 fields of professional skills nationwide. The programs are designed and conducted by AIT trainers, international experts and alumni. Newly acquired skills from those short courses are immediately applicable and practical in improving the participants' performance at work. Accordingly, their organizations and agencies' benefits are to increase. The relevant water and sanitation related short courses recommended as part of the TNA of UN-HABITAT partners are:

- Language skills
- Human resource Development
- Management Development
- Marketing, Sales and Customer services
- Basic Management of Development Project
- Advanced knowledge of Development project Management
- Environmental and Natural resources Management
- Urban Environmental Management
- Finance.

On request, AITCV organizes tailor-made training courses and training-cum study tours for different organizations and agencies in Vietnam and overseas. Training contents, venues and time are tailor-made to the clients' requirements. Training-cum study tour program has been AITCV's strength. AITCV has close co operations with many universities, institutions in Malaysia, Singapore, Indonesia, Taiwan and China. These training programs have been widely appreciated by the participants and clients.

D. Capacity Building and Training Needs Assessment in Lao PDR

- **Capacity and Training Needs Assessment at the Country Level**

Meetings and Focus Groups Discussions place in Vientiane with senior policy level officials of the Nam Papa State-owned Enterprises (NPSEs), and also with Mr. Noupheuak Virabouth, Deputy Director General (DDG) in-charge of Water Supply Affairs & International Relations, Ministry of Public Works and Transports, Government of Lao PDR.

According to the DDG, among the various challenges faced by the water utilities, the challenge of financial resource management was the biggest in Lao PDR. Senior Officials of the NPSEs discussed various training and capacity building requirements to support the implement the proposed projects expeditiously while ensuring their sustainability. They indicated several areas including:

1. Project management and governance,
2. Technical training in pipe installation,
3. Training in computers for improving billing systems and cost recovery,
4. Financial Administration/Management of projects,
5. Project Planning and Project O&M.

Senior officers mentioned specially the need for building institutional/organisational capacity in Report Writing and training in English language. Training in several technical aspects was also recommended. These included:

1. Water quality,
2. Leakage control,
3. Service installations, pipe links and their maintenance.

Some of the officials particularly expressed the need for training programmes on awareness creation especially for staff so that they build their capacity to deliver in the field of sanitation. Improving Customer Relations was also considered an important area for all the water utilities.

As most utilities were recruiting young technical/professional staff, senior officials also mentioned the need for induction / orientation training programmes for new staff entering the public utilities.

While some utilities also highlighted the need for training in environmental impact assessment, others suggested exchange visits for studying best practices and exchanging and documenting experiences.

The table below presents the total number of staff at each of the eight NPSEs with whom UN-HABITAT has partner for the implementation of MEK-WATSAN projects supported by the Government of the Netherlands and whose capacity needs to be built in subject areas as identified during the TNA exercise.

Table 2 - Total Staff of Nam Papa State-owned Enterprise (NPSE) Lao PDR, 2009

Name of NPSE	Senior Management	Admin & Customer Service	Planning & Finance	Technical (Installation & WTP)	Branch staff	Total Staff
NPSE-Attapeu	2	10	5	13	4	34 (28+6)
NPSE-Bolikhamsay	3	11	10	10	19	53 (42+11)
NPSE-Khammouane	3	13	6	19	15	56 (43+13)
NPSE-Luang Prabang	3	21	4	27	26	81 (69+12)
NPSE-Saravane	2	7	7	8	13	37 (32+5)
NPSE-Savannakhet	3	37	19	36	30	125 (101+14)
NPSE-Sayabouly	2	8	8	13	19	50 (36+14)

NPSE-Sekong	2	2	3	7	6	20 (18+2)
Total	20	109	62	133	132	456 (391+67)

Note: Figures in bracket indicate gender (male + female) staff

- **Capacity and Training Needs Assessment of NPSEs- Luang Prabang and Sayabouly**

A Group Discussion took place with the Directors of NPSEs Luang Prabang and Sayabouly in Luang Prabang. The Field Mission Team met with Mr. Soulith Chindamany, the Director of NPSE-Luang Prabang, with Mr. Somsanith, Deputy Director of NPSE-Luang Prabang, and the General Manager of NPSE-Luang Prabang as wekk as with Mr. Aliya Khanti, Director of NPSE-Sayabouly.

NPSE-Luangprabang presently has 81 staff, of which 12 are women. There are six divisions (Technique/ Phoupeing WTP / Namkhan WTP/ Admin/ Finance/ Customer service) and 2 branches located in Nambak and Xieng Ngeun branches. The Director of NPSE-Luang Prabang informed that they were currently generating about 36,000,000 kip/month for the water services, of which 25,000,000 kip/month were spent on salaries and other running costs (including O&M). This means that they have a balance of about 11,000,000 kip/month, which was enough to ensure extension of services to others who require it.

Regarding the capacity of the utility, a training needs assessment was carried out earlier in 2003. Training has so far been facilitated by JICA and the central government of Lao PDR. Main training topics were related to manual pipe installation and also management programmes for executives organized by WTTP. The utilities have requested for Advanced Training in Pipe Laying and O&M. Training in Water Demand Management is reported to have been done with the support of JICA.

During interaction some questions and concerns were raised related to:

1. Income and expenditure of the NPSEs
2. Tariff and billing system
3. Operations and Maintenance of the system
4. Staff training need and organizational Capacity Building requirements
5. New Project Initiatives for Capacity Expansion

- **Capacity and Training Needs Assessment of NPSE-Savannakhet**

Focus Group Discussions took place with representatives of NPSE-Savannakhet. In attendance were Mr. Phandola Khouanmeuangchanh, General Director, NPSE-Savannakhet; Mr. Boualy Launglat Deputy Director, NPSE-Savannakhet; and Mr. Southy Khotsomvong, Head of Financial Division of the NPSE-Savannakhet. The representative provided an update on three the on-going projects: Phine's Community-based water supply and sanitation, cross-border on sanitation in Vilabouly and Densavanh, and Vilabouly's Community-based water supply project.

NPSE-Savannakhet was established in 1976 is a State Owned-Enterprise. The main branch of the utility has a Capacity of production 15,000 m^3/day. The total length of distribution network is 54,285m and since the completion of the water supply system there has been only minor extensions of the water distribution network. In 2003 NPSE-Savannakhet served only 6,000 households. However, with a grant assistance from Japan, NPSE-Savannakhet was able to rehabilitate the water treatment plant system. The water demand is 30,000-50,000 m^3 per day. Other important features are:

• Service area covered - 60 Km^2. • Daily water production: 14,000-16,000 m^3/day • Service coverage: 65 percent of total population • Water availability: 24 hours • Metered connections :11,393	• NRW : 12% • Total number of staff: 127 • Number of branches : 3 • Water tariff: 2300 kip = USD0.27 • Category of customer : 3 • Average pressure: 2 bar

NPSE-Savannakhet at present has 125 staff both technical and non-technical (Administrative, Financial and others) including 24 women staff. There are 7 divisions and 3 Branches. NPSE-Savannakhet manages the water service in three of the districts out of the 15 in the province. NPSE-Savannakhet also operates and manages the Kaisone town water supply system, delivering water to nearly 11,462 households. As indicated in the technical town assessments NPSE-Savannakhet would also be establishing a new branch in the town of Atsaphangthong.

NPSE-Savannakhet's medium term plans are to restructure the utility around the following units: the planning unit, the data information unit, the leakage preventive unit, the repair unit and the warehouse unit.

NPSE-Savannakhet has planned several activities for leakage control including the following:

- Plans to incrementally change old pipes which are more than 30 years old,
- Development of Implementation Plan to control leakages,
- Prompt response to information on leakages provided by customers or users including immediate repairs of broken pipes,
- Set up leakage preventive unit,
- Set up of 24 hour information units,
- Frequency check-up of all pipes lines.

Other important short-term activities planned by NPSE-Savannakhet are as under:

- Training of staff,
- Increase accuracy to read meters,
- Create awareness with people about NPSE-Savannakhet water supply policy,
- Reporting and information sharing with authorities concerned with local management
- Adjustment of water tariffs to meet O&M costs for sustainable business activities and generate profits for future investments and to finance other activities through internal accruals of NPSE-Savannakhet.

During discussion several questions and concerns were raised relating to the following

1. Income and expenditure of NPSE-Savannakhet,
2. Tariff and billing system,
3. Operations and maintenance of the system,
4. Staff training need and organizational capacity building requirements,
5. Capacity expansion plans to serve more consumers and reach more households.

For capacity building, NPSE-Savannakhet relies on the trainings provided by the central government related to WTP, installation of meter connections and O&M. JICA is supporting NPSE-Savannakhet with an analysis of demand in the main cities of the province. NPSE-Savannakhet has the support of JICA and the ADB for activities related to studies for the selection of technologies for waste water treatment as part of a development strategy for Kaisone district. Although all training activities are taking place mainly at the main branch of NPSE-Savannakhet, it is important to highlight that the provincial staff is acquiring knowledge in these types of technologies.

Towards improving their efficiency, NPSE-Savannakhet suggested following areas for training and capacity building:

4. Project management,
5. Financial management,
6. O & M,

7. Study visits to exchange experience with other countries.

- **Capacity and Training Needs Assessment of NPSE-Khammouane**

Meetings took place with Mr. Khanngeun Senggiem, General Director, NPSE-Khammouane; Mr. Phouthone Souriyong and Mr. Khamveuy Ayyavong, both Deputy Directors, NPSE-Khammouane. UN-HABITAT had previously supported NPSE-Khammouane in the implementation of sanitation and hygiene awareness campaigns, through the implementation of a ToT for the provincial staff.

The Thakhek district, which was identified as a target area for the roll-out phase, has a total population of 18,287 in 22 villages. Only 1,463 households have sanitation facilities in use and operative, which implies that half of the population approximately, has no access to improved sanitation.

The Department of Health and NPSE-Khammouane have been implementing sanitation and hygiene campaigns to improve the situation. These campaigns are regular in schools. Previous interventions in sanitation have been undertaken by UNICEF and Lao PDR Red Cross in the last 3 years. NPSE-Khammouane has selected 13 villages out of the 22 for the implementation of the Roll out Phase project. In these 13 villages there are 1,732 households, of which 242 (14%) are considered as poor. The sanitation coverage in these villages is about 53%.

NPSE-Khammouane has 56 staff, of which 13 are women. There are five divisions and two branches. NPSE-Khammouane suggested to have a training programme for their staff in the following areas:

1. Project Management;
2. Financial Management;
3. Report Writing in English

- **Capacity and Training Needs Assessment of NPSE-Bolikhamsay**

Meetings too place with Mr. Vilaykhone Phimmasone, Director, NPSE-Bolikhamsay. The Director presented an overview of the water utility and its background. The Nam Papa State-owned Enterpise (NPSE-Bolikhamsay) manages and operates the water supply systems in Bolikhamsay Province. NPSE-Bolikhamsay has 53 staff, of which 11 are women. There are three divisions and two branches.

NPSE-Bolikhamsay currently has partnered with UN-HABITAT for the implementation of a community-based sanitation project benefiting two urban cluster villages (NongBua-NongWeng) in Paksan District. The project targets 19 urban and peri-urban villages and will benefit 11,782 people with increased access to appropriate sanitation services.

NPSE-Bolikhamsay suggested to have a training programme for their staff in the following areas:

1. Project management;
2. Financial management;
3. Report writing in English.

- **Resource Mapping of Institutions for Water & Sanitation Training & Capacity Building**

Following is the profiles organizations working on water and sanitation training and capacity building:

Nam Papa Nakhonluang (The Lao Water Supply State Enterprise and the Waterworks Technical Training Center (WTTC)

The Nampapa Nakhonluang (Lao Water Supply State Enterprise) was established to meet the high demand for potable water. In 1959 the first Water Supply Enterprise was established for delivery of clean water to the customers. Nampapa NakhoneLuang is a state-owned enterprise and operates under the supervision of the Board of Director, Vientiane Capital and the Minister Public Work & Transport.

The Waterworks Technical Training Center (WTTC) is one of the departments of the Nam Papa Nakhone Luang. The WTTC was created with the overall objective of enhancing the capacity of the water supply state enterprises and has the overall mandate to provide appropriate water and sanitation related training; see that appropriate training system is established and trainers are trained; ascertain that training textbooks and materials are developed; oversee that utility staff are upgraded in relevant technology subjects; ascertain that routine work skills of the utility staff are upgraded and that management skills of the administrators and managers of provincial NPSEs are upgraded.

The institute is fully equipped with up-to-date equipments which are well adapted to the needs of the trainers and trainees. The institute is fully equipped with laboratories for hydraulics, electrical engineering, state-of-the-art training tools, e-learning and CIT (information technology supports). The institute is also equipped with the water equipment pilot of the Mekong River with a middle flow around 5 m^3 per hour. Trainees are able to set up, to undertake the process of optimisation in drinking water supply for the population all around the country. The trainees who have acquired the basic knowledge of water chemistry are also involved in the pedagogic assignments. Most trainers are chemists who teach their know-how and pass down their experiences.

In the year 2008 the Waterworks Technical Training Center had planned 77 courses for 28 modules, which related to the water supply sector such as Water treatment plant, pipe laying, new house connection, meter reading, electrical, pumps, water quality control, customers service, bill collection and facturation. More than 627 trainees from Nampapa Nakhone Luang and the Provincial Nampapa participated in these programmes. Below are some of the main sections and modules for training:

Table 3 - Technical Knowledge

I. Water Treatment plant	Module 1: Water Treatment Plant - General knowledge on water chemistry Module 2: Operation & Maintenance of water treatment plant (i) The system of Operation & Maintenance (ii) The basic Self service of Operation & Maintenance
II. Water quality control	Module 1: Basic of dosing chemical Module 2: Water quality Control - Duration:
III. Water network	Module 1: Basic of water distribution Module 2: Working on water supply networks Module34: Pipe laying level- Duration
IV. Operation & Maintenance of Water Meter	Module 1: Basic of distribution water Module 2: Working on water supply networks Module 3: Utilisation & Operation of Water Meter
V. Leak detection	Module 1: Basics of water distribution Module 2: Working on water supply networks Module 3: Utilisation & Operation of Water Meter: Module 4: Leak detection level 1 Module 5: Leak detection level 2

VI. Regulation of Water network	Module 1: Basic of distribution water Module 2: Basic of Hydraulic Module 3: Regulation of Hydraulic
VII. Pumps	Module 1: Basic of distribution water Module 2: Basic of Hydraulic Module 3: Pump Selection & Installation
VIII. Electricity Operation & Maintenance	Module 1: Basic of Electricity Module 2: Electric 3 phrases Module 3: Electric Power Module 4: Electric Commande Module 5: Diagnosis of Breakdowns

Table 4 - Administration, Management and IT Courses

I. Administration management	Module 1: Secretariat Module 2: Customers relation
II. Commercial & Service	Module 1: Meter reading & Bill collection
III. Financial Management	Module 1: Financial Management Module 2: Accounting Management-
IV. Storage Management	Module 1: Stock Management
V. Statistics & Planning- Duration	Module 1: Statistics & Planning Module 2: Indicator & Evaluation Planning
VI. Computer and IT	Module 1: Basic Word & Excel Module 2: Computer Asset management Module 3: power point Module 4: E-Mail & Internet

GRET: Research and Technological Exchange Group- A partner organisation of UN-HABITAT in PPP

GRET designs and implements field projects, carries out expertise, conducts studies and evaluations and applied research, facilitates networking and information exchange. It contributes to public policy, both North and South. GRET is also a publisher specializing in the development. This activity is one of its preferred tools of capitalization and dissemination of knowledge and expertise relevant to development.

GRET has worked in LAOP PDR in projects towards increasing access to water and sanitation through the program MIREP for developing water supply services in small towns with the participation of the Local Private sector. This action aims to test models of partnerships between public authorities and the local private sector for development of water services and sanitation in 8 small towns/ regions of Vientiane and Bolikhamxay. GRET collaborates with the Department of Housing and Urban Planning (DHUPA) within the Department of Public Works and Transportation (MPWT). The MIREP program is implemented in partnership with the National Authority of the Potable Water (WASA) and in close collaboration with various provincial technical departments, particularly Public Works and Transportation (DPWT).

E. Capacity Building and Training Needs Assessment in Vietnam

- **Capacity and Training Needs Assessment at the Country Level in Vietnam**

Meetings with the representatives of Ministry of Construction (MOC) of S.R. took place to assess the Capacity Building requirements and also identify capacity building institutions to meet the training needs of water utilities and stakeholders at the provincial level where projects funded by UN-HABITAT are to be implemented.

MoC agreed with the UN-HABITAT Mission's objectives on the necessity of capacity building in water and sanitation sector due to the limited capacity of staff in water utilities after the introduction of structural reform from State owned Company to One Member Limited Company in accordance with the Business Reform Program of Vietnamese Government. Water Utilities will now be doing their business on their own. Strengthening their management skills is therefore the key issue to ensure their success. The water utilities' awareness level needs to be enhanced regarding better financial management of the utilities and increase their understanding of striking a balance in earning profits and providing service to their customers at affordable rates because the water supply service is considered a public work.

MoC also mentioned about the increasing role of Public Private Partnership (PPP) in the water sector with the support of Government. This initiative at present was on-going and being implemented by MPI. From the year 2009, the water tariff will be improved in order to cover the investment and O&M costs. The water tariff was also calculated step wise so that the poor could afford.

MoC suggested that the training should be focused on the reduction of water losses because of the old water supply network. The overall average water loss in Vietnam is about 32% while some cities like HCM have a water loss of nearly 40%. With the high loss of water, it would be difficult for the water utility to become a successful Joint Stock Company. The other issue is the extraction and conservation of underground water. Government is limiting the extraction of underground water. Protection of water resource was also mentioned.

Among the recommendations for a comprehensive capacity building plan based on the TNA and identification of capacity gaps of the service providers and the water utilities in the country, were three main areas:

1. Water demand management;
2. Water conservation, leakage control and rainwater harvesting; and
3. Management training programmes for senior officials to focus on financial management of water utilities.

Table 5 - TNA meeting participants in Vietnam

Representatives of the Ministry of Construction (MoC)	UN-HABITAT Country Team
▪ Mr. Bui Xuan Doan, Vice Director of Administration of Technical Infrastructure (ATI) ▪ Mr. Nguyen Sinh Hy, Director General International Cooperation Department (ICD) ▪ Ms. Do Nguyet Anh, Officer of International Cooperation Department (ICD)	▪ Mrs. Pham Thi Thu Huong – CTA, Vietnam ▪ Mr. Pham Sy Hung – Technical Assistant, Vietnam

- **Capacity and Training Needs Assessment of Quang Tri Water Utility**

A Focus Group Discussion took place with Representatives from Quang Tri Water Supply and Construction One Member Limited Company (QTWASUCO) and Stakeholders of Quang Tri province as well as UN-HABITAT Vietnam Country Team. Representatives of QTWASUCO outlined the involvement of various stakeholders within Quang Tri province in accordance with the draft MoU between Quang Tri PPC and UN-HABITAT during the implementation of MEK-WATSAN program phase two. There are three main levels such as Provincial Steering Committee (PSC), Project Management Unit (PMU) in QTWASUCO, and Coordination Units (CU) with relevant stakeholders at project towns. The PSC includes DoC as the key department, DPI to be in-charge of reviewing the project documents, DoF representing finance department.

QTWASUCO was established in the year 1977, including six divisions at headquarter and 11 enterprises and branches in the nine towns and districts with about 300 staff so far. Out of that, there are 50 professionals with bachelor and engineer degrees mainly in finance, technical and O&M fields, and the remaining are technicians. PMU in QTWASUCO have gained experience in sanitation related projects during the implementation of the ADB project from 1998-2005, in which there was a small component to provide sanitation facilities to 400 households via revolving funds. There is one expert specialized in communication with the community. However, the MEK-WATSAN project is reported to bring new ideas and concepts for QTWASUCO.

At the focus group discussion the following capacity building needs were recommended:

- Strengthen project management skills with community,
- Training on the surveying, analysis and summary of survey data,
- Training of project monitoring,
- Enhance the capacity of authorities of project towns for sustainability of the projects,
- Building skills for organising the communication campaigns in cooperation with QTWASUCO, project authorities, women union and communities,
- Training on GIS to water supply utility staff to cover all water supply network for management purposes,
- On-site training to water utility staff and members of the community for project financial administration, and
- Capacity Building for the staff of women union and project towns' authorities relating to revolving funds establishment and management.

Regarding revolving fund operations, the mission team referred to the UN-HABITAT experience in India and Lao PDR and additional documentation and publications were shared. There is a strong demand for a workshop on the subject of revolving funds for participants from various partner organisations in Vietnam including representatives from Quang Tri town, Dong Ha town, Gio Linh District, and DoC.

It was recommended that training programmes/activities shall be organized locally and in the local language in consultation with UN-HABITAT to save costs. Participants from Vietnam should also be nominated for international and regional workshops to share knowledge and experiences from other regions and countries. It was also suggested that the additional capacity building/ training should be provided to two more stakeholders:

- Women union at town and community levels.
- Health care station and clinics.

It was also emphasised that, these town authorities will collaborate with QTWASUCO and relevant stakeholders for the success of the project.

Table 6 - TNA focus groups participants
Stakeholders in Quang Tri Province, Vietnam

- Mr. Tran Huong, Representative of DoC
- Mrs. Phan Thi Hong Tham, Chief of Investment Division of DoF
- Ms. Nguyen Thuong Huyen, Officer of International Cooperation Division of DPI
- Mr. Nguyen Thoi, Deputy Chairman of Dongha town
- Mr. Van Ngoc Lam, Deputy Chairman of Quang Tri town
- Ms. Tran Thi Thao, Deputy Chairman of Gio Linh District
- Mr. Mai Van Tu, General Director of QTWASUCO - In Chair
- Mr. Dao Ba Hieu, Deputy General Director of QTWASUCO
- Mr. Le Thanh Ty, Chief of Administration Department of QTWASUCO
- Ms. Le Thi Hoa Ly, Project Officer of QTWASUCO
- Mrs. Pham Thi Thu Huong – CTA, UN-HABITAT Vietnam
- Mr. Pham Sy Hung – Technical Assistant, UN-HABITAT Vietnam

- **Capacity and Training Needs Assessment of CADOCO in Cam Ranh Town**

A focus group discussion took place with Representatives from Cam Ranh Urban Work Joint Stock Company (CADOCO) in Cam Ranh town, Khanh Hoa Province, Vietnam. CADOCO highly appreciated the support of UN- HABITAT to the poor in Cam Ranh and provided an update on the progress of the on-going project in Cam Ranh town. CADOCO expressed their desire to share their experiences in the implementation of the UN-HABITAT project with other water utilities in Vietnam and overseas.

CADOCO requested for UN-HABITAT to support to build capacity building and facilitate training courses in the following fields:

- HVWSHE for CADOCO's staff to develop and upgrade their knowledge skills,
- Study Visits to schools implementing HVWSHE in the Mekong region,
- Provide materials for HVWSHE in schools,
- Training on water resource protection and related materials,
- Training courses on O&M of water supply system,
- Training courses on billing and collection system,
- Training on customer service and customer relationship,
- Training courses on IT skills,
- Support for the strategy of water supply development in the medium and long term period.

Table 7 - TNA focus groups participants
Stakeholders in Cam Ranh town, Khanh Hoa Province, Vietnam

- Mr. Bui Ngoc Phuc, Chairman and General Director of CADOCO
- Mr. Le Xuan Cuong, Chief of Finance Unit of CADOCO
- Mr. Nguyen The Nhan, Chief of Technical Unit of CADOCO
- Mr. Dinh Van Toan, Director of Water Supply Branch of CADOCO
- Mr. Le Tien Duc, Deputy Director of Water Supply Branch of CADOCO
- Mr. Pham Hong Doan, Manager of Water Supply Treatment Plant of CADOCO
- Mrs. Pham Thi Thu Huong – CTA, UN-HABITAT Vietnam
- Mr. Pham Sy Hung – Technical Assistant, UN-HABITAT Vietnam

ANNEX 2 – Cambodia Town Assessments

Figure 1 - Map of project towns under MEK-WATSAN Roll Out Phase 1

Table 1 - Target areas and main interventions

Province	Area of intervention	Proposed physical works and beneficiaries			
		Water supply		Sanitation	
Kampong Thom	Kampong Thom town	Extension	8,250	Improved sanitation	36,316
Pursat	Pursat town	Extension	7,700	Improved sanitation	27,773
Kampong Cham	Kampong Cham town	Extension	6,500	Improved sanitation	16,899
Svay Rieng	Svay Rieng town	Extension	4,532		
		TOTAL	**26,982**		**80,988**

A. Kampong Cham Town

Map

Figure 2 - Kampong Cham town
Source: Google Maps

Town Matrix

Table 2 - General information

	Value	Source
Total population	43,799	Water utility
Total number of households	8,247	Water utility
Total number of communes	4	Water utility
Total number of villages	31	Water utility
Population density (pop/Km^2)	172	Census 2008
Poverty rate (%)	30%	Water utility
Mean household size	5,3	Water utility
	5	Census 2008
Total coverage water access	47.47%	Water utility
Total coverage sanitation access	76%	CfD

A.1. General Description

Kampong Cham town is the capital of Kampong Cham Province. It is the economic center of the province serving as an immediate market, processing center and transportation depot for agricultural products, thus contributing to the growth of both urban and rural economies in the province. According to preliminary results of Census 2008, the province has a total population of 1,680,695. Population density has risen from 164 persons/Km^2 in 1998 to 172 persons/Km^2 in 2008. Average household size in urban areas in Kampong Cham Province is 5 while growth rate is set at 1.54%. As reported by the Kampong Cham Water Supply Utility (KCWSU), the town has a current population of 43,799 distributed in 8,247 households in four communes. 30% of population is below the poverty line[1].

A.2. Water Supply

Service Coverage

As reported by KCWSU, 3,915 households are connected to the network, which implies a 47.5% of coverage. Areas not served are using the river as a source as well as hand-dug wells.

The poor in Kampong Cham town are well organized in groups with leadership representation. An interview with one of the community leaders in the Sambuormeas area revealed that they are currently accessing water from informal vendors at 1,700 Riels/m^3. Since the utility tariffs are lower, the poor could afford access to adequate water services, provided there are supporting financial arrangements to cover the connection fee.

Figure 3 - Commune for proposed intervention with no access to the water supply system

[1] Source: Interview with Kampong Cham's Mayor.

Figure 4 – Different alternative sources of water in the area: rainwater and informal vendor's system

Institutional Background

Kampong Cham Water Supply Utility (KCWSU) is the entity responsible for the provision of water at the provincial level. KCWSU manages and operates the system.

Figure 5 - KCWSU office and reservoir

The Water Supply System

- General description of the system

The town has a water supply system which was expanded and improved in 2006 with the support of the Asian Development Bank. The capacity of the water supply system is 11,520 m^3/day while the current water production is 4,000 m^3/day, as reported by the water supply utility.

- Existing water sources

Water source in the town is groundwater from two shallow wells 15 meters deep and an additional well 48 meters deep. The total yield is 240 m^3/h.

- Existing water treatment (water quality)

The water treatment plant has a capacity of 5,760 m^3/day[2] and includes sedimentation tank, vertical sand filter tanks and a chlorination unit. The water quality meets national standards but for manganese.

- Transmission and distribution

Two 500 m^3 and 175 m^3 respectively distribution tanks serve the town. The distribution line has 15,546 meters of main line and 32,573 meters of secondary line, constructed at different stages expanding from the old first system to the recent investments completed in 2006 by ADB. At the time of this study, the Government was expanding the network by approximately 19 Km, expected to be completed by the end of 2009.

- Tariff and metering

There is a block tariff system with different tariffs for basic consumption, business and Government. For basic consumption the tariff is set to:

- 0 to 10 m^3 per month 0.132 USD/m^3 (550 Riels/m^3)
- More than 10 m^3 per month 0.216 USD/m^3 (900 Riels/m^3)

The connection fee is set to USD110.

- Collections rates and operational costs (financial sustainability of the utility)

Bill collection rates are high and there are systems in place for disconnecting the households that are not paying their bills. 5% of households cannot afford the tariff and have problems to pay the monthly fee. The utility is not economical sustainable as expenses in 2008 were higher than income in the year. Operation costs are high and 40% of the expenditures lie on the electricity bill.

- Problems and main challenges

No major breakdowns in the system have been reported by the utility. Water losses have decreased from 40.98 % in 2005 to 16.74 % in 2008. The tariff sheets include the process for reporting leakages and emergency telephone numbers. The water supply utility has promoted the use of Class A quality meters at the household level which has contributed to the decrease in water losses. The utility also have a program for the cleaning and maintenance of meters, covering 5% of them monthly.

A.3. Sanitation, Waste Management and Drainage

Sanitation coverage in Kampong Cham is relatively high. It is estimated that the sanitation coverage in Kampong Cham town is 76%, with 6,428 on-site sanitation facilities.

Past interventions in Kampomg Cham have included awareness campaigns and the provision of 300 sanitation facilities supported by the Asian Development Bank (ADB) and implemented by the NGO POD. In addition, the Council has an incentive programme for good environmental behaviour, which grants awards to the best-performing communes.

There are two different points for the discharge of wastewater and sewage in Kampong Cham. Both the drainage and sewerage systems share the same pipes. The old system, built in 1930, has an old point that discharges straight into the river without treatment. This system was completed with the support of the ADB and includes another discharge point to the lake in the middle of the city with a capacity of 1,000 m^3. The pipes of this system are usually 1.5 meters in diameter and the old section is in bad condition. The total length of the system is less than 1 Km, covering only 30 to 40% of the town center. Only 40% of households in the town are connected to the system. There are no treatment plants for wastewater or sewage. ADB conducted preliminary assessments in 2003.

[2] Source: ADB Evaluation Report, 2008.

A.4. Proposed Interventions to improve Water Services

The main objective of the project is to provide sustainable water supply services and improve environmental conditions of the residents of Kampong Cham town, particularly for the poor. After additional consultations and discussion the project aims at increasing access to safe and affordable water for 6,500 residents in the town by 2011 through participatory framework for implementation and innovative financing mechanisms, such as revolving funds to assist poor households with the connection fees. Safe water coverage will be expected to increase from 49 to 64% though the expansion of the water supply distribution system

At the time of the field assessments, KCWSU staff presented four candidate areas for the expansion the network (see figure 5).

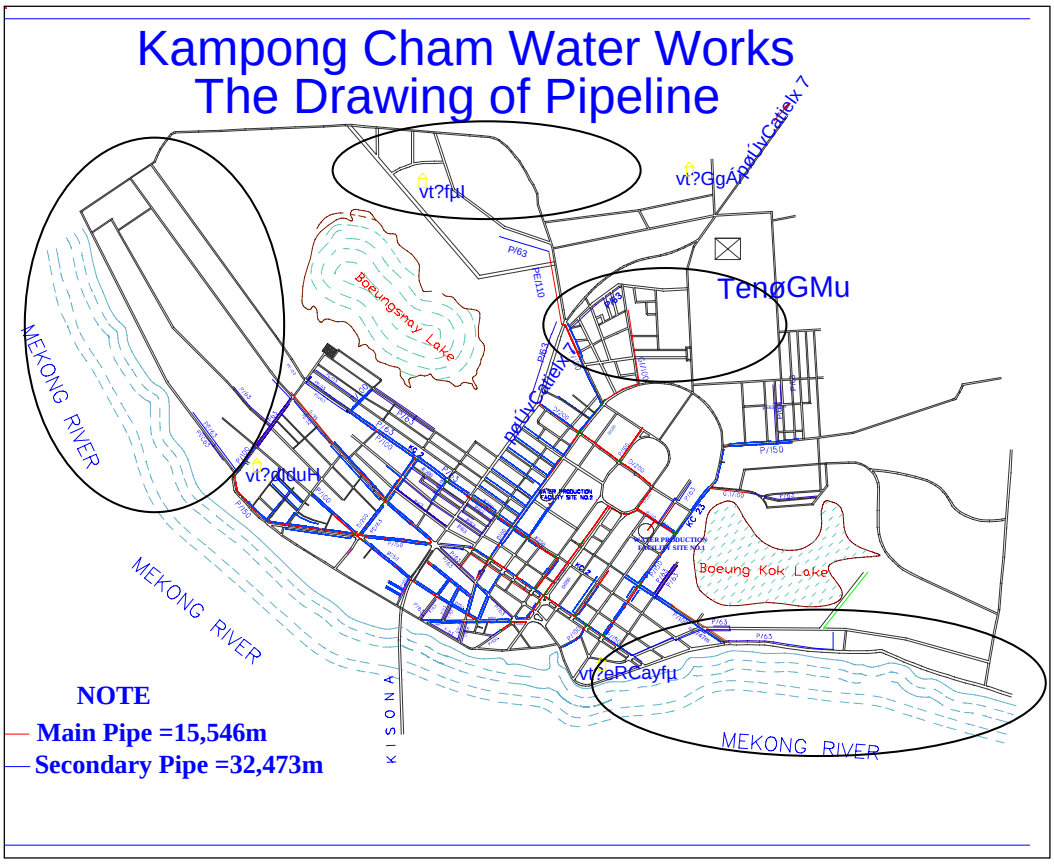


Figure 6 - Kampong Cham network and proposed areas of intervention
Source: KCWSU

Preliminary scenarios were presented by the water supply utility. The table below shows one of these scenarios including beneficiaries projected at the end of the project and estimated costs. The national growth rate of 1.54% (Census 2008) was used for the calculations. The number of households benefiting from the proposals was calculated using the average urban household size in the province as per the 2008 census - five people per household- instead of the 5.3 reported by the KCWSU.

Table 3 - Description of preliminary scenario

Commune	Population	Population Projected 2011	Number HH 2011	Pipe extension						Total cost (USD)	Unit cost (USD/P)
				160		110		63			
				Length (m)	Cost (USD)	Length (m)	Cost (USD)	Length (m)	Cost (USD)		
Boeung Kok (KC24)	2,153	2,220	444			1,780	54,284	2,520	39,584	93,868	43,60
Boeung Kok (KC23)	639	659	132			480	13,571	2,220	30,426	43,997	68,81
Veal Vong	179	185	37			230	8,697	520	8,525	17,222	96,00
Sambuormeas (KC5)	3,662	3,775	755	1,500	75,728	2,020	63,426	2,900	48,708	187,862	51,31
Sambuormeas (KC13)	1,260	1,300	260			1,600	51,246	1,800	27,997	79,243	62,87

Under this scenario, the town would have increased the coverage by 18%. The total number of beneficiaries would be 7,894 inhabitants in 2009 with a projection of 8,804 at the end of the project. The total cost for this scenario was calculated to be USD422,192 for the expansion of the network and USD10,000 for the establishment of the revolving funds to promote household connections. The unit cost per meter of pipe is less than for the other target towns in Cambodia. The unit costs are USD32/meter for 110 mm diameter and USD16/m for 63 mm diameter pipes.

Two areas are located along the river side where there is a line of informal housing with no secure tenure. KCWSU is taking this aspect into consideration but it is not clear whether these families will be able to benefit from water connections or whether these might be provided at the community level. These families might not be included in the final scheme until their condition gets regularized.

Technically, this scenario is viable due to the big water capacity of the system. Considering the per capita consumption of 107 liters per person per day[3], the expansion would imply a monthly increase in the water consumption of approximately 942 m^3 by 2011, and an increase in the water production by 1,092 m^3 (considering 16% of water losses). KCWSU has reported a total capacity of 11,000 m^3 per day while the current production is of 4,000 m^3 per day. However, taking into consideration the capacity of the water treatment plant at 5,760 m^3, and calculating the daily production with the current number of connections (3,915 connections which imply a daily production of 2,500 m^3/day adding the losses), the expansion would not mean any further problem either.

The expansions proposed in the areas of Boeung Kok and Sambourmeas are accomplished with a proper unit cost per potential beneficiary. In these areas, as remarked, there is no access and people access water from different sources. In the case of informal vendors, households pay more than the average public tariff and have expressed their willingness to pay the formal fee. The water utility director has expressed the continuous requirements from the population of these areas for the expansion of the network.

Poor households and good households are mixed in the areas proposed, so the expansion of the net will benefit all of them, and revolving funds for the household connections for the poor houses will imply the accessibility for the most vulnerable.

A.5. Proposed Interventions to improve Sanitation Services

Improvements in sanitation are expected to be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing

[3] Source: ADB Evaluation Report, 2008.

arrangements such as community-based revolving funds. In Kampomg Cham town, the construction of 1,959 new on-site sanitation facilities will increase the sanitation coverage by 8%, from 76 to 84%.

The project under the MEK-WATSAN programme has been designed to demonstrate a community-based approach which will increase the access by the poor to improved basic sanitation services. Upon the completion of the project, 10,186 people will benefit from improved sanitation services in Kampomg Cham town.

The proposal for onsite sanitation presented at the time of the mission assessments was:

Table 4 - Needed sanitation facilities

Town	Total families	Total Pop	Existing facilities	% coverage	Needed facilities	Beneficiaries
Kampong Cham	8,438	43,602	6,428	76%	2,010	10,452

Source: CfD

Table 5 - Selection of beneficiaries

Town	Total Families	Total Pop	Existing Facilities	% Coverage Final	Proposed Facilities	Beneficiaries	Increased Coverage
Kampong Cham	8,438	43,602	6,428	84.3%	1,959	10,186	8.3%

Regarding waste water management and drainage, the Department of Public Works expressed to the team their will for having support from the program for the expansion of the drainage system with the installment of 750 meters of 1.5 meters of diameter of concrete pipe for the town centre area.

B. Kampong Thom Town

Map

Figure 7 - Kampong Thom town
Source: Google Maps

Town Matrix

Table 6 - General information

	Value	Source
Total population	52,743	Water utility
Total number of households	9,919	Water utility
Total number of communes	8	Water utility
Total number of villages	39	Water utility
Population density (pop/Km^2)	46	Census 2008
Poverty rate (%)	25%	Water utility
Average income (annual)	12,000 KR	ADB 2008
Mean household size	4,7	Census 2008
Number of schools	72	Prov Department of Planning
Total coverage water access	18.3%	Water utility
Total coverage sanitation access	22%	CfD

A.1. General Description

Kampong Thom town is the capital of Kampong Thom Province. It is the economic center of the province serving as an immediate market, processing center and transportation depot for agricultural products, thus contributing to the growth of both urban and rural economies in the province. According to preliminary results of Census 2008, the province has a total population of 630,803. Population density has risen from 41 people/Km^2 in 1998 to 46 people/Km^2 in 2008. Average household size in urban areas in Kampong Thom Province is 4.7 while growth rate is set at 1.54%. As reported by the Kampong Thom Water Supply Utility (KTWSU), the town has a current population of 52,743 inhabitants distributed in 9,919 households in eight communes. The population in the town is very scattered and 25% is below the poverty line.

A.2. Water Supply

Service Coverage

The water supply network covers only six out of the eight communes, and only one commune has 100% coverage. Only 1,916 households are connected to the network, serving 9,666 inhabitants, which implies a 34.3% of coverage in the service area. If the two communes with no access were considered, the coverage for water would decreases to 18.3%.

Institutional Background

Kampong Thom Water Supply Utility (KTWSU) is the entity responsible for the provision of water at the provincial level and manages and operates the system. KTWSU staff has received technical training from ADB and JICA, focused on water quality monitoring, installation of pipes, and other technical aspects of O&M of the system.

The Water Supply System

- General description of the system

The town has a water supply system which was improved in 2006 with the support of the Asian Development Bank. The system currently produces 1,379 m^3/day[4], although the system's water capacity is 5,760 m^3/day.

- Existing water sources

The water source is the Sen River, from where the water is pumped to the water treatment plant.

- Existing water treatment (water quality)

The water treatment plant is similar to those in other towns and includes a sedimentation tank and a chlorination unit. KTWSU monitors the water quality daily and treated water meets all national standards.

[4] Source: ADB, 2008.

Figure 8 - Kampong Thom water treatment plant and elevated tanks

- Transmission and distribution

There is a 500 m^3 distribution tank. The distribution network includes 13.67 kilometers of main pipe (diameters ranging from 100 mm to 400 mm) and 18.89 kilometers of secondary pipe.

- Tariff and metering

The tariff system is flat with a fee of 1,500 Riels per m^3 (USD0.35 approximately). This tariff varies depending on the price of fuel along the year and changes can take place even monthly. The highest tariff recorded was 1900 Riels per m^3 (USD0.49 approximately). The connection fee is USD110.

- Collections rates and operational costs (financial sustainability of the utility)

The utility is sustainable but profits are very limited.

- Problems and main challenges

The water supply utility reported breakdowns in the pumping system from the river due to fine sand that clogs the pumps despite the use of filters. The main challenge is network leakages with 25% of water losses.

A.3. Sanitation, Waste Management and Drainage

The sanitation coverage in Kampong Thom town is very low and there are different estimates. While the water supply utility reports a 36% coverage for on-site sanitation, the Center for Development (CfD) has estimated a lower 22% coverage. Some latrines discharge directly into the surrounding lakes and households with no access to facilities practice open defecation.

Figure 9 - Example of latrines discharging directly into the lakes

According to the information provided by CfD, the coverage varies in each of the communes ranging from 7% to 89% (see table 7). The total number of needed facilities would be of 11,069. Kampong Thom town has not yet benefited from programmes promoting awareness on sanitation issues or the provision of basic services.

Table 7 - Distribution of coverage in communes in Kampong Thom

Town	Commune	Total Families	Total Pop	Existing Facilities	% Coverage	Needed Facilities	Expected Beneficiaries
Kampong Thom	Damrei Choan Khla	1,295	6,519	575	44%	720	3,744
	Kampong Thum	564	3,022	502	89%	62	322,4
	Kampong Roteh	999	4,701	543	54%	456	2,371.2
	Ou Kanthor	843	4,432	43	5%	800	4,160
	Kdei Doung	1,096	6,493	113	10%	983	5,111.6
	Kampong Krabau	970	4,712	311	32%	659	3,426.8
	Prey Kuy	1,046	4,845	119	11%	927	4,820.4
	Achar Leak	1,306	5,856	310	24%	996	5,179.2
	Prey Ta Hu	1,087	5,528	301	28%	786	4,087.2
	Srayov	3,871	18,399	308	8%	3,563	18,527.6
	Tboung Krapeu	1,203	5,577	86	7%	1,117	5,808

Source: CfD

Kampong Thom's drainage system is very poor. The Department of Public Works is installing one meter diameter pipes in the main road. The rainwater is directed towards the river. Very few households are connected to the sewerage system. One part of the city discharges sewage in the lake another section of the city discharges sewage in the river. A German/Swiss study assessed the possibilities for decentralized water treatment. However, there are not yet concrete commitments for improving the system.

A.4. Proposed Interventions to improve Water Services

Kampong Thom Water Supply Utility proposed to improve access to safe piped in selected communities in Kampong Thom town - among them – O'Kantor and Kampong Rotesh communities. The project aims to increase access to improved water supply on a sustainable and affordable basis for 8,250 residents in the project town by 2011. It is expected that safe water coverage will increase from 18 to 34% though the expansion of the water supply distribution system. In order to support the connection fees of poor families to the network, innovative financial arrangements such as revolving funds have been considered.

At the time of the field assessments, KTWSU presented the following proposal.

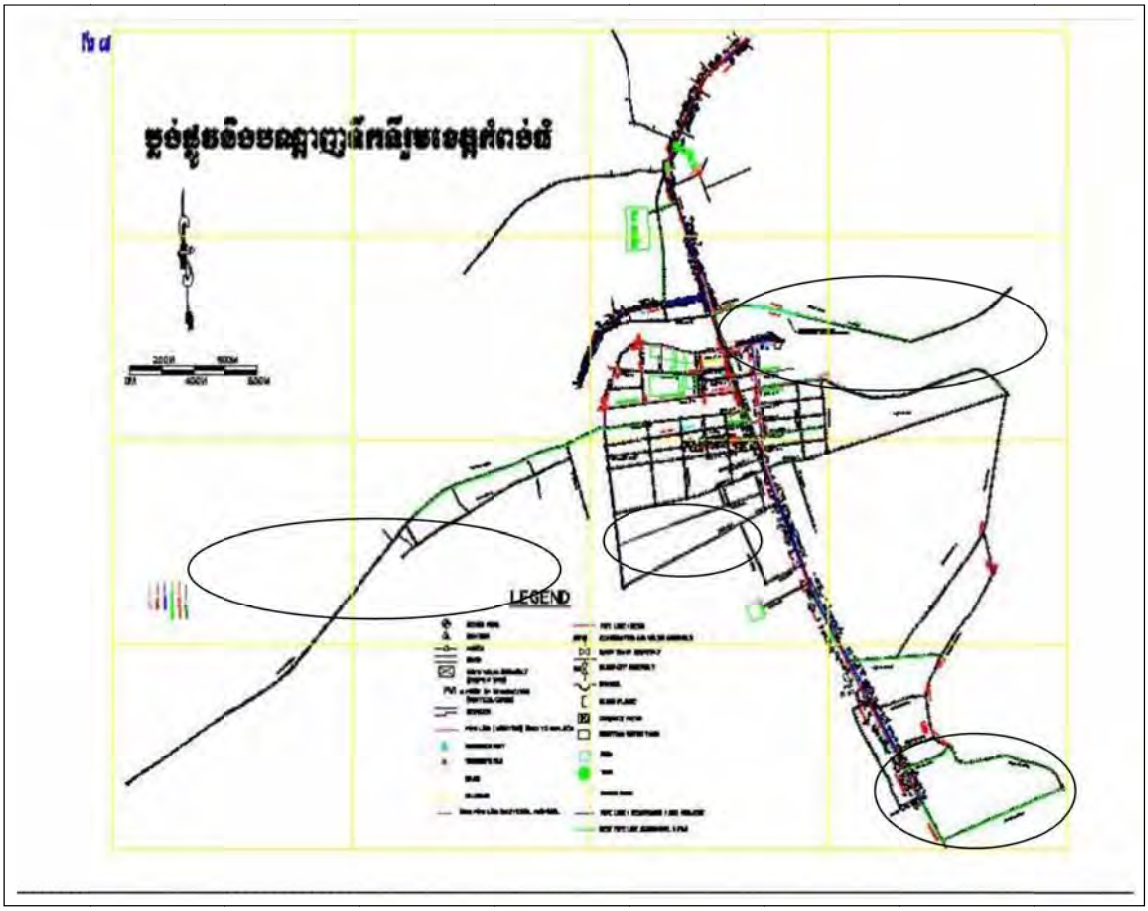


Figure 10 - Kampong Thom network and areas of proposal
Source: KTWSU

In this scenario, four areas were proposed for expansion. Unit costs are low and number of households is high. Some areas are bordering the town have 0% coverage at this moment. One proposed are is located in the town center. In these areas people rely on rainwater harvesting which, highly common in Cambodia, as well as in hand dug and unprotected wells.

Table 8 - Summary of proposal for expansion of water supply system

Commune	Pop	Pop Projected 2011	Number HH 2011	Pipe extension						Total Cost (USD)	Unit Cost (USD/P)
				160		110		63			
				Length (m)	Cost (USD)	Length (m)	Cost (USD)	Length (m)	Cost (USD)		
Damrei chanklar	2,077	2,141	456			480	16,800	3,932	78,640	95,440	45.95
O'kanlor	2,762	2,848	606			1,200	42,000	5,031	100,610	142,610	51.63
Kampong Rotesh	2,465	2,542	541			1,200	42,000	520	10,400	52,400	21.26
Kampong Kabrao	1,879	1,937	412			1,200	42,000	928	18,560	60,560	32.23

Figure 11 - Rainwater system at household level

According to this proposal, the total number of beneficiaries would be in 2009 expected to grow to 9,405 people by 2011. Considering 4.7 as the average household size, this proposal will benefit 2,015 households. The total cost for the expansion of the network will around USD351,010 and USD10,000 for the establishment of revolving funds to support household connections. This would imply an increase in the water coverage by 18 points and increasing the town coverage to 36%.

The total capacity of the water supply system is that of the water treatment plant (5,760 m^3 per day). Considering the average daily consumption of 129 liters per person per day[5], this proposal would imply an increase in the water production of 826 m^3 by 2011. In Kampong Thom, the average daily production in 2008 was set at 1,379 m^3. Thus the implementation of this proposal and an increase of coverage would not cause shortages in the future.

The unit costs by meter of pipe of 110mm and 63 mm diameter used for the calculations is the standard in the country. The costs are USD35 for the installation of one meter of 110 mm and USD20 for the installation of one meter of 63 mm.

A.5. Proposed Interventions to improve Sanitation Services

The proposed project aims at increasing access by the poor to improved basic sanitation services through a community-based approach. Upon the completion of the project, 36,316 people will benefit from improved sanitation services. With 6,984 new on-site facilities, the sanitation coverage will increase by 40.5%, from 23 to 63.5%. Improvements in sanitation are expected to be achieved through a demand-led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as community-based revolving funds.

The proposal for onsite sanitation presented at the time of the mission assessments was:

Table 9 - Needed sanitation facilities

Town	Total Families	Total Pop	Existing Facilities	% Coverage	Needed Facilities	Beneficiaries
Kampong Thom	14,280	70,084	3,211	22%	11,069	57,558

Source: CfD

[5] Source: ADB Evaluation Report, 2008.

Table 10 - Selection of beneficiaries

Town	Total Families	Total Pop	Existing Facilities	% Coverage Final	Proposed Facilities	Beneficiaries	Increased Coverage
Kampong Thom	14,280	70,084	3,211	63.5%	6,984	36,316	40.5%

Regarding waste water management and drainage, the Department of Public Works is implementing a program for the installation of a drainage system in the main road using one meter diameter pipes. A proposal of the drainage system in this area was presented to the field mission team but without cost estimates.

C. Pursat Town

Map

Figure 12 - Pursat town
Source: Google Maps

Town Matrix

Table 11 - General information

	Value	Source
Total population	63,663	Commune Council Office
Total number of households	8,660	Water utility
Total number of communes	10	Water utility
Total number of villages	63	CfD
Population density (pop/Km^2)	31	Census 2008
Poverty Rate (%)	40%	Governor
Mean household size	4,6	Census 2008
Number of schools	3	Governor
Total coverage water access	36.9%	Water utility
Total coverage sanitation access	35%	CfD

A.1. General Description

Pursat town is the capital of Pursat Province. It is the economic center of the province serving as an immediate market, processing center and transportation depot for agricultural products, thus contributing to the growth of both urban and rural economies in the province. According to preliminary results of Census 2008, the province has a total population of 397,107. The population density in the province is very low and has risen from 28 persons/Km^2 in 1998 to 31/Km^2 in 2008. Average household size in urban areas in Pursat Province is 4.6 while growth rate is set at 1.54%. Means of life of the population are approximately 30% of the population in small business activities, 20% labour, 10% Government staff and the rest in small farming activities. As reported by the Pursat Water Supply Utility (PWSU), the town has 10 communes, with a total of 8,660 households, out of which 2,000 households are below the poverty line.

A.2. Water Supply

Service Coverage

Only 3,192 households have access to water which implies 36% coverage. The population in non-served areas consumes water from hand-dug wells and rainwater harvesting systems.

Institutional Background

Pursat Water Supply Utility (PWSU) is the entity responsible for the provision of water at the provincial level. PWSU manages and operates the system.

The Water Supply System

- General description of the system

The town has an old water supply system which was improved in 2006 with the support of the Asian Development Bank. The current water production per day is 2,138 m^3/day but the total capacity of the system is 5,100 m^3/day which provides opportunities for the extension of the system. The service is delivered 24 hours a day.

Figure 13 - Section of the system where the distribution line ends. Expansion is needed.

- Existing water sources

The source is surface water from the river.

- Existing water treatment (water quality)

The capacity of the water treatment plant is of 5,780 m^3/day. The plant includes a chlorination unit. The treated water meets national standards.

- Transmission and distribution

There is a 2,000 m^3 water tank and a 350 m^3 tower. The total piped network has an extension of 43.46 Km. With the improvement of ADB the distribution network was further extended by 15.5 Km.

- Tariff and metering

The tariff system is flat with a rate of 1,300 Riels/m^3 (0.31 USD/m^3). Nearly 40% of the population cannot afford this fee. The mean consumption is 125 liters per capita per day.

- Collections rates and operational costs (financial sustainability of the utility)

The utility is at the time of the assessment not sustainable since operation costs are very high.

- Current investments

There have been some improvements made to the distribution network with the support of the capital private utility from Phnom Penh.

- Problems and main challenges

Past water losses reached 32% and have been reduced to 22% mainly due to capacity building programmes supported by ADB. Effective measures to reduce water losses have included the establishment of reporting systems and improved maintenance.

A.3. Sanitation, Waste Management and Drainage

Access to private sanitation facilities in Pursat town at household level is one of the lowest of the four towns assessed. Local authorities have estimated 30% of sanitation coverage in the town center and 10% in peri-urban areas. According to assessments prepared by CfD, the population with access to improved sanitation facilities is 35% of the total population.

Table 12 - Situation at commune level of sanitation facilities at households

Town	Commune	Total Families	Total Pop	Existing Facilities	% Coverage	Needed Facilities	Beneficiaries
Pursat	Chamraeun Phal	1,254	6,443	33	3%	1,221	6349.2
	Kaoh Chum	1,448	7,088	23	2%	1,425	7410
	Lolok Sa	1,822	9,742	577	32%	1,245	6474
	Phteah Prey	3,228	21,532	2,324	72%	904	4700.8
	Prey Nhi	961	5,304	419	44%	542	2818.4
	Roleab	2,349	11,621	647	28%	1,702	8850.4
	Svay Ath	8,10	5,880	179	22%	631	3281

Source: CfD

The town's drainage has two parallel systems: an open concrete ditch which requires regular maintenance and a piped system that gets clogged frequently due to inadequate use of the system. While the total length of the road network is 34 Km, the piped drainage system only covers 3,200 m with 600 mm diameter pipe and 1,086 meters with 1000 mm diameter pipe. This means that in terms of length, the drainage coverage is less than 10%. In peri-urban areas, the households are not connected and use their own systems. The town hospital has its own disposal points and uses an incinerator to treat the waste. There is a plan with JICA for the construction of a treatment plant.

A.4. Proposed Interventions to improve Water Services

This project plans to improve access to safe piped water in selected communities in Pursat town - among them - Svay Ath and Lolok Sar communities. MIME proposed and selected Pursat town because of its low water supply coverage, a water system that has enough capacity for serving all the population and an operative public utility. This project has been designed to demonstrate a community-based approach which will increase the access by the poor to improved, affordable and sustainable water supply. By 2011, 7,700 people – out of which 23% are poor - will benefit from the expansion of water supply infrastructure. With the project completed successfully, the coverage of water will rise to 55% from the existing 37%.

At the time of the filed assessment, PWSU presented a proposal as follows:

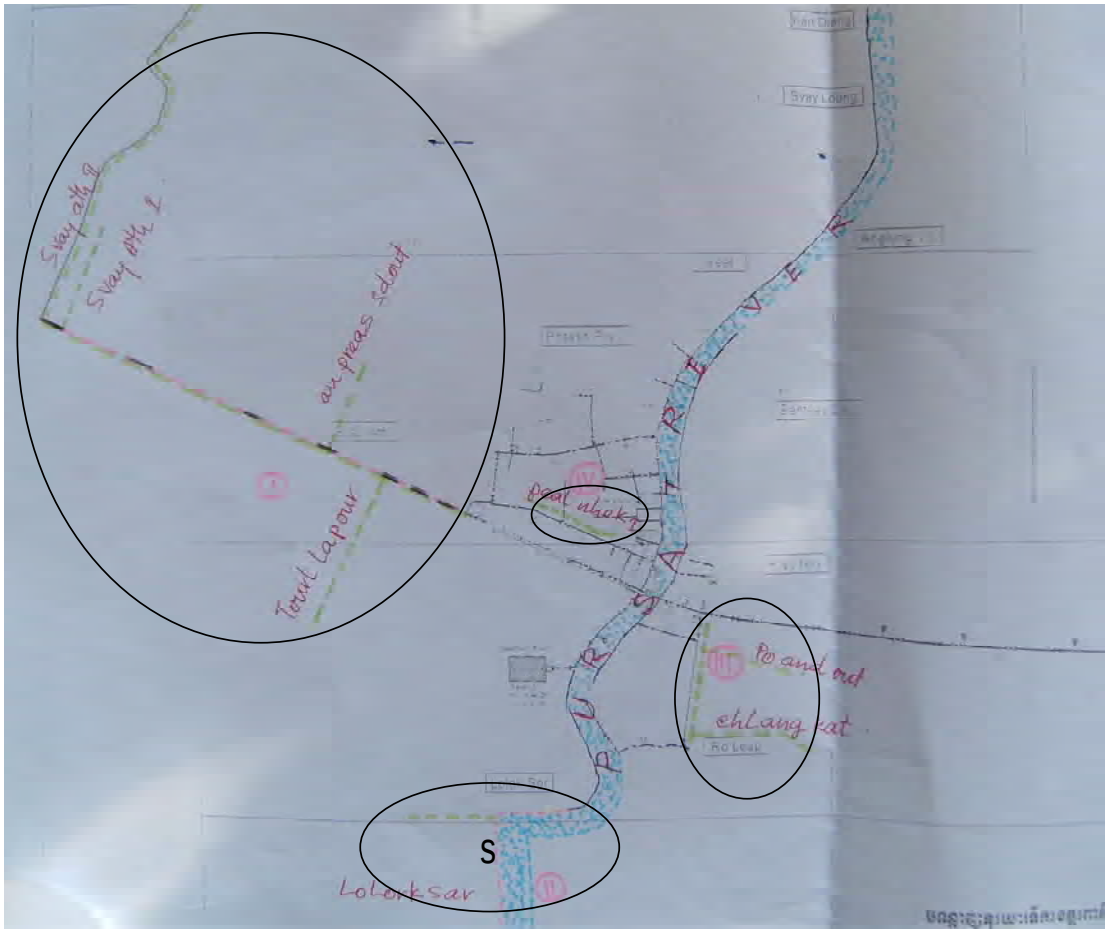


Figure 14 - Pursat network and proposal of areas
Source: PWSU

Taking into consideration the number of beneficiaries initially proposed by the water utility, 1.54% of annual growth (Census 2008) and an average household size of 4.6 (Census 2008), the following scenario was assessed.

Table 13 - Summary of the proposal for expansion of network

Commune	Pop	Pop Projected 2011	Number HH 2011	Pipe extension						Total cost (USD)	Unit cost (USD/P)
				160		110		63			
				Length (m)	Cost (USD)	Length (m)	Cost (USD)	Length (m)	Cost (USD)		
Svay Ath	4,000	4,124	897			3,000	105,000	5,000	100,000	205,000	51.25
Lolok Sar	2,500	2,578	560			2,000	70,000	500	10,000	80,000	32.00
Chlang Kat	1,250	1,289	280				0	5,500	110,000	110,000	88.00
Peat Mhakt	250	258	56				0	1,000	20,000	20,000	80.00

The total number of beneficiaries for to the town is expected to be 8,000 inhabitants projected to grow to 8,249 by 2011. The total cost would be USD415,000 for the expansion of the network, and USD10,000 for the establishment of the revolving funds for private household connections.

Considering the mean daily consumption per person at 125 liters[6], the proposal would imply an increase in the water production of 1,024 m^3 by 2011. The system has a water daily capacity of 5,780 m^3, and the current daily production is 2,138 m^3. Thus, an increase is viable even taking into account the increase on consumption of the population and the current water losses which are expected to decrease in the future.

Two areas of the four proposed were assessed based on the lowest unit cost. The first one implies a long pipe extension as it is placed in the outskirts of the town, but reaches an unserved area with many poor households. Access to water for these poor households is through rainwater harvesting and from wells from a stream which is highly contaminated.

Figure 15 - Household rainwater harvesting and well used during the dry season

The two areas assessed seem appropriate for the intervention. Population density is high and there is a big number of households. In addition, poor population in the area is high. The possible beneficiaries are willing to access the water network, but expressed their financial constraint to the connection fee. For this purpose, revolving funds would be established so that poor households can access the network.

[6] Source: ADB Evaluation Report, 2008.

A.5. Proposed Interventions to improve Sanitation Services

Due to the poor situation in the town regarding private sanitation at household level, the proposal for Pursat town includes a larger number of sanitation facilities that those proposed for the other towns. Beneficiaries include residents living in areas where not water expansion is taking place but which present low sanitation coverage. The project aims to increase the access by the poor to improved basic sanitation services for 27,773 people. With 5,341 new on-site facilities, the sanitation coverage will increase by 25%, from 35 to 60%.

Improvements in sanitation are expected to be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as community-based revolving funds.

The proposal for onsite sanitation presented at the time of the mission assessments was:

Table 14 - Needed sanitation facilities

Town	Total Families	Total Pop	Existing Facilities	% Coverage	Needed Facilities	Beneficiaries
Pursat	11,872	67,610	4,202	35%	7,670	39,884

Source: CfD

Table 15 - Selection of beneficiaries

Town	Total Families	Total Pop	Existing Facilities	% Coverage Final	Proposed Facilities	Beneficiaries	Increased Coverage
Pursat	11,872	67,610	4,202	60.6%	5,341	27,773	25.2%

Regarding waste water management and drainage, the Department of Public Works is planning to extend the open pipeline for drainage in three expansion areas involving nearly 6,915 meters of concrete pipe.

D. Svay Rieng Town

Map

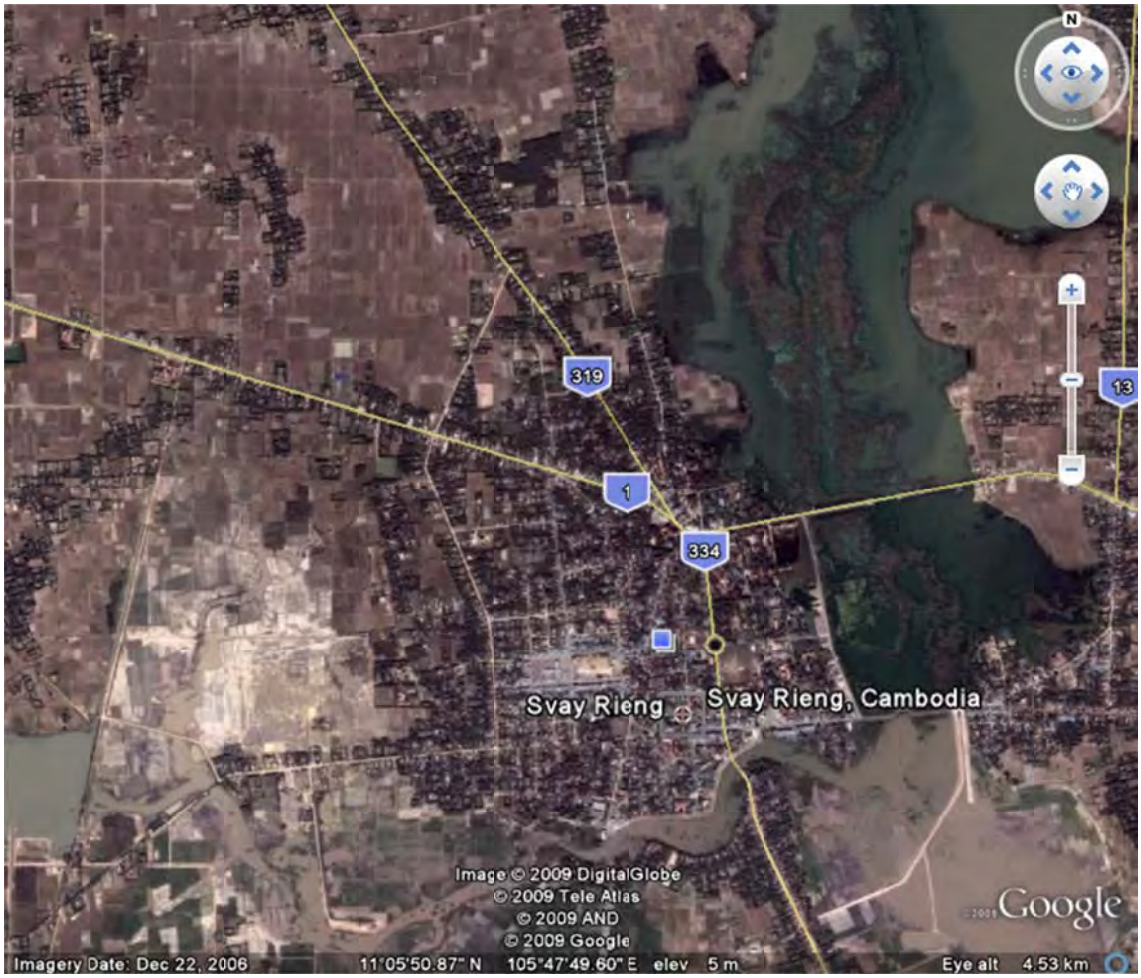


Figure 16 - Svay Rieng town
Source: Google Maps

Town Matrix

Table 16 - General information

	VALUE	SOURCE
Total population	21,794	Water utility
Total number of households	4,399	Water utility
Total number of communes	4 (7)	Water utility
Total number of villages	18	CfD
Population density (pop/Km^2)	163	Census 2008
Mean household size	4,6	Census 2008
Number of schools	3	Governor
Total coverage water access	26.6%	Water utility
Total coverage sanitation access	68%	CfD

A.1. General Description

Svay Rieng town is the capital of Svay Rieng Province. It is the economic center of the province serving as an immediate market, processing center and transportation depot for agricultural products, thus contributing to the growth of both urban and rural economies in Svay Rieng Province. According to preliminary results of Census 2008, the province has a total population of 482,785. Population density has risen from 161 persons/Km^2 in 1998 to 163 persons/Km^2 in 2008. Average household size in urban areas in Svay Rieng Province is 4.6 while growth rate is set at 1.54%. As reported by the Svay Rieng Water Supply Utility (SRWSU), the town has a current population of 21,795 inhabitants distributed in 4,399 households in four communes. Thirty percent of population is below the poverty line. At the time of the field visit, three communes had been recently annexed to the municipality. These were situated far from the town center and SRWSU reported an additional population of 23,379 inhabitants distributed in 4,655 households. These three communes were not being served by SRWSU.

A.2. Water Supply

Service Coverage

Only 1,168 households are connected to the network, which implies 27% coverage. Areas not served are using the river as a source as well as hand-dug wells. However, this is the coverage provided by the four initial communes of the municipality. When considering the three communes recently annexed to the municipality, the water coverage decreases to nearly half of the current coverage since SRWSU does not server them.

Figure 17 - Reservoir and pumping station for the system

Institutional Background

The Svay Rieng Water Supply Utility (SRWSU) is the entity responsible for the provision of water at the provincial level. SRWSU manages and operates the system.

The Water Supply System

- General description of the system

The town has a water supply system which was upgraded in 2006 with the support of the Asian Development Bank (ADB). The system has a capacity of 5,280 m^3 per day. Currently, water production is 1,760 m^3 per day. Water is delivered 24 hours a day in the serviced areas.

- Existing water sources

The water source is groundwater. There are three boreholes functioning alternatively eight to twelve hours a day.

- Existing water treatment (water quality)

The water treatment plant includes vertical sand filter tanks and a chlorination unit. The water quality meets national standards but for iron levels and color.

- Transmission and distribution

Two reservoirs of 1000 m^3 and 400 m^3 respectively serve the town. The distribution network has an extension of 11,680 meters. The transmission line has an extension of 13,867 meters. A section of the transmission line was rebuilt in 1985 since it had frequent leakages.

- Tariff and metering

Water tariff is flat and set to USD0.29/m^3 (1200 Riels/m^3). The connection fee is USD110. The mean consumption is 127 liters per capita per day[7].

- Collections rates and operational costs (financial sustainability of the utility)

SRWSU reported their operations were not being sustainable as their expenditures were higher than their income.

- Problems and main challenges

The supply system has not had major breakdowns since the upgrading of the system with the support of the ADB. Non-accounted water is less than 20%, which implies high losses in the system.

A.3. Sanitation, Waste Management and Drainage

Sanitation coverage in Svay Rieng town is relatively high. In Svay Rieng town, the water supply utility reported coverage of 75% while CfD reported sanitation coverage of 68%. Differences in coverage are found between communes as indicated in the following table.

Table 17 - Sanitation coverage in the communes of Svay Rieng

Town	Commune	Total families	Total Pop	Existing facilities	% Coverage	Needed facilities	Beneficiaries
Svay Rieng	Svay Rieng	2,705	13,239	2,012	74%	693	3,603.6
	Prey Chhlak	641	3,255	454	71%	187	972.4
	Koy Trabaek	621	3,308	210	34%	411	2,137.2
	Pou Ta Hao	389	1,875	267	69%	122	634

Source: CfD

There is a drainage system for waste water but there is not a treatment plants. No more information was provided regarding waste water and drainage systems in Svay Rieng.

A.4. Proposed Interventions to improve Water Services

[7] Source: ADB Report, 2008.

The proposed project plans to improve access to safe piped water in selected communities in Svay Rieng town. By 2011, 4,532 people – out of which 30% are poor - will benefit from the expansion of water supply infrastructure. With the project completed successfully, the coverage of water will rise to 37% from the existing 27%.

During the assessment mission, SRWSU presented a proposal for the expansion of the distribution network in two areas of the town, in the communes of Svay Rieng and Kov Tropek.

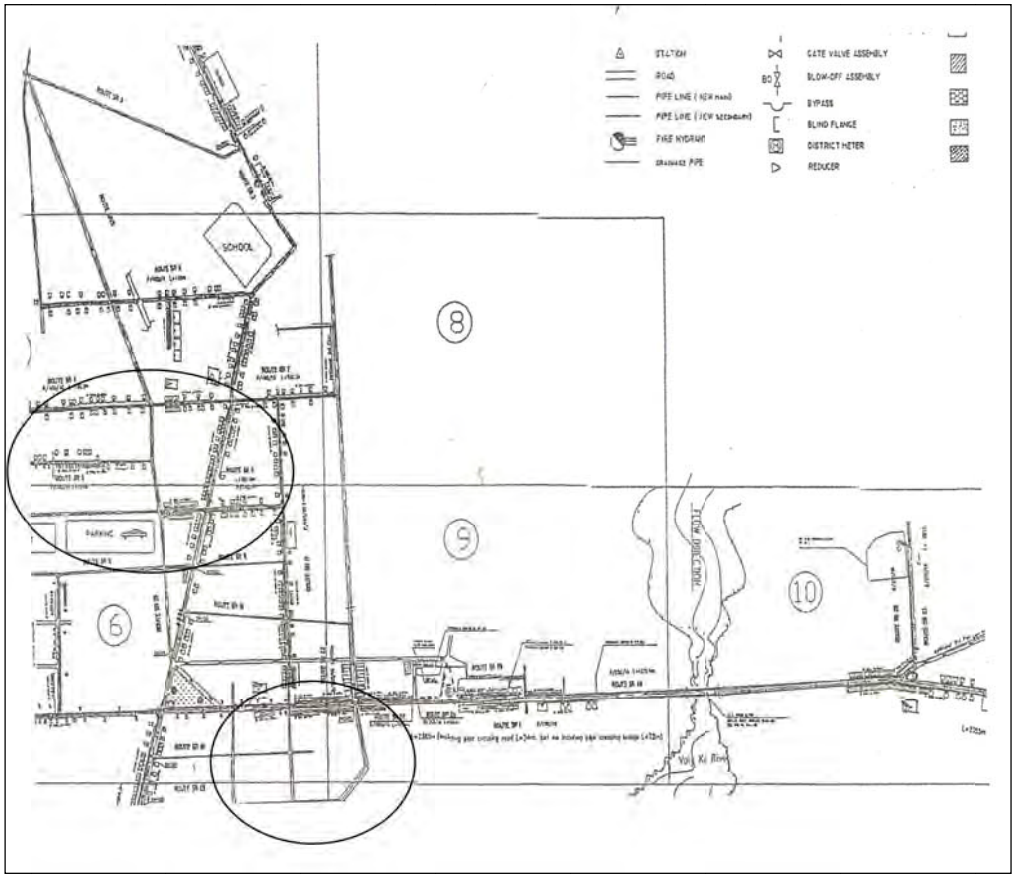


Figure 18 - Svay Rieng network and areas proposal
Source: SRWSU

Table 18 presents a summary of this proposal considering the number of households benefiting from the expansion as reported by the SRWSU. For the purposes of the calculation, the annual growth rate used was 1.54% (Census 2008) and the average household size was 4.6 people.

Table 18 - Summary of proposal for Svay Rieng for expansion of the water supply system

Commune	Pop	Pop Projected 2011	Number HH 2011	Pipe extension						Total cost (USD)	Unit cost (USD/P)
				160		110		63			
				Length (m)	Cost (USD)	Length (m)	Cost (USD)	Length (m)	Cost (USD)		
Svay Rieng	1,707	1,760	383			3,800	133,000	3,800	76,000	209,000	122.47
Kov Tropek	1,973	2,035	429			3,200	112,000	3,200	64,000	176,000	89.19

Under this scenario, the coverage in town would increase by eight points. The total number of beneficiaries would be 3,680 (3,769 projected by 2011), and the total cost would be USD385,000

complemented with USD10,000 to set up the revolving funds to support households connection fees for the poor.

The capacity of the system is 5,280 m^3/day. At the time of the assessment, the water production was 1,760 m^3/day as reported by the SRWSU. Considering a mean consumption of 127 liters per person per day[8], the implementation of this proposal would increase the water production by 467 m^3 per day by in 2011.

The two areas of intervention are one situated in the town center, one of them bordering the limits of town. The second area does not present a high population density. Both areas have a mix of poor and non-poor households and the currently water coverage is estimated to be 50%.

The unit costs (USD/person) are quite high as the proposal as some of the target areas have a low density. USD35/meter for the installation of110 mm diameter pipe (including transport, material and labour) and USD20/meter for the installation of 63 mm diameter pipe were the amounts used for the proposal analysis.

A.5. Proposed Interventions to improve Sanitation Services

Considering that the reported sanitation coverage in the town is high, the total number of sanitation facilities needed at the household level is 1,291 facilities. 6,713 people will benefit from improved sanitation services increasing the sanitation coverage by 23.5%, from 67.5 to 91%. Improvements in sanitation are expected to be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as community-based revolving funds.

The proposal for onsite sanitation presented at the time of the mission assessments was:

Table 19 - Needed sanitation facilities

Town	Total Families	Total Pop	Existing Facilities	% Coverage	Needed Facilities	Beneficiaries
Svay Rieng	4,356	21,677	2,943	68%	1,413	7,347

Source: CfD

Table 20 - Selection of beneficiaries

Town	Total Families	Total Pop	Existing Facilities	% Coverage Final	Proposed Facilities	Beneficiaries	Increased Coverage
Svay Rieng	4,356	21,677	2,943	91.1%	1,291	6,713	23.5%

For the technological options and additional details on the proposals for on-site sanitation facilities, please refer to the summary section at the end.

Although a meeting was held with the Department of Public Works and the director expressed the current poor situation and the need of support for expanding the drainage system, there are not yet proposals to expand the drainage system. It is important to remark that no treatment is done so discharge is done directly to lakes and rivers, polluting the environment.

[8] Source: ADB Evaluation Report 2008

ANNEX 3 – Lao PDR Town Assessments

Figure 1 - Map of project towns under MEK-WATSAN Roll-Out Phase 1

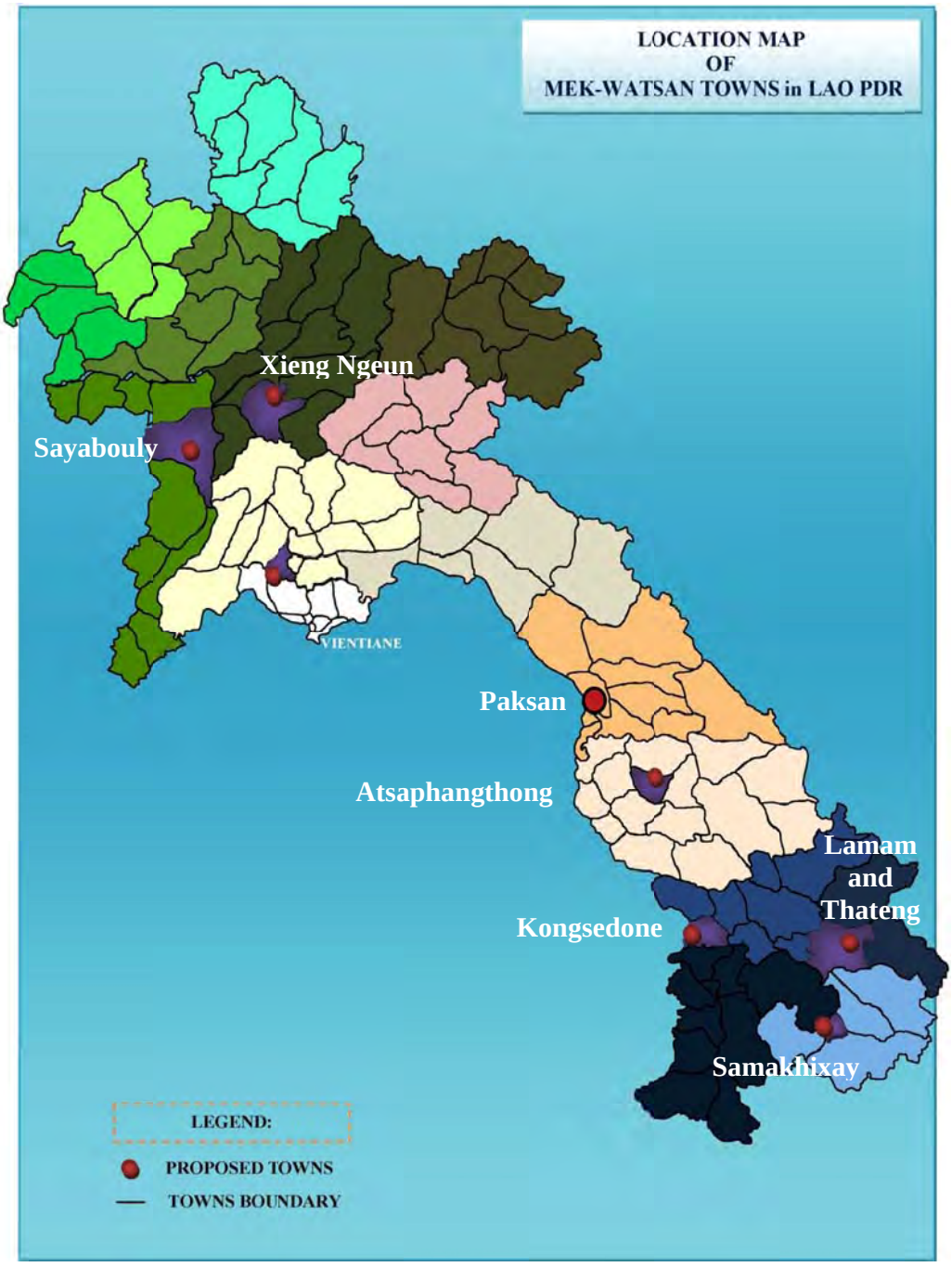


Table 1 - Target areas and main interventions

Province	Area of intervention	Proposed physical works and beneficiaries			
		Water supply		Sanitation	
Luang Prabang	Xieng Ngeun District	Expansion	2,613	On-site sanitation	1,992
Sayabouly	Sayabouly District	Expansion	3,796	On-site sanitation	2,183
Saravane	Kongsedone District	Expansion	2,866		1,756
Savannakhet	Atsphangthong District	New system	5,051	On-site sanitation	3,788
Sekong	Lamam District	Rehabilitation	9,154	On-site sanitation	
	Lamam peri-urban/ Tatheng District			On-site sanitation	10,258
Attapeu	Samakhixay District	Rehabilitation	10,608	On-site sanitation	6,762
Bolikhamsay	Paksan District			On-site sanitation	2,491
	Thaphabat (Thabok area)	Small scale water supply system (PPP)	4,553	Solid waste management	
Khammouane	Thakhek peri-urban			On-site sanitation	4,301
		TOTAL	**38,641**		**33,531**

A. Xieng Ngeun District, Luang Prabang Province

Map

Figure 2 - Xieng Ngeun District, Luang Prabang Province
Source: Google Maps

A.1. General Description

Xieng Ngeun District is located along the Highway No. 13 Nord, about 18 Km from Luang Prabang District. Xieng Ngeun District is the third largest in the province of Luang Prabang in terms of population - the largest being the capital, and has been officially listed as a World Heritage site to preserve its unique cultural heritage. The district has a total population of 9,467 (2008). The selected target villages for this project total a population of 3,006 people, expected to grow to 3,226 people by 2011. Xieng Ngeun District currently has a 30% poverty rate.

The proposed project targets six additional semi-urban villages: Nakha, Houaykhot, Houaykhang, Phonsavang, Thinkeo and Phonsay in the southeastern area of Xieng Ngeun District. These villages are neighboring an area of strong interest to the provincial Government, where private and Government investments are being made to strengthen the province's industrial and economic development. The proposed villages will benefit not only from improved, affordable and adequate water and sanitation services but also from increased access to economic opportunities particularly for the poor. The following table shows the distribution of the population across the villages.

Table 2 - Population in target villages in Xieng Ngeun District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Nakha	245	125	120	45	10
2	Houaykhot	461	235	226	98	25
3	Houaykhang	308	157	151	53	18
4	Phonsavang	501	256	245	78	20
5	Thinkeo	919	469	450	171	40
6	Phonsay	572	292	280	110	30
	TOTAL	**3,006**	**1,533**	**1,473**	**555**	**143**

A.2. Water Supply

Service Coverage

UN-HABITAT recently supported the "Community-based Water Supply and Sanitation Project" in Xieng Ngeun District of Luang Prabang Province under its Mekong Region Water and Sanitation Initiative (MEK-WATSAN). In July 2005, the NPSE-Luang Prabang entered into a Cooperation Agreement with UN-HABITAT for the implementation of the project and the construction of gravity fed piped water system to supply water to about 6,880 people in eight villages – Xieng Nguen, Done Mo, Par Khan, Mout, Parvait, Suan Luang, Parthor, and Houay Thao - in Xieng Ngeun and to increase the capacity for the extension of the network.

As of 2008, NPSE-Luang Prabang was serving 948 households, 32 Government offices, 77 small businesses and seven industries in Xieng-Ngeun District.

Figure 3 - Water supply system in Xieng Ngeun District

Figure 4 – Fast-track phase of project with UN-HABITAT in Xieng Ngeun District

Figure 5 - Existing water systems in areas of intervention

Institutional Background

The Nam Papa State-Owned Enterprise of Luang Prabang Province (NPSE-Luang Prabang) manages and operates the water supply systems at the provincial level.

The Water Supply System

- General description of the system

The water supply system is a water gravity fed system. The water reservoir has a capacity of 450 m^3.

- Tariff and metering

The tariff system has steps according to the different levels of water consumption for domestic use. The rates are:

- 0-10m^3 1,000 Kips/m^3
- 11-30m^3 1,100 Kips/m^3
- 31-50m^3 1,200 Kips/m^3
- 50m^3 + 1,300 Kips/m^3

There is flat tariff system for other uses. Government offices pay 1,500 Kips/m^3, small businesses pay 1,700 Kips/m^3 and industries pay 1,900 Kips/m^3.

A.3. Sanitation, Waste Management and Drainage

The sanitation coverage in the selected target villages is 39%. Most poor households have none or inadequate sanitation facilities.

Table 3 - Sanitation coverage in target villages in Xieng Ngeun District

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Nakha	245	45	10	30
2	Houaykhot	461	98	25	68
3	Houaykhang	308	53	18	41
4	Phonsavang	501	78	20	47
5	Thinkeo	919	171	40	83
6	Phonsay	572	110	30	70
	TOTAL	**3,006**	**555**	**143**	**339**
	Percentage				**61%**

Regarding wastewater and sanitation, most households throw the wastewater in the back yard of their houses. There is no drainage system in the peri-urban areas. In the rainy season, some areas, particularly around the market, are affected by waste water due to the lack of drainage ditches.

Figure 6 - Non-improved latrine in the target area

A.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water for 2,613 people in Xieng Ngeun District, Luang Prabang Province through the expansion of transmission and distribution pipes by 10,400 m. This project builds on the efforts of the Government and will contribute to strengthening the capacities of NPSE-Luang Prabang and district authorities in improving water services through participatory and innovative approaches.

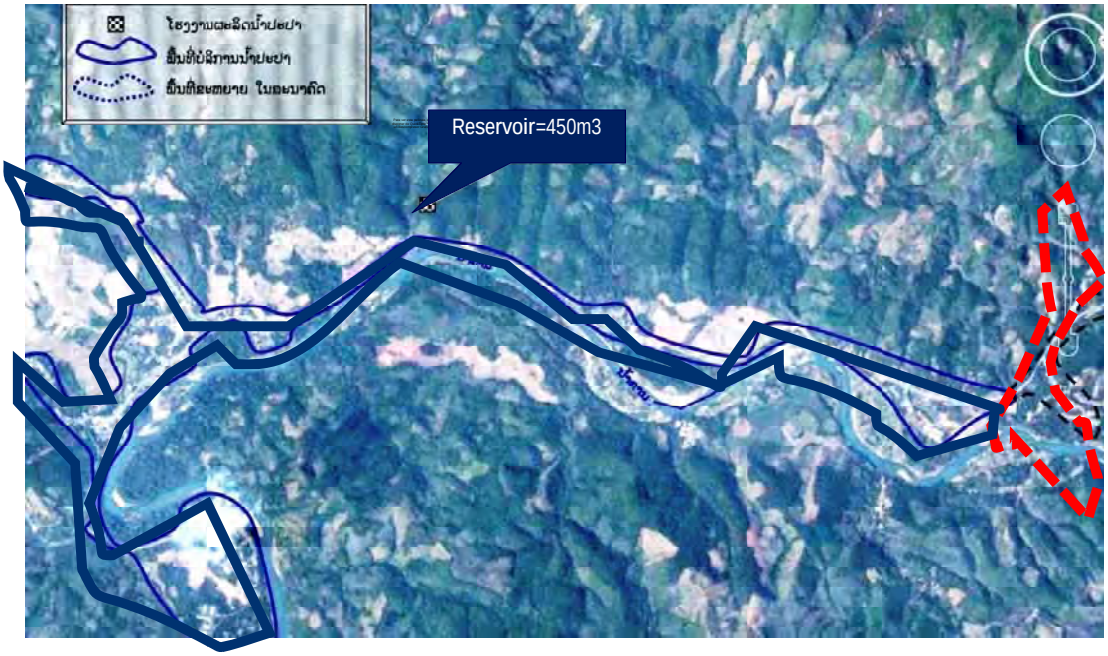


Figure 7 - Map of district and areas proposed for intervention

A.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to increase the sanitation coverage in low-income areas for 1,992 people in Xieng Ngeun District. The project has been designed to demonstrate a community-based approach, build community institutions and increase capacities to undertake affordable and sustainable

sanitation improvements. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

Figure 8 - Construction of lining for pour-flushed toilet

A. Sayabouly District (peri-urban areas), Sayabouly Province

Map

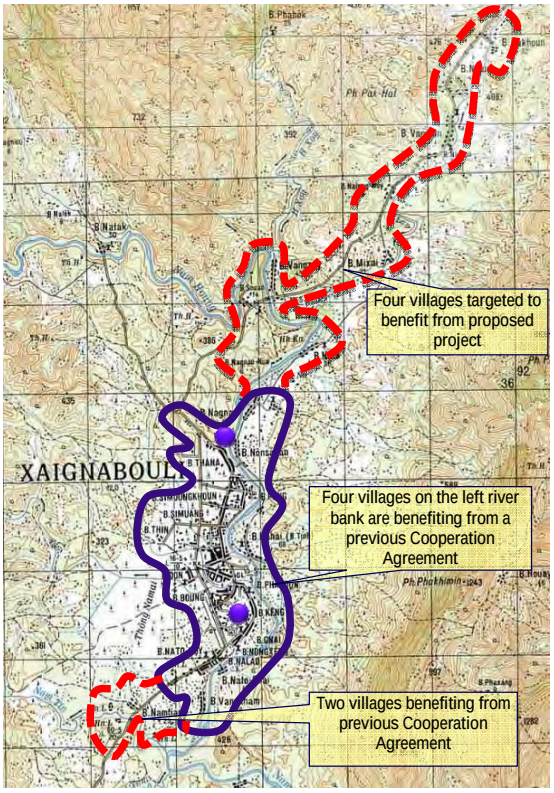


Figure 9 - Map and target areas of Sayabouly District, Saybouly Province

B.1. General Description

Sayabouly Province is situated in the north side of Lao PDR. The province has ten districts and 465 villages. The total area of the province is 16,389 Km^2 and the total population is 352,998 people distributed in 63,682 households. The population density is 22 people/Km^2. The annual growth rate is set to the national mean growth in 2.8%[1].

Sayabouly District is the capital of Sayabouly Province, located on both sides of the Nam Houng River, a tributary of Mekong River. The district has 25 villages (21 on the right bank of Nam Houng River and four on the left bank) and a total population of about 26,629 people (4,898 households). The average household size is 5.4. The proposed project area covers six villages in the peri-urban areas on the left bank totaling a current population of 4,406 inhabitants in 825 households, out of which 36% are considered poor. Among some of the targeted villages are Natognay, Naleng Luang, Naleng Noi, Nathone, Nala and Nakhoune villages. The target population is expected to grow to 4,475 people by 2011.

Table 4 - Population of target villages in peri-urban area of Sayabouly District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Natognay	347	170	177	68	12
2	Naleng Luang	368	181	187	71	25
3	Naleng Noi	634	327	307	128	34
4	Nathone	1,000	497	503	187	51
5	Na Lha	802	390	412	145	26
6	Nakhoune	1,255	676	579	226	46
	TOTAL	**4,406**	**2,241**	**2,165**	**825**	**194**

The target areas are considered poor with a reported average income from 300,000 to 400,000 Kip per month per household - less than USD60. The poorest families average an average income of 200,000 Kip per month per household. Most villagers work in agriculture. The villages do have access to electricity.

B.2. Water Supply

Service Coverage

Existing water coverage in the district, with the piped water system, is 60.5%. There are some villages in the left on the left bank of the river in which the access to water is not provided by NPSE-Sayabouly. Families without access to the piped water system, drink water from nearby springs or unprotected hand-dug wells. For other purposes, villagers have created an informal dam mainly for cleaning purposes. Only the wealthiest can buy bottled water for 4,000 Kip per 20 liters. This represents approximately 20,000 Kip per m^3.

[1] Source: Ministry of Planning and Investment, Statistical YearBook, 2007.

Figure 10 - Meeting with the community in Sayabouly District

Figure 11 - Unprotected source of water from spring in Sayabouly District

Institutional Background

The Nam Papa State-Owned Enterprise (NPSE) of Sayabouly manages the water supply systems in three of the districts: Sayabouly, Paklay and Hong Sa. The other seven districts do not have access to piped water supply systems.

NPSE-Sayabouly has a steering committee at the provincial level, with board committees and technical units at district levels. Different units and teams have been established per the different responsibilities in project implementation: survey and design, environment and sanitation, as well as logistics and revolving funds. This structure was created for the implementation of the first UN-HABITAT projects and is replicated in subsequent projects.

NPSE-Sayabouly receives training from the central Government training center. During the fast-track phase of MEK-WATSAN, a training needs assessment was done jointly with UN-HABITAT. The staff of NPSE-Sayabouly has received training on project management, water treatment plant operation and maintenance (O&M), general O&M, billing collection, and installation of pipes.

The Water Supply System

- General description of the system

The town has a water supply system that was recently improved with the support of the Asian Development Bank (ADB). The WTP has a capacity of 5,200 m^3/day and the current water production is 53% of the capacity of the system.

- Existing water sources

The main source is surface water.

- Existing water treatment (water quality)

The water quality is monitored in two places daily: at the source and after leaving the water treatment plant (WTP). The water quality follows WHO standards.

- Transmission and distribution

The reservoir has a volume of 500 m^3. The pumping system is composed of three pumps, which work rotating daily. The service is delivered 24 hours a day 7 days a week.

- Tariff and metering

The tariff system is set at provincial level. The tariff is set depending on the type of users as follows:

- Domestic user 2,500 Kips/m^3 (USD0.29 approx.)
- Government 2,900 Kips/m^3 (USD0.34 approx.)
- Business 3,200 Kips/m^3 (USD0.37 approx.)
- Hotels 3,500 Kips/m^3 (USD0.41 approx.)

During the first phase of the UN-HABITAT project, another type of consumer was identified and a new tariff was set for poor households with 2,000 Kips/m^3 (USD0.23 approx.). Poor households usually consume less than 10 m^3 per month and the mean monthly fee is 12,000 Kip per month which represents less than 3% of the mean income considering an average of 300,000 Kip per month for poor households.

The connection fee is set to 950,000 Kip (USD110).

- Collections rates and operational costs (financial sustainability of the utility)

NPSE-Sayabouly in the district has a yearly income of 1,629 million Kip while annual expenditures are 1,400 millions Kips. Therefore, the economic sustainability of the operator is assured. Electricity costs reach 74 million monthly, which constitutes nearly 63% of the total expenditures of NPSE-Sayabouly.

- Current investments

UN-HABITAT has supported the "Community-based Water Supply and Sanitation Project" in Sayabouly District of Sayabouly Province under the fast-track phase of the Mekong Region Water and Sanitation Initiative (MEK-WATSAN). In January 2007, the NPSE-SAYABOULY entered into a Cooperation Agreement with UN-HABITAT for the implementation of the project and provision of clean water to four villages on the left bank (Nayao Neua, Nayao Tai, Nahai and Nalam) by extending the distribution pipes to benefit 4,100 people.

- Problems and main challenges

NPSE-Sayabouly reports water losses of 19%.

B.3. Sanitation, Waste Management and Drainage

The sanitation coverage in the district is relatively low. There is a system for sludge removal that is managed by the private sector. The cost for the service is 300/350,000 Kip (USD41 approximately). In the target villages the sanitation coverage is the following:

Table 5 - Sanitation coverage in target villages in Sayabouly District

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Natognay	347	68	12	17
2	Naleng Luang	368	71	25	23
3	Naleng Noi	634	128	34	67
4	Nathone	1,000	187	51	77
5	Nala	802	145	26	68

6	Nakhoune	1.255	226	46	127
	TOTAL	**4,406**	**825**	194	379
	Percentage (%)	100	100	23.52	46

Most poor households have none or inadequate sanitation facilities. Most latrines face privacy issues and cannot be used when there are floods (see figure 12).

Figure 12 - Non-improved latrine in use in the target areas

There is a drainage system in the town center for rainwater only. The system has closed concrete pipes. Regarding wastewater and sanitation, most households throw the wastewater in the back yard of their houses. There is no drainage system in the peri-urban areas. In the rainy season, some areas, particularly around the market, are affected by wastewater due to the lack of drainage ditches. There is no sewerage system, although the Master plan for the district includes a waste water treatment plant.

Regarding solid waste management, there is a landfill constructed with the support of ADB. UN-HABITAT has contributed to some improvements in the landfill during the fast-track phase of MEK-WATSAN. This service is managed by the public sector. There are two trucks for collection and each household has to make a contract with the head of village to access the service.

B.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water on a sustainable and affordable basis for 3,796 people in the peri-urban areas of Sayabouly District, Sayabouly Province.

The project entails the expansion of the network to six peri-urban villages located on the left bank of the Nam Houng River, namely Natognay, Naleng Luang, Naleng Noi, Nathone, Nala, and Nakhoune Villages which total a population of 4,406. Close to 80% of the population in the identified villages will benefit directly from the expansion in the network.

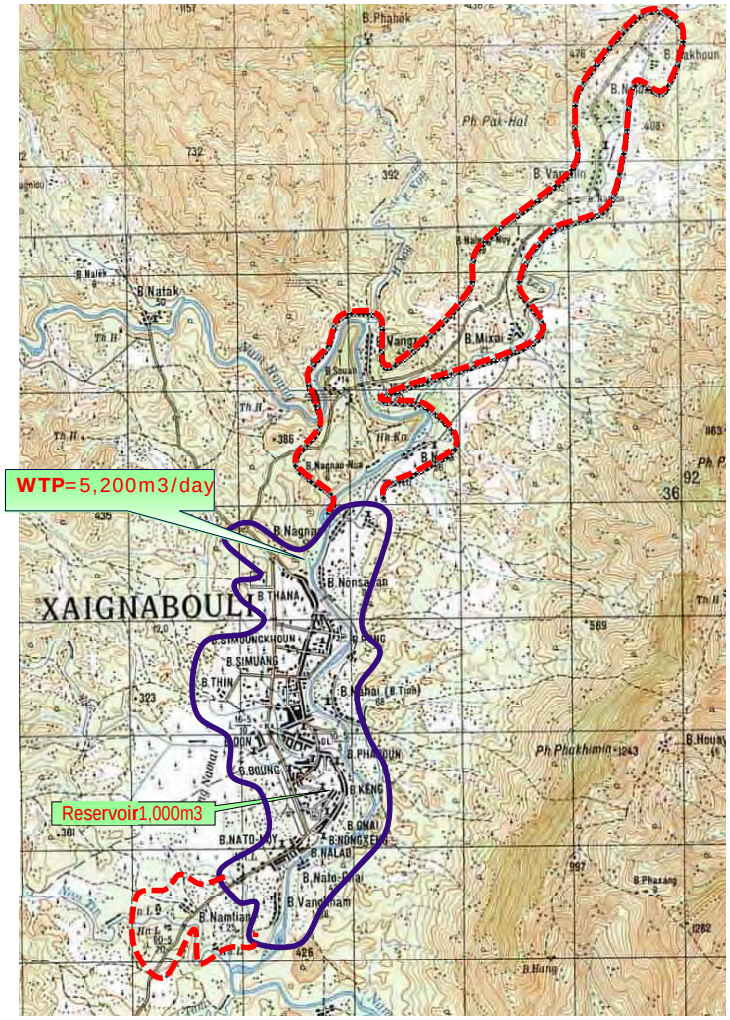


Figure 13 - Map of Sayabouly District and areas of proposed intervention (highlighted in red)

The proposal involves the installation of 20,000 m of pipe. Crossing the bridge would require 160 mm GSP pipe and the main/secondary/tertiary distribution lines would use 160/110/75 mm uPVC pipes respectively. Household connections would require 50 mm HDPE pipes. The BoQ and preliminary assessments for the expansion of the system are reflected in Table 20.

Table 6 - Cost estimates and Bill of quantities: supply of pipes and fittings

Item No.	Description	Unit	Quantity	Unit cost (USD)	Total (USD)
1	**Collection/distribution pipes/fittings**				
1,1	GSP DN 150mm	m	130	35.09	4,562
1,2	uPVC DN 150mm	m	4,870	16.64	81,037
1,3	uPVC DN 100mm	m	5,000	13.15	65,750
1,4	uPVC DN 75mm	m	2,000	9.15	18,300
1,5	PE DN 50mm	m	10,000	2.02	20,200
				Sub-Total	189,849
2	**Water meter and associated pipes**				
2,1	Water meter and associated pipes	set	660	80.00	52,800
				Total	**242,649**

B.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to increase the sanitation coverage in low-income areas for 2,183 people in the peri-urban areas of Sayabouly District. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants. It is important to highlight that sanitation improvements have already been implemented through the fast-track phase of MEK-WATSAN, with very good results. Increased access to access to safe piped water and improved sanitation services have contributed to increased housing improvements.

Figure 14 – Fast-track phase of UN-HABITAT project
Pour-flushed toilet constructed through revolving funds and house improvements

C. Kongsedone District, Saravane Province

Map

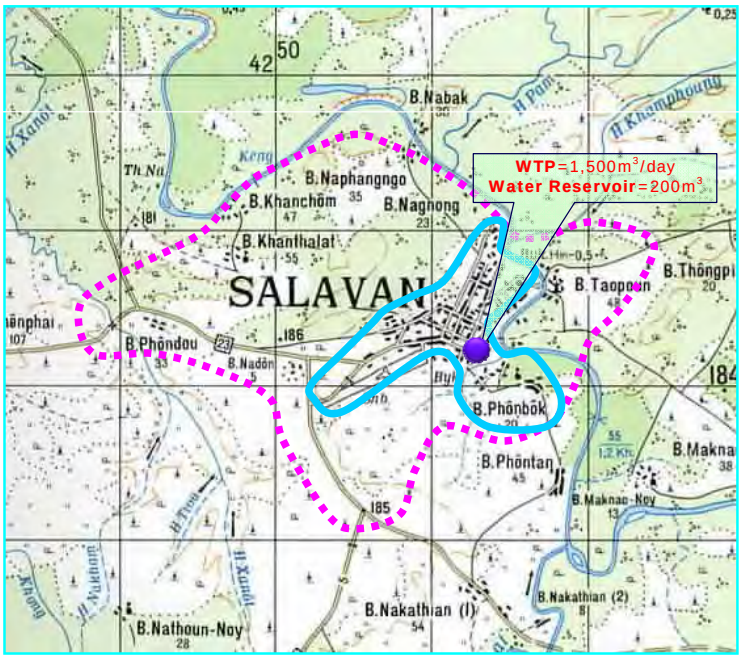


Figure 15 - Map of Saravane Province and target areas

C.1. General Description

Kongsedone District is located along the economic corridor of southern Road 13, along the riverbank of Sedone River, at about 60 Km from the province capital. It is the second administrative, economic and cultural center of Saravane Province. The area was previously volcanic and is characterized by striking mountainous landscapes. Travellers visit areas of this still relatively isolated district, where the ethnic people maintain their traditional life styles. Agricultural production is the main economic activity towards rapid socioeconomic growth in the region. The Bolaven Plateau is an important agricultural base with a wide range of climate zones and fertile volcanic soil which has made the area a major producer of coffee and various other fruits and horticultural crops for exports. Kongsedone was completely burned and destroyed during the Indochina War in 1971 and has since rebuilt and developed under an urban development plan.

The three targeted villages have a total population of 3,327 (2008), expected to grow to 3,583 by 2011. There are 573 households, out of which 41% are considered as poor.

C.2. Water Supply

Service Coverage

Currently the water supply system serves only 11 out of 14 villages with a total coverage of 78%.

Institutional Background

The Nam Papa State-owned Enterprise of Saravane Province (NPSE-Saravane) manages and operates the water supply systems at the provincial level.

The Water Supply System

- General description of the system

Between 2003 and 2005, NPSE-Saravane entered into an Agreement with the Asian Development Bank (ADB) for a loan to build a water supply system in Kongsedone District. Current consumption is less than 1,000 m^3/day.

- Existing water treatment (water quality)

The water treatment plant (WTP) has a capacity of 1,500 m^3/day. The water reservoir has a capacity of 200 m^3.

- Tariff and metering

Contrary to the case of other provinces with stepped tariff systems, Saravane Province has a flat tariff, set to 3,500 Kips/m^3 (approximately USD0.41/m^3). This implies that some families are paying a monthly tariff of approximately 80,000/90,000 Kip per month (around USD9.4/month) - a significant percentage of their income.

C.3. Sanitation, Waste Management and Drainage

Most poor households have none or inadequate sanitation facilities. In the three target villages, 49% of the households do not have access to adequate sanitation facilities.

Regarding wastewater and sanitation in Kongsedone, the situation is not different from other small towns in the country. There is neither wastewater system nor a drainage system. In the rainy season, some areas, particularly around the markets, bus stations and schools, are affected by wastewater.

C.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water on a sustainable and affordable basis for 2,866 people in three selected urban villages in Kongsedone District, Saravane Province through the expansion of the water supply system.

C.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities towards increasing the sanitation coverage in low-income areas for 1,756 people in three selected urban villages in Kongsedone District, Saravane Province. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

D. Atsaphangthong District, Savannakhet Province

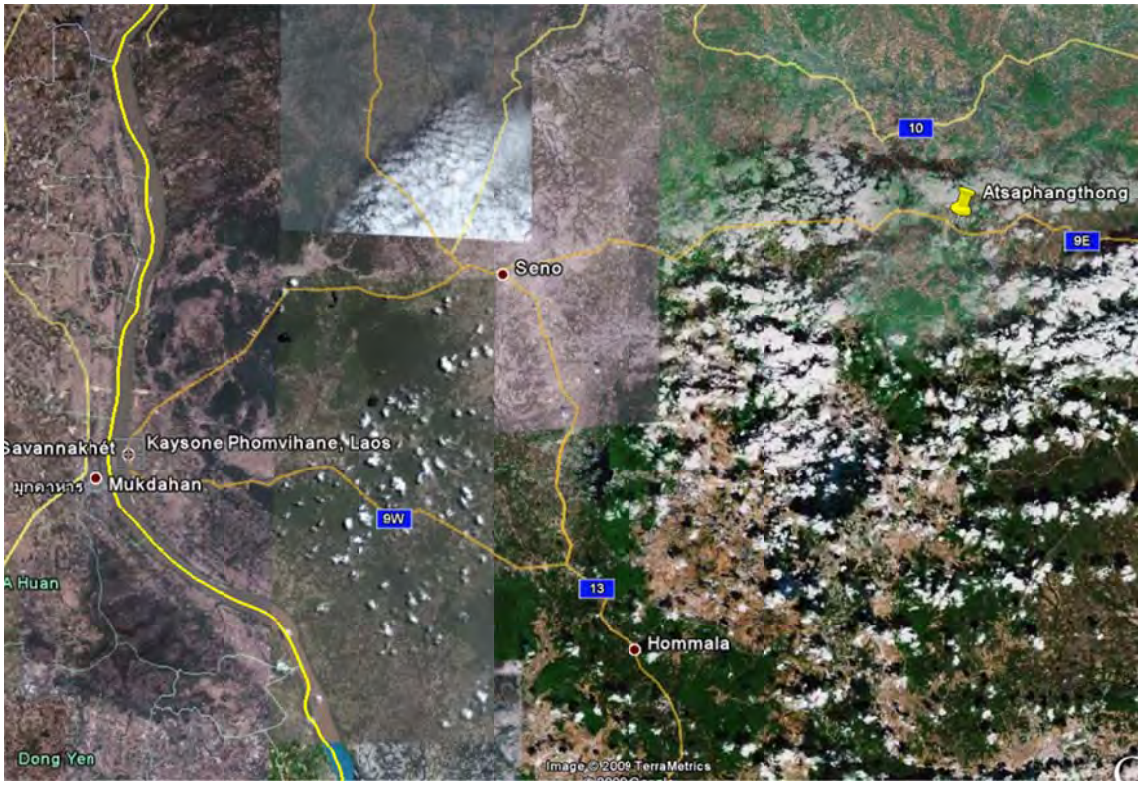


Figure 16 - Atsaphangthong District, Savannakhet Province
Source: Google Maps

D.1. General Description

The province of Savannahkhet is an important economic corridor between Cambodia and Vietnam. Jointly with the province of Vientiane, is one of the biggest and most populated provinces of Lao PDR.

The province is composed of 15 districts and 1,012 villages. Total area of the province is 21,774 Km^2. Total population is of 858,582 people in 134,646 households. Population density is very low, of 39 people/Km^2 [2]. The annual growth rate is set to the national mean growth in 2.8%.

Atsaphangthong District, with a total population of 40,237 (2008), is located along Highway No. 9, about 70 Kilometres from the Mekong River and 220 Kilometres from the Lao-Vietnam border. Agriculture is the main economic activity with rice cultivation as the predominant activity during the rainy season. Cash crops are also grown in some areas near the streams in the dry season. The selected target villages for this project have a total population of 5,863, which is expected to grow to 6,314 by 2011. The percentage of population under the poverty line is 57%.

Table 7 - Population in target areas in Atsaphangthong District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Donepalai	696	357	339	104	61
2	Tabaunphet	1,572	848	724	251	137
3	Dongphene	2,048	1,130	918	291	165
4	Dongkilo	955	496	459	161	96
5	Nanamtiang	591	154	437	136	81
	TOTAL	**5,862**	**2,985**	**2,877**	**943**	**540**

D.2. Water Supply

Service Coverage

The district of Atsaphanthong has no water supply system. The district is located in an area of relatively low rainfall and the nearby streams are usually dry from January or February until May reducing the availability of water for domestic consumption. Water shortages in the dry season are a serious threat to the health of the population, particularly for poor households who cannot afford to dig deep wells and rely on water confined in the depression areas of the riverbeds.

Wealthier households buy bottled water at USD15/m^3, which is about 100 times higher than the average tariff of the formalized system. The majority of the population in the district relies on untreated water from open hand dug wells and boreholes that are more than 12 meters deep and need hand or electric pumps. Owners of private wells sell the water by drums of 200 liter at a cost of USD0.2 to USD0.3 per drum which is only affordable to those with substantial incomes, engaged in the trade and service sectors. Surface water is also used during the rainy season although the turbidity is high.

[2] Source: Ministry of Planning and Investment, Statistical Year Book, 2007.

Figure 17 - Private water vendor: groundwater source and bottling system

Figure 18 - Unprotected well used by families

Institutional Background

The Nam Papa State-Owned Enterprise of the Savannakhet Province (NPSE-Savannakhet) manages and operates the water supply systems in the province. Their main office is in the province capital Savannakhet serving a total of 11,462 households. NPSE-Savannakhet has 124 staff, from which 24 are women. There are seven divisions and three branches. The NPSE manages the water service in three of the districts out of the 15 in the province. For the target district, Atsaphangthong, UN-HABITAT has agreed to facilitate the establishment of a new branch.

For capacity building, NPSE-Savannakhet relies on the trainings provided by the central Government related to water treatment plants, installation of meter connections and operation and maintenance. JICA is supporting NPSE-Savannakhet with an analysis of demand in the main city of the province.

NPSE-Savannakhet has the support of JICA and ADB for activities such as studies for selection of technologies for waste water treatment as part of the development strategy for Savannhakhet District. Although this is mainly been done for the main city of the province, it is important to highlight that the NPSE-Savannakhet provincial staff is acquiring knowledge in these type of technologies.

Figure 19 - Meeting with local authorities and NPSE-Savannakhet personnel

The Water Supply System

- General description of the system

The target district of Atsaphanthong has no water supply system. The tariff system at provincial level for domestic use has steps depending on consumption. The rates are:

- From 0 to 10 m^3 1,400 Kip per m^3 (USD0.16 approx.)
- From 11 to 20 m^3 1,700 Kip per m^3 (USD0.2 approx.)
- From 21 to 30 m^3 2,200 Kip per m^3 (USD0.26 approx.)
- From 31 m^3 3,000 Kip per m^3 (USD0.35 approx.)

There are specific rates for commercial, Governments and rates.

D.3. Sanitation, Waste Management and Drainage

Regarding wastewater and sanitation, the situation is not different from other small towns in the country. There is neither wastewater system nor a drainage system. In the rainy season, some areas, particularly around the markets, bus stations and schools, are affected by wastewater. Drainage ditches have been provided only along Highway No. 9.

Existing sanitation facilities are usually dry latrines, with a single pit, with no privacy, and have not been adapted for floods. This situation has discouraged families from using the current facilities. NPSE-Savannakhet has estimated that 60% of the households in the target areas do not have adequate sanitation facilities, particularly the poor. Out of 943 households, 565 do not have access to adequate sanitation facilities. With 540 poor households, it can be assumed most of them have no access to adequate sanitation facilities. The distribution of households with no toilet and poor households in the target area is the following:

Table 8 - Sanitation coverage in target villages in Atsaphangthong District

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Donepalai	696	104	61	71
2	Tabaunphet	1,572	251	137	137
3	Donghene	2,048	291	165	165
4	Dongkilo	955	161	96	102

5	Nanamtiang	591	136	81	90
	TOTAL	**5,862**	**943**	**540**	**565**
	Percentage (%)	100	100	57.26	60

Solid waste is disposed in barren land without any control. Used plastic bags can be seen in areas around market places.

D.4. Proposed Interventions to improve Water Services

The proposed project aims to provide sustainable water supply services for 5,050 people by 2011 including the poor through the establishment of a new water supply system. The system will deliver water to selected villages, namely Donepalai, Tabaunphet, Donghene, Dongkilo, Nanamtiang. The target population was calculated as 80% of the projected population at the end of the project.

This includes the establishment of a new branch for NPSE-Savannakhet in Atsaphangthong to operate and maintain the new system. This will bring enhanced capacity of the utility in technical and management aspects through experience in implementation further leading to a more efficient and adequate delivery of water and sanitation services. With access to improved water supply systems, the selected beneficiary villages will further benefit from improved sanitation technology such as pour-flush facilities adapted for floods.

Water Demand in Atsaphangthong

The estimated demand for water (until 2020) consumption is based on:

- Population growth rate of 2.5% per annum which is the forecast average population growth rate;
- The per capita daily domestic consumption of 80 liters; and
- The daily peak factor of 1.2 and hourly peak factor of 1.5.

The estimated water demand is provided in the following table:

Table 9 - Water demand in Atsaphangthong

	Year	**2008**	**2011**	**2015**	**2020**
No.	**Population**	**5,862**	**6,313**	**6,968**	**7,884**
1	80% of population		5,050	5,574	6,307
2	Annual population growth (%)			2.5%	2.5%
3	Domestic (lpcd)			80	80
4	Non domestic=10% of domestic (lpcd)			8	8
5	UFW (20%, lpcd)			16	16
6	Total average day (lpcd)			104	104
7	Peak day factor			1.2	1.2
8	Peak hour factor			1.5	1.5
9	Water requirement, peak day, 100% of population (1/s)			10.06	11.39
10	Water requirement, peak day, 100% of population (m^3/day)			870	984
11	Water requirement, peak day, 80% of population (1/s)			8.05	9.11
12	Water requirement, peak day, 80% of population (m^3/day)			696	787
13	Peak flow in distribution, 80% of population (l/s)			12.08	13.67
14	Peak flow in distribution, 100% of population (l/s)			15.10	17.08

- *Investigation of Ground Water Source and Design of New Water Supply System*

Near Atsaphangthong there is only one stream called Se Champhone which is dry from January to May each year. Thus groundwater is the only source of water available for the new water supply system. The water source options are water spring holes and ground water from boreholes with a water level ranging form 20 to 40 meters. Six boreholes are proposed to serve the population. The

yield of a borehole is estimated at 2.5 liters per second. It is recommended that an environmental study in the sources is implemented, so that yield measures and pumping tests are performed.

Figure 20 - Possible source for the system

NPSE-Savannakhet will conduct a detailed investigation of ground water sources, assessment and drilling of the boreholes for the new water supply system. Engineering survey and production of designs will be done in consultation with the community and relevant stakeholders.

Figure 21 - Map of Atsaphangthong District
Source: NPSE-Savannakhet

- *Implementation of Physical Works and Establishment of New Water Supply System*

Engineering surveys and design will be followed by procurement of materials and physical works needed to set up the new water supply system. The proposed water supply system for Atsaphanthong is composed of:

a. A field of six deep wells of about 40 meters (four wells in operation and two in stand-by). Each well will be equipped with a submersible electric pump (pumping head of 60m and discharge of 9 m^3/hour);

b. An elevated reservoir of 200 m^3 capacity equipped with a water chlorination unit. In case of incidental interruption of the pumping from wells, the volume of the water in the elevated tank could continue to supply for about six hours;
c. A 200 mm collector pipe with a total length of 6,000 meters connecting the wells field to the elevated reservoir; and
d. A gravity fed distribution pipe network (dia.200/150/100/75/50mm) with a total length of 16,500 meters.

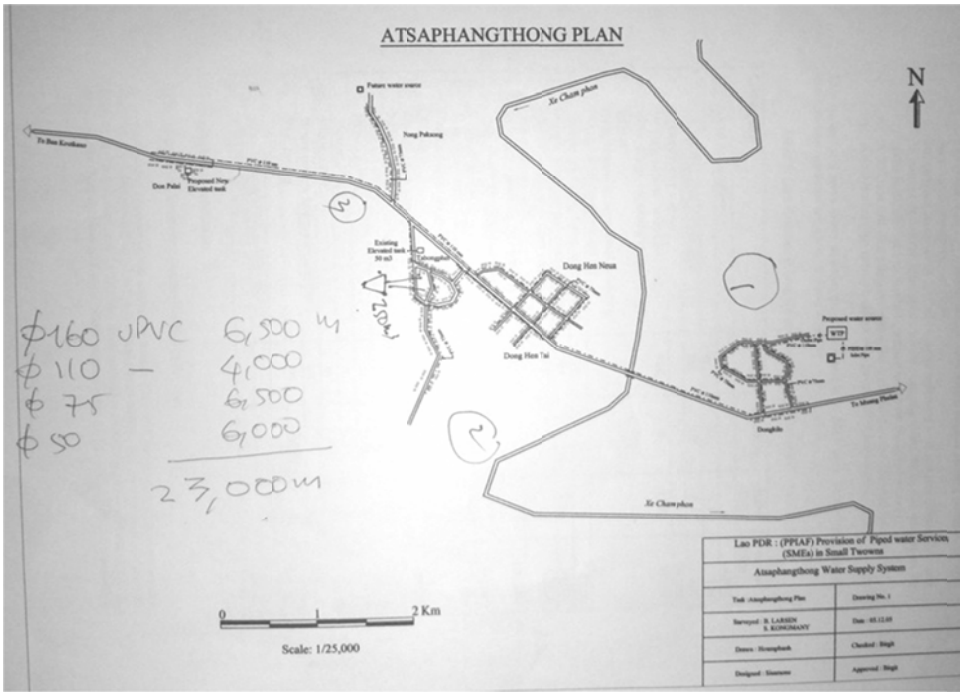


Figure 22 - Proposal of network for the district
Source: NPSE-Savannakhet

Table 14 presents the costs estimates and BoQ for the construction of the new system. The system will be constructed with the participation of the community with the guidance of NPSE-Savannakhet.

Table 10 - Cost estimates and BoQ for the construction of the new water supply system in Atsaphangthong District

No.	Description	Unit	Quantity	Unit cost (USD)	Total (USD)
1	**Land Acquisition**				**400**
1.1	Wells	m^2	500	0.40	200
1.2	Elevated reservoir (200 m^3)	m^2	500	0.40	200
2	**Ground water source**				**75,000**
2.1	Drilling of bore holes (dia.15cm, 40 deed), including casing, sreen, gravel pack, betonite, super mud, pumping test and well development etc.	wells	6	5,000.00	30,000
2.2	Civil works (Slab, fence, access road)	PS	1	3,000.00	3,000
2.3	Deep well pumps and control system	set	6	5,000.00	30,000
2.4	Electric connection from existing 22 KV to wells	PS	1	12,000.00	12,000
3	**Elevated reservoir (200 m^3)**				**100,000**
3.1	Elevated reservoir (200 m^3) including water chlorination facility	PS	1	100,000.00	100,000
4	**Collection pipe**				**90,000**
4.1	Pipe from wells field to the elevated reservoir using	lm	6,000	15.00	90,000

	uPVC pipe (dia. 200mm)				
5	**Distribution pipe network**				**72,000**
5.1	Distribution pipe network: dia.110mm (uPVC)	lm	4,000	13.00	52,000
5.1	Distribution pipe network: dia.75mm (uPVC)	lm	6,500	9.00	58,500
5.1	Distribution pipe network: dia.50mm (uPVC)	lm	6,000	2.00	12,000
5.2	Water mater and associated pipes	set	750	80.00	60,000
6	**Pipe laying**				**69,750**
6.1	Pipe laying	PS	23,250	3.00	69,750
	Total				**407,150**
	Miscellaneous (@ 10% of the above)				40,715
	Grand total				**447,865**

NPSE-Savannakhet will guarantee that the quality of the water provided accomplishes national standards and will develop and prepare a Water quality control and monitoring plan.

D.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements to benefit 3,788 people by 2011 including the poor. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

With access to an adequate water supply system in Atsaphangthong District, the selected beneficiary villages will further benefit from improved sanitation technology such as pour-flush facilities adapted for floods.

E. Lamam District and Thateng District, Sekong Province

Map

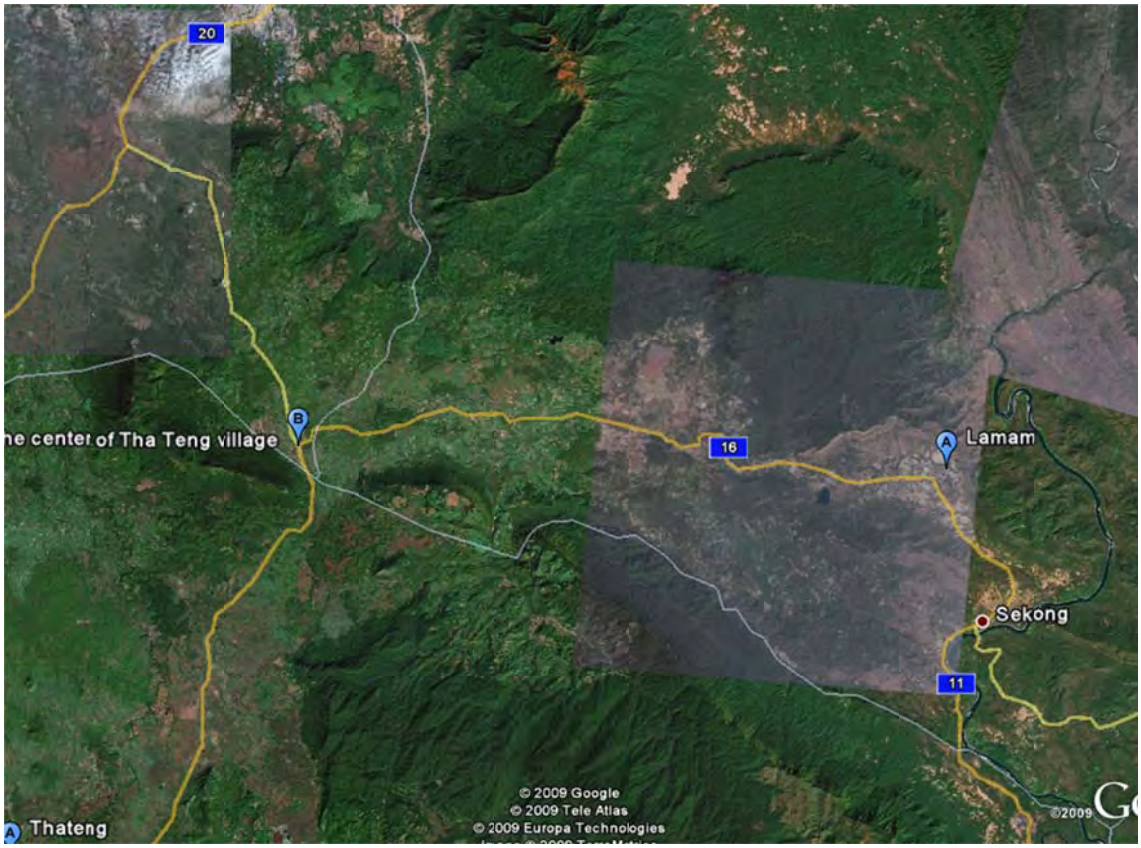


Figure 23 - Lamam and Thateng, Sekong Province
Source: Google Maps

E.1. General Description

Sekong Province is situated in the South of the country, bordering with Vietnam. The province is composed of four districts: Lamam, Kaleum, Dakcheung and Thateng. The number of villages in the province was reported 252 in 2007. Total area of the province is 7,665 Km^2 and the population is 90,044 people in 13,772 households. The population density is very low with 12 people per square meter[3]. The annual growth rate is set to the national mean growth of 2.8%.

Lamam is the capital of Sekong Province, located about 115 Km from the Lao-Vietnam border (Lamam - Dakchung - Vietnam border). Thateng District is situated 30 Km away from Lamam.

Lamam and Thateng Districts

The Government of Lao PDR has requested UN-HABITAT to support the rehabilitation of the water supply system and the provision of adequate sanitation facilities in selected urban villages of Lamam and Thateng Districts in Sekong Province.

Lamam District is the capital of Sekong Province, located about 115 Kilometers from the Lao- Viet Nam border (Lamam - Dakchung - Vietnam border). Lamam District has a total population of 29,054 people[4], composed mainly of Lao Loum (30%) and other ethnic groups. The percentage of population under the poverty line is 16.5%. The main economic activities are agriculture and cash crop production such as coffee, cardamom, cassava as well as rice cultivation, mainly during the rainy season. Other livelihood activities are small business and Government employment. In Lamam District, the project covers eight urban villages with a total 2008-population of 10,625 (1,808 households), expected to grow to 11,543 by 2011. The following table presents the targets villages and corresponding demographics:

Table 11 - Population in target villages in Lamam District

No.	Name of villages	Population in 2008			Population in 2011
					Households
		Total	Male	Female	Total
1	Vat Luang	1,794	927	867	1,949
2	Tha Luang	681	328	353	740
3	Maihuamuang	1,932	964	968	2,099
4	Nonmixay	1,713	825	888	1,861
5	Phiamay	1,952	980	974	2,121
6	Phonkham	1,169	595	574	1,270
7	No	497	258	239	540
8	Pakthone	887	460	427	964
	TOTAL	**10,625**	**5,337**	**5,290**	**11,543**

Thateng District is situated 30 Km away from Lamam District. In Thateng, the project covers 10 urban villages with a total 2008-population of 7,588, which is expected to grow to 8,243 by 2011. The percentage of the population under the poverty line is 16.5%. The following table presents the targets villages and corresponding demographics:

Table 12 - Population in target villages in Thateng District

No.	Name of villages	Population in 2008			Population in 2011
					Households
		Total	Male	Female	Total
1	Thateng Neua	1,446	746	700	1,571
2	Thateng Tai	1,463	724	739	1,589

[3] Source: Ministry of Planning and Investment, Statistical YearBook 2007
[4] 2008 Data, Source: Local Authorities and NPSE

3	Pong	509	258	251	553
4	Donesa	964	485	479	1,047
5	Plai	422	207	215	458
6	Choula+Pay	830	516	314	902
7	Kacham Yai	509	254	255	553
8	Thone	850	474	376	923
9	Chounghung Tai	388	197	191	422
10	Chounghung Neua	207	124	83	225
	TOTAL	**7,588**	**3,985**	**3,603**	**8,243**


Figure 24 - Thateng District

E.2. Water Supply

Service Coverage

The coverage in Lamam District is 31%. Families which do not have access to the system use river water. When they cannot afford the connection fee they share one connection among different households.

Figure 25 - Shared connection to the water network in a poor area

In Thatheng District, due to the cholera outbreaks, different organizations have implemented previous water programs. Therefore, the access to safe water is assured with two main different systems. One collects river water and delivers the resource through a gravity-fed network, after treatment. The other main system has groundwater as the source, in 250m deep wells.

Institutional Background

The operation and management of the water supply systems in the province is performed by the Nam Papa State Entreprise of Sekong Province (NPSE-Sekong). Regarding the capacity of the utility, a training need assessment was done in 2003. NPSE-Sekong staff was trained by JICA and the central Government mainly on water treatment plants and manual pipe installation. NPSE-Sekong reported needs in training for advanced pipe laying and operation and maintenance. Training on water demand management have been conducted with the support of JICA.

Figure 26 - Meeting between NPSE-Sekong and UN-HABITAT

Figure 27 - Water conservation campaign in the town

The Water Supply System

- General description of the system

Lamam District's water supply system is gravity-fed and was laid out with gasoline pipes (non-galvanized steel pipes) by the Government in 1991. The system was upgraded in 1994, with the support of a loan from the Asian Development Bank (ADB). The old portion of the system was partially rehabilitated by the Government on 2007.

Water production is 55,000 m^3 monthly, which implies 1,833 m^3 per day, nearly the capacity of the water treatment plant. Water consumption (sold) is 35,463 m^3 monthly, which implies 1,183 m^3 per day.

Monthly, a family consumes 20 m^3. This implies a monthly tariff of 10,000/15,000 Kips. As reported by the community, a poor family with five children and with an average income of 200,000 Kip per month, would be paying 10,000 Kip for the water, which is 5% of the salary.

- Existing water sources

The water source is surface water.

- Existing water treatment (water quality)

The ADB upgrade included the construction of an intake in the river, the water treatment plant (2,000 m^3/day capacity) as well as a new office for NPSE-Sekong.

The utility has a water quality monitoring system. Daily, they test the water in pH in the source and after the water treatment plant. The results meet international standards. Also, NPSE-Sekong has the support of JICA for monitoring the water quality towards accomplishing the national standards as well as WHO standards.

- Transmission and distribution

The old 1991-pipe network totalled 15,000 meters. The ADB upgrade also included the transmission lines (7,000 meters of uPVC 250 mm diameter pipes) and reservoirs/elevated tanks with a capacity of

200 m^3. The old distribution line (12,500 m) has had many problems with corrosion and high leakages. In 2007, the Government rehabilitated 2,500 meters of the old distribution line for the villages next to the reservoir and installed uPVC pipes. Water losses reduced significantly, from 33 to 26%. However, there are still large sections of the network in very bad condition, with high leakages and in need of repairs.

Figure 28 - Old gasoline pipes

Figure 29 - New uPVC pipes for to upgrade the water supply system

- Tariff and metering

There is a stepped tariff system for domestic use. The rates are:

- From 0 to 10 m^3 2,250 Kip per m^3 (USD0.26 approx.)
- From 10 to 20 m^3 2,800 Kip per m^3 (USD0.33 approx.)
- From 21 to 30 m^3 3,600 Kip per m^3 (USD0.42 approx.)
- More than 31 m^3 4,500 Kip per m^3 (USD0.53 approx.)

The household connection fee is of 1,250,000 Kip (USD147 approx.) for the best option with a box of cement protecting the meter. Without this box, the fee decreases slightly. The connection fee is very high compared to the costs in other provinces.

- Collections rates and operational costs (financial sustainability of the utility)

The bill collection efficiency is of 98%. The Lamam branch of NPSE-Sekong is economically sustainable with a monthly income of 125 million Kip and expenditures of 97 million Kips. Revenues are used mainly for operation and maintenance, repair of pipes and meters.

E.3. Sanitation, Waste Management and Drainage

Regarding wastewater and sanitation in Lamam and Thateng districts, the situation is not different from other small towns in the country. There is neither wastewater system nor a drainage system. Only the main roads have open pipes for rain water collection. In the rainy season, some areas, particularly around the markets, bus stations and schools, are affected by wastewater. Most poor households have none or inadequate sanitation facilities.

NPSE-Sekong has estimated that 37% of the households in Thateng District and 69% of the households in Lamam District do not have adequate sanitation facilities. Existing sanitation facilities in the target areas are usually dry latrines, with a single pit and with no privacy. This situation has discouraged families from using the current facilities. These facilities have further deteriorated due to flooding and are therefore not environmentally sustainable. The Thateng District has had cholera outbreaks in the past years, which prompted different organizations to implement water supply programs. Therefore, the access to safe water is secured through two main systems, a gravity-fed network that collects and treats water from the river and a second system of groundwater wells. With access to improved water supply systems in both Lamam and Thateng districts, the selected beneficiary villages will further benefit from improved sanitation technology such as pour-flush facilities adapted for floods. The following table below shows the distribution of households, poor households and sanitation coverage among villages in Lamam and Thateng districts.

Table 13 - Sanitation coverage in target areas

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Vat Luang	1,794	202	27	129
2	Tha Luang	681	115	12	32
3	Maihuamuang	1,932	385	17	219
4	Nonmixay	1,713	292	88	203
5	Phiamay	1,952	369	27	255
6	Phonkham	1,169	202	100	180
7	No	497	88	17	80
8	Pakthone	887	155	10	151
	TOTAL	**10,625**	**1,808**	**298**	**1,249**
	Percentage (%)			**16.48%**	**69%**

Table 14 - Sanitation coverage in target areas

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Thateng Neua	1,446	271	21	18
2	Thateng Tai	1,463	248	4	36
3	Pong	509	68	-	8
4	Donesa	964	130	101	121
5	Plai	422	60	12	14
6	Choula+Pay	830	123	10	83
7	Kacham Yai	509	90	4	88
8	Thone	850	139	10	48
9	Chounghung Tai	388	78	32	23
10	Chounghung Neua	207	40	13	24
	TOTAL	**7,588**	**1,247**	**207**	**463**
	Percentage (%)			**16.6%**	**37%**

Figure 30 - Non-improved latrines used in the community

Regarding solid waste management, there is only one truck in the town, and the service is managed by a private company.

E.4. Proposed Interventions to improve Water Services

The proposed project aims to increase access to improved water supply on a sustainable and affordable basis for 9,154 residents in Lamam District through the rehabilitation of the old systems. The old steel water pipes (100mm) in the distribution network will be replaced by new 110mm uPVC pipe lines. The rehabilitation of old sections of the network will ensure reliable water supply service for users and reduce water leakage caused by rusting and decay of steel pipes. The project builds on the efforts of the Government and will contribute to strengthening the capacities of NPSE-Sekong and district authorities in improving water services through participatory and innovative approaches.

Figure 31 - Areas proposed for rehabilitation
Source: NPSE-Sekong

The total number of beneficiaries was calculated estimating the projected population at the end of the project in 2011 and maintaining the current coverage. The main activities will include trench excavation, backfilling, pipe laying, installation of 110mm uPVC pipes along the existing alignment of pipes, installation of uPVC reducer, bend, tee, gate valves and re-installation of water connections for households. The cost estimates for the projects are presented in the table below:

Table 15 - Cost estimates and BoQ for replacement of existing water supply pipes

No.	Description	Unit	Quantity	Unit cost (USD)	Total (USD)
I	**Labor**				
1	Topographical survey to identify the alignment of the pipes and the resettlement	ml	13,200	0.12	1,571.43
2	Soil excavation of existing pipes including backfilling	ml	13,200	1.43	18,857.14
3	Soil excavation of the existing pipes in some place	ml	6,000	0.95	5,714.29
4	Installation of all pipes in trenches, excavation of trench, lay pipes including bends, thrust blocks and all fittings and accessories in granular foundation and bedding and backfill	ml	13,200	0.24	3,142.86

	compacted by appropriate compacting equipment in accordance with drawings & technical specifications including disposal to a location indicated by the Engineer				
5	Sand fill compaction under the foundation up to the level as indicated on the drawings.	ml	13,200	0.36	4,714.29
6	Installation of Gate valve DN 100 and 50	pcs	35	5.95	208.33
7	Surface box as per standard drawing	pcs	35	41.67	1,458.33
8	**Installation of house connections**	pcs	825	1.79	1,473.21
9	Installation of Fire hydrant DN	pcs	5	59.52	297.62
	Total				**37,437.50**
II	**Materials**				
1	uPVC DN 110	ml	13,200	10.12	133,571.43
2	Water stop	pcs	2,200	1.90	4,190.48
3	sand	m^3	400	5.95	2,380.95
4	Union DN 110 /100 mm	pcs	150	59.52	8,928.57
5	Union DN 200 mm	pcs	20	178.57	3,571.43
6	Union DN 150 mm	pcs	20	119.05	2,380.95
7	Clam for pipe DN 110/20 mm	pcs	300	15.48	4,642.86
8	Clam for pipe DN 110/18 mm	pcs	525	15.48	8,125.00
9	uPVC DN 20	ml	400	1.79	714.29
10	uPVC DN 18	ml	600	1.55	928.57
11	PVC bend DN 20	pcs	300	0.60	178.57
12	PVC bend DN 18	pcs	525	0.48	250.00
13	PVC Nipple DN 20	pcs	300	0.60	178.57
14	PVC Nipple DN 18	pcs	525	0.48	250.00
15	uPVC bend DN 110	pcs	35	3.57	125.00
16	uPVC Tee DN 110	pcs	20	5.36	107.14
17	uPVC Tee DN 150	pcs	10	47.62	476.19
18	uPVC Tee DN 200	pcs	10	59.52	595.24
19	uPVC Bend 22 deg. DN 110	pcs	20	3.57	71.43
20	Pipe Reducer DN 200/110	pcs	10	59.52	595.24
21	Pipe Reducer DN 150/110	pcs	10	47.62	476.19
22	Pipe Reducer DN 110/63	pcs	10	11.90	119.05
23	Gate valve DN 100 (Steel)	pcs	20	208.33	4,166.67
24	Gate valve DN 50 (Steel)	pcs	15	101.19	1,517.86
25	Flanged piece DN 110, (L=1m)	pcs	40	35.71	1,428.57
26	Flanged piece DN 80, (L=1m)	pcs	30	23.81	714.29
27	Bolt DN 40 mm, length= 7 cm	pcs	500	1.19	595.24
28	Glue	pcs	30	7.14	214.29
	Total				**181,494.05**
	Grand Total (I+II)				**218,931.55**

E.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements to benefit 7,208 people in Lamam District and 3,050 people in Thateng District. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

F. Samakhixay District, Attapeu Province

Map

n

F.1. General Description

The province of Attapeu is one of the most remote in Lao PDR. Situated in the South of the country, it borders with Vietnam and Cambodia. The province is composed of five districts and 174 villages. Total area of the province is 10,320 Km^2. Total population is of 118,103 people in 20,447 households. Population density is very low with 11 people per square meter[5]. The annual growth rate is set to the national mean growth of 2.8%. The province has five districts: Samakhixay, Sanamxay, Sanxay, Xaisetha and Phouvong.

Samakhixay, the capital of Attapeu Province, is located 140 Km from the Lao-Vietnam border. In 2008 Samakhixay District had a total population of 31,375 people[6]. While the majority of the population is Lao Loum, 30% belongs to the Oey and Lavae ethnic groups. Trading is the main economic activity followed by Government employment and rice cultivation, particularly during the rainy seasons. Cash crops are grown in some areas near the Sekong and Sekamane rivers.

Trading is the main economic activity. The second main occupation is Government and public work. The third main occupation is agriculture with rice cultivation predominant during the rainy season and cash crop in some areas near the Sekong and Sekamane rivers. The town is located in area of medium rainfall of 1.327 mm.

The Government of Lao PDR has requested UN-HABITAT to support the rehabilitation of the water supply system and the provision of adequate sanitation facilities in selected urban villages of Samakhixay District, Attapeu Province. The project area covers 15 urban villages with a total population of 12,313 (2008), expected to grow to 13,260 by 2011. The percentage of population under the poverty line is 31%. The following table presents the targets villages and corresponding demographics:

Table 16 - Population in target areas in Samakhixay District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Muangmai	899	409	490	175	19
2	Saysamphan	585	355	230	109	11
3	Xe Yai	842	365	477	145	37
4	Samakhi	1,059	532	527	216	132
5	VatLuang	648	359	289	105	25
6	Sekong	543	245	298	101	45
7	Tansoum	489	226	263	79	7
8	Saysomboun	906	394	512	152	64
9	Saysaat	1,166	579	587	250	101
10	Pouangxay	651	313	338	96	52
11	Phonsavang	777	284	493	132	12
12	Laksam	1,485	725	760	328	51
13	Veunekhene	808	406	402	190	62
14	Naxaythong	508	254	254	166	69
15	Thahine	947	473	474	173	72
	TOTAL	**12,313**	**5,919**	**6,394**	**2,417**	**759**

[5] Source: Ministry of Planning and Investment, Statistical Year Book, 2007.
[6] Source: Local Authorities and NPSE.

F.2. Water Supply

Service Coverage

As reported by the provincial water supply, 93% of the population in the target areas is connected to the water supply network. During consultations with the communities, villagers shared that given the high cost of the connection to the system, families usually shares a connection for several houses. Furthermore, they do not necessarily consume the water for the system for drinking. Families use the water from the system for other purposes, like hygiene and washing. For drinking, they use bottled water which costs 400 KipsKip per 18 liters (22,200 Kip per m^3, USD2.3 approximately). This is mainly due to cultural reasons and probably due to the odor and taste to chlorine.

Figure 33 - Community consultations

Very poor families do boil the water from the system for consumption as they cannot afford the bottled water. Poor households also access water through rainwater harvesting. To defray the costs of the connection fee, some families leave the basic water meter unprotected.

Figure 34 - Household meter with no protection

Institutional Background

The operation and management of the water supply systems in the province is performed by the Nam Papa State-Owned Enterprise of Attapeu Province (NPSE-ATTAPEU).

The Water Supply System

- General description of the system

The district's water supply system was laid out with gasoline pipes (non-galvanized steel pipes) by the Government in 1991. The old pipe network totalled 23,000 meters with a gravity-fed water source located more than 12 Km that could only be used during the raining season. The system was upgraded in 2006, with the support of a loan from the Asian Development Bank (ADB). NPSE-Attapeu reported a monthly water production 101,221 m^3 and consumption of 93,121 m^3.

- Existing water sources

The source is surface water from the river.

- Existing water treatment (water quality)

The ADB upgrade included the intake from a stream water source from the Sekong River, the water treatment plant (WTP) with a capacity of 2,000 m^3/day including sedimentation tanks, a filtering and a chlorination unit, a pumping station with five rotating pumps, and two 320 m^3 and 200 m^3 reservoirs which are 37 meters high. The newest of the tanks, built as part of this upgrade, has currently leakage problems.

Figure 35 - Water treatment plant and leakages in reservoire (constructed in 2006)

NPSE-Attapeu has a water quality monitoring system and the water quality meets national standards but for turbidity.

- Transmission and distribution

The current water network totals 44,466 meters. In addition to 23,000 meter of network built in 1991, the ADB upgrade also includes the expansion of the distribution line (21,466 meters of uPVC pipes). The main line has 300 mm diameter uPVC pipe. However, there are still large sections of the network - built in 1991 - that are in very bad condition with corrosion, facing high leakages and in need of replacement.

The situation is aggravated by the fact that most of the distribution network was placed at ground level with some sections located under private residences.

Figure 36 - Old existing distribution network

- Tariff and metering

Regarding the tariff system, and contrary to the case of other provinces with stepped tariff systems, Attapeu Province has a flat tariff, set to 2,950 Kips/m^3 (approximately USD0.34/m^3). This implies that some families are paying a monthly tariff of approximately 80,000/90,000 Kip per month (around USD9.4/11), close to 20% of the reported average income of 400,000 Kips/month (around USD47). The cost of the connection fees is 890,000 Kip (USD105 approximately).

Figure 37 - Household connections

Figure 38 - Protected household meter

During the MEK-WATSAN National Stakeholders' Consultation held in Vientiane in June 2009, NPSE-Attapeu and the Ministry of Construction committed to working with the provincial authorities on redefining the tariff structure with the advice of UN-HABITAT.

- Collections rates and operational costs (financial sustainability of the utility)

Monthly income is 150 million Kip while expenditure is 105 million Kips, so the district branch of NPSE-Attapeu is economically sustainable. Bill collection rates are 80%. Nearly 25 million Kip (22% of the expenditures) is for the electricity billing.

- Problems and main challenges

NPSE-Attapeu reported 53% of water losses due to the bad condition of the old existing distribution network.

F.3. Sanitation, Waste Management and Drainage

The sanitation coverage estimated for Samakhixay District is 51%. People mainly rely on on-site sanitation facilities like pit latrines. In consultation with families in the target areas, it was reported that families spend an average of USD85 when building the latrines themselves. However, the existence of pit latrines does not necessarily mean that the sanitation facilities meet adequate standards. Some facilities are pour-flush latrines with only one pit lined with concrete rings and have not been adapted for floods. This has created many problems during the rainy season rendering the latrines useless. The single pit latrine is also difficult to clean. Also, there is no easy access to facilities for the proper disposal of sludge from facilities with septic tanks. There is a service in Samakhixay District and the cost is nearly USD300 per one latrine. Furthermore, there is minimum group of families that needs to be formed to call for the service. The discharge is taken to the landfill with no treatment. Most poor households have none or inadequate sanitation facilities.

Figure 39 - Latrines built by the community can face problems with flooding

There are three schools in the town (one primary, one secondary and one polytechnic). In the primary schools, the sanitation facilities are not operational. The Government has carried out hygiene awareness campaigns in the past through the Department of Health. The last one took place in 2006.

The distribution of coverage among villages and the link with poor households is showed in the following table:

Table 17 - Sanitation Coverage in target areas in Samakhixay District

No.	Name of villages	Population in 2008			
		Total	Households		
			Total	Poor	No toilet
1	Muangmai	899	175	19	61
2	Saysamphan	585	109	11	25
3	Xe Yai	842	145	37	32
4	Samakhi	1,059	216	132	186
5	VatLuang	648	105	25	25
6	Sekong	543	101	45	63
7	Tansoum	489	79	7	19
8	Saysomboun	906	152	64	62

9	Saysaat	1,166	250	101	109
10	Pouangxay	651	96	52	126
11	Phonsavang	777	132	12	22
12	Laksam	1,485	328	51	98
13	Veunekhene	808	190	62	101
14	Naxaythong	508	166	69	126
15	Thahine	947	173	72	124
	TOTAL	**12,313**	**2,417**	**759**	**1,179**
	Percentage (%)	100	100	31.40	49

The district does not have a waste water treatment or a sewage or drainage systems. The discharge is open.

Regarding the solid waste management, there is a land fill 5 Km far away from district. The collection is done by a private company only in public places like schools and markets. At the household level, each house has to manage the solid waste privately and take it to the landfill.

F.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water on a sustainable and affordable basis for 10,608 people in low-income areas in Samakhixay District. The proposal presented by the water utility involves the replacement of the existing old pipe distribution network by a new uPVC pipe line.

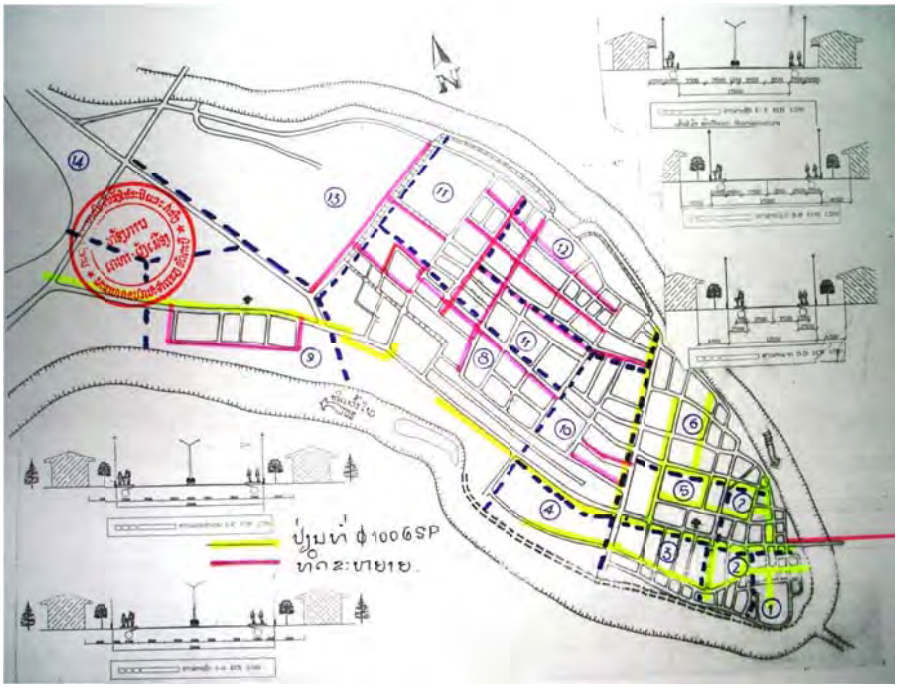


Figure 40 - Water supply system and rehabilitation areas (highlighted in yellow)
Source: NPSE-Attapeu

Figure 39 presents the current water supply system. The section highlighted in red represents the area of existing distribution network in good status. The area highlighted in yellow represents the areas identified for rehabilitation. NPSE-Attapeu presented the following NP and cost estimates (table 24).

Table 18 - Cost estimates and Bill of Quantities for the rehabilitation of the water supply system

No.	Description	Unit	Quantity	Unit cost (USD)	Total (USD)
I	**Excavation**				**49,500**
1	Trench excavation and removal of old pipes 100	m	20,000	1.7	34,000
2	Trench excavation and removal of old pipes 80	m	7,000	1.5	10,500
3	Trench excavation and removal of old pipes 50	m	5,000	1.0	5,000
II	**Backfilling**				**10,304**
1	Backfilling	m^3	10,304	1	10,304
III	**Pipe laying**				**120,020**
1	Pipe laying 100	m	20,000	3.96	79,200
2	Pipe laying 80	m	7,000	3.86	27,020
3	Pipe laying 50	m	5,000	2.76	13,800
IV	**Installation of water gate**				**278**
1	Installation of water gate100	set	16	11	176
2	Installation of water gate 80	set	6	7	42
3	Installation of water gate 50	set	12	5	60
V	**Installation of valves**				**250**
1	Installation of valves 50	set	5	50	250
VI	**Household water connections**				**34,314**
1	Water connections	unit	1	32.9	32.9
-	pipe adapter 100	set	1	25	25
-	elbow 13-20	unit	1	0.6	0.6
-	bend 90 13-20	unit	1	0.6	0.6
-	pipe reducer 13-20	unit	1	0.6	0.6
-	13-20	unit	1	3	3
-	glue	unit	1	1.5	1.5
-	pipe 13-20	m	4	0.4	1.6
2	No. of households	unit	1043x32.9		34,314
VII	**Compensation for removal of obstructions**				**6,000**
-	Compensation for removal of obstructions	points	500	12	6,000
	Total				**220,666**

Note: Prepared by the Department of Public Works and Transport based on the actual costs of materials and labor used in previous activities. The BoQ includes the total cost of material with transport**.**

F.5. Proposed Interventions to improve Sanitation Services

The proposed project aims initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements to benefit 6,762 people in Samakhixay District. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

G. Urban and Peri Urban Areas of Paksan District, Bolikhamxay
Thabok Area in Thaphabath District Bolikhamxay

Map

Figure 41 - Paksan District, Bolikhamxay Province

Source: Google Maps

G.1. General Description

Paksan and Thaphabath Districts have been targeted to benefit from improvements in environmental sanitation conditions in low-income areas. In Thaphabath District a Public Private Partnership (PPP) initiative was explored for the provision of water supply with a pro-poor focus.

Paksan District

Paksan District is the capital of Bolikhamxay Province, about 100 Km south of Vientiane, and sits at the confluence of the Nam San and Mekong rivers. Paksan District is a growing transportation hub (located along Highway 13) and an international crossing to Thailand. The main economic activities are agriculture and handicrafts. In Paksan District, NPSE-Bolikhamxay is currently implementing a community-based water and sanitation project to benefit 4,498 people in Nong Bua and Nong Weng urban villages by 2011. The population of the peri-urban villages targeted for the proposed project totals 9,077 people (2008). The percentage of population under the poverty line is 10%. A visit made to Phonsy village, one of the target villages revealed a population of 127 households. In the village live people belonging to ethnic communities and main economic activities are agriculture and handicraft. The mean income is 80,000 Kip per month per capita, and the average household size is 5/6 people[7].

Figure 42 - Area of intervention in Paksan District

Table 19 - Population in target areas in Paksan District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Paksan Tai	1,003	512	491	192	20
2	Sysaath	613	313	300	110	12
3	Thongyai-Thongnoi	1,110	566	544	212	22
4	Phonsy	669	341	328	127	13
5	Thabo	632	322	310	134	14
6	None Oudom	452	231	221	97	10
7	Na Houapou	655	334	321	118	12
8	Nasavanh	508	259	249	85	9
9	Nakam	700	357	343	127	13
10	Naoinou	741	378	363	126	13
11	Khamphay	450	230	221	88	9
12	Nakhaoulon	422	215	207	76	8
13	Khambone	580	296	284	100	11
14	Namai	542	276	266	89	9

[7] Source: Village leader.

	TOTAL	**9,077**	**4,629**	**4,448**	**1,681**	**177**

Thapabath District

According to official data provided by the district authorities, Thapabath District was administratively created in 1986. It is located in Bolikhamxay Province, on the east bank of the Mekong River, about 80 Km south of Vientiane Capital. This district shares a border with Thailand along 70 Km. Thapabath comprises 33 villages, which total 23,500 inhabitants, out of which 97.5% are Lao Loum, 2% are Lao Thoeung and 0.5% fare Lao Soung. According to district records, the population growth was an average 1% per annum for the period 2000-2005. This rate is twice lower than the national growth rate. The villagers' main occupation in the district is agriculture (rice farming) and livestock raising. The average yearly income is estimated at 4,500,000 Kip per person, which is slightly higher than the national average[8].

The target town is referred to as "Thabok". This town gathers three semi-urban villages, namely Thabok, Palai and Oudomxay, and is located within Thapabath District, in Bolikhamxay Province. "Thabok" is situated along the national Road n.13, about 90 kilometers south of Vientiane Capital City. The population living within the boundaries of the three villages is 4,228 people, expected to grow to 4,553 by 2011. The majority of the population is involved in farming and fishing activities but there are a significant number of small-scale traders and sellers. Incomes are quite seasonal (the approximate domestic budget is USD40/household/month) but some families running small businesses have more regular incomes (an average domestic budget is USD60/family/month).

Figure 43 - Area identified for PPP intervention and construction works or the water supply system under the PPP model

Table 20 - Population in target villages in Paksan District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Thabok	2,197	1,120	1,077	420	38
2	Palai	1,757	896	861	337	30
3	Oudomsay	575	293	282	110	10
	TOTAL	**4,529**	**2,310**	**2,219**	**867**	**78**

[8] Source: GRET Feasibility Study.

G.2. Water Supply

Service Coverage

In the target peri-urban villages of Paksan District there are different sources of water. Usually, households share a hand-dug well, which depth varies between ten and twelve meters. During the rainy season the water level is at four meters.

Figure 44 - Non-protected hand-dug wells in Paksan District

In Thapabath District, the population obtains drinking water from unsafe sources such as Nam Mang River and shallow wells or expends a high percentage of their income in bottled water. Untreated water poses serious threats of waterborne related diseases.

G.3. Sanitation, Waste Management and Drainage

In Paksan District, 21% of the identified target areas do not have adequate sanitation facilities. The following table presents a coverage distribution per the different villages.

Table 21 - Sanitation coverage in target areas in Paksan District

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Paksan Tai	1,003	192	20	8
2	Sysaath	613	110	12	24
3	Thongyai-Thongnoi	1,110	212	22	21
4	Phonsy	669	127	13	65
5	Thabo	632	134	14	5
6	None Oudom	452	97	10	18
7	Na Houapou	655	118	12	9
8	Nasavanh	508	85	9	25
9	Nakam	700	127	13	62
10	Naoinou	741	126	13	7
11	Khamphay	450	88	9	34

12	Nakhaoulon	422	76	8	26
13	Khambone	580	100	11	40
14	Namai	542	89	9	13
	TOTAL	**9,077**	**1,681**	**177**	**357**
	Percentage (%)	100	100	10.50	21

In the three targeted villages in Thapabath District, nearly all households have latrines (mainly pour-flush), and even septic tanks. However, the big majority of these septic tanks are not technically considered "septic tank", as they are equipped with single-blocks (83%). Households who do not have latrines (1.6%) use their neighbors'[9]. However, after a reassessment in the areas in 2009 and considering the growth in population and new households, the sanitation coverage is estimated to be 93% in the tree villages. Only 9% of poor households have access to adequate sanitation facilities.

Table 22 - Sanitation coverage in target areas in Thapabath District

No.	Name of Villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Thabok	2,197	420	38	18
2	Palai	1,757	337	30	32
3	Oudomsay	575	110	10	15
	TOTAL	**4,529**	**867**	**78**	**65**
	Percentage (%)	100	100	9	7

Households without access to adequate sanitation facilities have latrines either with normal pits or pour-flushed toilets which are not prepared for floods and cannot be used during the rainy season.

Figure 45 - Non-improved latrine used in the community

Although sanitation coverage is high in Thapabath District, solid waste management is becoming a critical issue in Thabok. There are no community facilities for solid waste disposal and most families do not have access to the proper equipment to dispose of wastewater in a safe manner.

[9] Source: GRET Assessment Report, 2008

G.4. Proposed Interventions to improve Water Services

The proposed project in Thabok aims to improve access to safe water for 4,553 people through the setting up of an optimally sized (small-scale) water supply service using appropriate technologies. The proposal includes incentives and credit mechanisms to support local private sector involvement in piped water system management and investment (PPP). The project will involve the participation of local private entrepreneurs under PPP mechanisms for service management, construction of facilities and infrastructure co-investment. It also involves community mobilization through pro-active awareness raising activities and social marketing campaigns.

G.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to improve environmental sanitation conditions in low-income areas for 2,411 people distributed among 19 urban and peri-urban villages of Paksan District, Bolikhamxay Province. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

In Thabok, the project aims to at improving access to appropriate sanitation facilities for 1,100 people through decentralized public-private partnership approaches. The proposal also includes the establishment of a community solid waste management service with household-level sanitary equipment and village facilities.

H. Peri Urban Areas of Thakkek District, Khammouane Province

Map

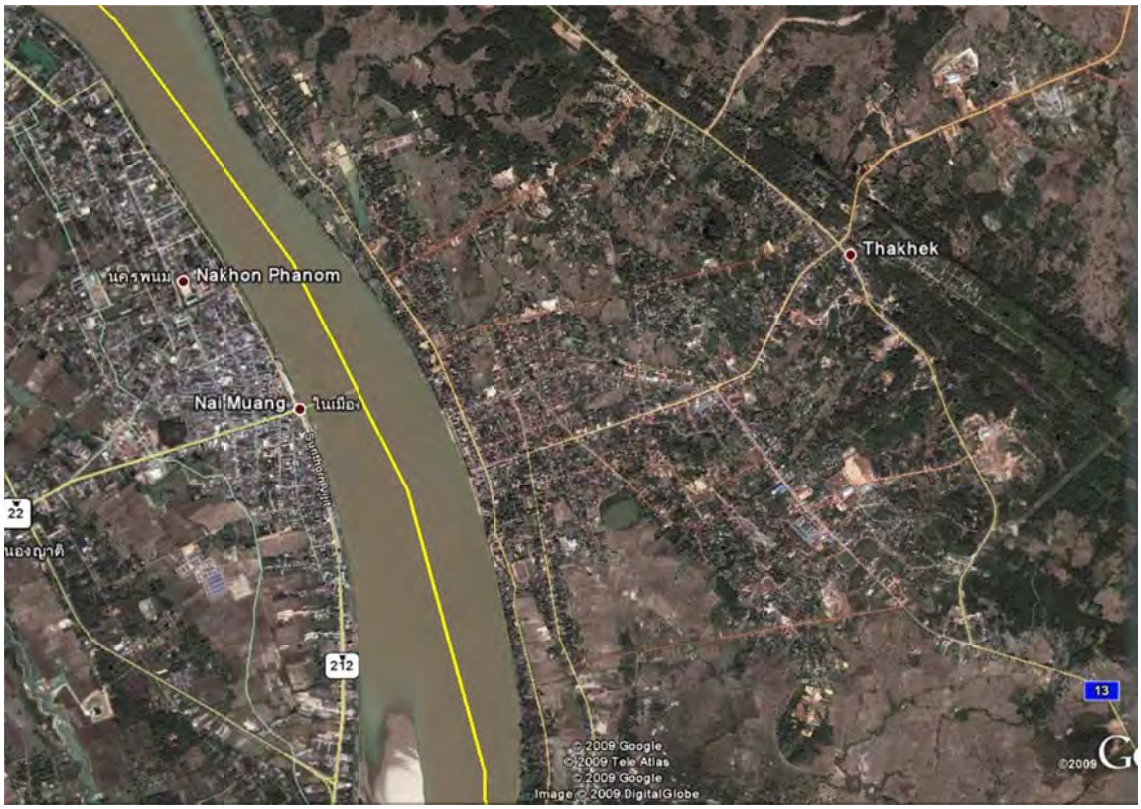


Figure 46 - Thakhek district, Khammouane Province
Source: Google Maps

H.1. General Description

Thakkek District has a total population of 18,287 in 22 villages. The mean income in the area is 300,000/400,000 Kip per month per household (USD35.2 to USD47 approximately). The Nam Papa State Enterprise of Khammouane Province (NPSE-Khammouane) identified 13 villages out of 22 for the provision of improved sanitation facilities. The target villages total 1,732 households, out of which 41% are considered poor.

Table 23 - Population in Thakkek District

No.	Name of villages	Population in 2008				
					Households	
		Total	Male	Female	Total	Poor
1	Phon Gnia Yai	754	385	369	170	24
2	Veunh	412	210	202	82	11
3	Natad	562	287	275	110	15
4	Khamkhikay	441	225	216	96	13
5	Yang Kao	648	330	318	125	18
6	Thakhae	379	193	186	92	13
7	Tham	895	456	439	198	28
8	Lao Phokham	1,110	566	544	213	30
9	Lao Phoxay	981	500	481	218	31
10	Paksimang	497	253	244	87	12
11	Thakhek Tai	524	267	257	112	16
12	Nong Mieng	710	362	348	141	20
13	Nakhanxang	511	261	250	88	12
	TOTAL	**8,424**	**4,296**	**4,128**	**1,732**	**242**

H.2. Water Supply

Service Coverage

The target villages are located in peri-urban areas where access to water is through hand-dug wells – eight meter deep approximately. Water level varies from six meters in the dry season to two meters in the rainy season. This aspect needs to be considered when promoting adequate sanitation facilities. The distance between the latrine and the well has to be 15 meters minimum.

Figure 47 - Hand dug well used in the peri-urban area

H.3. Sanitation, Waste Management and Drainage

In Thakkek District, only 1,463 households have sanitation facilities that are in use. 50% of the population has no access to improved sanitation facilities. The sanitation coverage in the target areas is 53%. The following table shows the sanitation coverage in the target villages.

Table 24 - Sanitation facilities in target villages in Thakkek District

No.	Name of villages	Population in 2008			
			Households		
		Total	Total	Poor	No toilet
1	Phon Gnia Yai	754	170	24	143
2	Veunh	412	82	11	66
3	Natad	562	110	15	82
4	Khamkhikay	441	96	13	44
5	Yang Kao	648	125	18	110
6	Thakhae	379	92	13	80
7	Tham	895	198	28	115
8	Lao Phokham	1,110	213	30	63
9	Lao Phoxay	981	218	31	25
10	Paksimang	497	87	12	13
11	Thakhek Tai	524	112	16	13
12	Nong Mieng	710	141	20	21
13	Nakhanxang	511	88	12	47
	TOTAL	**8,424**	**1,732**	**242**	**822**
	Percentage (%)	100	100	14	47

UN-HABITAT has previously implemented projects with the NPSE-Khammouane providing emergency relief in 2008 for the reconstruction of latrines and hand-dug wells after they collapsed due to floods, which created the potential risks for water-borne diseases and outbreaks. In this context, UN-HABITAT advised the utility in the implementation of sanitation and hygiene awareness campaigns and provided training of trainers (ToT) for the utility staff at the provincial level. The Department of Health and the NPSE-Khammouane have undertaken sanitation and hygiene campaigns to improve the sanitation conditions. These campaigns are regular in schools. UNICEF and Lao Red Cross have also been working in the area for the past three years,

Private businesses have constructed pour-flushed toilets for commercial purposes. These have been adapted to flooding areas and are well maintained.

Figure 48 - Improved pour-flushed toilet in commercial sites, adapted for floods

H.4. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements in low-income areas for 4,301 people in the peri-urban area of Thakkek District, Khammouane Province. The proposal includes the provision of adequate sanitation facilities through innovative financing mechanisms such as revolving funds and grants.

ANNEX 4 - Vietnam Town Assessments

Figure 1 – Quang Tri Province in Vietnam

Table 1 - Target areas and main interventions

Province	Area of intervention	Proposed physical works and beneficiaries			
		Water supply		Sanitation	
Quang Tri	Lao Bao town	Expansion	7,590	Improved sanitation	8,800
Quang Tri	Cua Viet town	Expansion	8,105	Improved sanitation	13,500
Quang Tri	Dong Ha town	Expansion	7,230	Improved sanitation	18,200
Quang Tri	Quang Tri town	Expansion	8,705	Improved sanitation	44,500
		TOTAL	**31,630**		**85,000**

Sanitation situation in Quang Tri province

It is important to remark that other actors have been active implementing programmes in the province. ADB implemented a project in Dong Ha with revolving funds, but the technology used to be promoted was septic tanks with a cost per facility of USD330. The project then was implemented in a way that the household was contributing USD100 per facility, and USD230 were supported with revolving funds with a period of two years.

This program may have an impact in the population benefitting for this phase, as before families have been supported with that big quantity of cash and they may be demanding a similar way for implementation of this phase.

As reported by the water utility, one of the major challenges for sanitation is the lack of clear responsibilities when it comes to private household level, and the lack of agreement for defining what is improved sanitation. Strong awareness campaigns are needed for promoting and raise the demands, which are seen by all actors as the key component activity.

Besides, in some cases, as Lao Bao, the Government has requested to the mission the support for school sanitation and facilities in markets.

In the province there are social programs for improving the livelihood of the poor people. In Lao Bao, for example, there are programs to support ethnic people in the acquisition of land tenure, and support for accessing basic services in remote areas of the district (only focused in water and not in sanitation).

A. Lao Bao Town

Figure 2 -Lao Bao-Khe Sanh town, Quang Tri province
Source: QTWASUCO

Table 2 - Town matrix

DEMOGRAPHICS	Total population in town (2008) (urban and peri-urban)		39,572
	Total number of households (urban and peri urban)		9,010
	Population density (pop/km^2)		Average in Huong Hoa District: 245
	Growth rate (%)		2.85
	Poverty rate (%)		57.6
	Average income (1,000VND/person/month)		Urban: 1,081 Rural: 613
	Mean household size		4.4
	Number of schools		14
WATSAN	Total coverage water access (%)		57.1
	Total coverage sanitation access (%)		46.2
	Areas not covered water: sources used		4 communes along national road n. 9; stream water and well
	Areas not covered san: facilities used		Minority ethnic hamlets and adjacent to the forest
HEALTH	Incidence of water borne diseases		Gynecology, bowel, trachoma
ENVIRONMENTAL			Polluted
TECHNICAL	Source	Type	Surface water
		Yield	Enough
	Transmission line	Diameter (mm)	200, 300
		Length (m)	3,000
		Material	Cast iron

	Pumping system	Number	5
		Number of hours per day	In the winter: 16-18 In the summer: 20-22
	Tank	Number	N.A
		Total volume (m^3)	0
		Type	
	WTP	Type of treatment	Flocculation and vertical Sedimentation, filtration, chlorination
		Capacity (m^3/day)	6,000
	Reservoirs	Number	6
		Total volume (m^3)	2,900
	Distribution line	Total length (m)	50,000
		Diameter (mm)	D50-D300
		Material	uPVC, ductile iron, and galvanized steel
	Distribution line: main	Diameter (mm)	
		Lenght (m)	
		Material	
	Distribution line: secondary	Diameter (mm)	
		Lenght (m)	
		Material	
	Household level	Number of connections	5,147
		Connection fee (USD)	90-130
		Hours of service	24/24
	Water quality (after treatment)	Standards accomplished	Reached
OPERATION	Water capacity		
	Water production (m^3)		70%
	Water sold (m^3)		
	Water losses (%)		30
	O&M	Major breakdowns	Pumping system is old with many breakdowns, problems with high pressure in the net
		Actions taken	WTP is planned to be upgraded, household private connections are constructed with GS pipe to protect from damage by users
	Water quality monitoring system	Mon. frequency and points	
MANAGEMENT	Tariff system	Type (flat, per blocks)	According to the water meter of customer
		Rates	3,904VND for domestic; 7,428VND for admin; 8,380VND for construction and industry; 9,333VND for services
		Subsidies system	5% deduction of water tariff for the

			poor
	Bill collection efficiency		97
	Average hh monthly tariff (VND)		92,846
	Average hh monthly consumption (m^3)		18.8
	Monthly income (VND)		477,877,000
	Monthly / year expenditure		95% in Lao Bao and 115% in Khe sanh
	Profit		
PROPOSAL	General description of areas		Expansion of networks to poor areas and peri-urban areas as Lao Bao,Tan Thanh, Tan Long, Khe Sanh Tan Hop, Tan Lien, Tan Lap
	Criteria for selecting areas		Poor areas in urban and peri-urban
	Water coverage in areas		50.7
	Technical description	Diameter (mm)	D50/80
		Length (m)	8,800
		Material	HDPE
	Number of HH		1,518
	Estimates costs (USD)		214,700
	Estimated action plan		in 2 years 2010, 2011
	Surveys needed?		Yes
	Number of beneficiaries		7,590
WWM	Department Responsible		
	General Description		There is no waste water treatment plant
	Future plans		
DRAINAGE	General Description		There are some drainage pipelines in Lao Bao town
			Toilets have been equipped for HHs in urban and peri-urban (not poor people)
			Toilet with septic tanks and/or pit latrine used
	Department responsible		
	Future plans		
	Other development partners		
ON SITE	Technologies used		
	School facilities		
	Hygiene education programs		
	Sanitation awareness campaigns		

	Desludging systems	Type	Manual
		Cost (USD)	
PROPOSAL	Beneficiaries (hh)		1,760
	Beneficiaries		8,800
	Total population in areas		39,572
	Technical description		
SWM	General description		A private company is in-charge in collection of solid waste in the town
			There is only one vehicle to collect the solid waste
			The landfill is located 3-4km far away from the town
	New proposal for sanitation		
Institutional	Development plans		
	Other development partners in watsan		
	Investments plans in watsan		

A.1. General Description

Lao Bao is a small town in Quang Tri Province, which is becoming an important border crossing for trade and tourism between Lao PDR, Thailand and central Vietnam. Quang Tri Province is situated in the central-north side of Vietnam. Poverty provincial rates vary from 20% to 30% in 2006 according to the General Statistics Office. The province is on the East/West Economic Corridor and borders with Lao PDR in the East, along the Sepon River, which marks the Vietnam-Lao PDR border. It is 80 km from Dong Ha, 152 km from Hue, 46 km east of Sepon (Lao PDR), 250 km east of Savannakhet (also in Lao PDR, on the Thai frontier) and 950km from Bangkok (Thailand, via Ubon Ratchathani). Its strategic importance is another reason why there is an expectation of significant population growth in Lao Bao, which will result in immense pressure on the existing water and sanitation infrastructure in this town. The urban and peri-urban areas of Lao Bao town have a total population of 37,740 and the mean household size is 5. The poverty rate in the target areas is 40%.

A.2. Water Supply

Service Coverage

Water coverage in both the peri-urban and urban areas of Lao Bao town is 52%. Most of the need for adequate water services is located in the peri-urban areas, where families rely on dug wells or the Sepon River. Rain water is an important source of water supply, especially for the poor. The lack of secondary and tertiary water pipes and poverty are the main reasons for the low coverage in the project town.

Institutional Background

The Quang Tri Water Supply and Construction One Member Limited Company (QTWASUCO) is a state-owned non-profit enterprise within the Government of Quang Tri Province of Vietnam, responsible for the delivery of safe water to the citizens of the province including Lao Bao town. QTWASUCO's mandate is to finance, implement, manage and operate all formalized water supply system in urban areas. It is required to provide safe water at least cost to its consumers, whilst covering all costs, such as debt service, depreciation, and operation and maintenance.

The Water Supply System

- General description of the system

The water is delivered to the population through a group of water treatment plants (WTP). There are nine WTP in the whole province. Small towns are connected to the water supply systems through main distribution pipelines of cast iron between towns. Lao Bao and its peri-urban areas are served by a group of two WTP, one situated in Lao Bao and another situated Khe Sanh. Both of them have a capacity of 3,000 m^3/day and the water utility has a plan for upgrading the WTP of Lao Bao to 6,000 m^3/day. There are four pumps in Lao Bao running 16 to 18 hours per day in winter and 20 to 22 per day in winter. There are two pumps in Khe Sanh running 12 hours a day. There are five reservoirs with 3,000 m^3 of capacity. There are 2,520 coonections in Lao Bao and 1,798 connections in Khe Sanh. The service runs 24 hours. The water production is 70% of the system capacity in Lao Bao and 50% in Khe Sanh.

- Existing water sources

The water source is surface water.

- Existing water treatment (water quality)

The treatment is through sedimentation, filtration and chlorination. The water quality standards have been accomplished.

- Transmission and distribution

The transmission line is 2,000 m long (200mm) in Lao Bao and 1,600 m (300mm) in Khe Sanh. The lines are cast iron. The distribution line is is 30,000 m long (D50-D300) in Lao Bao and 1,600 m (D50-D300) in Khe Sanh. The materials vary including GSP, uPVC, IRON, and HDPE.

- Tariff and metering

The tariff system has been set per type of consumer at provincial level. Lao Bao is exempt from paying taxes (5%) due to the poor situation of the town. The rates are: 3,904 Vietnam Dong per m^3 for domestic use, 7,428 Vietnam Dong for the administration, 8,380 Vietnam Dong per m^3 for construction and industry and 9,333 Vietnam Dong per m^3 services. The connection fee is USD110.

- Collection rates and operational costs (financial sustainability of the utility)

The bill collection efficiency is 97%. The average hh monthly tariff is 46,000 Vietnam Dong in Lao Bao and 54,600 Vietnam Dong in Khe Sanh. The average hh monthly consumption is 12 m^3 in Lao Bao and 14 m^3 in Khe Sanh. The monthly income is 2.9 billion Vietnam Dong in Lao Bao and 1.5 billion in Khe Sanh. The monthly expenditure in Lao Bao is 95% while it is 115% in Khe Sanh. The Khe Sahn branch of QTWASUCO has been reported not to be financially sustainable.

- Current investments

QTWASUCO recently upgraded and almost doubled the capacity of the water treatment plant (WTP) in order to further expand the water supply services in the town. QTWASUCO has currently been engaged, with the support of UN-HABITAT, in ongoing community-based water and sanitation projects which included the construction of networks for the provision of water connections for poor households to increase the urban water coverage to 80% as well as the provision of adequate sanitation facilities to increase the urban sanitation coverage to 60%.

- Problems and main challenges

The major problem of the system is the capacity of the WTP, which is planned to be upgraded. The pumping system is old and has had many breakdowns, but there is a stand-by pump which makes sure there is no impact to the service delivery. The Lao Bao network has problems with the high pressures in the network and it is for this reason that the household private connections are constructed with GS pipe to protect the pipeline of potential damages by users. The situation of the network in Khe Sanh is similar and minor breakdowns in the pipes are usually due to high pressure. The water losses are 30% in Lao Bao and in Khe Sanh.

A.3. Sanitation, Waste Management and Drainage

Sanitation coverage in both the peri-urban and urban areas of Lao Bao town is 54.9%. There is no solid waste collection system in Lao Bao. Domestic sewage seeps into the ground and/or is discharged directly into the river which greatly contributes to contamination of the water supply and environmental pollution. Most of the need for adequate sanitation facilities is also located in the peri-urban areas, particularly in poor communities. QTWASUCO plans to facilitate the construction of improved sanitation facilities in selected areas with the active participation of the community. One of the main challenges identified by QTWASUCO from previous experiences working on water and sanitation projects is the need for strong awareness campaigns to engage communities, promote the use, and raise the demand for adequate sanitation facilities at the household level.

A.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water for 7,590 people (1,518 households) in the peri-urban and urban areas of Lao Bao town. QTWASUCO plans to expand the piped water network to peri-urban areas and surrounding communities including poor areas. Upon completion of the project, the water coverage in both urban and peri-urban areas would increase from 52 to 72%.

Table 3 shows the preliminary proposal presented by QTWASUCO. The calculated costs for the expansion of the the system include labor and transport of materials.

Table 3 - Preliminary proposal for the expansion of the system

Lao Bao town	
Expansion diameters dn	DN 50/80
Expansion lenght (m)	8,800
Expansion: material	HDPE
Expansion: estimated costs (USD)	120,000
Expansion: beneficiaries (hh)	1,528

A.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements for 8,800 people (1,760 households) in the peri-urban and urban areas of Lao Bao town. Improvements in sanitation are expected to be achieved through a demand-led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as revolving funds. Upon completion of the project, the sanitation coverage in both urban and peri-urban areas would increase from 54.9 to 78% after this intervention.

B. Dong Ha City

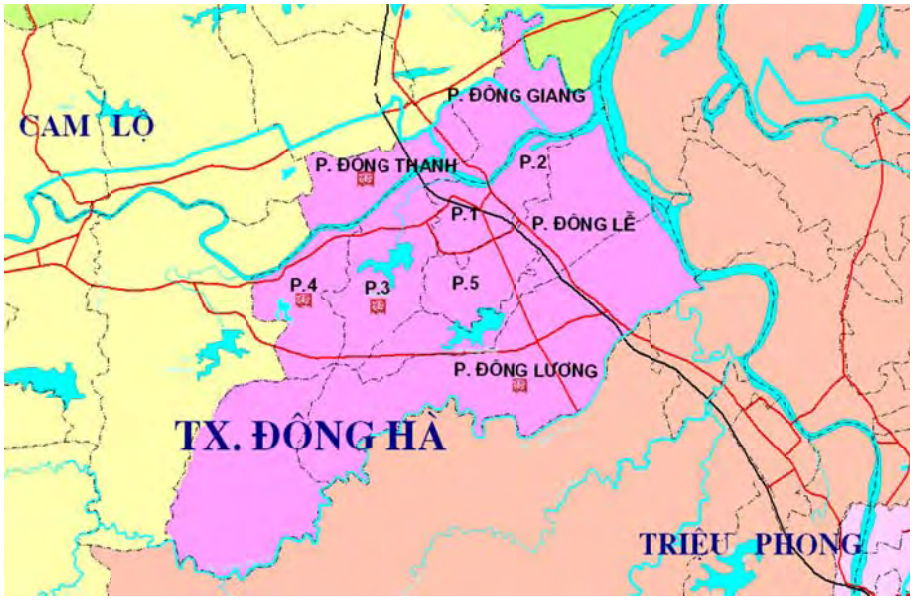


Figure 3 - Dong Ha City, capital of Quang Tri province
Source: QTWASUCO

Table 4- Town matrix

DEMOGRAPHICS	Total population in town (2008) (urban and peri-urban)		81,846
	Total number of households (urban and peri urban)		20,470
	Population density (pop/km^2)		406
	Growth rate (%)		2.15
	Poverty rate (%)		34.09
	Average income (1,000VND/person/month)		Urban: 1,081 Rural: 613
	Mean household size		4.0
	Number of schools		46
WATSAN	Total coverage water access (%)		75.2
	Total coverage sanitation access (%)		73.7
	Areas not covered water: sources used		Peri-urban; well, rainwater, river, agriculture lake
	Areas not covered san: facilities used		Open areas near to river, lake
HEALTH	Incidence of water borne diseases		Gynecology, bowel, trachoma
ENVIRONMENTAL			Polluted
TECHNICAL	Source	Type	Surface and underground water
		Yield	Enough
	Transmission line	Diameter (mm)	400
		Length (m)	4,400
		Material	Iron and cast iron
	Pumping system	Number	6 pumps

			11 pumps for boreholes
		Number of hours per day	20-22 hours
	Tank	Number	1
		Total volume (m^3)	3,000
		Type	
	WTP	Type of treatment	Aeration, Horizontal sedimentation, filtration, Chlorination
		Capacity (m^3/day)	30,000
	Reservoirs	Number	3
		Total volume (m^3)	5,000
	Distribution line	Total length (m)	250,000
		Diameter (mm)	DN 50-400
		Material	uPVC, Iron, GS
	Distribution line: main	Diameter (mm)	
		Length (m)	
		Material	
	Distribution line: secondary	Diameter (mm)	
		Length (m)	
		Material	
	Household level	Number of connections	15,396
		Connection fee (USD)	111
		Hours of service	24/24
	Water Quality (after treatment)	Standards accomplished	OK
OPERATION	Water capacity		
	Water production (m^3)		30,000
	Water sold (m^3)		23,000
	Water losses (%)		32%
	O&M	Major breakdowns	Minor pipe leakage and breaks
		Actions taken	
	Water quality monitoring system	Mon. frequency and points	
MANAGEMENT	Tariff system	Type (flat, per blocks)	According to the water meter of customer
		Rates	3,904VND for domestic; 7,428VND for admin; 8,380VND for construction and industry; 9,333VND for services
		Subsidies system	5% deduction of water tariff for the poor
	Bill collection efficiency		99.90%
	Average hh monthly tariff (VND)		83,000
	Average hh monthly consumption (m^3)		16.6
	Monthly income (VND)		1,510,704,000
	Monthly / year expenditure		90%

	Profit		
PROPOSAL	General description of areas		Dong Ha, Cam An, Cam Thanh, Cam Hieu, Cam Thuy, Cam Tuyen
	Criteria for selecting areas		the poor in urban and peri-urban
	Water coverage in areas		79.8
	Technical description		
		Diameter (mm)	DN50/80
		Length (m)	11,600
		Material	HDPE
	Number of HH		1,446
	Estimates costs (USD)		254,000
	Estimated action plan		2 years 2010, 2011
	Surveys needed?		Yes
	Number of beneficiaries		7,230
WWM	Department responsible		
	General description		There is no waste water treatment plant
	Future plans		
DRAINAGE	General description		There are some drainage pipelines in the city but very small diameter
	Department responsible		Dong Ha Urban Environmental One Member Limited Company
	Future plans		On-going implementing the project Urban Environmental Improvement funded by ADB (15USD millions with 72 km drainage sewers, planning to finish in 2010. The peri-urban communes are not covered by this project
	Other development partners		
ON SITE	Technologies used		
	School facilities		
	Hygiene education programs		
	Sanitation awareness campaigns		
	Desludging systems	Type	Manual
		Cost (USD)	
PROPOSAL	Beneficiaries (hh)		3,640

	Beneficiaries	18,200
	Total population in areas	81,846
	Technical description	
SWM	General description	The landfill is located 7 km far away from the city on the way to Lao Bao town. Solid waste is buried and covered by soil. Capacity is only enough for next few years
	New proposal for sanitation	
Institutional	Development plans	
	Other development partners in watsan	
	Investments plans in watsan	

B.1. General Description

Dong Ha is the capital of the recently established Quang Tri Province, which is situated in the central-north side of Vietnam. Poverty provincial rates vary from 20% to 30% in 2006 according to the General Statistics Office. The province is on the East/West Economic Corridor and borders with Lao PDR in the East. It is at the busy intersection of National Highways 1 and 9, part of the East-West Corridor in Vietnam. The basic economic activities revolve around the service industry (67.4%), industry and construction (28.2%), while the remaining population (4.4%) is engaged in agricultural activities. The urban and peri-urban areas of Dong Ha city have a total population of 109, 208 and the mean household size is 5. The poverty rate in the target areas is 42.5%.

B.2. Water Supply

Service Coverage

Water coverage in both the peri-urban and urban areas of Dong Ha city is 68.7%. Most of the need for adequate water services is located in the peri-urban areas, where families rely on dug wells, rivers, and rain water. QTWASUCO plans to expand the piped water network to peri-urban areas and surrounding communities including poor areas.

Institutional Background

The Quang Tri Water Supply and Construction One Member Limited Company (QTWASUCO) is a state-owned non-profit enterprise within the Government of Quang Tri Province of Vietnam, responsible for the delivery of safe water to the citizens of the province including Dong Ha Town. QTWASUCO's mandate is to finance, implement, manage and operate all formalized water supply system in urban areas. It is required to provide safe water at least cost to its consumers, whilst covering all costs, such as debt service, depreciation, and operation and maintenance.

The Water Supply System

- General description of the system

The water is delivered to the population through a group of water treatment plants (WTP). There are nine WTP in the whole province. Small towns are connected to the water supply systems through main distribution pipelines of cast iron between towns. There are 6 regular pumps and 11 pumps for the boreholes operating 20-22 hours per day. There are two reservoirs with 5,000 m^3 of total capacity. There are 16,848 connections. The service runs 24 hours. The water production is 90% of the system capacity in Dong Ha's water supply system and 50% of the capacity of the boreholes.

- Existing water sources

Dong Ha is served through a water supply system with groundwater (boreholes), and a water supply system situated in Dong Ha with surface water.

- Existing water treatment (water quality)

The WTP has a capacity of 30,000 m^3/day. The treatment is through sedimentation, filtration and chlorination. The standards of water quality have been accomplished.

- Transmission and distribution

The transmission line is 4,400 m long (400 mm). The lines are cast iron. The distribution line is 250 Km (DN 50-400). The materials vary including uPVC, iron, and GS.

- Tariff and metering

The tariff system has been set per type of consumer at provincial level. The rates are: 3,904 Vietnam Dong per m^3 for domestic use, 7,428 Vietnam Dong per m^3 for the administration, 8,380 Vietnam Dong per m^3 for construction and industry and 9,333 Vietnam Dong per m^3 services. The connection fee is USD110.

- Collection rates and operational costs (financial sustainability of the utility)

The bill collection efficiency is 97.5%. The average hh monthly tariff is 57,000 Vietnam Dong. The average hh monthly consumption is 14 m^3. The monthly income is 15.9 billion Vietnam Dong and the monthly expenditure is 90%.

- Current investments

QTWASUCO has been already engaged, with the support of UN-HABITAT, in ongoing community-based water and sanitation projects which included the expansion of the water network to increase the urban water coverage to 88% as well as the provision of sanitation facilities to increase the urban sanitation coverage to 71%. The proposed project aims at further expanding adequate water and sanitation services not only to the remaining urban areas but also to the peri-urban areas of Dong Ha city.

- Problems and main challenges

The water losses are 32%.

B.3. Sanitation, Waste Management and Drainage

Sanitation coverage in both the peri-urban and urban areas of Dong Ha city is 74.4%. Most of the need for adequate sanitation facilities is also located in the peri-urban areas, particularly in poor communities. QTWASUCO plans to facilitate the construction of improved sanitation facilities in selected areas with the active participation of the community. One of the main challenges identified by QTWASUCO from previous experiences working on water and sanitation projects is the need for strong awareness campaigns to engage communities, promote the use, and raise the demand for adequate sanitation facilities at the household level.

B.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water for 7,230 people (1,446 households) in the peri-urban and urban areas of Dong Ha city. Upon completion of the project, the water coverage in both urban and peri-urban areas would increase from 68.7 to 75%.

Table 5 shows the preliminary proposal presented by QTWASUCO. The calculated costs for the expansion of the the system include labor and transport of materials.

Table 5 - Preliminary proposal for the expansion of the system

Dong Ha town	
Expansion diameters dn	DN 50/80
Expansion lenght (m)	11,600
Expansion: material	HDPE
Expansion: estimated costs (USD)	171,000
Expansion: beneficiaries (hh)	1,446

B.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements for 18,200 people (3,640 households) in the peri-urban and urban areas of Dong Ha city. Upon completion of the project, the sanitation coverage in both urban and peri-urban areas would increase from 74.4 to 91% after this

intervention. Improvements in sanitation are expected to be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as revolving funds.

C. Cua Viet Town

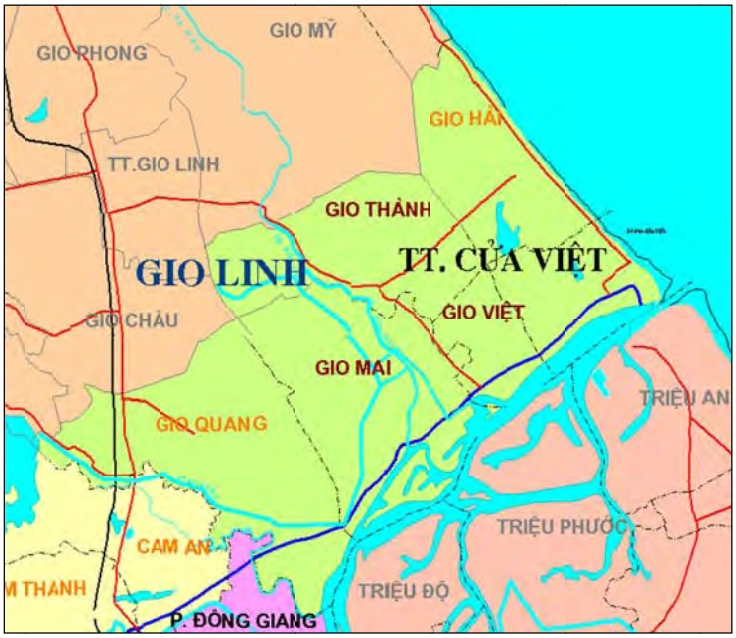


Figure 4 - Cua Viet town, Gio Linh district, Quang Tri province
Source: QTWASUCO

Table 6 - Town matrix

DEMOGRAPHICS	Total population in town (2008) (urban and peri-urban)		22,498
	Total number of households (urban and peri urban)		5,572
	Population density (pop/km^2)		318
	Growth rate (%)		7.17
	Poverty Rate (%)		73.69
	Average income		Urban: 1,081; Rural: 613
	Mean household size		4
	Number of schools		11
WATSAN	Total coverage water access (%)		23
	Total coverage sanitation access (%)		33.1
	Areas not covered water: sources used		Urban and Peri-urban; well, rainwater, river, agriculture lake or from vendor
	Areas not covered san: facilities used		Open areas near to river, lanke and close to the sea
HEALTH	Incidence of water borne diseases		Gynecology, bowel, trachoma
ENVIRONMENTAL			Polluted
TECHNICAL	Source	Type	3,500 m^3/day provided from WTP in Dong Ha city
		Yield	Enough
	Transmission line	Diameter (mm)	200 - 150
		Length (m)	14,000
		Material	uPVC
	Pumping system	Number	

		Number of hours per day	
	Tank	Number	N.A
		Total Volume (m^3)	
		Type	
	WTP	Type of treatment	N.A
		Capacity (m^3/day)	N/A
	Reservoirs	Number	N.A
		Total Volume (m^3)	
	Distribution line	Total length (m)	7,000
		Diameter (mm)	D50-D80
		Material	Galvanized steel
	Distribution line: main	Diameter (mm)	
		Length (m)	
		Material	
	Distribution line: secondary	Diameter (mm)	
		Length (m)	
		Material	
	Household level	Number of connections	668
		Connection fee (USD)	111
		Hours of service	24/24
	Water quality (after treatment)	Standards accomplished	Reached
OPERATION	Water capacity		
	Water production (m^3)		10% of capacity in Dong Ha city
	Water sold (m^3)		
	Water losses (%)		15
	O&M	Major breakdowns	
		Actions taken	
	Water quality monitoring system	Mon. Frequency and points	
MANAGEMENT	Tariff system	Type (flat, per blocks)	
		Rates	3,904VND for domestic; 7,428VND for admin; 8,380VND for construction and industry; 9,333VND for services
		Subsidies system	
	Bill Collection Efficiency		97
	Average hh monthly tariff (VND)		45,860
	Average hh monthly consumption (m^3)		9.56
	Monthly income		87,454,500
	Monthly /year expenditure		90%
	Profit		
PROPOSAL	General description of areas		Cua Viet, Gio Viet, Gio Mai, Gio Quang, Gio Hai, Gio Thanh
	Criteria for selecting areas		the poor in urban and peri-urban
	Water Coverage in areas		27.2

	Technical description	Diameter (mm)	DN 50/80
		Length (m)	6,000
		Material	HDPE
	Number of HH		1,620
	Estimates costs (USD)		235,100
	Estimated action plan		2 years 2010, 2011
	Surveys needed?		yes
	Number of beneficiaries		8,105
WWM	Department responsible		
	General Description		There is no waste water treatment plant
	Future plans		
DRAINAGE	General Description		There is no drainage system
	Department responsible		
	Future plans		
	Other development partners		
ON SITE	Technologies used		
	School facilities		
	Hygiene education programs		
	Sanitation awareness campaigns		
	Desludging systems	Type	Manual
		Cost (USD)	
PROPOSAL	Beneficiaries (hh)		2,700
	Beneficiaries		13,500
	Total population in areas		22,498
	Technical description		
SWM	General Description		There is no collection system, solid waste is treated by HHs as burn or burying
	New proposal for sanitation		
Institutional	Development plans		
	Other development partners in watsan		
	Investments plans in watsan		

C.1. General Description

Cua Viet is a coastal town in Gio Linh district, Quang Tri Province, which main economic activity revolves around local tourism and recreation. Quang Tri Province is situated in the central-north side of Vietnam. Poverty provincial rates vary from 20% to 30% in 2006 according to the General Statistics Office. The province is on the East/West Economic Corridor and borders with Lao PDR in the East. The urban and peri-urban areas of Cua Viet town have a total population of 22, 486 and the mean household size is 5. The poverty rate in the target areas is 20%.

C.2. Water Supply

Service Coverage

Water coverage in both the peri-urban and urban areas of Cua Viet town is 28%. Most of the need for adequate water services is located in the peri-urban areas, where families rely on dug wells and rain water. QTWASUCO plans to expand the piped water network to peri-urban areas and surrounding communities including poor areas.

Institutional Background

The Quang Tri Water Supply and Construction One Member Limited Company (QTWASUCO) is a state-owned non-profit enterprise within the Government of Quang Tri Province of Vietnam, responsible for the delivery of safe water to the citizens of the province including Cua Viet town. QTWASUCO's mandate is to finance, implement, manage and operate all formalized water supply system in urban areas. It is required to provide safe water at least cost to its consumers, whilst covering all costs, such as debt service, depreciation, and operation and maintenance.

The Water Supply System

- General description of the system

The water is delivered to the population through a group of WTP. There are 9 WTP in the whole province. Small towns are connected to the water supply systems through main distribution pipelines of cast iron between towns. Cua Viet is served by the WTP situated in Dong Ha. The service runs 24 hours. The water production is 10% of the Dong Ha's system capacity.

- Existing water sources

The water comes from Dong Ha town.

- Existing water treatment (water quality)

The treatment is through sedimentation, filtration and chlorination. The standards for water quality have been accomplished.

- Transmission and distribution

The transmission line is 14,000 m long (200/150mm). The lines are uPVC. The distribution line is 7,000 m (D50-D80). The material is GS.

- Tariff and metering

The tariff system has been set per type of consumer at provincial level. The rates are: 3,904 Vietnam Dong per m^3 for domestic use, 7,428 Vietnam Dong per m^3 for the administration, 8,380 Vietnam Dong per m^3 for construction and industry and 9,333 Vietnam Dong per m^3 services. The connection fee is USD110.

- Collections rates and operational costs (financial sustainability of the utility)

The bill collection efficiency is 97%. The average hh monthly tariff is 36,000 Vietnam Dong. The average hh monthly consumption is 9 m^3. The monthly income is 600 million Vietnam Dong and the monthly expenditure is 90% excluding the expenditure of WTP. The Cua Viet branch of QTWASUCO has been reported not to be financially sustainable.

- Problems and main challenges

The water losses are 15%.

C.3. Sanitation, Waste Management and Drainage

Sanitation coverage in both the peri-urban and urban areas of Cua Viet town is 38.7%. Most of the need for adequate sanitation facilities is also located in the peri-urban areas, particularly in poor communities. QTWASUCO plans to facilitate the construction of improved sanitation facilities in selected areas with the active participation of the community. One of the main challenges identified by QTWASUCO from previous experiences working on water and sanitation projects is the need for strong awareness campaigns to engage communities, promote the use, and raise the demand for adequate sanitation facilities at the household level.

C.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water for 8,105 people (1,621 households) Upon completion of the project, the water coverage in both urban and peri-urban areas would increase from 28 to 64%.

Table 7 shows the preliminary proposal presented by QTWASUCO. The calculated costs for the expansion of the the system include labor and transport of materials.

Table 7 - Preliminary proposal for the expansion of the system

Cua Viet town	
Expansion diameters dn	DN 50/80
Expansion length (m)	6,000
Expansion: material	HDPE
Expansion: estimated costs (USD)	85,000
Expansion: beneficiaries (hh)	1,620

C.5. Proposed Interventions to improve Sanitation Services

The project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements for 13,500 people (2,700 households) in the peri-urban and urban areas of Cua Viet town. Upon completion of the project, the sanitation coverage in both urban and peri-urban areas would increase from 38.7 to 99% after this intervention. Improvements in sanitation are expected to be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as revolving funds.

D. Quang Tri Town

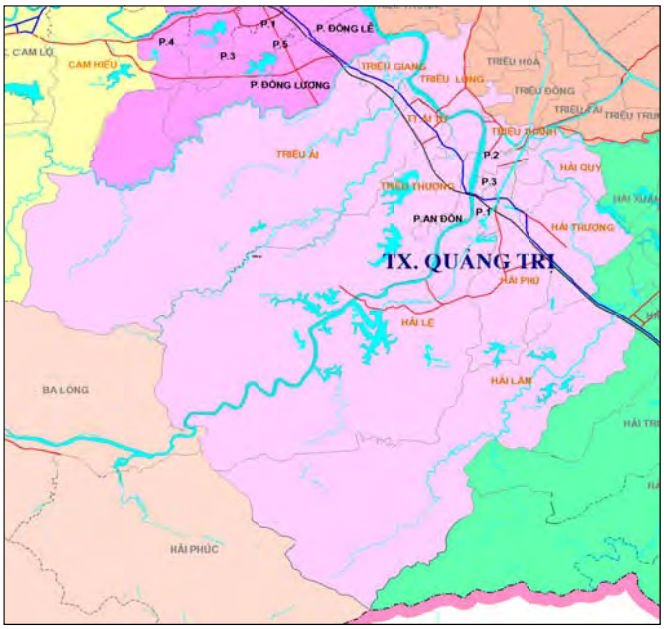


Figure 5 - Quang Tri town, Quang Tri province
Source: QTWASUCO

Table 8 - Town matrix

DEMOGRAPHICS	Total population in town (2008) (urban and peri-urban)		69,296
	Total number of households (urban and peri urban)		17,712
	Population density (pop/km^2)		178
	Growth rate (%)		1.62
	Poverty rate (%)		55.76
	Average income		Urban: 1,081 Rural: 613
	Mean household size		3.9
	Number of schools		18
WATSAN	Total coverage water access (%)		33.3
	Total coverage sanitation access (%)		48.8
	Areas not covered water: sources used		Urban and peri-urban; well, rainwater, river, agriculture lake
	Areas not covered san: facilities used		Open areas near to river, lanke
HEALTH	Incidence of water borne diseases		Gynecology, bowel, trachoma
ENVIRONMENTAL			Polluted
TECHNICAL	Source	Type	Surface
		Yield	Enough
	Transmission line	Diameter (mm)	200
		Length (m)	600
		Material	Iron
	Pumping system	Number	4

		Number of hours per day	24/24
	Tank	Number	1
		Total Volume (m^3)	1,000
		Type	
	WTP	Type of treatment	Vertical sedimentation, filtration, Chlorination
		Capacity (m^3/day)	3,500
	Reservoirs	Number	1
		Total volume (m^3)	1,000
	Distribution line	Total length (m)	13,000
		Diameter (mm)	D50-400
		Material	Ductile iron, uPVC
	Distribution line: main	Diameter (mm)	
		Length (m)	
		Material	
	Distribution line: secondary	Diameter (mm)	
		Length (m)	
		Material	
	Household level	Number of connections	5,067
		Connection fee (USD)	111
		Hours of service	24/24
	Water quality (after treatment)	Standards accomplished	Reached
OPERATION	Water capacity		
	Water production (m^3)		3,500
	Water sold (m^3)		
	Water losses (%)		22
	O&M	Major breakdowns	Minor pipe leakage and breaks
		Actions taken	
	Water quality monitoring system	Mon. frequency and points	
MANAGEMENT	Tariff system	Type (flat, per blocks)	
		Rates	3,904VND for domestic 7,428VND for admin 8,380VND for construction and industry 9,333VND for services
		Subsidies system	
	Bill collection efficiency		99.9
	Average hh monthly tariff (VND)		50,484
	Average hh monthly consumption (m^3)		11
	Monthly income		255,804,000
	Monthly / year expenditure		90%
	Profit		

PROPOSAL	General description of areas		Quang Tri, Ai Tu, Trieu Thuong, Trieu Thanh, Trieu Long,Trieu Ai, Trieu Giang, Hai Phu, Hai Thuong, Hai Quy, Hai Lam
	Criteria for selecting areas		urban and peri-urban where the water pipes are available
	Water coverage in areas		33.3
	Technical description	Diameter (mm)	DN 50/150
		Length (m)	11,000
		Material	HDPE
	Number of HH		1,621
	Estimates costs (USD)		320,800
	Estimated action plan		2 years 2010, 2011
	Surveys needed?		yes
	Number of beneficiaries		8,105
WWM	Department responsible		There is no waste water treatment plant
	General Description		
	Future plans		
DRAINAGE	General Description		13% of roads in the town equipped with drainage sewers, total length 2.3km
			Drainage sewers are made from concrete but old and not well-function
			causing the flooding in the rain
	Department responsible		
	Future plans		A sewerage and drainage project have been prepared and awaiting for the fund from Norwegian government
	Other development partners		
ON SITE	Technologies used		
	School facilities		
	Hygiene education programs		
	Sanitation awareness campaigns		
	Desludging systems	Type	Manual
		Cost (USD)	
PROPOSAL	Beneficiaries (hh)		8,900
	Beneficiaries		44,500
	Total population in areas		
	Technical description		
SWM	General description		There is a landfill located near the town with mechanical operation

		The technique of landfill is not good, the lechat exfiltrate to the drainage sewers
		in the road
	New proposal for sanitation	
Institutional	Development plans	
	Other development partners in watsan	
	Investments plans in watsan	

D.1. General Description

Quang Tri town was once an important citadel town and the provincial capital of Quang Tri Province. Quang Tri Province is situated in the central-north side of Vietnam. Poverty provincial rates vary from 20% to 30% in 2006 according to the General Statistics Office. The province is on the East/West Economic Corridor and borders with Lao PDR in the East. Quang Tri town experienced some of the heaviest fighting during the Vietnam War and has been rebuilt since. Its residents have been able to access special programs for housing aimed at the families of fallen soldiers. The proposed project provides the opportunity to complement these initiatives. The urban and peri-urban areas of Quang Tri town have a total population of 72,070 and the mean household size is 5. The poverty rate in the target areas is 45%.

D.2. Water Supply

Service Coverage

Water coverage in both the peri-urban and urban areas of Quang Tri town is 29%. Most of the need for adequate water services is located in the peri-urban areas, where families rely on dug wells, rivers, and rain water.

Institutional Background

The Quang Tri Water Supply and Construction One Member Limited Company (QTWASUCO) is a state-owned non-profit enterprise within the Government of Quang Tri Province of Vietnam, responsible for the delivery of safe water to the citizens of the province. QTWASUCO's mandate is to finance, implement, manage and operate all formalized water supply system in urban areas. It is required to provide safe water at least cost to its consumers, whilst covering all costs, such as debt service, depreciation, and operation and maintenance.

The Water Supply System

- General description of the system

The water is delivered to the population through a group of water treatment plants (WTP). There are nine WTP in the whole province. Small towns are connected to the water supply systems through main distribution pipelines of cast iron between towns. Quang Tri is served by a WTP with 3,500 m^3/day in the same town. There are 4 pumps running 24 hours per day in winter and 20 to 22 per day in winter. There are two pumps in Khe Sanh running 12 hours a day. There is one reservoir with 1,000 m^3 of capacity. There are 1,987 connections. The service runs 24 hours. The water production is 50% of the system capacity.

- Existing water sources

The water source is surface water.

- Existing water treatment (water quality)

The treatment is through sedimentation, filtration and chlorination. The standards for water quality have been met.

- Transmission and distribution

The transmission line is 600 m long (200mm). The lines are cast iron. The distribution line is 35,000 m (D50-400). The materials vary including cast iron, uPVC, GS.

- Tariff and metering

The tariff system has been set per type of consumer at provincial level. The rates are: 3,904 Vietnam Dong per m^3 for domestic use, 7,428 Vietnam Dong per m^3 for the administration, 8,380 Vietnam

Dong per m^3 for construction and industry and 9,333 Vietnam Dong per m^3 services. The connection fee is USD110.

- Collections rates and operational costs (financial sustainability of the utility)

The bill collection efficiency is 97.5%. The average hh monthly tariff is 47,000 Vietnam Dong. The average hh monthly consumption is 11 m^3. The monthly income is 2.8 billion Vietnam Dong and the monthly expenditure is 95% excluding the expenditure of WTP. The Cua Viet branch of QTWASUCO has been reported not to be financially sustainable.

- Problems and main challenges

The water losses are 22%.

D.3. Sanitation, Waste Management and Drainage

Sanitation coverage in both the peri-urban and urban areas of Quang Tri town is 74.4%. Most of the need for adequate sanitation facilities is also located in the peri-urban areas, particularly in poor communities. QTWASUCO plans to facilitate the construction of improved sanitation facilities in selected areas with the active participation of the community. One of the main challenges identified by QTWASUCO from previous experiences working on water and sanitation projects is the need for strong awareness campaigns to engage communities, promote the use, and raise the demand for adequate sanitation facilities at the household level.

D.4. Proposed Interventions to improve Water Services

The proposed project aims to improve access to safe piped water for 8,705 people (1,741 households) in the peri-urban and urban areas of Quang Tri town. Upon completion of the project, the water coverage in both urban and peri-urban areas would increase from 29 to 41%.

Table 5 shows the preliminary proposal presented by QTWASUCO. The calculated costs for the expansion of the system include labor and transport of materials.

Table 9 - Preliminary proposal for the expansion of the system

Quang Tri town	
Expansion diameters dn	DN 50/150
Expansion lenght (m)	11,000
Expansion: material	HDPE
Expansion: estimated costs (USD)	220,000
Expansion: beneficiaries (hh)	1,740

D.5. Proposed Interventions to improve Sanitation Services

The proposed project aims to initiate pro-poor community-based sanitation services, build community institutions and increase capacities to undertake sanitation improvements for 44,500 people (8,900 households) in the peri-urban and urban areas of Quang Tri town. Upon completion of the project, the sanitation coverage in both urban and peri-urban areas would increase from 74.4 to 92% after this intervention. Improvements in sanitation are expected to be achieved through a demand led approach involving the promotion of sanitation, building capacity of the community to construct their own toilets through artisan's training and on-site demonstrations, and with the establishment of pro-poor financing arrangements such as revolving funds.

ANNEX 5 – Project Performance Monitoring and Evaluation (PPME) framework

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
1. Extend water and sanitation systems to achieve MDG target 10 through improved infrastructure and management systems 1.1 Develop and sign MoUs with Governments. 1.2 Organize town-level stakeholder workshops involving municipal officials, service providers, non-governmental organizations and community groups 1.3 Conduct participatory poverty- and needs assessment 1.4 Review and refine initial assessments, including environmental aspects 1.5 Conduct feasibility studies of each town. 1.6 Conduct environmental impacts study of the water supply and sanitation project in each town and implement mitigation measures in compliance with guidelines of the Government and the international practices. 1.7 Prepare and implement community-based Environmental	• 3 MoUs signed • 8 assessments reviewed • Results/Reports from feasibility studies provided	**Planned Outputs** • Water supply and sanitation infrastructure in at least eight towns rehabilitated installed and functional. • Water supply networks extended in at least six towns. • Rehabilitation of existing systems in 2 towns. • On-site sanitation in at least 8 towns. • Solid waste management and strategic drainage interventions in at least 6 towns.	**Planned Outcomes** • 90,755 additional people in the project towns have sustainable access to safe drinking water. • 190,365 people have sustainable access to improved sanitation.	**Planned Impacts** • Improved health and livelihood of the population • Enhanced productivity and economic development in the Mekong River Basin region • Improved protection of the Mekong River ecosystem from pollution loads emitted from urban centers along Mekong River.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
sanitation Master plans for each town in compliance	• CBES Master Plan prepared and implemented			
1.8 Design, procurement and implementation of physical infrastructure.	• 8 towns in which water supply systems have been extended/rehabilitated • 80% of population with access to improved sanitation			
1.9 Design and establish revolving funds for water and sanitation	• 8 revolving funds for water and sanitation designed and established • 90,755 additional people have sustainable access to safe drinking water • 190,365 people have sustainable access to improved sanitation			

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
2. Enhance institutional and human resource capacities at local and regional levels to sustain water and sanitation services 2.1 Conduct training needs and institutional development assessments 2.2 Organize town-level stakeholder workshops involving municipal officials, service providers, non-governmental organizations and community groups to decide on capacity building and institutional development activities 2.3 Undertake capacity building interventions for operational management in order to ensure sustainability at the local level. 2.4 Develop and implement capacity building and training programme for project personnel in	• 8 workshops organized • 50 municipal officials participated • All water and sanitation service providers of town participated • 8 workshops organized for operational management • 16 operational managers participated • Capacity building and training programme for project personnel conducted in 8 towns • At least 24 of project staff participated	**Planned Outputs** • Capacity building programmes are formulated with the participation of stakeholders and are effectively implemented at local and regional levels. • Communities of 8 towns are adequately trained and prepared for active and efficient participation in the Project.	**Planned Outcomes** • Increased capacity of water utilities to operate and manage water supply systems. • Enhanced community commitment to management of the water and sanitation facilities and increased role of women in decision-making positions. • Sustained access, particularly of the poor to improved water supply and sanitation in the 8 project towns.	**Planned Impacts** • Increased advocacy and awareness on water and sanitation infrastructure and utilities at all society levels. • Realization of partnerships between local authorities and CBOs/NGOs.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
each town. 2.5 Conduct capacity building for community on project implementation, monitoring and evaluation. 2.6 Develop pro-poor tariff and cost sharing policy options aiming to enhance the accessibility of poor households to water supply and decent sanitation facilities. 2.7 Conduct awareness programmes on water demand management, sanitation and hygiene	• 8 awareness programmes on water demand management, sanitation and hygiene • 30% of women in decision-making positions			

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
3. Operationalise upstream sector reforms at the local level 3.1 Establish and implement a monitoring and evaluation framework with participation of the community 3.2 Develop and apply mechanisms for financial and institutional sustainability at the local level. 3.3 Develop and apply mechanism for efficient billing and revenue collection. 3.4 Develop and apply pro-poor governance approaches to provision of water and sanitation services for the poor. 3.5 Develop and apply communication strategies to support the sector reform process.	• At least 9 towns register an increased % of investments (local and foreign) for water and sanitation services • Communication strategy developed	**Planned Outputs** • Transparent, accountable and sustainable financial and institutional mechanisms and pro-poor and good governance are promoted and functional.	**Planned Outcomes** • Enhanced institutional and human resource capacity at the local level. • Functional arrangements for monitoring and managing water and sanitation systems sustainably. • Sustained access, particularly of the poor to improved water supply and sanitation in the 8 project towns.	**Planned Impact** • Increased flow of investments (local and foreign) for WATSAN services as a consequence of reforms at the local level.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
4. Enhance capacities of local private sector entities in service delivery 4.1 Survey and analysis of the on-going activities of the private entrepreneurs in the water supply sector. 4.2 Review and develop policy options and regulations to strengthen the management and promotion of service providers. 4.3 Design and implement a pilot small scale public-private water supply service provider partnership.	• Small scale pilot implemented	**Planned Outputs** • Lessons on public-private partnership are drawn from the pilot project.	**Planned Outcomes** • Increased coverage of water and sanitation services in small town settlements. • Increased efficiency and improved service delivery as a result of capacity building and a direct business incentive.	**Planned Impact** • Institutional and regulatory environment conducive to the private participation in the water supply and sanitation sector.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
5. Reduce the environmental impact of urbanization on secondary towns of the Mekong River Basin Catchment 5.1 Survey and analyze the potential environmental impact of urbanization and develop mitigation options 5.2 Develop an environmental management strategy for the project towns identifying regulatory measures and mitigation approaches 5.3 Monitor and supervise all fast track activities.	• Environmental impacts mitigation measures formulated and effectively implemented • Environmental management strategy developed and implemented • Water quality monitoring accomplishing the national standards in all systems	**Planned Outputs** • Environmental impacts mitigation measures are formulated. • Fast track projects take due consideration on the environmental impacts.	**Planned Outcomes** • Improved water quality in the Mekong River Basin.	**Planned Impact** • Progress towards water and sanitation MDG targets.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
6. Support economic development in secondary towns through improved water and sanitation, and related income generating activities		**Planned Outputs** • Economic activities related to water in each town identified and appropriate measures in the water supply and sanitation sector to promote the economic activities effectively implemented.	**Planned Outcomes** • Improved socio-economic conditions of town inhabitants.	**Planned Impact** • Sustained economic growth
6.1 Survey and analysis of the potential related income generating activities.	• 8 towns in which survey was conducted and report provided			
6.2 Identify and implement measures within the water sector to contribute the promotion of water and sanitation related income generating activities.	• Economic activities related to water identified and appropriate measures in the water supply and sanitation sector to promote the economic activities mapped in at least 8 towns			

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
7. Support cooperation between the countries of the Mekong region, and thus economic development 7.1 Develop cooperation mechanisms with ongoing initiatives in the Mekong river catchment. 7.2 Develop working arrangements with existing donor coordination and water and sanitation sector working groups in the participating countries. 7.3 Conduct a consultation workshop at decision making level to discuss and explore on potential areas of cooperation among countries within MEK-WATSAN initiative.	• 8 town-level stakeholders' workshops held to identify and agree on planning parameters • 2 regional meetings conducted	**Planned Outputs** • Cooperation and exchange mechanisms among member countries and with external assistance agencies conducted.	**Planned Outcomes** • Enhanced cooperation in the Greater Mekong Sub Region countries.	**Planned Impact** • Joint initiatives and develop friendly relationships among member countries in every sector promoted.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
8. Gender Mainstreaming and Social Inclusion 8.1 Participation of women in decision making process 8.2 Include both of women and men receiving training in gender mainstreaming 8.3 Assessing the inclusion of marginalized groups within the society	• 30% of women in decision-making positions • One workshop in the 8 towns on gender issues and social inclusion organized • 8 towns in which there are pro-poor and vulnerable subsidies in the tariff systems for water service	**Planned Outputs** • Training activities/workshops on gender issues conducted in at least in 8 towns. • Women's organizations mobilized at least in 8 towns. • Women and deprived groups participated in decision making process and form a part of the project/user committee.	**Planned Outcomes** • Active participation of women in the decision making process. • A large number of people trained on gender issues. • Women's organizations activated and mobilized. • Awareness on gender and social inclusion spread at all society levels.	**Planned Impacts** • Women playing an active role in the decision making process. • Promoted respect for women's contribution to governance by all relevant actors. • Strengthened advocacy ability of women's organization. • Inclusion of deprived groups in the governance process stimulated.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
9. MDG Monitoring		**Planned Outputs**	**Planned Outcomes**	**Planned Impact**
9.1 Urban inequities survey 9.2 Localized MDGs	• Definitions for the monitoring indicators for MDGs, in particular target 10 and 11 developed • Urban Inequities Survey developed by relevant statistical offices (and other relevant agencies) of the participating Governments	• Survey on urban inequities realized. • MDGs localized.	• Agreed definitions about monitoring MDGs indicators achieved.	• Member Governments supported in reaching the water and sanitation MDGs.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
10. Fraud and Corruption		**Planned Outputs**	**Planned Outcomes**	**Planned Impacts**
10.1 Social transparency and accountability	• 30% of decision making related positions assigned to women	• Reports on community involvement, particularly on vulnerable groups realized. • All procurement activities carried out within a transparent legal framework. • The financial statements from all the activities are being thoroughly audited. • IEE conducted in all participating towns. • Activities implemented according to project needs.	• Risk of fraud and corruption in all the activities related to project implementation minimized. • Distortion or potential misuse of funds allocated to the specific activities avoided.	• Maximum efficiency in the use of project funds achieved. • Fraud and corruption practices prevented at every stage of project implementation.
10.2 Financial transparency and accountability	• Audit of financial documents of all funds spent in the project			
10.3 Environmental transparency and accountability	• Assessment of environmental impact of the project for all participating towns			
10.4 Technical transparency and accountability				

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
11. Sustainability		**Planned Outputs**	**Planned Outcomes**	**Planned Impacts**
11.1 Economic /Financial sustainability 11.2 Environmental sustainability 11.3 Technical sustainability 11.4 Social sustainability 11.5 Institutional sustainability	• Establishment and follow up of the financial plan • Documented use of revolving funds & mechanisms • IEE conducted in all towns • Number of system with protected sources • Technical interventions implemented reflecting the specific local conditions • 95% of sanitation facilities working and in good status • Community and local authorities in-kind/cash contribution, which	• Adequate funds to finance project expenditures available. • Adequate economic benefits to gain stakeholders participation established. • Environmental impact assessment conducted • Capacity utilization ratio. • Annual maintenance expenditures as % of capital investment unaccounted for water. • Users involvement in implementing project-related activities. • Total amount of in-kind contribution by users. • Significant contribution of local agencies/utilities to project activities obtained. • Billing efficiency. • Collection efficiency. • Liquidity situation. • Labour productivity of utility companies (staff per 100 connections).	• Financially viable operations achieved. • Project results achieved without overexploiting the natural resources. • High quality standards maintained together with an efficient resource management. • Continuous community participation achieved. • General value of users' donations evaluated/estimated. • Value of know-how provided by users estimated. • Involvement of the local private sector. • Activities and outputs continuously provided efficiently and effectively.	• Loss of environmental resources restrained and reversed. • Achieve operational sustainability in the medium and long term. • Development obtained without amplifying social disparities. • Stimulate users' interest in extending the project benefits beyond its completion. • Replicability and scalability by Governments interventions enhanced. • Institutional ability to manage utilities and services both at central and local level improved.

Activity	Proposed Target values	Outputs (short term results)	Outcomes (medium term results)	Impact (long term results)
	is to be at least 20% of the total project cost • 100% of people using sanitation facilities (men/women) • Reports from participating utilities and/or local authorities demonstrating improvement in capacity performance (including plans of scaling and replication) realized			

ANNEX 6 – The Hanoi Declaration

Statement of the Representatives of Governments of the Mekong Region on The Mekong Region Water and Sanitation (MEK-WATSAN) Initiative Regional Consultations

20 to 22 April 2009
Hanoi, Socialist Republic of Vietnam

1. Preamble

Pursuant to the Bangkok Consultations of 2005, MEK-WATSAN was formulated as a collaborative effort between UN-HABITAT, the governments of the Greater Mekong Sub-region and ADB.

The Mekong Region Water and Sanitation Initiative (MEK-WATSAN) is a regional programme which was initiated at the request of the governments of the Mekong Region - Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals (MDGs): to halve by 2015, the proportion of people without access to improved water supply and sanitation

MEK-WATSAN promotes: (i) Pro-poor urban water governance; (ii) Urban water conservation and demand management; (iii) Integrated urban environmental sanitation, and (iv) Income generation for the urban poor through community-based water and sanitation services.

In 2005, UN-HABITAT, with funding from the donors to the Water and Sanitation Trust Fund (WSTF) began piloting the MEK-WATSAN initiative in four countries in the Mekong – Kingdom of Camboida, Lao PDR, S.R.Vietnam and Yunnan Province of PR China.

Following country-level consultations and a regional meeting held in Phnom Penh in September 205 and joint country-level consultations, organized with ADB, held in Hanoi November 2007, Vientiane in December 2007 and in Phnom Penh in January 2008, and subsequent further funding in 2008, MEK-WATSAN is currently entering a Second Phase, where it will target investments in selected towns in Cambodia, Lao PDR and Vietnam. The implementation of this initiative will be undertaken in a progressive manner in accordance with the funding

The Mekong Region Water and Sanitation (MEK WATSAN) Regional Consultations, which opened on 20 April 2009, and concluded on 22 April 2009, were attended by High Level Representatives from the Kingdom of Cambodia, Lao PDR and S.R. Vietnam, bilateral organisations, UN Agencies, development banks, media, academia and representatives from NGOs.

II. Statement

We, the representatives from the Ministry of Mines and Energy of the Government of Kingdom of Cambodia, the Ministry of Public Works and Transport of Lao PDR and the Ministry of Construction of S.R. Vietnam, meeting in Hanoi, Vietnam, 20-22 April 2009,

1) **Reaffirm** our commitment to continue working together and collaborate in implementation of the MEK-WATSAN initiative in our respective countries, including, but not limited to: poverty reduction, water and sanitation sector reforms, solid waste management, urban planning, catchment management, improving legislative, institutional and financial frameworks, building capacity in service provider agencies, local authorities and communities for local water and sanitation governance and urban management.

2) **Recall** the Bangkok Consultations of 2005 in which it was agreed that the programme would employ a phased approach, targeted at secondary towns.

3) **Commend** the donors (Norway, Netherlands, Sweden, Spain, OZ Minerals) to the WSTF for

providing support to the initial pilot phase of MEK-WATSAN (fast-track).

4) **Recognize** the considerable progress and achievements done through fast-track activities in 17 towns, which has till date benefitted 43,700, of which 23,700 in water and 20,000 in sanitation.

5) **Recognize** the need for additional financial resources in order to meet the MDGs for water and sanitation in the Mekong Region

6) **Welcome** the additional financial assistance being provided by the Government of Netherlands towards the upscaling of MEK-WATSAN in 15 towns in Kingdom of Cambodia, Lao PDR and S.R. Vietnam

7) **Recognize** that training and capacity building is critical in ensuring the sustainability of the first phase and the scaling up of the programme.

8) **Commend** UN-HABITAT for the leadership role and initiative in implementing the project to date.

9) **Appreciate** the contribution of participating governments and other cooperating partners in implementing the MEK-WATSAN programme in the Mekong Region.

10) **Welcome** the synergies with other development agencies towards implementation of MEK-WATSAN initiative.

11) **Appreciate** further the contribution of all other cooperating partners, including participating governments, Asian Development Bank, UN Agencies, Academia and Non-governmental organizations at this Regional consultation

III Resolution

We, therefore, in the spirit of regional cooperation, and with a common goal,

1) **Resolve** to fully support the implementation of the current and next phase of MEK-WATSAN by committing our Governments to contribute the required counterpart support for both the first phase and for the scaling up of the programme.

2) **Further call upon donors** to provide an increased level of funding towards the programme, including for capacity building in order to ensure sustainability of the programme and subsequent achievement of the MDGs for Water and Sanitation.

3) **Endorse** the action plans for implementation of this second phase of the MEK-WATSAN initiative as developed during these consultations;

4) **Affirm** our commitment to coordinate to ensure adequate monitoring and evaluation of the progress of the initiative in our respective countries, including carrying out sustainability checks covering infrastructural, socio-economic and ecological aspects

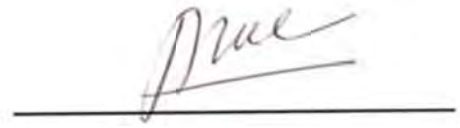
5) **Recommend** UN-HABITAT continues its partnership with the Asian Development Bank (ADB), and explore all venues of cooperation to increase investments in MEK-WATSAN

6) **Encourage** UN-HABITAT to continue close partnership with other development agencies in implementing and scaling up of MEK-WATSAN initiative

7) **Decide** to meet within a year to assess progress made.

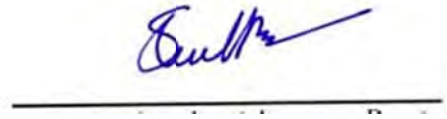
Acknowledge the support and thank the Government of the Socialist Republic of Vietnam for hosting the Regional Consultations in Hanoi from 20-22 April 2009.

Delivered on 22 April 2009 during the MEK-WATSAN Regional Consultations.



Mr. Bui Xuan Doan, Deputy Director Administration of Technical Infrastructure, Ministry of Construction, S. R. Vietnam

H. E. Meng Saktheara, Director General of Industry, Ministry of Industry, Mines and Energy, Kingdom of Cambodia



Mr. Phouthasenh Arkavong, Deputy Director General, Department of Housing and Urban Planning, Ministry of Public Works and Transport, Lao PDR

ANNEX 7 – Copies of the signed Memoranda of Understanding for Cambodia, Lao PDR and Vietnam

UN-HABITAT
FOR A BETTER URBAN FUTURE

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME
AND
THE MINISTRY OF INDUSTRY, MINES AND ENERGY OF
THE KINGDOM OF CAMBODIA
ON THE MEKONG REGION WATER AND SANITATION INITIATIVE
(MEK-WATSAN)

WHEREAS, the United Nations Human Settlements Programme (UN-HABITAT), having its Headquarters in Nairobi, Kenya, is the coordinating agency within the United Nations System for human settlements activities, a focal point for the monitoring, evaluation and implementation of the Habitat Agenda, as well as the task manager of the human settlements chapter of Agenda 21, and in collaboration with governments, is responsible for promoting and consolidating collaboration with all partners, including local authorities and private and non-governmental organizations;

WHEREAS, the Government of the Kingdom of Cambodia (hereinafter referred to as the "Ministry of Industry, Mines and Energy or MIME"), is currently cooperating with UN-HABITAT in a number of projects to address the urgent need and critical issues aimed at improving water and sanitation in human settlement;

WHEREAS, the Parties acknowledge and confirm their commitment to continue working together and their collaboration in relevant areas, including, but not limited to: poverty reduction; water and sanitation sector reforms; solid waste management; urban planning; catchment management; improving legislative, institutional and financial frameworks; and building capacity in service provider agencies, local authorities and communities for local water and sanitation governance and urban management;

WHEREAS, the Mekong Region Water and Sanitation Programme (hereinafter referred to as "MEK-WATSAN") is a regional programme which was initiated at the request of the governments of the Mekong Region - the Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals (MDGs): to halve by 2015, the proportion of people without access to improved water supply and sanitation. MEK-WATSAN promotes: (i) Pro-poor urban water governance; (ii) Urban water conservation and demand management; (iii) Integrated urban environmental sanitation, and (iv) Income generation for the urban poor through community-based water and sanitation services. MEK-WATSAN is currently entering a Second Phase, where it will target investments in selected towns in Cambodia, Lao PDR and Vietnam. The implementation of this initiative will be undertaken in a progressive manner in accordance with the funding. The overall objectives of this MEK-WATSAN collaboration are as follow: i) To achieve pro-poor

1

water and sanitation investments in secondary urban centers in the Mekong River Catchment Region; ii) To enhance institutional and human resources capacities at local and regional levels for the sustainability of improved water services; iii) To operationalise upstream sector reforms at the local level in the participating human settlements with the aim of enhancing efficiency; iv) To enhance local private sector capacities for participation in service delivery; v) To reduce the environmental impact of urbanization on the Mekong River Catchment; vi) To enhance economic development in small urban centers through improved water, as well as related income generating activities; and vii) To promote economic development for the Mekong River Catchment through enhanced cooperation in the GMS; and

WHEREAS, a rapid assessment of water will be carried out which will be followed by development of infrastructure investment and capacity building needs in selected towns in the Kingdom of Cambodia.

NOW, THEREFORE, UN-HABITAT and MIME (hereinafter collectively referred to as the "Parties" and individually as the "Party") have entered into the present Memorandum of Understanding (hereinafter referred to as the "MOU").

Article I
Scope and Objectives

1. This MOU establishes a framework for mutually fruitful collaboration between the Parties for facilitation and implementation of the Initiative in the Kingdom of Cambodia, in order to support secondary urban centers-in the Region to achieve the Millennium Development Goal 7, Target 10, which is reflected in Cambodian Millennium Development Goal 7, Overall Target 14, which is to halve, by 2015, the proportion of people without sustainable access to safe drinking water. .

2. The following shall be the specific objectives of this MEK-WATSAN collaboration:

   a) To achieve pro-poor water and sanitation investments in secondary urban centres in the Mekong River Catchment Region;
   b) To enhance institutional and human resources capacities at local and regional levels for the sustainability of improved water services;
   c) To operationalise upstream sector reforms at the local level in the participating human settlements with the aim of enhancing efficiency;
   d) To enhance local private sector capacities for participation in service delivery;
   e) To improve the urban environmental conditions in the Mekong River Catchment;
   f) To enhance economic development in small urban centres through improved water, as well as related income generating activities; and
   g) To promote economic development for the Mekong River Catchment through enhanced cooperation in the GMS.

3. The first phase of implementation (the "Project", described in Schedule I attached to this MOU) covered by this MOU will be carried out in selected secondary urban centres in the Kingdom of Cambodia.

4. UN-HABITAT will work with the Ministry of Industry Mines and Energy (MIME), in particular with its Department of Potable Water Supply.

Article II
General Responsibilities

1. The Parties undertake to work together in the achievement of the objectives of this collaboration in good faith and in a spirit of friendly cooperation, as set out in this MOU.

2. The Parties also undertake to fulfill their responsibilities with respect to the design, implementation, monitoring and evaluation of the Initiative in specific secondary urban centres.

3. The Parties shall form a MEK-WATSAN Coordination Committee at the national level for in-county coordination of MEK-WATSAN activities and ensure participation of various stakeholders. Each party will decide in its own discretion, who will be represented it in the Coordination Committee.

4. The Parties shall collaborate in raising awareness and keeping the other party informed of policies that may affect the Project.

5. The Parties agree that the specific terms and conditions for the implementation of the Project activities in each town shall be set out in separate Agreements of Cooperation to be signed by UN-HABITAT and Department of Potable Water Supply of MIME consistent with the regulations, rules, policies and practice of UN-HABITAT.

Article III
Responsibilities of the Government

Under this MOU, the Government shall:

a) Designate a person within MIME, who will act as the focal point and be responsible for coordinating in-country activities;
b) Be responsible for the design and implementation of the Project and for its maintenance and management in accordance with the clauses under this article;
c) Ensure that adequate budgetary allocations or required counterpart funding (in-kind/cash) will be made available for the Project on a timely basis for each year during implementation. Such counterpart funding (in-kind/cash) will be no less than 20 per cent of UN-HABITAT contribution each year;
d) Review, periodically, water tariffs to ensure that they are set according to applicable laws and regulations. No entity, whether a government agency, institution, or enterprise, regardless of ownership, will be exempted from the water tariffs established pursuant to the above or granted a preferential rate other than the approved tariff structure, or excused for delays in payments, without penalties. The impact of increased WSS tariffs on the poor will be reviewed, and appropriate measures will be introduced to protect the basic living standards of the urban poor. Summaries of these reviews will be

furnished to UN-HABITAT no later than two months after completion of each review;

e) Carry out annually until 2015, a sustainability check covering infrastructural and other relevant aspects. Reporting on this obligation will be a prerequisite to the continuance of UN-HABITAT support to the project in each town until the completion of the project, and any other support to MIME after completion of the project. In case of any reported dysfunction of the services and facilities provided, the Government is required to take immediate and adequate measures to make sure that the situation is corrected in order to ensure the sustainability of project interventions and goals after the conclusion of the project (anticipated by 2011) and until the end of the year 2015;
f) Ensure that the construction of water and sanitation services will be on the existing public right-of-way or on state-owned land. The Project will not entail land acquisition from private ownership. In the event of unforeseen land acquisition from private ownership and /or settlement, the Government will procure the land on a free-hold basis and prepare and submit all necessary planning documents for issuance of a No Objection Certificate by UN-HABITAT, before start of civil works;
g) Comply with existing laws and regulations to ensure proper management of water resources near the project towns, to maintain adequate recharge to the aquifers from which town water is drawn;
h) Responsive to the established community based Water and Sanitation Groups in each town;
i) Submit before 31 March each year, a draft Project Performance and Monitoring protocol until 2015, including description of the annual check on the sustainability of the project interventions (Article III, paragraph 6 above) and the necessary budgetary requirements;
j) Before 28 February each year, starting 2010, the Government will provide an annual result-based narrative report and an annual financial statement of counterpart financing on the previous calendar year, showing incomes and expenditures as at 31 December each year for each town;
k) Share information with other countries which are partners in the Initiative; and
l) Ensure the effective coordination of MEK-WATSAN activities amongst all relevant Ministries.

Article IV
Responsibilities of UN-HABITAT

Under this MOU, UN-HABITAT shall:

a) Through its Water and Sanitation Trust Fund and under separate Agreements of Cooperation, make available to cooperating partners an amount in local currency equivalent to USD1,065,403 (United State Dollars One Million, Sixty Five Thousand, Four Hundred and Three) for the implementation of the Project; and
b) Provide technical assistance for capacity building to the MIME and other stakeholders in the Project and support other institutional development needs to promote water and sanitation provision in the selected urban centres covered by the Project.

Article V
Project Management, Implementation and Coordination

1. **Executing Agency**. The Department of Potable Water Supply of MIME shall be responsible for execution and implementation of the Project.

2. **Project Management Unit**. MIME shall maintain a MEK-WATSAN Project Management Unit, which shall be responsible for coordination and oversight of the Project. The MIME shall assign the chairman of PMU and the member of PMU from the Department of Potable Water Supply.

3. **Project Implementation Units**. MIME shall ensure that a Project Implementation Unit ("PIU") is maintained in each project town and the respective PIUs are headed by the head of utility and its personnel. In case necessary, PIU shall include personnel from existing local government structures.

4. **Multi-Stakeholder Forum.** MIME shall ensure that each project town convene Multi-Stakeholder Forum ("MSF") to monitor and guide the performance of the PIU. The local authority, water and sanitation groups and other relevant stakeholders shall be invited to participate in the MSF.

Article VI
Procurement

1. Except as UN-HABITAT may otherwise agree, the procedures referred to in the following paragraphs in this Article shall apply in the procurement of goods and services to be financed by the Project.

2. Procurement of goods and services shall be made without any restriction against, or preference for, any particular supplier or contractor except as otherwise provided in paragraph 3 below.

3. Each civil works contract and each supply contract for equipment or materials shall be according to the Procurement Manual, Policies and Procedures for Externally Financed Projects/Programs in Cambodia, issued by Royal Government of Cambodia (Sub-Decree No.:14 dated 26 February 2007). Prequalification, selection and engagement of contractors shall be done by a duly constituted tender board and shall be subject to review and monitor by UN-HABITAT as outlined in the Ministry of Economy and Finance's Procurement Manual.

4. The financial management of the project shall be according to the Financial Management Manual issued by Royal Government of Cambodia (Sub-Decree No.: 14 dated 26 February 2007).

5. UN-HABITAT shall be entitled to postpone or, if appropriate, to reject a disbursement request if MIME does not fulfill any of the undertakings described in the present Agreement. MIME shall be informed in a timely manner of any such postponement and/or rejection.

Article VII
Applicability of United Nations Regulations and Rules

The United Nations Regulations, Rules, Policies and Practices shall be applicable to project activities in any respect, including engagement of staff consultants, procurements and audit in case, the Kingdom of Cambodia Regulations, Rules, Policies and Practices are non-existent.

Article VIII
Monitoring and Evaluation

1. The Parties, together with representatives of Habitat Agenda partners, including local governments, professional associations, research and academic institutions and other civil society members, shall maintain regular close consultations to monitor and review the progress of the Initiative.

2. The Parties shall share with each other, all relevant information and documents, including research, reports and any other information related to the activities, outputs and impact of the Initiative.

3. The Parties, may, wherever possible and appropriate, undertake joint missions with respect to the Initiative.

4. The Parties shall welcome joint evaluation of the outputs and impact of the Initiative.

5. The Parties shall keep the United Nations Resident Coordinator fully informed of all actions undertaken by them in carrying out this MOU. UN-HABITAT will utilize the capacity of the Habitat Programme Manager, as necessary and appropriate for the effective implementation of the Initiative.

Article IX
Inspection and Audit - rights of access to audit project

1. MIME or Agency shall facilitate inspection and audit of the Project by the United Nations Office of Internal Oversight Services, or any other person duly authorized by UN-HABITAT. Should they at any time wish to do so, the United Nations Board of Auditors may also carry out an audit of the Project. Audits of the Project will include, *inter alia*, the examination of the Project accounting records in order to determine that the charging of administrative and operational support costs to the Project complies with those specified in the annexes to this Agreement. For auditing purposes, Project accounting records shall be retained for the six years following the completion of the Project.

2. MIME or Agency shall facilitate visits by the duly authorised persons to the Project site(s) to evaluate the progress and achievements of the Project during its period of implementation or thereafter.

3. MIME shall submit to UN-HABITAT, within six months of the final date for liquidation of commitments, an audit report. MIME's implementing partners should be audited by the the Ministry's highest audit body (General Inspection Directorate).

Article X
Notices

All notices and communications to each party required under or related to this MOU shall be forwarded to the respective addresses of each party, as follows:

(a) For UN-HABITAT	(b) For MIME
Chief Water and Sanitation Section II Water, Sanitation and Infrastructure Branch UN-HABITAT P. O. Box 30030, Nairobi, Kenya Tel: +254 20 7623060 Fax: +254 20 7623588	Director Department of Potable Water Supply, Ministry of Industry Mines and Energy #45 Preah Norodom Blvd PO Box 1167, Phnom Penh Cambodia Tel: +855-23-991387 Fax: +855-23-428263

Article XI
Privileges and Immunities

1. MIME agrees that the Convention on the Privileges and Immunities of the United Nations of 13 February 1946, to which the Kingdom of Cambodia acceded on 6 November 1963, and, *mutaiis mutandis*, the provisions of the United Nations Development Programme Basic Assistance Agreement, signed by the Government on 19 December 1994, and which applies *mutatis mutandis* to UN-HABITAT and its property, funds and assets and to its officials and experts on mission in the country, is applicable in the context of this MOU.

2. Nothing in or relating to this MOU shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including UN-HABITAT.

Article XII
Indemnification

MIME shall indemnify, hold and save harmless, and defend, at its own expense, UN-HABITAT, its officials, agents, servants and employees from and against all suits, claims, demands, and liability of any nature or kind, including their costs and expenses, arising out of acts or omissions of MIME, or MIME employees, officers, agents or sub-contractors in the performance of this Agreement. This provision shall extend, *inter alia*, to claims and liability in the nature of workmen's compensation, products liability and liability arising out of the use of patented inventions or devices, copyrighted material or other intellectual property by MIME, its employees, officers, agents,

servants or sub-contractors. The obligations under this Article do not lapse upon termination of this Agreement.

Article XIII
Copyright, Patents and other Propriety Rights

UN-HABITAT shall be entitled to all intellectual property and other proprietary rights including but not limited to patents, copyrights, and trademarks, with regard to products, or documents and other materials which bear a direct relation to or are produced or prepared or collected in consequence of or in the course of the execution of this Agreement. At UN-HABITAT's request, MIME shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring them to UN-HABITAT in compliance with the requirements of the applicable law in the Kingdom of Cambodia.

Article XIV
Use of Name, Emblem or Official Seal of UN-HABITAT or MIME

Unless expressly authorized by UN-HABITAT in writing, including the manner in which the use may be done, the MIME shall not, in any manner whatsoever, use the name, emblem or official seal of UN-HABITAT or the United Nations, or any abbreviation of thereof in connection with its business or otherwise and vice versa.

Article XV
Force Majeure; Other Changes in Conditions

1. In the event of and as soon as possible after the occurrence of any cause constituting force majeure, MIME shall give notice and full particulars in writing to UN-HABITAT, of such occurrence or change if MIME is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under this Agreement. MIME shall also notify UN-HABITAT of any other changes in conditions or the occurrence of any event, which interferes or threatens to interfere with its performance of this Agreement. On receipt of the notice required under this Article, UN-HABITAT shall take such action as, in its sole discretion, it considers to be appropriate or necessary in the circumstances, including the granting to the MIME of a reasonable extension of time in which to perform its obligations under this Agreement.

2. If MIME is rendered permanently unable, wholly, or in part, by reason of force majeure to perform its obligations and meet its responsibilities under this Agreement, UN-HABITAT shall have the right to suspend or terminate this Agreement on the same terms and conditions as are provided for in Article XVI, "Termination", except that the period of notice shall be three (3) weeks instead of three (3) months.

3. Force majeure as used in this Article means acts of God, war (whether declared or not), invasion, revolution, insurrection, or other acts of a similar nature or force.

Article XVI
Termination

1. Either party may terminate this Agreement for cause, in whole or in part, upon three (3) months notice, in writing, to the other party. The initiation of arbitral proceedings in accordance with Article XVII "Settlement of Disputes" below shall not be deemed a termination of this Agreement.

2. UN-HABITAT may terminate forthwith this Agreement at any time should the mandate or the funding of the Project be curtailed or terminated, in which case MIME shall be reimbursed by UN-HABITAT for all reasonable costs incurred by MIME prior to receipt of the notice of termination.

3. In the event of any termination by UN-HABITAT under this Article, no payment shall be due from UN-HABITAT to the Government, except for work and services satisfactorily performed in conformity with the express terms of this Agreement.

Article XVII
Settlement of Disputes

Any disputes between UN-HABITAT and MIME relating to the interpretation of this Agreement that is not settled by negotiation or other agreed mode of settlement will be referred at the request of either party of final decision to a tribunal of three arbitrators, one to be named by the Secretary-General of the United Nations, one to be named by MIME, and the third, who will be the Chairperson, to be chosen by the first two: if either party fails to appoint an arbitrator within 60 days of appointment by the other party, or if these two arbitrators should fail to agree on the third arbitrator within 60 days of their appointment, the President of the International Court of Justice may make any necessary appoints, at the request of either party. However, any such dispute that involves a question regulated by the Convention on the Privileges and Immunities of the United Nations will be dealt with in accordance with Section 30 of that Convention.

Article XVIII
Entry into Force, Duration and Modification

1. This MOU shall enter into force on the date of signature and shall remain valid until terminated in writing by either party.

2. Arrangements set forth in this MOU may be modified upon mutual agreement of the Parties to be reflected in writing by duly authorized representatives of each party.

IN WITNESS WHEREOF the undersigned duly appointed representatives of UN-HABITAT and MIME have signed two original copies of this MOU in the place(s) and on the date(s) herein below indicated.

For UN-HABITAT	**For MIME**
Anna K. Tibaijuka Executive Director	**Suy Sem** Minister
Place: Nairobi Date: 10/12 2009	Place: Phnom Penh. Date: 10.12.2009.

Schedule 1

Project Document

I. Project Objectives

In response to requests from several governments in the Greater Mekong Sub-region (GMS), UN-HABITAT has developed a special Water and Sanitation Initiative for the Mekong Region (MEK-WATSAN) with a three-phased strategy for implementation. The initiative will focus on capacity building, project design, planning and implementation and follow-up investments. MEK-WATSAN initiative is a collaborative effort between UN-HABITAT and the governments of the Mekong region, which developed as a concept similar to that of the Lake Victoria initiative. The whole philosophy of MEK-WATSAN is to support participating governments attain their water and sanitation related MDGs agreed in 2000, to halve the proportion of people without access to improved water supply and sanitation services by 2015.

The MEK-WATSAN initiative will support participating governments to achieve the Millennium Development Goals for water supply and sanitation, with an emphasis on innovative solutions and speedy delivery. With a growing awareness among Programme countries of the benefits of a regional approach, participants at the workshop shared ideas on benchmarking, regional training and capacity building initiatives, regional networking, and cooperation in protecting and managing a shared resource – the Mekong River. One critical issue that seems to affect every country is that of sustainability of services for the poor, especially in terms of cost recovery and subsidy arrangements.

As a strategy the MEK-WATSAN is focusing its attention on support to secondary urban centres. It is in these secondary cities where urbanization will grow fastest, deficiencies in water supply and sanitation are most pronounced, institutional capacities are weakest and willingness to invest lowest.

The initiative provides an ideal opportunity for targeting water and sanitation investments to secondary cities linked to sector reforms and capacity building within a process of decentralisation to enable them to achieve the Millennium Development Goals (MDGs) and to reduce pollution loads entering the Mekong River.

The overall objectives of MEK-WATSAN are:

- Expedite pro-poor water and sanitation investments in secondary towns of the GMS;
- Enhance institutional and human resource capacities at local and regional levels to sustain water and sanitation services;
- Operationalise upstream sector reforms at the local level;
- Enhance capacities of local private sector entities in service delivery;
- Reduce the adverse environmental impacts of urbanisation on local river catchments;

- Support economic development in secondary towns through improved water and sanitation, and related income generating activities, and
- Support cooperation between the countries of the Mekong region, and thus economic development.

II. General Framework

In February 2005, UN-HABITAT organized a workshop for National Programme Counterparts and Partners in Bangkok, Thailand, to discuss programme formulation, determine the most effective approaches to implementation, and provide an opportunity for sector professionals in the region to meet each other and share experiences.

The workshop concluded with a consensus that secondary towns should be the focus of the MEK-WATSAN initiative. As part of the capacity building phase of the Programme, each country will formulate proposals for investments in secondary towns. Following a series of consultation missions undertaken by the Regional Technical Adviser, Water for Asian Cities Programme after the workshop, an agreement was reached on the selection of pilot towns, and preparations were made in each country to formulate implementation proposals, including proposals for community surveys.

In 2005, very rapid progress was made in developing a participatory programme framework and implementation plan. A major breakthrough was the start of an innovative fast-track pilot demonstration project in Xieng Nguen in Luang Prabang province of Lao PDR, providing services as the overall framework was evolving. Since then activities have expanded to include Vietnam, Yunnan China and Cambodia, with investments in some 20 towns within the region.

This proposal marks a roll out of the current activities into a further 8 towns in Cambodia, Vietnam and Lao PDR. Based on the ongoing experience, UN-HABITAT and partner countries are poised to commence the proposed Government of Netherlands funded programme in the 8 towns. This project will improve access for 90,755 people to sustainable and safe water supply and for 190,365 people to sustainable and safe sanitation. The project will also contribute in a catalytic manner to increased investment flows for improving water and sanitation in the Mekong region

III. Project Activities

The following activities will be undertaken:

<u>Objective I:</u> Extend water systems to and achieve MDG Goal 7, Target 10, which is reflected in Cambodian Millennium Development Goals (CMDG) Goal 7, Overall Target 14

Related Activities

1. Develop and sign MOUs with Governments;
2. Organize town-level stakeholder workshops involving municipal officials, service providers, non governmental organizations and community groups;
3. Conduct participatory poverty and needs assessment;

4. Review and refine of initial assessments, including environmental aspects 1.3 Conduct the feasibility studies of each town;
5. Conduct the environmental impacts study of the water supply project in each town and implement mitigation measures in compliance with guidelines of the Government and the international practices;
6. Design, procurement and implementation of physical infrastructure; and
7. Design and establish revolving funds for water supply.

Objective II: Enhance institutional and human resource capacities at local and regional levels to sustain water services

Related Activities

1. Conduct training needs and institutional development assessments;
2. Organize town-level stakeholder workshops involving municipal officials, service providers, non-governmental organizations and community groups to decide on capacity building and institutional development activities;
3. Undertake capacity building interventions for operational management in order to ensure sustainability at the local level;
4. Develop and implement capacity building and training programme for project personnel in each town;
5. Conduct capacity building for community on project implementation, monitoring and evaluation;
6. Develop pro-poor tariff and cost sharing policy options aiming to enhance the accessibility of poor households to water supply; and
7. Conduct awareness programmes on water demand management, sanitation and hygiene.

Objective III: Operationalise upstream sector reforms at the local level

Related Activities

1. Establish and implement a monitoring and evaluation framework with the participation of the community;
2. Develop and apply mechanism for financial and institutional sustainability at the local level;
3. Develop and apply mechanism for efficient billing and revenue collection;
4. Develop and apply pro-poor governance approaches to provision of water services for the poor; and
5. Develop and apply communication strategies to support the sector reform process.

Objective IV: Enhance capacities of local private sector entities in service delivery

Related Activities

1. Survey and analysis of the on-going activities of the private entrepreneurs in the water supply sector;
2. Review and develop policy options and regulations to strengthen the management and promotion of services providers; and

Objective V: Support economic development in secondary towns through improved water supply and related income generating activities

Related Activities

1. Survey and analysis of the potential related income generating activities; and
2. Identify and implement measures within the water sector to contribute the promotion of water supply related income generating activities.

Objective VI: Support cooperation between the countries of the Mekong region, and thus economic development

Related Activities

1. Develop cooperation mechanisms with ongoing initiatives in the Mekong River Catchment;
2. Develop working arrangements with existing donor coordination and water supply sector working groups in participated countries; and
3. Conduct a consultation workshop at decision making level to discuss and explore on potential areas of cooperation among countries within MEK-WATSAN programme.

Objective VII: Establish Monitoring and Evaluation framework for CMDGs attainment and programme monitoring.

Related Activities

1. Conduct Monitoring and Evaluation;
2. Develop a participatory monitoring and evaluation framework;
3. Develop analytical indicators and data for water and sanitation statistic; and
4. Track progress and conduct evaluation.

IV. Expected Results

The following results are expected at the end of the project period:

- Expand service coverage to additional 27,000 people in 4 towns (Kampong Cham, Kampong Thom, Svay Rieng and Pursat);
- Improvement in the capacity of operational staff/stakeholder institutions/NGOs/ CBOs to sustainably operate, maintain and manage improved water infrastructure;
- Improved service provision as a result of:
  - Commercialisation of service provision;
  - Established ability and willingness to pay;
  - Develop small scale private sector;
  - Tariffs reforms;
  - Developed utility business development plans; and
  - Enhanced community participation in management of services.
- Participatory monitoring and evaluation framework for tracking progress in CMDG attainment and programme monitoring established.

V. Project Duration

The Project will enter into force on the date of signature of the MoU between UN-HABITAT and the Government of Cambodia on the Mekong Region Water and Sanitation Initiative (MEK-WATSAN) and is expected to be completed by 31 October 2011.

UN-HABITAT
FOR A BETTER URBAN FUTURE

MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME AND GOVERNMENT OF THE LAO PEOPLE'S DEMOCRATIC REPUBLIC ON THE MEKONG REGION WATER AND SANITATION INITIATIVE

WHEREAS, the United Nations Human Settlements Programme (hereinafter referred to as "UN-HABITAT"), having its Headquarters in Nairobi, Kenya, is the coordinating agency within the United Nations System for human settlements activities, a focal point for the monitoring, evaluation and implementation of the Habitat Agenda, as well as the task manager of the human settlements chapter of Agenda 21, and, in collaboration with governments, is responsible for promoting and consolidating collaboration with all partners, including local authorities and private and non- governmental organizations;

WHEREAS, the Government of Lao People's Democratic Republic (hereinafter referred to as the "Government"), is currently cooperating with UN-HABITAT in a number of projects to address the urgent need and critical issues aimed at improving water and sanitation in human settlement;

WHEREAS, the Parties acknowledge and confirm their commitment to continue working together and their collaboration in relevant areas, including, but not limited to: poverty reduction; water and sanitation sector reforms; solid waste management; urban planning; catchment management; improving legislative, institutional and financial frameworks; and building capacity in service provider agencies, local authorities and communities for local water and sanitation governance and urban management;

WHEREAS, the Mekong Region Water and Sanitation Programme (hereinafter referred to as "MEK-WATSAN") is a regional programme which was initiated at the request of the governments of the Mekong Region - Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals (MDGs): to halve by 2015, the proportion of people without access to improved water supply and sanitation. MEK-WATSAN promotes: (i) Pro-poor urban water governance; (ii) Urban water conservation and demand management; (iii) Integrated urban environmental sanitation; and (iv) Income generation for the urban poor through community-based water and sanitation services. MEK-WATSAN is currently entering a Second Phase, where it will target investments in selected towns in Cambodia, Vietnam and Lao PDR. The implementation of this initiative will be undertaken in a progressive manner in accordance with the funding; and

WHEREAS, a rapid assessment of water and sanitation will be carried out, which will be followed by development of infrastructure investment and capacity building needs in selected towns in Lao PDR.

NOW, THEREFORE, UN-HABITAT and the Government (hereinafter collectively referred to as the "Parties" and individually as the "Party") have entered into the present Memorandum of Understanding (hereinafter referred to as the "MOU").

Article I
Scope and Objectives

1. This MOU establishes a framework for mutually fruitful collaboration between the Parties for facilitation and implementation of the MEK-WATSAN in Lao People's Democratic Republic, in order to support urban centers-in the Region to achieve the Millennium Development Goal, Target 7 on Water and Sanitation to "halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation".

2. The following shall be the specific objectives of this collaboration:

   a) To achieve pro-poor water and sanitation investments in urban centres in the Mekong River Catchment Region;
   b) To enhance institutional and human resources capacities at local and regional levels for the sustainability of improved water and sanitation services;
   c) To operationalise upstream sector reforms at the local level in the participating human settlements with the aim of enhancing efficiency;
   d) To enhance local private sector capacities for participation in service delivery;
   e) To reduce the environmental impact of urbanisation on the Mekong River Catchment;
   f) To enhance economic development in small urban centres through improved water and sanitation, as well as related income generating activities; and
   g) To promote economic development for the Mekong River Catchment through enhanced cooperation in the GMS.

3. The first phase of implementation of the Mekong Region Water and Sanitation Initiative in Lao PDR (the "Project", described in Schedule I attached to this MOU) covered by this MOU will be carried out in selected urban centres in Lao PDR.

4. UN-HABITAT will work with the Government through the Ministry of Public Works and Transport (MPWT), in particular with its Department of Housing and Urban Planning and in close cooperation without being limited to, the Water Resources and Environment Administration, Ministry of Health, Ministry of Foreign Affairs, Ministry of Finance and relevant Provincial and District Authorities.

Article II
General Responsibilities

1. The Parties undertake to work together in the achievement of the objectives of this collaboration in good faith and in a spirit of friendly cooperation, as set out in this MOU.

2. The Parties also undertake to fulfill their responsibilities with respect to the design, implementation, monitoring and evaluation of the MEK-WATSAN in specific urban centres.

3. The Parties shall form a MEK-WATSAN Coordination Committee at the national level for in-country coordination of MEK-WATSAN activities and ensure participation of various stakeholders. Each party will decide in its own discretion, who will represent it in the Coordination Committee.

4. The Parties shall collaborate in raising awareness and keeping the other party informed of policies that may affect the Project.

5. The Parties agree that the specific terms and conditions for the implementation of the Project activities shall be set out in separate Agreements of Cooperation between UN-HABITAT and local government authorities or water and sanitation utilities responsible for the respective project towns, consistent with the regulations, rules, policies and practice of UN-HABITAT.

Article III
Responsibilities of the Government

Under this MOU, the Government shall:

a) Designate a person within MPWT who will act as the focal point and be responsible for coordinating in-country activities;
b) Be responsible for the design and implementation of the Project and for its maintenance and management in accordance with paragraph 4 of this Article;
c) Review, every three years, water tariffs in line with the current Government policy and regulations. Summaries of tariff reviews will be furnished to UN-HABITAT no later than two months after completion of each review;
d) Carry out annually until 2015, a sustainability check covering infrastructural, socio-economic and ecological aspects. Reporting on this obligation will be a prerequisite to the continuance of UN-HABITAT support to the Project in each town until the completion of theProject, and any other support to the Government after completion of the Project. In case of any reported dysfunction of the services and facilities provided, the Government is required to take immediate and adequate measures to make sure that the situation is corrected in order to ensure the sustainability of project interventions and goals after the conclusion of the Project (anticipated by 2011) and until the end of the year 2015;
e) Ensure that the construction of water and sanitation services will be on the existing public right-of-way or on state-owned land. The Project will not entail land acquisition from private ownership. In the event of unforeseen land acquisition from private ownership and /or settlement, the Government will procure the land on a free-hold basis and prepare and submit all necessary planning documents for issuance of a No Objection Certificate by UN-HABITAT, before start of civil works;
f) Ensure proper management of water resources near the project towns, to maintain adequate recharge to the aquifers from which town water is drawn. The Government will ensure effective implementation of legislation with respect to protection of water resources including springs, river courses and drainage systems;
g) Facilitate the establishment of Water and Sanitation (WATSAN) Groups (or Village Development Committees for WATSAN) in each town;

h) Submit before 31 March each year, a draft Project Perfomance and Monitoring protocol until 2015, including description of the annual check on the sustainability of the Project interventions (Article III, paragraph 6 above) and the necessary budgetary requirements;
i) The implementing partners responsible for the respective project towns will provide narrative reports and financial statements as stipulated in the Agreements of Cooperation;
j) Share information with other countries which are partners in the Project; and
k) Ensure the effective coordination of MEK-WATSAN activities amongst all relevant Ministries including but not limited to, the Water Resources and Environment Administration, Ministry of Health, Ministry of Foreign Affairs, Ministry of Finance and relevant Provincial and District Authorities, ensure cooperation with the Department of Statistics in monitoring water and sanitation coverage in the urban centres of MEK-WATSAN.

Article IV
Responsibilities of UN-HABITAT

Under this MOU, UN-HABITAT shall:

a) Through its Water and Sanitation Trust Fund and under separate Agreements of Cooperation, make available to cooperating partners an amount in local currency equivalent to USD1,933,322 (United States Dollars One Million, Nine Hundred and Thirty Three Thousand, Three Hundred and Twenty Two) for the implementation of the Project; and
b) Provide technical assistance for capacity building to the Government and other stakeholders in the Project and support other institutional development needs to promote water and sanitation provision in the selected urban centres covered by the Project.

Article V
Project Management, Implementation and Coordination

1. **Coordination Agency**. The Department of Housing and Urban Planning of MPWT shall be responsible for coordination of the implementation of the Project.

2. **Steering Committee**. The Government shall maintain a MEK-WATSAN Steering Committee (SC), which shall be responsible for coordination and oversight of the Project. The Department of Housing and Urban Planning of MPWT will chair the SC.

3. **Project Implementation Units**. The Government shall ensure that a Project Management Unit (PMU) is maintained in each project town and the respective PMUs are headed by the appropriate authorities concerned. Each PMU shall include personnel seconded from existing local government structures.

4. **Multi-Stakeholder Forum.** The Government shall ensure that each project town establishes a Multi-Stakeholder Forum (MSF) to monitor and guide the performance of the PIU. The Chief of the District will be the chair of the MSF.

Article VI
Procurement

1. Except as UN-HABITAT may otherwise agree, the procedures referred to in the following paragraphs in this Article shall apply in the procurement of goods and services to be financed by the Project.

2. Procurement of goods and services shall be made without any restriction against, or preference for, any particular supplier or contractor except as otherwise provided in paragraph 3 below.

3. Each civil works contract estimated to cost the equivalent of more than United States Dollars One Million (USD1,000,000) and each supply contract for equipment or materials estimated to cost the equivalent of more than United States Dollars Five Hundred Thousand (USD500,000) shall be awarded on the basis of international competitive bidding (ICB) or international shopping (IS) in line with established government procurement procedures. Bidders for civil works contracts shall be pre-qualified before bidding. Prequalification, selection and engagement of contractors shall be done by a duly constituted tender board and shall be subject to the approval of UN-HABITAT. As soon as the bids received have been evaluated, the proposal for award of contract shall be submitted to UN-HABITAT for approval. For this purpose, UN-HABITAT shall be furnished with three copies of (i) a record of the public opening of bids; (ii) a summary and evaluation of the bids; (iii) the proposal for award; and (iv) a draft contract or a draft letter of acceptance. After each award of contract, UN-HABITAT shall be furnished with three certified copies of the contract as executed.

4. Each civil works contract estimated to cost the equivalent of United States Dollars One Million (USD1,000,000) or less and each contract for goods estimated to cost the equivalent of United States Dollars Five Hundred Thousand (USD500,000) or less may be awarded on the basis of local competitive bidding (LCB) or local shopping (LS) in accordance with established public procurement procedures as applicable in Lao PDR. Prequalification, selection and engagement of contractors shall be done by a duly constituted tender board and shall be subject to the approval of UN-HABITAT. As soon as the bids received have been evaluated, the proposal for award of contract shall be submitted to UN-HABITAT for approval. For this purpose, UN-HABITAT shall be furnished with three copies of (i) a record of the public opening of bids; (ii) a summary and evaluation of the bids; (iii) the proposal for award; and (iv) a draft contract or a draft letter of acceptance. After each award of contract, UN-HABITAT shall be furnished with three copies of the contract as executed.

5. In so far as payments on advance are made directly to a firm pursuant to contracts made for implementation of the Project, the implementing partner may request for any bank guarantee for the restitution of such payments on advance. The Government shall incorporate the aforementioned obligation of the third party firms in its legal instruments with those parties.

6. UN-HABITAT and the Government shall be entitled to postpone or, if appropriate, to reject a disbursement request if the implementing partner does not fulfill any of the undertakings described in the present Agreement. The Government shall be informed in a timely manner of any of such postponement and/or rejection.

Article VII
Applicability of United Nations Regulations and Rules

The United Nations Regulations, Rules, Policies and Practices shall be applicable to project activities in any respect, including engagement of staff, consultants, and procurements and audit.

Article VIII
Monitoring and Evaluation

1. The Parties, together with representatives of Habitat Agenda partners, including local governments, professional associations, research and academic institutions and other civil society members, shall maintain regular close consultations to monitor and review the progress of the Project.

2. The Parties shall share with each other, all relevant information and documents, including research, reports and any other information related to the activities, outputs and impact of the Project.

3. The Parties, may, wherever possible and appropriate, undertake joint missions with respect to the Project.

4. The Parties shall welcome joint evaluation of the outputs and impact of the Project.

5. The Parties shall keep the United Nations Resident Coordinator fully informed of all actions undertaken by them in carrying out this MOU. UN-HABITAT will utilize the capacity of the Habitat Programme Manager, as necessary and appropriate for the effective implementation of the Project.

Article IX
Inspection and Audit - rights of access to audit project

1. The Government shall facilitate inspection and audit of the Project by the United Nations Office of the Internal Oversight Services, or any other person duly authorized by UN-HABITAT. Should they at any time wish to do so, the United Nations Board of Auditors may also carry out an audit of the Project. Audits of the Project will include, *inter alia*, the examination of the Project accounting records in order to determine that the charging of administrative and operational support costs to the Project complies with those specified in the annexes to this Agreement. For auditing purposes, Project accounting records shall be retained for the six years following the completion of the Project.

2. The Government shall facilitate visits by the duly authorised persons to the Project site(s) to evaluate the progress and achievements of the Project during its period of implementation or thereafter.

3. The Government shall submit to UN-HABITAT, within six months of the final date for liquidation of commitments, an audit certificate. Governmental implementing partners should be audited by the National Audit Office (NAO).

Article X
Notices

All notices and communications to each party required under or related to this MOU shall be forwarded to the respective addresses of each party, as follows:

(a) For UN-HABITAT	(b) For MPWT
Chief Water and Sanitation Section II Water, Sanitation and Infrastructure Branch UN-HABITAT P. O. Box 30030, Nairobi, Kenya Tel: +254 20 7623060 Fax: +254 20 7623588	Director General Department of Housing and Urban Planning Ministry of Public Works and Transport Lane Xang Avenue Vientiane, Lao PDR Tel: +856 21 412275 Fax: +856 21 412282

Article XI
Privileges and Immunities

1. The Government agrees that the Convention on the Privileges and Immunities of the United Nations of 13 February 1946, to which Lao PDR acceded on 24 November 1956, and, *mutatis mutandis*, the provisions of the United Nations Development Programme Basic Assistance Agreement, signed by the Government on 10 October 1988, and which applies *mutatis mutandis* to UN-HABITAT and its property, funds and assets and to its officials and experts on mission in the country, is applicable in the context of this MOU.

2. Nothing in or relating to this MoU shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including UN-HABITAT.

Article XII
Indemnification

The Government shall indemnify, hold and save harmless, and defend, at its own expense, UN-HABITAT, its officials, agents, servants and employees from and against all suits, claims, demands, and liability of any nature or kind, including their costs and expenses, arising out of acts or omissions of the Government, or the Government employees, officers, agents or sub-contractors, in the performance of this Agreement. This provision shall extend, *inter alia*, to claims and liability in the nature of workmen's compensation, products liability and liability arising out of the use of patented inventions or devices, copyrighted material or other intellectual

property by the Government, its employees, officers, agents, servants or sub-contractors. The obligations under this Article do not lapse upon termination of this Agreement.

Article XIII
Copyright, Patents and other Propriety Rights

UN-HABITAT shall be entitled to all intellectual property and other proprietary rights including but not limited to patents, copyrights, and trademarks, with regard to products, or documents and other materials which bear a direct relation to or are produced or prepared or collected in consequence of or in the course of the execution of this Agreement. At UN-HABITAT's request, the Government shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring them to UN-HABITAT in compliance with the requirements of the applicable law.

Article XIV
Use of Name, Emblem or Official Seal of UN-HABITAT

Unless expressly authorized by UN-HABITAT in writing, including the manner in which the use may be done, the Government shall not, in any manner whatsoever, use the name, emblem or official seal of UN-HABITAT or the United Nations, or any abbreviation of thereof in connection with its business or otherwise.

Article XV
Force Majeure; Other Changes in Conditions

1. In the event of and as soon as possible after the occurrence of any cause constituting force majeure, the Government shall give notice and full particulars in writing to UN-HABITAT, of such occurrence or change if the Government is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under this Agreement. The Government shall also notify UN-HABITAT of any other changes in conditions or the occurrence of any event, which interferes or threatens to interfere with its performance of this Agreement. On receipt of the notice required under this Article, UN-HABITAT shall take such action as, in its sole discretion, it considers to be appropriate or necessary in the circumstances, including the granting to the Government of a reasonable extension of time in which to perform its obligations under this Agreement.

2. If the Government is rendered permanently unable, wholly, or in part, by reason of force majeure to perform its obligations and meet its responsibilities under this Agreement, UN-HABITAT shall have the right to suspend or terminate this Agreement on the same terms and conditions as are provided for in Article XVI, "Termination", except that the period of notice shall be three (3) weeks instead of three (3) months.

3. Force majeure as used in this Article means acts of God, war (whether declared or not), invasion, revolution, insurrection, or other acts of a similar nature or force.

Article XVI
Termination

1. Either party may terminate this Agreement for cause, in whole or in part, upon three (3) months notice, in writing, to the other party. The initiation of arbitral proceedings in accordance with Article XVII "Settlement of Disputes" below shall not be deemed a termination of this Agreement.

2. UN-HABITAT may terminate forthwith this Agreement at any time should the mandate or the funding of the Project be curtailed or terminated, in which case the Government shall be reimbursed by UN-HABITAT for all reasonable costs incurred by the Government prior to receipt of the notice of termination.

3. In the event of any termination by UN-HABITAT under this Article, no payment shall be due from UN-HABITAT to the Government, except for work and services satisfactorily performed in conformity with the express terms of this Agreement.

Article XVII
Settlement of Disputes

Any disputes between UN-HABITAT and the Government relating to the interpretation of this Agreement that is not settled by negotiation or other agreed mode of settlement will be referred at the request of either party of final decision to a tribunal of three arbitrators, one to be named by the Secretary-General of the United Nations, one to be named by the Government, and the third, who will be the Chairperson, to be chosen by the first two: if either party fails to appoint an arbitrator within 60 days of appointment by the other party, or if these two arbitrators should fail to agree on the third arbitrator within 60 days of their appointment, the President of the International Court of Justice may make any necessary appoints, at the request of either party.

Article XVIII
Entry into Force, Duration and Modification

1. This MOU shall enter into force on the date of signature and shall remain valid until terminated in writing by either party.

2. Arrangements set forth in this MOU may be modified upon mutual agreement of the Parties to be reflected in writing by duly authorized representatives of each party.

IN WITNESS WHEREOF the undersigned duly appointed representatives of UN-HABITAT and MPWT have signed two original copies of this MOU in the place(s) and on the date(s) herein below indicated.

For UN-HABITAT	**For MPWT**
Anna Tibaijuka Executive Director Place: Nairobi, Kenya Date: 19 August 2009	Sommad Pholsena Minister Place: Vientiane Date: 07 SEP 2009

II. General Framework

In February 2005, UN-HABITAT organized a workshop for national Programme counterparts and partners in Bangkok, Thailand, to discuss programme formulation, determine the most effective approaches to implementation, and provide an opportunity for sector professionals in the region to meet each other and share experiences.

The workshop concluded with a consensus that urban centres should be the focus of the MEK-WATSAN initiative. As part of the capacity building phase of the Programme, each country will formulate proposals for investments in urban centres. Following a series of consultation missions undertaken by the Regional Technical Adviser, Water for Asian Cities Programme after the workshop, an agreement was reached on the selection of pilot towns, and preparations were made in each country to formulate implementation proposals, including proposals for community surveys.

In 2005, very rapid progress was made in developing a participatory programme framework and implementation plan. A major breakthrough was the start of an innovative fast-track pilot demonstration project in Xieng Nguen in Luang Prabang province of Lao PDR, providing services as the overall framework was evolving. Since then activities have expanded to include Vietnam, Yunnan China and Cambodia, with investments in some 20 towns within the region.

This proposal marks a roll out of the current activities into at least a further 8 towns in Cambodia, Vietnam and Lao PDR. Based on the ongoing experience, UN-HABITAT and partner countries are poised to commence the proposed Government of Netherlands funded programme in at least 8 towns. This project will improve access for 90,755 people to sustainable and safe water supply and for 190,365 people to sustainable and safe sanitation. The project will also contribute in a catalytic manner to increased investment flows for improving water and sanitation in the Mekong region

III. Project Activities

The following activities will be undertaken:

Objective I: Extend water and sanitation systems to achieve MDG target 10 through improved infrastructure and management systems

Related Activities

1. Develop and sign MOUs with Governments;
2. organize town-level stakeholder workshops involving municipal officials, service providers, non governmental organizations and community groups;
3. Conduct participatory poverty and needs assessment;
4. Review and refine of initial assessments, including environmental aspects 1.3 Conduct the feasibility studies of each town;
5. Conduct the environmental impacts study of the water supply and sanitation project in each town and implement mitigation measures in compliance with guidelines of the Government and the international practices;

6. Prepare and implement community based Environmental Sanitation Master Plans for each town in compliance with the Government's existing rules/procedures;
7. Design, procurement and implementation of physical infrastructure; and
8. Design and establish revolving funds for water and sanitation.

Objective II: Enhance institutional and human resource capacities at local and regional levels to sustain water and sanitation services

Related Activities

1. Conduct training needs and institutional development assessments;
2. Organize town-level stakeholder workshops involving municipal officials, service providers, non-governmental organizations and community groups to decide on capacity building and institutional development activities;
3. Undertake capacity building interventions for operational management in order to ensure sustainability at the local level;
4. Develop and implement capacity building and training programme for project personnel in each town;
5. Conduct capacity building for community on project implementation, monitoring and evaluation;
6. Develop pro-poor tariff and cost sharing policy options aiming to enhance the accessibility of poor households to water supply and decent sanitation facilities; and
7. Conduct awareness programmes on water demand management, sanitation and hygiene.

Objective III: Operationalise sector reforms at the local level

Related Activities

1. Establish and implement a monitoring and evaluation framework with the participation of the community;
2. Develop and apply mechanism for financial and institutional sustainability at the local level;
3. Develop and apply mechanism for efficient billing and revenue collection;
4. Develop and apply pro-poor governance approaches to provision of water and sanitation services for the poor; and
5. Develop and apply communication strategies to support the sector reform process.

Objective IV: Enhance capacities of local private sector entities in service delivery *(Not applicable for this MoU)*

Related Activities

1. Survey and analysis of the on-going activities of the private entrepreneurs in the water supply sector;
2. Review and develop policy options and regulations to strengthen the management and promotion of services providers; and
3. Design and implement a pilot small scale public-private water supply service provider partnership.

Objective V: Reduce the environmental impact of urbanization on urban centres of the Mekong River Basin Catchment

Related Activities

1. Survey and analyze the potential environmental impact of urbanization and develop mitigation options;
2. Develop an environmental management strategy for the project towns identifying regulatory measures and mitigation approaches; and
3. Monitor and supervise all fast track activities.

Objective VI: Support economic development in urban centres through improved water and sanitation, and related income generating activities

Related Activities

1. Survey and analysis of the potential related income generating activities; and
2. Identify and implement measures within the water sector to contribute the promotion of water and sanitation related income generating activities.

Objective VII: Support cooperation between the countries of the Mekong region, and thus economic development

Related Activities

1. Develop cooperation mechanisms with ongoing initiatives in the Mekong River Catchment;
2. Develop working arrangements with existing donor coordination and water and sanitation sector working groups in participated countries, and
3. Conduct a consultation workshop at decision making level to discuss and explore on potential areas of cooperation among countries within MEK-WATSAN programme.

Objective VIII: Establish Monitoring and Evaluation framework for MDGs attainment and programme monitoring.

Related Activities

1. Conduct Monitoring and Evaluation;
2. Develop a participatory monitoring and evaluation framework;
3. Develop analytical indicators and data for water and sanitation statistic; and
4. Track progress and conduct evaluation.

IV. Expected Results

The following results are expected at the end of the project period:

- Achievement of MDG (target 10) in the participating towns through improved water and sanitation infrastructure and increased access to water and sanitation services by the poor
- Improvement in the capacity of operational staff/stakeholder institutions/CBOs to sustainably operate, maintain and manage improved water and sanitation infrastructure

- Improved service provision as a result of:
  - Commercialisation of service provision;
  - Developed small-scale private sector;
  - Established ability and willingness to pay;
  - Developed local business development plans; and
  - Enhanced community participation in project planning, design and implementation.

- Improved environment in urban catchment leading to improved quality of the Mekong River's ecosystem.
  - Lower pollution loads entering the river. and
  - Pollution loads managed in the urban catchment.

- Participatory monitoring and evaluation framework for tracking progress in MDG attainment and programme monitoring established.

V. Project Duration

The Project will enter into force on the date of signature of the MoU between UN-HABITAT and the Government of Lao PDR on the Mekong Region Water and Sanitation Initiative (MEK-WATSAN) and is expected to be completed by 31 October 2011.

- Commercialisation of service provision;
- Developed small-scale private sector;
- Established ability and willingness to pay;
- Tariffs reforms;
- Developed local business development plans; and
- Enhanced community participation in management of services.

- Improved environment in urban catchment leading to improved quality of the Mekong river's ecosystem.
  - Lower pollution loads entering the river. and
  - Pollution loads managed in the urban catchment.

- Participatory monitoring and evaluation framework for tracking progress in MDG attainment and programme monitoring established.

V. Project Duration

The Project will enter into force on the date of signature of the MoU between UN-HABITAT and the Government of Vietnam on the Mekong Region Water and Sanitation Initiative (MEK-WATSAN) and is expected to be completed by 31 October 2011.

UN HABITAT
FOR A BETTER URBAN FUTURE

MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME AND PEOPLE'S COMMITTEE OF QUANG TRI PROVINCE, THE SOCIALIST REPUBLIC OF VIETNAM ON THE MEKONG REGION WATER AND SANITATION INITIATIVE

WHEREAS, the United Nations Human Settlements Programme (UN- HABITAT), having its Headquarters in Nairobi, Kenya, is the coordinating agency within the United Nations System for human settlements activities, a focal point for the monitoring, evaluation and implementation of the Habitat Agenda, as well as the task manager of the human settlements chapter of Agenda 21, and, in collaboration with governments, is responsible for promoting - and consolidating collaboration with all partners, including local authorities and private and non- governmental organizations;

WHEREAS, the People's Committee of Quang Tri Province, Socialist Republic of Vietnam (hereinafter referred to as the "Local Government"), is currently cooperating with UN-HABITAT in a number of projects to address the urgent need and critical issues aimed at improving water and sanitation in human settlement;

WHEREAS, the Parties acknowledge and confirm their commitment to continue working together and their collaboration in relevant areas, including, but not limited to: poverty reduction, water and sanitation sector reforms, solid waste management, urban planning, catchment management, improving legislative, institutional and financial frameworks, building capacity in service provider agencies, local authorities and communities for local water and sanitation governance and urban management;

WHEREAS, the Mekong Region Water and Sanitation Initiative (hereinafter referred to as "MEK-WATSAN") is a regional programme, which was initiated at the request of the governments of the Mekong Region - Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals ("MDGs"): to halve by 2015, the proportion of people without access to improved water supply and sanitation. MEK-WATSAN promotes: (i) Pro-poor urban water governance; (ii) Urban water conservation and demand management; (iii) Integrated urban environmental sanitation; and (iv) Income generation for the urban poor through community-based water and sanitation services. MEK-WATSAN is currently entering a Second Phase, where it will target investments in selected towns in Cambodia, Lao PDR and Vietnam. The implementation of this initiative will be undertaken in a progressive manner in accordance with the funding; and

WHEREAS, a rapid assessment of water and sanitation will be carried out which will be followed by development of infrastructure investment and capacity building needs in selected towns in the Socialist Republic of Vietnam.

NOW, THEREFORE, UN-HABITAT and the Local Government (hereinafter collectively referred to as the "Parties" and individually referred as the "Party") have entered into the present Memorandum of Understanding (hereinafter referred to as the "MoU").

Article I
Scope and Objectives

1. This MoU establishes a framework for mutually fruitful collaboration between the Parties for facilitation and implementation of the MEK-WATSAN in the Socialist Republic of Vietnam, in order to support secondary urban centers-in the Region to achieve the Millennium Development Goal, Target 7 on Water and Sanitation to "halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation".

2. The following shall be the specific objectives of this collaboration:

   a) To achieve pro-poor water and sanitation investments in Lao Bao, Dong Ha, Cua Viet, Quang Tri towns and their peri-urban areas;
   b) To enhance institutional and human resources capacities at local and regional levels for the sustainability of improved water and sanitation services;
   c) To operationalise upstream sector reforms at the local level in the participating human settlements with the aim of enhancing efficiency;
   d) To enhance local private sector capacities for participation in service delivery;
   e) To reduce the environmental impact of urbanisation on the Mekong River Catchment;
   f) To enhance economic development in small urban centres through improved water and sanitation, as well as related income generating activities; and
   g) To promote economic development for the Mekong River Catchment through enhanced cooperation in the GMS.

3. The first phase of implementation of the Mekong Region Water and Sanitation Initiative in Vietnam (the "Project", described in Schedule I attached to this MoU) covered by this MoU will be carried out in selected secondary urban centres in the Socialist Republic of Vietnam.

4. UN-HABITAT will work with the Local Government of Quang Tri Province through the Provincial People's Committee ("PPC"), in particular with its Water Utility.

Article II
General Responsibilities

1. The Parties undertake to work together in the achievement of the objectives of this collaboration in good faith and in a spirit of friendly cooperation, as set out in this MoU.

2. The Parties also undertake to fulfill their responsibilities with respect to the design, implementation, monitoring and evaluation of the Initiative in specific secondary urban centres.

3. The Local Government shall form a MEK-WATSAN Steering Committee at the provincial level for in-county coordination of MEK-WATSAN activities.

4. The Parties shall collaborate in raising awareness and keeping the other party informed of policies that may affect the Project.

5. The Parties agree that the specific terms and conditions for the implementation of Project activities shall be set out in separate Agreements of Cooperation between UN-HABITAT and local government authorities or water and sanitation utilities responsible for the respective project towns, consistent with the regulations, rules, policies and practice of UN-HABITAT.

Article III
Responsibilities of the Government

Under this MoU, the Local Government shall:

a) Designate a person within PPC of Quang Tri who will act as the focal point and be responsible for coordinating in-country activities;
b) Be responsible for the design and implementation of the Project and for its maintenance and management in accordance with paragraph 6 of this Article;
c) Ensure that adequate budgetary allocations or required counterpart funding (in-kind/cash) will be made available for the project on a timely basis for each year during implementation. Such counterpart funding (in-kind/cash) will be no less than 20 per cent of UN-HABITAT contribution each year;
d) Review, annually, water and sewerage tariffs to ensure that they are set according to project financing needs, subject to compliance with applicable laws and regulations. No entity, whether a government agency, institution, or enterprise, regardless of ownership, will be exempted from the water and sewerage tariffs established pursuant to the above or granted a preferential rate other than the approved tariff structure, or excused for delays in payments, without penalties. The impact of increased Water Supply and Sanitation ("WSS") tariffs on the poor will be reviewed, and appropriate measures will be introduced to protect the basic living standards of the urban poor. Summaries of these annual reviews will be furnished to UN-HABITAT no later than two months after completion of each review;
e) Carry out annually until 2015, a sustainability check covering infrastructural, socio-economic and ecological aspects. Reporting on this obligation will be a prerequisite to the continuance of UN-HABITAT support to the Project in each town until the completion of the project, and any other support to the Local Government after completion of the project. In case of any reported dysfunction of the services and facilities provided, the Local Government is required to take immediate and adequate measures to make sure that the situation is corrected in order to ensure the sustainability of project interventions and goals after the conclusion of the Project (anticipated by 2011) and until the end of the year 2015;
f) Ensure that the construction of water and sanitation services will be on the existing public right-of-way or on state-owned land. The Project will not entail land acquisition from private ownership. In the event of unforeseen land acquisition from private ownership and /or settlement, the Local Government will compensate the land on a free-

hold basis and prepare and submit all necessary planning documents for issuance of a No Objection Letter by UN-HABITAT, before start of civil works;

g) Ensure proper management of water resources near the project towns, to maintain adequate recharge to the aquifers from which town water is drawn. The Local Government will ensure effective implementation of legislation with respect to protection of water resources including springs, river courses and drainage systems.
h) Facilitate the establishment of Water and Sanitation (WATSAN) Groups (or Village Development Committees for WATSAN) in each town;
i) Submit before 31 March each year, a draft Project Performance and Monitoring report until 2015, including description of the annual check on the sustainability of the project interventions (Article III, paragraph 6 above) and the necessary budgetary requirements;
j) Before 28 February each year, starting 2009, the Government will provide an annual result-based narrative report and an annual financial statement of counterpart financing on the previous calendar year, showing incomes and expenditures as at 31 December each year for each town;
k) Share information with other countries which are partners in the Project; and
l) Ensure the effective coordination of MEK-WATSAN activities amongst all relevant Ministries including but not limited to, the Ministry of Construction, Ministry of Finance, Ministry of Planning and Investment, and Ministry of Health, ensure cooperation with the Vietnam General Statistics Office in monitoring water and sanitation coverage in the urban centres of MEK-WATSAN.

Article IV
Responsibilities of UN-HABITAT

Under this MoU, UN-HABITAT shall:

a) Through its Water and Sanitation Trust Fund and under separate Agreements of Cooperation, make available to cooperating partners an amount in local currency equivalent to USD2,176,367 (United States Dollars Two Million, One Hundred and Seventy Six Thousand, Three Hundred and Sixty Seven) for the implementation of Project; and
b) Provide technical assistance for capacity building to the Local Government and other stakeholders in the Project and support other institutional development needs to promote water and sanitation provision in the selected urban centres covered by the Project.

Article V
Project Management, Implementation and Coordination

1. **Coordination Agency**. The Local Government shall be responsible for coordination of the implementation of the Project.

2. **Steering Committee**. The Local Government shall maintain a MEK-WATSAN Steering Committee ("SC"), which shall be responsible for coordination and oversight of the Project.

3. **Project Management Unit**. The Local Government shall ensure that a Project Management Unit ("PMU") is established, and the PMU is headed by the provincial water utility.

4. **Multi-Stakeholder Coordination Units.** The SC shall ensure that each project town has a Multi-Stakeholder Coordination Unit ("MCU"), which has adequate representation from different stakeholders, including communities, to assist and cooperate with the PMU to monitor and guide the performance of project implementation in each town.

Article VI
Procurement

1. Except as UN-HABITAT may otherwise agree, the procedures referred to in the following paragraphs in this Article shall apply in the procurement of goods and services to be financed by the Project.

2. Procurement of goods and services shall be made without any restriction against, or preference for, any particular supplier or contractor except as otherwise provided in paragraphs 3 and 4 below.

3. Each civil works contract estimated to cost the equivalent of more than United States Dollars One Million (USD1,000,000) and each supply contract for equipment or materials estimated to cost the equivalent of more than United States Dollars Five Hundred Thousand (USD500,000) shall be awarded on the basis of international competitive bidding (ICB) or international shopping (IS) in line with established government procurement procedures. Bidders for civil works contracts shall be pre-qualified before bidding. Prequalification, selection and engagement of contractors shall be done by a duly constituted tender board and shall be subject to the approval of UN-HABITAT. As soon as the bids received have been evaluated, the proposal for award of contract shall be submitted to UN-HABITAT for approval. For this purpose, UN-HABITAT shall be furnished with three copies of (i) an account of the public opening of bids; (ii) a summary and evaluation of the bids; (iii) the proposal for award; and (iv) a draft contract or a draft letter of acceptance. After each award of contract, UN-HABITAT shall be furnished with three certified copies of the contract as executed. When the cooperating agency is a non-governmental institution, procurement procedures shall be subject to the United Nations Regulations in any respect, including engagement of staff consultants and audit.

4. Each civil works contract estimated to cost the equivalent of United States Dollars One Million (USD1,000,000) or less and each contract for goods estimated to cost the equivalent of United States Dollars Five Hundred Thousand (USD500,000) or less may be awarded on the basis of local competitive bidding (LCB) or local shopping (LS) in accordance with established public procurement procedures. Prequalification, selection and engagement of contractors shall be done by a duly constituted tender board and shall be subject to the approval of UN-HABITAT. As soon as the bids received have been evaluated, the proposal for award of contract shall be submitted to UN-HABITAT for approval. For this purpose, UN-HABITAT shall be furnished with three copies of (i) an account of the public opening of bids; (ii) a summary and evaluation of the bids; (iii) the proposal for award; and (iv) a draft contract or a draft letter of acceptance. After each award of contract, UN-HABITAT shall be furnished with three copies of the contract as executed. When the cooperating agency is a non-governmental institution, procurement procedures shall be subject to the United Nations Regulations in any respect, including engagement of staff consultants and audit.

5. In so far as payments on advance are made directly to a firm pursuant to contracts made for implementation of the Project, UN-HABITAT may request for any bank guarantee for the restitution of such payments on advance. The Local Government shall incorporate the aforementioned obligation of the third party firms in its legal instruments with those parties.

6. UN-HABITAT shall be entitled to postpone or, if appropriate, to reject a disbursement request if the Local Government does not fulfill any of the undertakings described in the present MoU. The Local Government shall be informed in a timely manner of any of such postponement and/or rejection.

Article VII
Applicability of United Nations Regulations and Rules

The United Nations Regulations, Rules, Policies and Practices shall be applicable to project activities in any respect, including engagement of staff consultants, procurements and audit.

Article VIII
Monitoring and Evaluation

1. The Parties, together with representatives of Habitat Agenda partners, including local governments, professional associations, research and academic institutions and other civil society members, shall maintain regular close consultations to monitor and review the progress of the Project.

2. The Parties shall share with each other, all relevant information and documents, including research, reports and any other information related to the activities, outputs and impact of the Project.

3. The Parties, may, wherever possible and appropriate, undertake joint missions with respect to the Project.

4. The Parties shall welcome joint evaluation of the outputs and impact of the Project.

5. The Parties shall keep the United Nations Resident Coordinator fully informed of all actions undertaken by them in carrying out this MoU. UN-HABITAT will utilize the capacity of the Habitat Programme Manager, as necessary and appropriate for the effective implementation of the Project.

Article IX
Inspection and Audit - rights of access to audit project

1. The Local Government shall facilitate inspection and audit of the Project by the United Nations Office of the Internal Oversight Services, or any other person duly authorized by UN-HABITAT. Should they at any time wish to do so, the United Nations Board of Auditors may also carry out an audit of the Project. Audits of the Project will include, *inter alia*, the examination of the Project accounting records in order to determine that the charging of administrative and operational support costs to the Project complies with those specified in

the annexes to this MoU. For auditing purposes, Project accounting records shall be retained for the six years following the completion of the Project.

2. The Local Government shall facilitate visits by the duly authorised persons to the Project site(s) to evaluate the progress and achievements of the Project during its period of implementation or thereafter.

3. The Local Government shall submit to UN-HABITAT, within six months of the final date for liquidation of commitments, an audit certificate. Governmental implementing partners should be audited by the Local Government's highest audit institution (Department of Finance, People's Committee of Quang Tri Province).

Article X
Notices

All notices and communications to each party required under or related to this MoU shall be forwarded to the respective addresses of each party, as follows:

(a) For UN-HABITAT	**(b) For Water Supply and Sewerage Company, Quang Tri Province**
Chief Water and Sanitation Section II Water, Sanitation and Infrastructure Branch UN-HABITAT P. O. Box 30030, Nairobi, Kenya Tel: +254 20 7623060 Fax: +254 20 7623588	Director Water Supply and Sewerage Company Quang Tri Province 2 Nguyen Trai, Dong Ha town, Vietnam Tel: +84 53 3852048 Fax: +84 53 3852062

Article XI
Privileges and Immunities

1. The Local Government agrees that the Convention on the Privileges and Immunities of the United Nations of 13 February 1946, to which the Socialist Republic of Vietnam acceded on 6 April 1988, and, *mutatis mutandis*, the provisions of the United Nations Development Programme Basic Assistance Agreement, signed by the Government on 21 March 1978, and which applies *mutatis mutadis* to UN-HABITAT and its property, funds and assets and to its officials and experts on mission in the country, is applicable in the context of this MoU.

2. Nothing in or relating to this MoU shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including UN-HABITAT.

Article XII
Indemnification

The Local Government shall indemnify, hold and save harmless, and defend, at its own expense, UN-HABITAT, its officials, agents, servants and employees from and against all suits, claims,

demands, and liability of any nature or kind, including their costs and expenses, arising out of acts or omissions of the Local Government, or the Local Government employees, officers, agents or sub-contractors, in the performance of this MoU. This provision shall extend, *inter alia*, to claims and liability in the nature of workmen's compensation, products liability and liability arising out of the use of patented inventions or devices, copyrighted material or other intellectual property by the Local Government, its employees, officers, agents, servants or sub-contractors. The obligations under this Article do not lapse upon termination of this MoU.

Article XIII
Copyright, Patents and other Propriety Rights

UN-HABITAT shall be entitled to all intellectual property and other proprietary rights including but not limited to patents, copyrights, and trademarks, with regard to products, or documents and other materials which bear a direct relation to or are produced or prepared or collected in consequence of or in the course of the execution of this MoU. At UN-HABITAT's request, the Local Government shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring them to UN-HABITAT in compliance with the requirements of the applicable law.

Article XIV
Use of Name, Emblem or Official Seal of UN-HABITAT

Unless expressly authorized by UN-HABITAT in writing, including the manner in which the use may be done, the Local Government shall not, in any manner whatsoever, use the name, emblem or official seal of UN-HABITAT or the United Nations, or any abbreviation thereof in connection with its business or otherwise.

Article XV
Force Majeure; Other Changes in Conditions

1. In the event of and as soon as possible after the occurrence of any cause constituting force majeure, the Local Government shall give notice and full particulars in writing to UN-HABITAT, of such occurrence or change if the Local Government is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under this MoU. The Local Government shall also notify UN-HABITAT of any other changes in conditions or the occurrence of any event, which interferes or threatens to interfere with its performance of this MoU. On receipt of the notice required under this Article, UN-HABITAT shall take such action as, in its sole discretion, it considers to be appropriate or necessary in the circumstances, including the granting to the Local Government of a reasonable extension of time in which to perform its obligations under this MoU.

2. If the Local Government is rendered permanently unable, wholly, or in part, by reason of force majeure to perform its obligations and meet its responsibilities under this MoU, UN-HABITAT shall have the right to suspend or terminate this MoU on the same terms and conditions as are provided for in Article XVI, "Termination", except that the period of notice shall be three (3) weeks instead of three (3) months

3. Force majeure as used in this Article means acts of God, war (whether declared or not), invasion, revolution, insurrection, or other acts of a similar nature or force.

Article XVI
Termination

1. Either party may terminate this MoU for cause, in whole or in part, upon three (3) months notice, in writing, to the other party. The initiation of arbitral proceedings in accordance with Article XVII "Settlement of Disputes" below shall not be deemed a termination of this MoU.

2. UN-HABITAT may terminate forthwith this MoU at any time should the mandate or the funding of the Project be curtailed or terminated, in which case the Local Government shall be reimbursed by UN-HABITAT for all reasonable costs incurred by the Local Government prior to receipt of the notice of termination.

3. In the event of any termination by UN-HABITAT under this Article, no payment shall be due from UN-HABITAT to the Local Government, except for work and services satisfactorily performed in conformity with the express terms of this MoU.

Article XVII
Settlement of Disputes

Any disputes between UN-HABITAT and the Local Government relating to the interpretation of this MoU that is not settled by negotiation or other agreed mode of settlement will be referred at the request of either party of final decision to a tribunal of three arbitrators, one to be named by the Secretary-General of the United Nations, one to be named by the Local Government, and the third, who will be the Chairperson, to be chosen by the first two: if either party fails to appoint an arbitrator within 60 days of appointment by the other party, or if these two arbitrators should fail to agree on the third arbitrator within 60 days of their appointment, the President of the International Court of Justice may make any necessary appoints, at the request of either party. However, any such dispute that involves a question regulated by the Convention on the Privileges and Immunities of the United Nations will be dealt with in accordance with Section 30 of that Convention.

Article XVIII
Entry into Force, Duration and Modification

1. This MoU shall enter into force on the date of signature and shall remain valid until terminated in writing by either party.

2. Arrangements set forth in this MoU may be modified upon mutual agreement of the Parties to be reflected in writing by duly authorized representatives of each party.

The undersigned duly appointed representatives of UN-HABITAT and People's Committee of Quang Tri Province have signed two original copies of this MoU in the place(s) and on the date(s) herein below indicated.

For UN-HABITAT	**For People's Committee of Quang Tri Province**
for Ingrid Kvarnström Anna K. Tibaijuka Executive Director	Nguyen Duc Cuong Chairman
Place: Nairobi	Place: Đồng Hà - Quảng Trị
Date: 20/09/09	Date: 20/10/09.

Schedule 1

Project Document

I. Project Objectives

In response to requests from several governments in the Greater Mekong Sub-region (GMS), UN-HABITAT has developed a special Water and Sanitation Initiative for the Mekong Region (MEK-WATSAN) with a three-phased strategy for implementation. MEK-WATSAN is a collaborative effort between UN-HABITAT and the governments of the Mekong region, which developed as a concept similar to that of the Lake Victoria initiative, will focus on capacity building, project design, planning and implementation and follow-up investments.. The whole philosophy of MEK-WATSAN is to support participating governments attain their water and sanitation related MDGs agreed in 2000, to halve the proportion of people without access to improved water supply and sanitation services by 2015.

The MEK-WATSAN initiative will support participating governments to achieve the Millennium Development Goals for water supply and sanitation, with an emphasis on innovative solutions and speedy delivery. With a growing awareness among Programme countries of the benefits of a regional approach, participants at the workshop shared ideas on benchmarking, regional training and capacity building initiatives, regional networking, and cooperation in protecting and managing a shared resource – the Mekong River. One critical issue that seems to affect every country is that of sustainability of services for the poor, especially in terms of cost recovery and subsidy arrangements.

As a strategy the MEK-WATSAN is focusing its attention on support to secondary urban centres. It is in these secondary cities where urbanization will grow fastest, deficiencies in water supply and sanitation are most pronounced, institutional capacities are weakest and willingness to invest lowest.

The initiative provides an ideal opportunity for targeting water and sanitation investments to secondary cities linked to sector reforms and capacity building within a process of decentralisation to enable them to achieve the Millennium Development Goals (MDGs) and to reduce pollution loads entering the Mekong River.

The specific objectives of MEK-WATSAN are:

- Expedite pro-poor water and sanitation investments in secondary towns of the GMS;
- Enhance institutional and human resource capacities at local and regional levels to sustain water and sanitation services;
- Operationalise upstream sector reforms at the local level;
- Enhance capacities of local private sector entities in service delivery;
- Reduce the adverse environmental impacts of urbanisation on local river catchments;
- Support economic development in secondary towns through improved water and sanitation, and related income generating activities, and
- Support cooperation between the countries of the Mekong region, and thus economic development.

II. General Framework

In February 2005, UN-HABITAT organized a workshop for national Programme counterparts and partners in Bangkok, Thailand, to discuss programme formulation, determine the most effective approaches to implementation, and provide an opportunity for sector professionals in the region to meet each other and share experiences.

The workshop concluded with a consensus that secondary towns should be the focus of the MEK-WATSAN initiative. As part of the capacity building phase of the Programme, each country will formulate proposals for investments in secondary towns. Following a series of consultation missions undertaken by the Regional Technical Adviser, Water for Asian Cities Programme after the workshop, an agreement was reached on the selection of pilot towns, and preparations were made in each country to formulate implementation proposals, including proposals for community surveys.

In 2005, very rapid progress was made in developing a participatory programme framework and implementation plan. A major breakthrough was the start of an innovative fast-track pilot demonstration project in Xieng Nguen in Luang Prabang province of Lao PDR, providing services as the overall framework was evolving. Since then activities have expanded to include Vietnam, Yunnan China and Cambodia, with investments in some 20 towns within the region.

This proposal marks a roll out of the current activities into a further 8 towns in Cambodia, Vietnam and Lao PDR. Based on the ongoing experience, UN-HABITAT and partner countries are poised to commence the proposed Government of Netherlands funded programme in the 8 towns. This project will improve access for 90,755 people to sustainable and safe water supply and for 190,365 people to sustainable and safe sanitation. The project will also contribute in a catalytic manner to increased investment flows for improving water and sanitation in the Mekong region

III. Project Activities

The following activities will be undertaken:

Objective I: Extend water and sanitation systems to and achieve MDG target 10 through improved infrastructure and management systems

Related Activities

1. Develop and sign MOUs with Governments;
2. organize town-level stakeholder workshops involving municipal officials, service providers, non governmental organizations and community groups;
3. Conduct participatory poverty and needs assessment;
4. Review and refine of initial assessments, including environmental aspects 1.3 Conduct the feasibility studies of each town;
5. Conduct the environmental impacts study of the water supply and sanitation project in each town and implement mitigation measures in compliance with guidelines of the Government and the international practices;

6. Prepare and implement community based Environmental Sanitation Master Plans for each town in compliance;
7. Design, procurement and implementation of physical infrastructure; and
8. Design and establish revolving funds for water and sanitation.

Objective II: Enhance institutional and human resource capacities at local and regional levels to sustain water and sanitation services

Related Activities

1. Conduct training needs and institutional development assessments;
2. Organize town-level stakeholder workshops involving municipal officials, service providers, non-governmental organizations and community groups to decide on capacity building and institutional development activities;
3. Undertake capacity building interventions for operational management in order to ensure sustainability at the local level;
4. Develop and implement capacity building and training programme for project personnel in each town;
5. Conduct capacity building for community on project implementation, monitoring and evaluation;
6. Develop pro-poor tariff and cost sharing policy options aiming to enhance the accessibility of poor households to water supply and decent sanitation facilities; and
7. Conduct awareness programmes on water demand management, sanitation and hygiene.

Objective III: Operationalise upstream sector reforms at the local level

Related Activities

1. Establish and implement a monitoring and evaluation framework with the participation of the community;
2. Develop and apply mechanism for financial and institutional sustainability at the local level;
3. Develop and apply mechanism for efficient billing and revenue collection;
4. Develop and apply pro-poor governance approaches to provision of water and sanitation services for the poor; and
5. Develop and apply communication strategies to support the sector reform process.

Objective IV: Enhance capacities of local private sector entities in service delivery

Related Activities

1. Survey and analysis of the on-going activities of the private entrepreneurs in the water supply sector;
2. Review and develop policy options and regulations to strengthen the management and promotion of services providers; and
3. Design and implement a pilot small scale public-private water supply service provider partnership.

Objective V: Reduce the environmental impact of urbanization on secondary towns of the Mekong River Basin Catchment

Related Activities

1. Survey and analyze the potential environmental impact of urbanization and develop mitigation options;
2. Develop an environmental management strategy for the project towns identifying regulatory measures and mitigation approaches; and
3. Monitor and supervise all fast track activities.

Objective VI: Support economic development in secondary towns through improved water and sanitation, and related income generating activities

Related Activities

1. Survey and analysis of the potential related income generating activities; and
2. Identify and implement measures within the water sector to contribute the promotion of water and sanitation related income generating activities.

Objective VII: Support cooperation between the countries of the Mekong region, and thus economic development

Related Activities

1. Develop cooperation mechanisms with ongoing initiatives in the Mekong River Catchment;
2. Develop working arrangements with existing donor coordination and water and sanitation sector working groups in participated countries; and
3. Conduct a consultation workshop at decision making level to discuss and explore on potential areas of cooperation among countries within MEK-WATSAN programme.

Objective VIII: Establish Monitoring and Evaluation framework for MDGs attainment and programme monitoring.

Related Activities

1. Conduct Monitoring and Evaluation;
2. Develop a participatory monitoring and evaluation framework;
3. Develop analytical indicators and data for water and sanitation statistic; and
4. Track progress and conduct evaluation.

IV. Expected Results

The following results are expected at the end of the project period:

- Achievement of MDG (target 10) in the participating towns through improved water and sanitation infrastructure and increased access to water and sanitation services by the poor
- Improvement in the capacity of operational staff/stakeholder institutions/NGOs/CBOs to sustainably operate, maintain and manage improved water and sanitation infrastructure
- Improved service provision as a result of:

ANNEX 8 – Summary of proceedings for the national stakeholders' consultations in Cambodia, Lao PDR and Vietnam

National Stakeholder's Consultations on the Mekong Region Water and Sanitation Initiative (MEK-WATSAN)

3 June 2009, Phnom Penh, Cambodia

Background

The Mekong Region Water and Sanitation Programme or MEK-WATSAN is a regional programme which was initiated at the request of the Governments of the Mekong Region - Kingdom of Cambodia, the People's Republic of China (Yunnan Province), the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals (MDGs).

Since 2007, water and sanitation "fast track" projects under the MEK-WATSAN Programme have been under implementation in 17 secondary towns in the Mekong region. Investments have been made in the areas of provision of safe piped water and sanitation facilities, capacity building of water utility staff, public awareness campaigns, water conservation and demand management, pro-poor water governance, revolving funds for water and sanitation among other things. During the fast-track phase USD3,098,300 has been spent on different projects under the MEK-WATSAN Programme and about 43,700 people have benefited from this Initiative.

MEK-WATSAN is entering a detailed roll out plan, where it will target investments in other 18 towns spread over Cambodia, Lao PDR and Vietnam.

Objectives

The National Stakeholders' Consultation is a follow-up to the MEK-WATSAN Regional Consultations organized on 20-22 April 2009 in Hanoi, Vietnam, whereupon the *"Hanoi Declaration"* was signed by the high officials of the participating countries - Cambodia, Lao PDR and Vietnam. Representatives from the three countries including officials from the Governments, donor community and partner organizations participated in the consultations to facilitate joint planning and discuss on the design and tools and methods to be used to ensure success of the MEK-WATSAN programme within the framework of regional cooperation.

Following the regional consultations, technical assessments of water and sanitation of selected towns in Cambodia, Lao PDR and Vietnam were carried out which will be followed by development of project documents for infrastructure investment and capacity building needs in these towns.

In this respect, the Cambodia National Stakeholders' Consultation was organized on 3 June 2009 in Phnom Penh to present finding following detailed assessments of 4 towns in Cambodia namely Kampong Cham, Kampong Thom, Svay Rieng and Pursat selected for inclusion in the MEK-WATSAN programme. The objective of this workshop was to provide an opportunity for partners and stakeholders to give their comments and share their ideas on required programme activities and the best way forward in the development of the Cooperation Agreements.

Structure of the National Consultation in Cambodia

The 1-day meeting involved both presentations and discussions. Participants included representatives from the Ministry of Industry, Mines and Energy (MIME), provincial water utilities and development

partners (Please refer to table 1 and table 2 for the agenda and list of participants). The consultations were conducted in both Khmer and Lao with consecutive translation to facilitate understanding.

The meeting was opened by H.E. Phork Sovanrith, Secretary of State, MIME and Mr. Avi Sarkar, Chief Technical Advisor, Southeast Asia Region, UN-HABITAT. The morning session involved three presentations. The findings of town assessments were presented by Ms. Celia Bedoya, Junior Professional Officer, UN-HABITAT followed by a presentation on the formulation of Cooperation Agreements between UN-HABITAT and partners by Ms. Susana Rojas Williams, Associate Human Settlements Officer, UN-HABITAT. A presentation on suitable sanitation options was given by Mr. Sovann Narak, Director of Center for Development (CfD). The morning session concluded with a brief question and answer session.

The afternoon session was dedicated to group discussions on WATSAN challenges in the participating towns moderated by H.E. Heng Sokkung, MIME. Questions of clarification and understanding were raised and answered during the plenary sessions after each group's presentation.

The workshop was closed by H.E. Meng Saktheara, Director General, General Department of Industry, MIME and Mr. Avi Sarkar, Chief Technical Advisor, Southeast Asia Region, UN-HABITAT.

Key Points of Presentations and Discussions

Opening and Welcome by H.E. Phork Sovanrith, MIME and Mr. Avi Sarkar, , UN-HABITAT
Mr. Avi Sarkar, UN-HABITAT welcomed the participants of the National Consultations, presented the main objectives of the field mission and the consultations. H.E. Phork Sovanrith, Secretary of State, MIME, presented the status of the on-going activities in Kampot Town which contribute to the poverty reduction policies of the country. He reiterated the Government's commitment to the expansion of the service coverage in secondary towns. However, high investments costs, irregular revenues and low collection rate of water fees remain as the main challenges in the sector where pro-poor polices need to be considered. H.E. Phork Sovanrith expressed his gratitude to UN-HABITAT for supporting four new projects in four towns where the poor will have increased access to safe water through the expansion of the water supply system and to adequate sanitation facilities. MEK-WATSAN has contributed to improving people's living standards and the consultations will provide the opportunity to identify the main challenges and opportunities for project implementation, exchange information and ideas. H.E. Phork Sovanrith urged the participant to share their experiences and lessons learned. He called for UN-HABITAT''s continuing financial and technical support to MIME and the water utilities towards achieving Cambodia's Millennium Development Goals.

Water and Sanitation Assessment of Selected Towns by Celia Bedoya – Junior Professional Officer, UN-HABITAT
Ms. Celia Bedoya, UN-HABITAT, presented an overview of the technical assessments carried out in four selected towns: Kampong Cham, Kampong Thom, Pursat and Svay Rieng including the status of the water and sanitations sector in the country. The findings of the assessments were to inform the preparation of proposals for investments under MEK-WATSAN. The proposed projects under MEK-WATSAN include:

- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Kampong Cham Town (Kampong Cham Province).
- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Kampong Thom Town (Kampong Thom Province).
- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Pursat Town (Pursat Province).
- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Svay Rieng Town (Svay Rieng Province).

Different technological options are to be considered according to the particular conditions of the communities some of which are located in flood prone areas. Some of the main issues raised were the lack of consistent data on sanitation in the country, the management of revolving funds in sanitation, and the identification of poor households through poverty mapping, coordinated mainly by the Ministry of Planning.

Cooperation Agreements by Susana Rojas Williams – Associate Human Settlements Officer, UN-HABITAT

The presentation explained the substance and structure of a Cooperation Agreement to be signed by UN-HABITAT and the implementing partner for the implementation of the projects. The work flow of project implementation was also presented.

The total amount of funds available for implementation of the proposed interventions is USD1,783,911. 27,744 people are expected to benefit form increased access to safe water through the expansion of water supply systems and 80,990 are expected to benefit from improved sanitation. The implementation duration of most project proposals is 24 months.

Some of the important elements of the community-based projects highlighted include partners' contribution (cash and/or in-kind), community participation in the planning and implementation of project activities and the use of revolving funds for poor households to increase access to water and sanitation.

Participants raised the concern on how these projects are being integrated with housing policies and the prevention of evictions as infrastructure improvements increase the cost of land. UN-HABITAT responded that beneficiaries have been identified in coordination with local authorities and utility staff in areas where the expansion of water supply had already been planned. One important aspect of the project is to secure that the poor also benefit from infrastructure investments, that communities are actively engaged in the process, and that measures are put in place to support the connection of poor families to the water supply system. It was emphasized that the poor pays more now for clean water than residents with access to the formal water supply. Thus, the poor could contribute to a more sustainable solution that will significantly reduce their costs in the long run.

Suitable Sanitation Options by Mr. Sovann Narak (CfD)

It is important to implement sanitation projects with a demand-led approach. For this purpose, the establishment of community-based water and sanitation groups is important. They receive training and capacity building and provide the opportunity for innovative local problem solving and information sharing. Components of sanitation projects include: baseline studies to develop benchmarks and identify poor households, technical feasibility study and development of toilet options, education and promotional campaigns, selection of technological option and signing of MoU with the community councils, artisan training on the construction of adequate sanitation facilities, training on operation and maintenance of sanitation facilities.

The technological options presented were the following: septic tanks for regular soil conditions, septic tanks for areas with periodic flooding, adapted latrines for flooded areas as well as adapted latrines for rocky ground conditions. Although challenging, it is important to promote women's participations in the household decision making process for improving sanitation. The latrine designs should also consider the need of the elderly and the disabled. A summary of each technological option including advantages and disadvantages was presented.

WATSAN challenges in the participating towns

After the main presentations, groups were formed to brainstorm opportunities and challenges for implementation which presented by the groups and discussed in plenary. The following are the highlights of the discussions:

Main Challenges

Svay Rieng

- Lack of awareness in the use of water and water quality: population prefers to use water from unprotected wells because is cheaper. There is need of community awareness activities and for education related to water and sanitation issues.
- Limited funds for the expansion of networks

Kampong Thom

- Collection of tariffs is difficult and the collection rate is low. People have no ability to pay for the service.
- Limited funds for the expansion of networks.

Kampong Cham

- Low coverage versus the good water systems
- Since the household connections are private, if the family moves, the utility supports the family with the changes in water connection.

Pursat

- Expansion of networks in areas that are far from the town center
- The poor cannot afford to pay for connection fee

Main obstacles identified by the plenary

- Need to build capacity of water agencies and local institutions. There is limited understanding and education on water and sanitation related issues.
- Need for mobilizing and educating communities and poor households on the importance of safe water and adequate sanitation. Some people do not see the need to access adequate services.
- Lack of understanding on water use and management (water conservation and protection). There is a need for raising awareness on water quality.
- Lack of budgets has limited the awareness campaigns programmes for communities
- Lack of awareness and ownership of investments at community level in urban areas. Lack of community participation and inclusion on decision-making processes. Stronger community organization is needed.
- Lack of understanding on how revolving funds, subsidies and grants mechanisms work.
- Communities do not understand the purpose of revolving funds so sometimes it is difficult to retrieve the funds.
- Unclear criteria for selection of beneficiaries of revolving funds and taking into account availability to repay.
- The poor have more difficulties paying connection fees and water tariffs.
- Infrastructure investments in low density areas are more costly particularly in linear settlements along the rivers or roads.
- Poor households are more expensive to connect because they are mainly located far from the roads.
- The capacity for production is high but the service coverage is low. This increases water treatment and operational unit costs making them much higher.
- There are water losses due old network and equipment (old pipes, old water meters)
- Lack of coordination and communication between institutions
- Lack of comprehensive planning
- Difficulty linking sanitation implementation and investments with the work of the water utility
- Lack of communication between utility and consumers
- Land tenure is a critical issue. The project will not address informal areas next to roads or rivers. This is an issue that needs to be considered in the future.

- Limited funds for capital investments

Main opportunities identified by the plenary

- Opportunities to raise awareness and disseminate the importance of safe water use and adequate sanitation at the community level.
- Increased demand for adequate services
- Increased community engagement and participation in planning and implementation. Communities are organized and willing to contribute.
- Support for poor households connections through the revolving funds to be able to reach more beneficiaries. Communities become aware of the purpose and objectives of the revolving funds.
- Pro-poor water tariffs based on affordability to pay. The poor currently pays more for water from the informal sector than what they would pay for water from the water supply system.
- Community reservoirs and alternative community managed systems for far away areas
- Water capacity production is high and enough to meet the increased demand.
- The water quality is good and meets national standards.
- Good collaboration between local authorities and water utilities at town and commune levels
- Technical and financial training opportunities for utilities so that the necessary human resources and capacity are in place to provide adequate services. Training would complement training already provided by JICA and the Phnom Penh Water Utility.
- Strengthened institutional capacity of utilities so that they have the ability to expand services.
- Expansion of network and increased demand will reduce operation costs
- There are enough water sources for clean water production. The water from main sources is good in quality and quantity.

Table 1 - Programme for MEK-WATSAN National Stakeholders' Workshop in Cambodia (3 June 2009)

Time	Programme	Speakers
08:00-08:30	**Registration**	
08:30-09:30	**Session 1: Opening Session**	
	Welcome Remarks by UN-HABITAT	Mr. Avi Sarkar, Regional CTA, WAC SEA & MEK-WATSAN, UN-HABITAT
	Opening Speech	H.E. Phork Sovanrith, Secretary of State, MIME
09:30-10:00	**Coffee Break**	At conference room
10:00-12:00	**Cession 2A: Presentations**	
10:00-10:45	Presentation on findings of towns assessments	Ms. Celia Bedoya, UN-HABITAT
10:45-11:30	Presentation of Cooperation Agreements	Ms. Susana Rojas Williams, UN-HABITAT
11:30-12:00	Presentation on suitable sanitation options	Mr. Sovann Narak, Director of Center for Development (CfD)
12:00-13:30	**Lunch Break**	At Lucky Bright Restaurant (Opposite National Treasury)
13:30-17:00	**Cession 2B: Discussions**	**Moderated by MIME: H.E. Heng Sokkung or H. E. Meng Saktheara**

13:30-14:30	WATSAN challenges in the participating towns	
14:30-15:30	Opportunities and barriers	
15:30-16:00	**Coffee Break**	**At conference room**
16:00-17:00	Scaling up/Replication	
17:00-17:30	**Cession C: Closing Session**	
17:00-17:15	Sum up	Mr. Avi Sarkar, Regional CTA, WAC SEA & MEK-WATSAN UN-HABITAT
17:15-17:30	Closing remarks	H.E. Meng Saktheara, Director General, General Department of Industry, MIME

Table 2 - List of Participants

	Name	Title and Institution
National Government		
1.	HE Phork Sovanrith	Secretary of State, MIME
2.	H.E Heng Sokkung	Under Secretary of State
3.	HE Meng Saktheara	Director General, MIME
4.	Mr. Tan Sokchea	Director, DPWS, MIME
5.	Mr. Sorn Savnin	Dep. Director, DPWS, MIME
6.	DPWS staff	MIME
7.	DPWS staff	MIME
Provincial Government		
8.	Mr. Hun Neng	Kampong Cham Governor
9.	Mr. Chhun Chhorn	Kampong Thom Governor
10.	Mr. Khoy Khunhour	Kampot Governor
11.	Mr. Chay Sareth	Pursat Governor
12.	Mr. Cheng Am	Svay Rieng Governor
13.	Mr. Leok Hoursan	Director, Svay Rieng Dept. of IME
14.	Mr. Suon Dy	Director, Kampong Cham Dept. of IME
15.	Mr. Luk Sambat	Director, Kampong Thom Dept. of IME
16.	Mr. Mao San	Director, Pursat Dept of IME
17.	Mr. Chhun Hin	Kampot Dept. of IME
18.	Mr. Sok Srun	Director of Kampong Cham PDPWT
19.	Mr. Mao Lang	Director, Kampong Thom PDPWT
20.	Mr. Lim Sambo	Director, Kampot PDPWT
21.	Mr.Peng Hak	Director, Pursat PDPWT
22.	Mr. Un Savann	Director, Svay Rieng PDPWT
23.	Mr. Norn Saroeun	Head, Water Supply Utility, Pursat
24.	Mr. Leang Porthong	Head, Water Supply Utility, Kg Thom
25.	Mr. Preap Somala	Head, Water Supply Utility, Kg Cham
26.	Mr. Prach Nan	Head, Water Supply Utility, Svay Rieng
UN-HABITAT		
27.	Mr. Avi Sarkar	Regional CTA, WAC SEA and MEK-WATSAN, UN-HABITAT
28.	Ms. Celia Bedoya	UN-HABITAT HQ
29.	Ms. Susana Rojas Williams	UN-HABITAT HQ
30.	Ms. Joyce Mmaitsi	Project Officer, MEK-WATSAN, UN-HABITAT

31.	Mr. Somethearith Din	Habitat Programme Manager, UN-HABITAT
32.	Ms. Heta Tenno	Water and sanitation specialist, UN-HABITAT
33.	Ms. Leakhana Kol	Coordinator, SCP, UN-HABITAT
Development Partners		
34.	Representative	Asian Development Bank (ADB)
35.	Representative	Argent France for Development (AfD)
36.	Representative	Water and Sanitation Program (WSP)
37.	Representative	UNICEF
38.	Representative	DAI
39.	Representative	World Vision Cambodia
40.	Executive Director	Habitat for Humanity International, Cambodia (HfHI-C)
41.	Sovann Narak,	Executive Director, Center for Development (CfD)
42.	Officer	Center for Development (CfD)
43.	Officer	Center for Development (CfD)
44.	Ms. Sokunthea Leay	Executive Director, Cooperation for Sustainable Cambodian Society (CSCS)
45.	Mr. Alex Campbell	BORDA
46.	Executive Director	IDE
47.	Mr. Rashid Khatri	Coordinator, Community Managed Development Partner (CMDP)
48.	Mr. Pierre Thevenot	Executive Director, GRET
49.	Mr. Somsak Phunpheakdei	Executive Detractor, Urban Poor Development Fund (UPDF)
50.	Representative	Samakhum Theang Tnot (STT)
51.	Interpreter	

National Stakeholder's Consultations on the Mekong Region Water and Sanitation Initiative (MEK-WATSAN)

18 June 2009, Vientiane, Lao PDR

Background

The Mekong Region Water and Sanitation Programme or MEK-WATSAN is a regional programme which was initiated at the request of the Governments of the Mekong Region - Kingdom of Cambodia, the People's Republic of China (Yunnan Province), the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals (MDGs).

Since 2007, water and sanitation "fast track" projects under the MEK-WATSAN Programme have been under implementation in 17 secondary towns in the Mekong region. Investments have been made in the areas of provision of safe piped water and sanitation facilities, capacity building of water utility staff, public awareness campaigns, water conservation and demand management, pro-poor water governance, revolving funds for water and sanitation among other things. During the fast-track phase USD3,098,300 has been spent on different projects under the MEK-WATSAN Programme and about 43,700 people have benefited from this Initiative.

MEK-WATSAN is entering a detailed roll out plan, where it will target investments in other 18 towns spread over Cambodia, Lao PDR and Vietnam.

Objectives

The National Stakeholders' Consultation is a follow-up to the MEK-WATSAN Regional Consultations organized on 20-22 April 2009 in Hanoi, Vietnam, whereupon the "*Hanoi Declaration"* was signed by the high officials of the participating countries - Cambodia, Lao PDR and Vietnam. Representatives from the three countries including officials from the Governments, donor community and partner organizations participated in the consultations to facilitate joint planning and discuss on the design and tools and methods to be used to ensure success of the MEK-WATSAN programme within the framework of regional cooperation.

Following the regional consultations, technical assessments of water and sanitation of selected towns in Cambodia, Lao PDR and Vietnam were carried out which will be followed by development of project documents for infrastructure investment and capacity building needs in these towns.

In this respect, the Lao National Stakeholders' Consultation was organized on 18 June 2009 in Vientiane to present finding following detailed assessments of 9 towns in Lao PDR namely Xieng Ngeun (Luangprabang), Sayabouly (Sayabouly), Atsaphangthong (Savannakhet), Samakhixay (Attapeu), Lamam and Thateng (Sekong), Thakhek (Khammouane) and Paksan (Bolikhamxay) selected for inclusion in the MEK-WATSAN programme. The objective of this workshop was to provide an opportunity for partners and stakeholders to give their comments and share their ideas on required programme activities and the best way forward in the development of the Cooperation Agreements.

Structure of the National Consultation in Lao PDR

The 1-day meeting involved both presentations and discussions. Participants included representatives from the Ministry of Public Works and Transport (MPWT), provincial water utilities (NPSEs) and development partners (Please refer to table 3 and table 4 for the agenda and list of participants). The

consultations were conducted in both English and Lao with consecutive translation to facilitate understanding.

The meeting was opened by Dr. Somphone Dethoudom, Vice President of Council of Public Works and Transport Sciences, MPWT and Mr. Avi Sarkar, Regional Chief Technical Advisor, Southeast Asia Region, UN-HABITAT. The morning session involved three presentations. The findings of town assessments were presented by Ms. Celia Bedoya, Junior Professional Officer, UN-HABITAT followed by a presentation on the formulation of Cooperation Agreements between UN-HABITAT and partners by Ms. Susana Rojas Williams, Associate Human Settlements Officer, UN-HABITAT. A presentation on suitable sanitation options was given by Mr. Buahom Sengkhamyong, Chief Technical Advisor Lao PDR. The morning session concluded with a brief question and answer session.

The afternoon session began with briefings on on-going MEK-WATSAN fast-track projects in Xieng Ngeun (Luangprabang), Sayabouly (Sayabouly) and Phine (Savannakhet) towns by water utility Deputy Director and Managing Directors Mr. Somsanith Thipphasouda, Mr. Aliya Khanti and Mr. Phandola Khouanemeuangchan respectively. Questions of clarification and understanding were raised and answered after each briefing. This was immediately followed by discussions on issues and challenges by water utilities in the new project towns.

The workshop was closed by the Vice President of Council of Public Works and Transport Sciences, Dr. Somphone Dethoudom, and UN-HABITAT Regional Chief Technical Advisor, Southeast Asia Region, Mr. Avi Sarkar.

Key Points of Presentations and Discussions

Opening and Welcome by Dr. Somphone Dethoudom, MPWT and Mr. Avi Sarkar, , UN-HABITAT
The Government of Lao PDR is committed to give priority to the Water and Sanitation sector. This commitment is in line with Lao PDR's goals of providing access to water to 80% of the urban population by 2020. The Government of Lao PDR appreciates the work done by UN-HABITA under the MEK-WATSAN initiative. UN-HABITAT thanked the Government of Lao PDR, provincial governors and staff of the water utilities for all the support provided to the Mission team undertaking the water and sanitation assessments.

Water and Sanitation Assessment of Selected Towns by Celia Bedoya – Junior Professional Officer, UN-HABITAT
A mission was undertaken to visit 9 towns to carry out rapid technical assessment of water and sanitation to inform the preparation of proposals for investments under MEK-WATSAN. Out of the 9 towns, 5 towns were identified to benefit from the construction, expansion and rehabilitation of water supply systems. All 9 towns have been proposed for the provision of improved sanitation. The proposed projects under MEK-WATSAN include:

- Construction of a new water supply system and provision of on-site sanitation in Atsaphangtong town (Savannakhet Province);
- Extension of existing water supply system and provision of on-site sanitation in Xieng Ngeun town (Luangprabang Province);
- Extension of existing water supply system and provision of on-site sanitation in Sayabouly town (Sayabouly Province);
- Rehabilitation of existing water supply system and provision of on-site sanitation in Samakhixay town (Attapeu Province);
- Rehabilitation of existing water supply system and provision of on-site sanitation in Lamam town (Sekong Province);
- Provision of on-site sanitation in peri-urban areas of Thakhek town (Khammouane Province);
- Provision of on-site sanitation in peri-urban areas of Thateng town (Sekong Province);

- Provision of on-site sanitation in peri-urban areas of Paksan town (Bolikhamxay Province);
- Water and sanitation related MDG monitoring in new project towns in cooperation with the Department of Statistics; and
- Public private partnership (PPP) initiative in water and sanitation in cooperation with GRET.

Findings show that in most towns with water supply services, access to the water network is very low among poor households with most households sharing connections or accessing water through relatives or neighbors. Also, many of the poor also do not have a latrine but showed willingness to build a latrine as well as willingness to contribute with labour and/or materials if the projects are to be brought to fruition. The use of revolving funds for water connections and construction of latrine will allow poorer families to borrow money to be able to afford an upfront payment to access water and sanitation services. Attention should also be given to complementing the hardware components with software components using a coordinated and integrated approach to ensure success and sustainability of the projects.

Cooperation Agreements by Susana Rojas Williams – Associate Human Settlements Officer, UN-HABITAT
The presentation explained the substance and structure of a Cooperation Agreement to be signed by UN-HABITAT and the implementing partner for the implementation of the projects. The work flow of project implementation was also presented.

The total amount of funds available for implementation of the proposed interventions is USD1,979,972. 42,826 people are expected to benefit form increased access to safe water through the expansion of water supply systems and 33,009 are expected to benefit from improved sanitation. The implementation duration of most project proposals is 24 months.

Some of the important elements of the community-based projects highlighted include partners' contribution (cash and/or in-kind), community participation in the planning and implementation of project activities and the use of revolving funds for poor households to increase access to water and sanitation.

Suitable Sanitation Options by Buahom Sengkhamyong, UN-HABITAT
The sanitation component will be implemented through awareness campaigns to raise the demand, and jointly with the village leaders. Different options will be presented to the community, and financing mechanisms for promoting the construction and reaching the most vulnerable will be put into place, as a combination of grants, revolving funds, and own contribution from the beneficiaries. The local authorities are responsible to help identify which households may qualify for a grant or access the revolving funds.

The JMP definition of improved sanitation includes VIP latrine, pour-flushed toilets and septic tanks. Four different technological options presented were pit latrine[1] (USD40), VIP latrine (USD60), pour-flush toilets (USD90-100) and septic tanks (USD135-150). A summary of each technological option, the advantages and disadvantages was presented.

Key Discussion Points (Morning session)

It was pointed out that some of the Cooperation Agreements (CAs) for the new projects were expected to be finalized and signed by August or September 2009. Each CA will be implemented over a period of about 2 years and implementation of projects will be undertaken in a progressive manner in accordance with the release of funds. All projects are expected to be completed by October 2011.

[1] Pit latrine is not improved sanitation by JMP definition but was presented as an option for cost estimation purposes.

Water Supply

Representative from GRET asked if the new water supply system would be managed by the community and how woulf their capacity be developed. UN-HABITAT responded that the water supply system will be managed by the water utility. A new branch office will have to be set up in Atsaphangthong and staff has to be appointed/recruited and trained to operate the system and manage the office. The community's contribution to the project will be significant in the form of consultations, planning and participation in the digging of trenches for pipe laying. Local artisans will also be trained on how to construct a household latrine.

Sanitation

It was suggested that clear guidelines for sanitation should be developed to guide implementation of suitable sanitation options. However, representative from the Department of Housing and Urban Planning advised that the process of developing rules and regulations for sanitation has already been initiated. In fact under the ADB-led Northern and Central Regions Water Supply and Sanitation Sector Project (NCRWSSP), regulations have been drafted and proposed to a number of District Governors for endorsement. Therefore, there is no need to develop a separate set of regulations or guidelines and the ones already developed can be utilized and adapted appropriately to the context of each District. Nonetheless, the option of pit latrine should not be encouraged as it is not sustainable or suitable for the situations in towns. If possible the toilet with septic tank and soak pit would be a good option which also seemed to be the most favored by the NPSEs. The people who have started on-site sanitation construction in Nan and Ngoi districts under NCRWSSP can advise on their experience.

NPSE-Luang Prabang pointed out that the fourth sanitation option (toilet with septic tank and soak pit) means that the cost for construction will be higher making it rather difficult to use revolving funds as the repayment period will have to be longer for poor households. However, if latrines are provided on a grant basis, the budget will not be enough to cover all towns. It was advised that the project should look at what the Ministry of Health (MOH) usually does, which is to provide small or partial financial support for construction of latrines aiming at first creating awareness of the benefits of using a latrine so later households would want to build one on their own. For the new project, for example in Xieng Ngeun there are over 300 households, if sanitation is provided on a grant basis it could probably only cover close to 100 households. Thus, there is a need to explore different technological as well as financial options.

UN-HABITAT suggested that there is a need to look into various aspects such as awareness raising on sanitation and availability of water supply in the different towns and present options to households and let them decide. To reach more beneficiaries, the Project would only support the construction of the supra structure. The super structure then becomes full responsibility of the beneficiaries. UN-HABITAT would have to build strong partnership with MOH in the software aspects like awareness raising.

NPSE-Sayabouly said that septic tanks have been used in Kenethao town under the NCRWSSP but no filters/soak pits have been used. Sanitation regulations in each town are different.

Representatives from MPWT mentioned that based on their experiences with ADB, consultations need to take place with Provincial and District authorities to agree on the best mechanisms for sanitation facilities to achieve high coverage and reach the MDG targets. MPWT also agreed with the suggestion that clear technical guidelines should be in place. However, to save time, each project should seek agreement with the relevant Districts on sanitation options taking into consideration the poor households and maximum coverage. Poor sanitation has effects on water supply use too. The country has not taken the problem of sanitation seriously until now. This can be seen in the assessment done by WSP regarding the effects of poor sanitation. The health care costs for sick people due to poor sanitation are estimated to be 1.9 billion Kip each year.

WHO asked whether the health education campaigns under on-going projects have been carried out in consultation with District health authorities. The WHO representative also wanted to know what the

ideal thickness of each layer of filtration in the soak pit would be and what the percentage of parasites taken out by the filter is. UN-HABITAT responded that collaboration with District Offices of Public Health has been an important element of each project to disseminate sanitation and hygiene messages and mobilize communities to construct the latrines. As for the soak pit filter, the recommended depth of each layer, which has been embraced by MPWT for a long time, is 20-30 cm for coarse gravel, 15-20 cm for charcoal or broken bricks, and 20-30 cm for fine sand. The speaker could not at the time confirm the percentage of parasites removed by the filter but said that the main advantages of this option include the fact that it does not affect the quality and health of the soil as waste is treated by the said mediums and the filter also helps neutralize the odour. The treated waste can be used as fertilizer for gardening and farming.

Lessons learned from the Xieng Ngeun community-based water supply and sanitation project

- Community works with water utility and district authorities to acquire safe water and adequate sanitation
- UN-HABITAT financial assistance was complemented by cash and in-kind contribution from the water utility and in-kind contribution from the community
- 83.5% of HHs is connected to water supply and 90% of HHs have a latrine (households that connected to water supply felt inspired to build a latrine).
- Mobilizing the communities to participate in project implementation required a lot of coordination between the District, the village authorities and the utility staff to help the community understand the purpose and scope of the project as well as the benefits of adequate water and sanitation services. Once the people were consulted and engaged, they became willing to participate and took more initiative.
- Community participation helped speed the construction of the water supply system which took only 8 months to complete. With guidance from the village and district authorities, the community members were more careful to protect and maintain the connections and report to the utility on a broken pipe. Incentives were provided to the households to connect to water such as a 3 month free trial period. Once the people felt the convenience and comfort of the service they decided to request for the connections. Another incentive was the install-first-pay-later scheme where the utility would install water connection at no cost in return for periodic repayments within 1 to 2 years. This was to ensure that the water system was utilized as soon as possible after construction and to have customers as quickly as possible.

Some of the challenges faced by the project have been:

- The revolving fund for sanitation has had a low repayment rate which affected the amount of loans that could be provided to the next group of borrowers. However, one solution to this problem is to work closely with District and village authorities to encourage people to pay by using peer support and pressure, and organize a meeting with those who have not paid the bills.
- Another challenge us in relation to wastewater and the lack of a drainage network. This problem usually arises whenever there is a developed water system. Currently there is no formal drainage system in the villages to deal with water that is discarded from washing or bathing. This wastewater affects other households living at lower levels. This issue has been raised to UN-HABITAT for advice and support.

NPSE-Sayabouly and NPSE-Savannakhet's projects were also briefed to the participants.

Key Discussions points *(Afternoon session)*

NPSE-Attapeu asked if the Xieng-Ngeun project had experienced any problems with repayment for the water connections which is a problem they were facing. NPSE-Luang Prabang responded they had not had problems as they can shut off the connection which immediately prompts households to pay. The same method unfortunately can not be applied to sanitation loans.

GRET asked if other activities under the Xieng Ngeun Project were also completed within the 8 months of construction mentioned earlier. They also asked what the loan period and interest were.

NPSE-Luang Prabang responded that the loan period is one year with not interest charged on the loan as most households are poor.

NPSE-Attapeu raised the issue that their proposed project - the replacement of dilapidated pipes - is different from other projects like the expansion or construction of a new system and mobilizing communities which already have water supply connections to contribute with labor may be more difficult than mobilizing people who have not had water connections before. NPSE-Attapeu also raised a concern on how to select the best option for sanitation, whether selecting the low-cost option to reach more people or selecting the higher cost option looking at sustainability. UN-HABITAT responded that everyone would want the best option but it would depend on fund availability, what or how much the community would contribute, and how many households are expected to be covered.

UN-HABITAT asked NPSE-Attapeu utility regarding the flat water tariff of 2,950 Kip/m3 and why there was no distinction between categories. NPSE-Attapeu responded that they had used different tariff rates with different categories before but the Provincial Governor had changed the policy due to difficulties in recording meters and management. The utility proposed the adoption of different tariff rates to the Governor but it was not approved.

MPWT said that the ministry has drafted the water supply law which is being reviewed by the National Assembly. The draft law adopts the concept of the right to water for everyone. Using 0-10 m^3 is the minimum amount of water needed for survival and dignity. The people who use this amount are usually the poor and they should not have to pay the same rate as those who use more than this. A flat rate is not pro-poor and not fair for the people who use water differently. Focus should be given to appropriate and sustainable services. Once the draft law is passed, this issue of setting price ceilings should be revised. And if necessary in the near future a workshop on pricing structure should be organized to discuss this issue.

UN-HABITAT asked NPSE-Attapeu if it would be possible to reduce the connection fee from around USD100 to about USD65 to help poor households. NPSE-Attapeu said that it would possible. MPWT encouraged NPSE-Attapeu to reduce the connection fees since many of its residents are very poor. GRET shared their experiences working with poor households under the MIREP programme where it was difficult for households to pay a connection fee of USD60-70.

UN-HABITAT added that along with MPWT, they would like to assist NPSE-Attapeu and NPSE-Sekong to explore reducing the costs of the connection fees in the poor areas. MPWT mentioned that if community participation with labour was not possible in Attapeu or Sekong, the Government may have to contract out the work as part of their contribution to the project. The Water Supply Division will discuss this with the provincial authorities. UN-HABITAT said that it would also organize consultations with the communities.

NPSE-Luang Prabang advised all NPSEs to try their best to speed implementation of activities as soon as the first installment is transferred to them. They should not delay and wait for the next installment as it will not come unless all required outputs have been completed and submitted for the next payment. If possible utilities should advance their own money to carry out activities. Once the outputs are completed and submitted the next installment will be paid.

NPSE-Sayabouly mentioned that based on the experiences with the on-going project, they would like to propose additional support for the households living farther away from the main pipes who found it more difficult to get connections as they would also have to pay for distribution pipes. Will it be possible for UN-HABITAT to consider increasing support to cover these households and cover more distribution pipes? UN-HABITAT responded that at this point it is quite late to propose changes to what has been assessed and agreed. Any additional costs of added physical works will have to be met by the utility. The utility should try to be an independent and profitable business entity and enhance its capacity to deliver services in a sustainable manner.

The utilities have requested for the support from UN-HABITAT in terms of report writing.

Closing remarks

The discussion was very enriching and it was concluded that a final agreement on a clear allocation of activities and responsibilities will have to be reached. The NPSEs were encouraged to prepare a comprehensive plan and report to the provincial authorities for approval. The NPSEs were also advised to show their commitment, take ownership of the project and assume leadership roles when working with stakeholders. The Xieng Ngeun project was highlighted as a very good example of participatory and inclusive processes which has received a lot of interest from the MPWT as well as national and international groups as far as Sri Lanka and Thailand. UN-HABITA was requested to continue its support and the provision of technical expertise to the country in the water and sanitation sector. The participants felt that the workshop was a good opportunity to interact among implementing partners as well as with other relevant organizations to exchange useful ideas and lessons learned.

Table 3 - Programme for MEK-WATSAN National Stakeholders' Workshop in Lao PDR (18 June 2009)

Time	Programme	Speakers
08:00-08:30	**Registration**	
08:30-09:00	**Session 1: Opening Session**	
	Welcome Remarks by UN-HABITAT	Mr. Avi Sarkar, Regional CTA, WAC SEA & MEK-WATSAN, UN-HABITAT
	Opening Speech	Dr. Somephone Dethoudom, Vice President, Council of Public Works and Transport Sciences, Ministry of Public Works and Transport
09:00-12:00	**Session 2A: Presentations**	
09:00-09:45	Presentation on findings of towns assessments	Ms. Celia Bedoya, UN-HABITAT
09:45-10:15	**Coffee Break**	At conference room
10:15-11:00	Presentation of Cooperation Agreements	Ms. Susana Rojas Williams, UN-HABITAT
11:00-11:30	Presentation on suitable sanitation options	Mr. Buahom Sengkhamyong, CTA Lao PDR
11:30-13:00	**Lunch Break**	At conference room
13:00-16:30	**Session 2B: Discussions**	
13:00-13:30	Briefing on on-going projects in Xieng Ngeun, Sayabouly and Phine	Luangprabang, Sayabouly and Savannakhet water utilities
13:30-14:30	Discussions on WATSAN issues and challenges in the new project towns	Water utilities
14:30-14:45	**Coffee Break**	At UN House cafeteria
14:45-15:45	MPWT comments on current WATSAN challenges, opportunities and barriers. Suggestions on the way forward, future possibilities of scaling up/replication	Dr. Somephone Dethoudom, Vice President, Council of Public Works and Transport Sciences, Ministry of Public Works and Transport

15:45-16:30	**Session C: Closing Session**	
15:45-16:15	Summary of findings	Mr. Avi Sarkar, Regional CTA, WAC SEA & MEK-WATSAN, UN-HABITAT
16:15-16:30	Closing remarks	Dr. Somephone Dethoudom, Vice President, Council of Public Works and Transport Sciences, Ministry of Public Works and Transport

Table 4 - List of Participants

No	Name	Title	Organisation
National Government			
1	Dr. Somphone Dethoudom	Vice President, Council of Public Works and Transport Sciences	Ministry of Public Works and Transport (MPWT)
2	Mr. Khanthone Vorachith	Chief, Water Supply Division	Department of Housing and Urban Planning, MPWT
3	Mr. Vorasith Dengkhayaphichith	Technical Officer and focal point, Water Supply Division	Department of Housing and Urban Planning, MPWT
Water Utilities			
4	Mr. Somsanith Thipphasouda	Deputy Director	NPSE-Luang Prabang
5	Mr. Aliya Khanti	Managing Director	NPSE-Sayabouly
6	Mr. Sengkham Sitthioudom	Managing Director	NPSE-Attapeu
7	Mr. Khamsing Southammakosan	Managing Director	NPSE-Sekong
8	Mr. Khanngeun Sengiem	Managing Director	NPSE-Khammouane
9	Mr. Phandola Khouanemeuangchan	Managing Director	NPSE-Savannakhet
10	Mr. Vilaykhone Phimmasone	Managing Director	NPSE-Bolikhamxay
Provincial Department of Public Works and Transport			
10	Mr. Viluck Sisomluck	Department of Public Works and Transport	Sayabouly
11	Representative	Department of Public Works and Transport	Savannakhet
12	Representative	Department of Public Works and Transport	Attapeu
Development Partners			
13	Mr. Chanhsouk Simai	Programme MIREP	GRET
14	Ms. Amphayvone Sounthala	Environmental Health Assistant	WHO
15	Ms. Sengamphone Chithtalath	Gender Technical Associate	Mekong River Commission
UN-HABITAT			
16	Mr. Avi Sarkar	Regional CTA, WAC and MEK-WATSAN	UN-HABITAT SEA
17	Mr. Buahom Sengkhamyong	CTA, Lao PDR	UN-HABITAT Lao PDR
18	Ms. Celia Bedoya		UN-HABITAT HQ
19	Ms. Susana Rojas Williams		UN-HABITAT HQ

20	Ms. Joyce Mmaitsi	Project Officer, WAC and MEK-WATSAN	UN-HABITAT SEA
21	Ms. Susanna Kainulainen	Project Officer	UN-HABITAT Lao PDR
22	Ms. Vatlana Boupha	National Officer	UN-HABITAT Lao PDR
23	Ms. Irene Alunni	M&E Officer	UN-HABITAT Lao PDR

National Stakeholder's Consultations on the Mekong Region Water and Sanitation Initiative (MEK-WATSAN)

29 June 2009, Dong Ha, Quang Tri Province, Vietnam

Background

The Mekong Region Water and Sanitation Programme or MEK-WATSAN is a regional collaborative effort between UN-HABITAT and the Governments of the Mekong region, which was initiated at the request of the Governments of the Mekong Region - Kingdom of Cambodia, the People's Republic of China (Yunnan province), the Lao People's Democratic Republic, and the Socialist Republic of Vietnam. The overall objective of MEK-WATSAN is to support the participating countries achieve the water and sanitation related Millennium Development Goals (MDGs).

The programme has reached a stage where increased investments can have a rapid impact on water and sanitation coverage for the poor in the region. So far, 43,700 people have benefited from improved water and/or sanitation in the fast-track/quick-win approach. Presently in Vietnam and under MEK-WATSAN, 2 fast-tracking projects on Community-based water and sanitation for the urban poor are on-going in Dong Ha and Lao Bao Towns of Quang Tri province. The total cost of these projects is USD824,000 where UN-HABITAT's contribution is USD402,000.

There has been an increasing demand from the cities and countries where the programme is operational for greater assistance from UN-HABITAT in supporting the development of investment proposals, innovative approaches, mechanisms and tools. To meet the increased demand, the programme has been scaling up for expansion of activities to another 18 towns spread over Cambodia, Lao PDR and Vietnam. 4 towns of Quang Tri Province, Vietnam were selected to participate in this roll-out phase.

Objectives

The National Stakeholders' Consultation is a follow-up to the MEK-WATSAN Regional Consultations organized on 20-22 April 2009 in Hanoi, Vietnam, whereupon the "*Hanoi Declaration"* was signed by the high officials of the participating countries - Cambodia, Lao PDR and Vietnam. Representatives from the three countries including officials from the Governments, donor community and partner organizations participated in the consultations to facilitate joint planning and discuss on the design and tools and methods to be used to ensure success of the MEK-WATSAN programme within the framework of regional cooperation.

Following the regional consultations, technical assessments of water and sanitation of selected towns in Cambodia, Lao PDR and Vietnam were carried out. In Vietnam the assessments took place between 22 and 30 June 2009. The Mission team worked with the provincial water utilities to review the implementation progress of on-going projects in Dong Ha and Lao Bao under the first stage of MEK-WATSAN in Vietnam. The mission team also visited and worked with local authorities (DOC and DPI) and the water utility staff of project towns selected for the second stage of MEK-WATSAN, namely Lao Bảo town and Hướng Hóa District, Đông Hà Town, Cửa Việt Town and Gio Linh District, and Quảng Trị Town. The mission team visited target areas and potential beneficiary communities in each town. The visits were followed by the development of project documents for infrastructure investment and capacity building needs in these towns in coordination with relevant stakeholders.

Vietnam's National Stakeholders' Consultation took place on 29 June 2009 in Dong Ha Town, Quang Tri Province to share the findins of the assessments carried out in the 4 areas of intervention selected for inclusion in the MEK-WATSAN programme and to consult with relevant stakeholders on project

proposals and implementation plans. The objective of the meetings was to provide an opportunity for partners and stakeholders to give their comments and share their ideas on required programme activities and the best way forward in the development of the Cooperation Agreements. Representatives from MoC and GSO were invited to attend to the meeting.

Structure of the National Consultation in Vietnam

The 1-day meeting involved both presentations and discussions. Participants included representatives from the Ministry of Construction (MoC), the Provincial People's Committee (PPC) of Quang Tri Province, the Provincial Water Utility (QTWASUCO) and development partners (Please refer to table 5 and table 6 for the agenda and list of participants). The consultations were conducted in both English and Vietnamese with consecutive translation to facilitate understanding.

Mr. Le Thanh Ty, Chief, UN-HABITAT Project Management Unit, QTWASUCO introduced the participants. The meeting was officially opened by Mr. Nguyen Duc Cuong, Chairman, Provincial People's Committee (PPC) and by Mr. Avi Sarkar, Chief Technical Advisor, Southeast Asia Region, UN-HABITAT. The morning session involved three presentations. The status of ongoing projects in Dong Ha and Lao Bao under MEK-WATSAN Vietnam was presented by Mr. Dao Ba Hieu, Deputy Director, QTWASUCO followed by a presentation of the findings of town assessments by Ms. Celia Bedoya, Junior Professional Officer, UN-HABITAT. A presentation on the formulation of Cooperation Agreements (CAs) between UN-HABITAT and implementing partners was made by Ms. Susana Rojas Williams, Associate Human Settlements Officer, UN-HABITAT, followed by comments on the CAs by Mr. Mai Van Tu, Director General, QTWASUCO.

The afternoon session had three presenters starting with Mr. Bui Xuan Doan, Deputy Director, Administration of Technical Infrastructure, MoC who provided recommendations on project implementation. Ms. Tran Thi Minh Chau, Deputy Director, Department of Socio and Environment, General Statistic Office (GSO) spoke on MDG monitoring in water and sanitation, and a presentation on suitable sanitation options was given by Mme Pham Thi Thu Huong, Chief Technical Advisor Vietnam, UN-HABITAT. The presentations were followed by questions and comments from stakeholders. Lastly, the contents of the Memorandum of Understanding to be signed between UN-HABITAT and the PPC of Quang Tri were discussed and negotiated.

The workshop was closed Mr. Nguyen Duc Cuong, Chairman, Provincial People's Committee (PPC) and by Mr. Avi Sarkar, Chief Technical Advisor, Southeast Asia Region, UN-HABITAT.

Key Points of Presentations and Discussions

Opening and Welcome by Mr.Nguyen Duc Cuong, Chairman, PPC and Mr. Avi Sarkar, UN-HABITAT

The consultations started with a brief introduction of the mission work as well as the objectives of the consultation.

The Chairman welcomed the participants and the mission team and expressed his appreciation on the ongoing activities in Quang Tri Province. He looked forward to the roll-out phase activities in the 4 towns. He encouraged participants to comment and provide advice on how to support urban development in Quang Tri. The Chairman also recommended to clearly outline the responsibilities of each party in project implementation and to support the institutional aspects of the Project.

Mr. Avi Sarkar, Regional CTA, expressed his gratitude to the PPC for supporting UN-HABITAT and the activities of MEK-WATSAN which promotes pro-poor WATSAN investments in the region. He highlighted that one of the objectives of the assessment mission was to identify target areas for implementation that include the poor. Mr. Sarkar indicated that Vietnam is a dynamic country which has learned from different Government initiatives and through MEK-WATSAN, they have been able to reach a larger number of beneficiaries. He also mentioned that there are high expectations placed

on Vietnam for leadership in the region. UN-HABITAT thanked the staff from the water utilities for all their support during the mission and highlighted it looked forward to signing the MOU with the Government of Vietnam.

Presentation on on-going projects by Mr. Dao Ba Hieu, Deputy Director, QTWASUCO

The Deputy Director of QTWASUCO presented the status of ongoing projects in Dong Ha and Lao Bao Towns. Since the Projects started in August 2008, 44 households in Dong Ha Town and 68 households in Lao Bao Town have benefited from increased access to safe water through the expansion of the water supply system. Stakeholder workshops had taken place, Steering Committees and Project Management Units were established and Poverty mapping was carried out in both towns. The design of sanitation facilities was under discussion. Other on-going activities have been related to hygiene education and capacity building for the water utilities. He highlighted that the sustainability and success of the projects require a big effort from the Government, cooperation and coordination between relevant stakeholders including women's unions.

Water and Sanitation Assessment of Selected Towns by Celia Bedoya – Junior Professional Officer, UN-HABITAT

A UN-HABITAT mission team visited the project towns of Quang Tri province from 22 to 30 June 2009 to meet and work with local Government and relevant stakeholders, visited sites, looked at the current water and sanitation conditions, and conducted rapid technical assessment of proposed interventions in water and sanitation. The main findings of the assessments were presented.

The proposed interventions aimed at complementing investments already made by the water utilities to increase the capacity of the systems and at guarantying that the poor in urban and peri-urban areas can also benefit from investments in infrastructure. The proposed projects under MEK-WATSAN include:

- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Dong Ha Town (Quang Tri Province).
- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Lao Bao Town (Quang Tri Province).
- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Quang Tri Town (Quang Tri Province).
- Extension of existing water supply system, provision of adequate on-site sanitation, capacity building and MDG monitoring in Cua Viet Town (Quang Tri Province).

The total expansion of the distribution networks is expected to be 37,4km (DN50-150 HDPE).

It was highlighted that different technological options would be explored for the sanitation facilities, among them pour flush toilets and septic tanks. Through a demand-led approach and with technical assistance, it is anticipated that some households could cover the full cost of the sanitation facility while poor families could access either revolving funds or grants according to their means. Ms. Bedoya also mentioned the main challenges shared by the implementing partners regarding sanitation such as raising demand for adequate sanitation and the management of revolving funds.

Cooperation Agreements by Susana Rojas Williams – Associate Human Settlements Officer, UN-HABITAT

The presentation explained the substance and structure of a Cooperation Agreement to be signed by UN-HABITAT and the implementing partner for the implementation of the projects. The work flow of project implementation was also presented.

The total amount of funds contributed by UN-HABITAT for implementation of the proposed interventions is USD2,100,000 while the local Government is expected to contribute no less than 20 per cent of UN-HABITAT's contribution in cash or kind. 6,324 households (31,630 people) are

expected to benefit from increased access to safe water through the expansion of water supply systems and 17,000 households (85,000 people) are expected to benefit from improved sanitation.

Some of the important elements of the community-based projects include partners' contribution (cash and/or in-kind), community participation in the planning and implementation of project activities, and the use of revolving funds for poor households to increase access to water and sanitation.

The next steps discussed were related to the signing of the MoU between UN-HABITAT and the PPC of Quang Tri expected to be signed on July 2009, the processing of cooperation agreements (CAs) and supporting documents with UN-HABITAT, and the signing of the CAs between UN-HABITAT and QTWASUCO expected to start in September 2009. Project implementation was expected to start in October 2009. The implementation duration of most proposed project is 24 months.

Comments on the CAs by Mr. Mai Van Tu, Director General, QTWASUCO
In his address, Mr. Mai Van Tu agreed with the proposed timeframe for project implementation and suggested that in order to reduce costs and increase beneficiaries it would be advisable to also identify people living closer to the distribution network and the water treatment plants. He encouraged the local Government to expeditiously provide information on target households to prevent delays in construction works. He also requested the support of the local Government in poverty mapping in each of the towns. Mr. Mai Van Tu recommended that the PMU should include a communication specialist to work with the communities.

Comments by Mr.Bui Xuan Doan, Deputy Director, Administration of Technical Infrastructure - Ministry of Construction (MOC)
Mr. Bui Xuan Doan, MOC, recommended the local Government to follow Vietnam's current policy and legislation on water and sanitation. The PPC of Quang Tri in mainly responsible for the successful implementation of the projects and the Steering Committee needs to include all relevant stakeholders. Mr. Bui Xuan Doan asked the Provincial Water Utility QTWASUCO to take the lead as Project Management Unit. He stressed the importance of a sustainable management of water resources particularly since Vietnam is upstream of its water resources.

Plenary Sessions
At the plenary session, the participants had an opportunity to provide comments and suggestions. Participants mentioned the strong need for coordination among agencies in order to achieve adequate sanitation standards. Alternative technological options for latrines were discussed particularly in regards to cost-savings and environmental impact. The options were to be shared and discussed with the beneficiary communities. The participants shared some concerns with the use of revolving funds where timely repayments remain a challenge.

Participants also expressed their agreement with the selection of urban and peri-urban areas. Representatives of the water utilities indicated this Project will help them address the water and sanitation challenge to provide adequate services despite increasingly high urbanization rates. The Government reiterated their commitment to contribute at least 20% of UN-HABITAT's contribution as outlined in the MoU.

The Participants also discussed the issue of water tariffs highlighting that domestic rates were low compared with production costs and that local Government would have to help subsidize the production costs of potable water if the tariffs were to remain low.

Participants stressed the importance of community participation in the success of the projects. Communities were expected to be involved in the design, implementation and monitoring of the Projects. Representatives of the MOC reiterated the importance of linking MEK-WATSAN projects with other projects/ programmes in the province such as linking with the Vietnam Bank for Social Policy which focuses on supporting poor households with access to microfinance for housing as well

as for water and sanitation improvements. MOC confirmed their support to the local Government and UN-HABITAT during project implementation.

MDG Monitoring by Ms. Tran Thi Minh Chau, GSO

Mme Tran Thi Minh Chau, Deputy Director, Department of Socio and Environment from the General Statistics Office presented an overview of the MDGs, targets 10 and 11 as well as Vietnam's Development Goals. She highlighted that equality in beneficiaries is important for the success of the project. Everybody deserves equal access to adequate services and the projects can help bridge the gaps between the poor and the rich. It was also stressed that the relationship between water and sanitation is very important and protection of the environment is key. She encouraged the local Government to work hard to raise awareness on water and sanitation issues with local communities.

Suitable Sanitation Options for the Urban Poor by Pham Thi Thu Huong, UN-HABITAT

For the sanitation projects to be successful, it was stressed that awareness and education campaigns were critical to raise the demand and community leaders need to be fully engaged. Different technological options would be presented to the communities and financing mechanisms for promoting the construction and reaching the most vulnerable will be put into place, as a combination of grants, revolving funds, and contributions from the beneficiaries. The local authorities are responsible to help identify which households may qualify for a grant or access the revolving funds.

The JMP definition of improved sanitation includes VIP latrine, pour-flushed toilets and septic tanks. Four different technological options presented were for comparison purposes: pit latrines, VIP latrines, pour-flush toilets and septic tanks. A summary of each technological option, the advantages and disadvantages was presented.

Closing

The consultations provided the opportunity for a fruitful exchange of ideas and experiences among all relevant stakeholders. The project in Lao Bao was congratulated on how the water utility had been able to mobilize the communities. QTAWSUCO reiterated its commitment to the success of the projects in Quang Tri Province. UN-HABITAT thanked again all participants for their support during the mission and for their active participation in the meeting.

Table 5 - Programme for MEK-WATSAN National Stakeholders' Workshop in Vietnam (29 June 2009)

Time	Programme	Speaker/Presentator
8:00 – 8:30	Introduction of participants	Water Utility – *Mr.Le Thanh Ty, Chief, UN-HABITAT Project Management Unit*
8:30 – 9:00	Opening Speech	Provincial People's Committee (PPC) – *Mr.Nguyen Duc Cuong, Chairman*
9:00 – 9:15	Welcome address	UN-HABITAT – *Mr.Avi Sarkar, Regional CTA, WAC & MEK-WATSAN*
9:15 – 9:45	Presentation on on-going projects of Dong Ha and Lao Bao under MEK-WATSAN Vietnam	Water Utility – *Mr.Dao Ba Hieu, Deputy Director*
9:45 – 10:30	Towns Assessment	UN-HABITAT – *Ms.Celia Bedoya, Technical Specialist*
10:30 – 10:45	Tea/Coffee Break	
10:45 – 11:15	Presentation on CAs	UN-HABITAT – *Ms. Susana Rojas Williams, Associate Human Setllements Officer*
11:15 – 11:45	Comments on CAs	Water Utility – *Mr.Mai Van Tu, Director General*
12:00 – 13:30	Lunch	

14:00 – 14:30	Interventions by Ministry of Construction (MoC)	MoC – *Mr.Bui Xuan Doan, Deputy Director, Administration of Technical Infrastructure*
14:30 – 15:00	MDG Monitoring	General Statistic Office (GSO) – *Mme Tran Thi Minh Chau, Deputy Director, Department of Socio and Environment*
15:00 – 15:30	Sanitation Options to the urban poor	UN-HABITAT – *Mme Pham Thi Thu Huong, CTA Vietnam*
15:30 – 15:45	Tea/Coffee Break	
15:45 – 17:00	- Comments/Feedback from relevant stakeholders - MOU agreement	Moderator: *Mr.Nguyen Duc Cuong, Chairman of PPC*
17:00 – 17:15	Closing remarks	Representative from PPC
18:00	Dinner received by PPC	All participants

Table 6 - List of Participants

No.	Name	Title	Organisation
National Government			
1.	Mr.Bui Xuan Doan	Deputy Director,	Administration of Technical Infrastructure, Ministry of Construction (MoC)
2.	Ms. Tran Thi Minh Chau	Deputy Director	Department of Socio and Environment, General Statistic Office (GSO)
Provincial Government			
3.	Mr.Nguyen Duc Cuong	Chairman	Provincial People's Committee (PPC)
4.	Mr. Nguyen Thoi	Deputy Chairman	Dong Ha Town
5.	Mr. Tran Van Dong	Deputy Head of Town	Huong Ha Town
6.	Mr. Nguyen Huru dung	Deputy Chairman	Lao Bao Town
7.	Mr. Van Ngoc La	Deputy Chairman	Quang Tri Town
8.	Mr. Tran Thi thao	Deputy Chairman	Gio Ling Town
9.	Mr. Nguye Truong	Chairman	Cua Viet Town
10.	Mr. Dao Ba Thiev	Deputy Director	QTWASUCO
11.	Mr.Mai Van Tu	Director General	QTWASUCO
12.	Mr. Le Thanh Ty	Chief, UN-HABITAT Project Management Unit	QTWASUCO
UN-HABITAT			
13.	Mr.Avi Sarkar	Regional CTA, WAC & MEK-WATSAN	UN-HABITAT SEA
14.	Ms.Celia Bedoya	Technical Specialist	UN-HABITAT HQ
15.	Ms. Susana Rojas Williams	Associate Human Settlements Officer	UN-HABITAT HQ
16.	Ms. Joyce Mmaitsi	Regional Project Officer	UN-HABITAT
17.	Ms. Pham Thi Thu Huong	CTA Vietnam	UN-HABITAT Vietnam
18.	Mr. Pham Si Hung	Technical Specialist	UN-HABITAT Vietnam

ANNEX 9 – List of Cooperation Agreements under MEK-WATSAN Roll Out Phase 1

A. Cambodia

Table 1 - Breakdown of Cooperation Agreements signed with CfD for sanitation

Town	Activities	Beneficiaries	Budget (USD)		
		Sanitation	UN-HABITAT	CfD/ Communities (in-kind/cash)	Total
Kampong Cham / Svay Rieng	Provision of improved sanitation services towards reaching the MDGs in Kampong Cham and Svay Rieng towns	16,899	185,775	236,977	422,752
Kampong Thom	Provision of improved sanitation services towards reaching the MDGs in Kampong Thom	36,316	296,760	455,254	752,014
Pursat	Provision of improved sanitation services towards reaching the MDGs in Pursat	27,773	235,993	353,249	589,242
	Total	**80,988**	**718,528**	**1,045,480**	**1,764,008**

Table 2 - Breakdown of Cooperation Agreements signed with MIME for water supply

Town	Activities	Beneficiaries	Budget (USD)		
		Water	UN-HABITAT	MIME/ Communities (in-kind/cash)	Total
Kampong Cham	Extension of water supply, capacity building and monitoring achievements towards reaching the MDGs in Kampong Cham town, Cambodia	6,500	256,000	145,325	401,325
Kampong Thom	Extension of water supply, capacity building and monitoring achievements towards reaching the MDGs in Kampong Thom town, Cambodia	8,250	326,000	172,825	498,825
Svay Rieng	Extension of water supply, capacity building and monitoring achievements towards reaching the MDGs in Svay Rieng town, Cambodia	4,532	179,000	111,075	290,075
Pursat	Extension of water supply, capacity building and monitoring achievements towards reaching the MDGs in Pursat town, Cambodia	7,700	304,000	162,325	466,325
	Total	**26,982**	**1,065,000**	**591,550**	**1,656,550**

B. Lao PDR

Table 3 - Breakdown of Cooperation Agreements signed in Lao PDR

Town/Project	Main Activities	Beneficiaries		Budget (USD)		
		Water	Sanitation	UN-HABITAT	Partners (in-kind/cash)	Total
Xieng Ngeun District (6 villages in Northern area), Luang Prabang Province	Extension of water supply and improved access to sanitation towards reaching the MDGs. Partner: Provincial NPSE.	2,613	1,992	159,951	94,572	254,523
Sayabouly District (peri-urban areas), Sayabouly Province		3,796	2,183	208,935	99,196	308,131
Kongsedone District, Saravane Province		2,866	1,756	154,427	94,349	248,776
Lamam and Thateng District, Sekong Province	Rehabilitation of the water supply system and improved access to sanitation services towards reaching the MDGs. Partner: Provincial NPSE.	9,154	10,258	331,368	120,967	452,335
Samakhixay District, Attapeu Province		10,608	6,762	355,952	123,216	479,168
Atsaphangthong District, Savannakhet Province	Establishment of a water supply system and improved access to sanitation services. Partner: Provincial NPSE.	5,050	3,788	506,952	294,414	801,366
Paksan District (urban and peri-urban areas), Bolikhamxay Province	Improved access to sanitation towards reaching the MDGs. Partner: Provincial NPSE.	-	2,411	44,836	26,514	71,350
Thakkek District (peri-urban areas), Khammouane Province		-	4,301	77,423	39,550	116,973
Eight Areas of Intervention benefiting from Improved Water and Sanitation Services for 62,928 beneficiaries in Seven Provinces.	Monitoring of MDG Targets 10 and 11 in eight areas of intervention. Partner: Department of Statistics (DoS)	-	-	73,730	24,023	97,753
Capacity Building of 8 For	Capacity building of 8 NPSEs. Partner: Waterworks	-	-	41,400	15,500	56,500

Town/Project	Main Activities	Beneficiaries		Budget (USD)		
		Water	Sanitation	UN-HABITAT	Partners (in-kind/cash)	Total
NPSEs in 8 provinces	Technical Training Center (WTTC)					
Thabok Area, Thaphabath District, Bolikhamxay Province	Public-Private Partnership on the water supply and sanitation. Partner: Group of Research and Technological Exchange (GRET)	4,553	1,100	25,000	152,700	177,700
	Total	**38,640**	**34,551**	**1,979,974**	**1,084,281**	**3,064,255**

C. Vietnam

Table 4 - Breakdown of Cooperation Agreements signed with QTWASUCO in Vietnam

Town	Main Activities	Beneficiaries		Budget (USD)		
		Water	Sanitation	UN-HABITAT	Partners (in-kind/cash)	Total
Dong Ha	Increased access to safe water through the extension of water supply and to improved sanitation services towards reaching the MDGs in the peri-urban and urban areas of Dong Ha City, Quang Tri Province	7,230	18,200	519,250	126,900	646,150
Lao Bao	Increased access to safe water through the extension of water supply and to improved sanitation services towards reaching the MDGs in the peri-urban and urban areas of Lao Bao Town, Quang Tri Province	7,590	8,800	397,950	95,850	493,800
Cua Viet	Increased access to safe water through the extension of water supply and to improved sanitation services towards reaching the MDGs in the peri-urban and urban areas of Cua Viet Town, Quang Tri Province	8,105	13,500	397,750	89,050	486,800
Quang Tri	Increased access to safe water through the extension of water supply and to improved sanitation services towards reaching the MDGs in the peri-urban and urban areas of Quang Tri Town, Quang Tri Province	8,705	44,500	861,350	232,950	1,094,300
	Total	**31,630**	**85,000**	**2,176,300**	**544,750**	**2,721,050**

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