

LAO PEOPLE'S DEMOCRATIC REPUBLIC
Peace Independence Democracy Unity Prosperity

SMALL TOWNS
WATER SUPPLY AND SANITATION INITIATIVE
IN LAO PDR

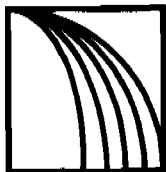
**WATER
SUPPLY
AUTHORITY**



**Department of Housing
And Urban Planning**



**Urban Research
Institute**



**Water and Sanitation Program
East Asia and Pacific (WSP-EAP)**

**A comparative study of
small town water and sanitation
services in developing countries**

CASE STUDY

*Final
Version*

*Prepared by
WASA, DHUP & URI
with support from WSP-EAP*

Acknowledgments

The Technical Team for the Small Town Study in Lao P.D.R. would like to sincerely thank all the Government staff and supporting partners who gave valuable information and insights into this report, the first Lao-led Case Study on Small Towns Water and Sanitation by staff from the Water Supply Authority, Department of Housing and Urban Planning, and the Urban Research Institute, with collaboration from Nam Saat Central.

In particular we would like to thank the Advisory Committee for its counsel and guidance, the Provincial DCTPCs, Nam Papa State Enterprises and Nam Saats for their openness, hospitality and willingness to try new methodologies such as Benchmarking and the Methodology for Participatory Assessments (MPA), and to the staff of the World Bank Water and Sanitation Program – East Asia and Pacific for their help and support.

This Case Study has been prepared through a consultative process and forms part of a series of reports for the Small Towns Water Supply and Sanitation Initiative in Lao PDR as follows: -

No.	Title	Date	Language		Reference No.*
			Lao	English	
1	Preliminary Desk Research Inventory	October 2001		<input type="checkbox"/>	APR-090
2	Sector Partner Consultation Meeting	30 November 2001		<input type="checkbox"/>	APR-091
3	National Consultation Workshop on Water Supply and Sanitation	13 December 2001		<input type="checkbox"/>	APR-094
4	Case Study (this Report)	April 2002		<input type="checkbox"/>	UWS-037
4	Case Study (this Report)	(Due May 2002)	<input type="checkbox"/>		UWS-037L
4.1	Case Study: Appendices	(Due May 2002)		<input type="checkbox"/>	UWS-037A
5	Situation Report	(Due May 2002)	<input type="checkbox"/>	<input type="checkbox"/>	UWS-038

* The 'Reference Number' is for the Resource Center at the World Bank Water and Sanitation Program, Lao PDR Country Office, Vientiane. For copies of these reports, please contact any of the organizations mentioned on the back cover of this report.

Table of Contents

Acknowledgments	ii
Table of Contents	iv
Appendices	v
List of Acronyms and Abbreviations	
Introduction	1
NATIONAL CONTEXT: Small Towns in Lao PDR	2
NATIONAL STRATEGY AND PRINCIPAL STAKEHOLDERS IN THE SECTOR	7
Institutional Setting	8
- Main actors	9
Water and Sanitation Facilities in Small Towns	12
- Water Supply	12
- Sanitation	13
CASE STUDY METHODOLOGIES	14
Provinces and Small Towns Studied	14
Small Towns sampled	15
TECHNICAL ASSESSMENT	15
Geographic Coverage	15
Technologies	16
Environmental Issues	16
Service Delivery	16
Existence of Alternative Sources	16
Water Production and Consumption	17
Water quality, Reliability and Pressure	18
Investment Costs	18
INSTITUTIONAL ARRANGEMENTS	20
Design	20
Construction	21
Ownership	21
Utility Organization	22
Operational Efficiency	22
Staffing	23
Remuneration	23
FINANCIAL ASSESSMENT	23
Tariff-setting	24
Funding of Investments	25
- Expansion Investments	25
- Renewal	26
- Investment Funding Patterns	26
Financial Viability of Systems	26
SOCIAL ASSESSMENT	27
Social Issues	27
RECOMMENDATIONS	28
- Policy Framework	28
- Institutional Strengthening	28
- Instituting Learning	29
WEB LINKS	30

BOXES

1. Small Towns Global Definition	2
2. Lao PDR at a glance	2
3. Management Model Development in Lao PDR	4
4. Good Sustainability	6
5. Poverty-Focused Investments	7
6. Benchmarking	8
7. National Consultation Workshop	11
8. Different Perceptions	13
9. Cost-Benefit Analysis using MPA	14
10. Investment Cost Calculation	19

TABLES

1. GOL Administrative Levels	8
2. Main Regulatory Framework	11
3. Institutional arrangements for Construction Phase in the 4 small towns visited	20
4. Institutional arrangements for Operation Phase in the 4 towns	21
5. Actors at Provincial Level: Provincial Nam Papa – Water Administration Board	22

GRAPHS

1. Population range of 143 Centers designated as Urban	3
2. Average Tariff (US\$ / m ³)	8
3. Total Population and Population Served	14
4. Coverage of the small towns (2001)	15
5. Total house connections by year	16
6. Consumption / lcd (2000)	17
7. Unaccounted for Water (2000)	17
8. Investment cost related to Capacity	19
9. Investment cost related to Population	19
10. Production compared to Design Capacity	21
11. Staffing Levels	22
12. Average connection cost (US\$)	24
13. Tariff level / m ³ compared to Costs / m ³	26

PICTURES

MPA Village Meeting, Luang Phrabang	5
MPA Village Meeting, Luang Namtha	6
Nam Papa discussions, Sam Nuea	8
National Consultation Workshop: Presentation	11
National Consultation Workshop: Discussion	11
Water treatment plant, Luang Namtha	12
MPA Village Meeting, Luang Namtha (in Box 9)	14
Samakhixay Town, Attapeu	15
Nam Papa State Enterprise, Luang Namtha Office	16
Slow sand filter, Sam Nuea	18
Nam Papa discussions, Sam Nuea	18
MPA Village Meeting, Samakhixay	23
Provincial DHUP discussions, Luang Namtha	25
National Consultation Workshop on Water Supply and Sanitation	27
Technical Team	inner back cover

FIGURES

1. Small Towns - Water Supply, Sanitation and Hygiene Promotion: Main Stakeholders	10
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MAPS

1. Map of the Lao People's Democratic Republic including the four towns covered by the study	1
2. Map of Lao PDR showing the 192 urban growth centers (NURBIDS research)	3

APPENDICES

Appendix 1 : Regulatory framework development in Lao PDR (update 2001) and terminology in Lao and English used for urban/small towns/rural.

Appendix 2 : Provinces / District Centers, and Main Financers of WSS Sector Projects (update 2001) / Investment Calculation.

Appendix 3 : Examples of management models for small towns and multi-village systems.

Appendix 4 : Population Distributions.

Appendix 5 : Methodology for Participatory Assessments (MPA) : Cost / Benefit Analysis.

Appendix 6 : Benchmarking, Results from 4 Small Towns;

Water Quality testing in Luang Phrabang and Samakhixay.

Appendix 7 : Examples of Environmental Sanitation Mapping, Luang Phrabang, UNESCO/ La Maison du Patrimoine, 1999.

Appendix 8 : Designs / Innovative Tariff Collection Process:
Examples from Luang Phrabang.

Appendix 9 : - Fund-flow mechanism for UWS: Grant financing.

- Fund-flow mechanism for UWS: ADB financing.

- Fund-flow mechanism for UWS : IDA financing.

- Organization Charts Nam Papa : Samakhixay.

Nam Papa : Sam Nuea.

Nam Papa : Luang Phrabang.

Nam Papa : Luang Namtha.

Appendix 10 : Persons met during the Field Research.

Appendix 11 : References.

The Appendices are attached in a separate document as 'Appendices of the Small Town Water Supply and Sanitation Case Study in Lao P.D.R.'

LIST OF ACRONYMS AND ABBREVIATIONS

>	greater than
ADB	Asian Development Bank
ASEAN	Association of South East Asian Nations
Av.	Average
BCEL	Lao Bank for External Trade
BP	Best Practice
CBO	Community Based Organization
DANIDA	Danish International Development Agency
DBL	Design, Build, Lease
DCTPC	Department of Communication, Transport, Post and Construction
DHDP	Department of Hygiene and Disease Prevention
DHUP	Department of Housing and Urban Planning
DOF	Department of Finance
DOP	Department of Planning
DOT	Department of Trade
dPH	District Public Health
dNam Saat	District Nam Saat
dNP(SE)	District Nam Papa (State Enterprise)
ESA	External Support Agency
EU	European Union
FY	Fiscal Year
GCs	Growth Centers
GDP	Gross Domestic Product
GFS	Gravity-flow water scheme
GI	Galvanized Iron pipe
GNI	Gross National Income
GOL	Government of Lao
HDI	Human Development Index (UNDP)
IDA	International Development Assistance of the World Bank
IDA Cr.	Credit (International Development Assistance of the World Bank)
JICA	Japanese International Cooperation Agency
Kip	Currency of the Lao PDR
LA	Lao PDR (term applied to World Bank credit)
LAK	Lao Kip (Currency of the Lao PDR)
lcd or l/c/d	Liters per capita per day
LNT	Luang Namtha
LPB	Luang Phrabang
LWU	Lao Women's Union
LYU	Lao Youth Union
MAF	Ministry of Agriculture and Forestry
MCTPC	Ministry of Communication, Transport, Post and Construction
MIH	Ministry of Industry and Handicrafts
MoE	Ministry of Education
MoF	Ministry of Finance
MoH or MoPH	Ministry of Health or Ministry of Public Health
MoU	Memorandum of Understanding
MPA	Methodology for Participatory Assessment
Nam Papa	State enterprise for urban water supply and waste-water, also refers to a piped water system with household connections
Nam Saat	National Center for Environmental Health and Water Supply
NEW	National Center for Environmental Health and Water Supply
NGO	Non-government Organization
No.	Number
NORAD	Norwegian Agency for Development Cooperation
NPSE	Nam Papa State Enterprise
NPV(SE)	Nam Papa Vientiane (State Enterprise)
NPL	Nam Papa Lao
NTU	Nephelometric Turbidity Units
NURBIDS	National Urban Rural Basic Infrastructure Development Strategy
O+M	Operation and Maintenance
PAdmin	Provincial Administration
pDCTPC	Provincial Department of Communication, Transport, Post and Construction
PDR	People's Democratic Republic
pDoPH	Provincial Department of Public Health
PICC	Project Implementation Coordination Committee

PM	Prime Minister
PMO	Prime Minister's Office
PMU	Project Monitoring Unit
pNam Saat	Provincial Nam Saat
PNP(SE)	Provincial Nam Papa (State Enterprise) or pNP(SE)
pp	page
PR	President
RDC	Rural Development Committee
RRP	Report and Recommendation of the President (ADB)
RWSS	Rural Water Supply and Sanitation
RWSTG	Rural Water and Sanitation Thematic Group
[SF]	Special Fund (term applied to ADB Loans)
SIP	Sector Investment Plan
SKX	Samakhixay
SMN	Sam Neua
SPC	State Planning Committee
STEA	Science, Technology and Environment Agency
ST	Small Towns
TA	Technical Assistance
UDAA	Urban Development and Administration Authority
UfW	Unaccounted for Water
UN	United Nations
UNDP	United Nations Development Programme
UNDP HDI	United Nations Development Programme – Human Development Index
UNESCO	United Nations Environment and Science Organisation
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
URI	Urban Research Institute
USD or US\$	United States Dollar
UV	Ultra-violet
UWS	Urban Water Supply
VUDAA	Vientiane Urban Development Administration Authority
VUISP	Vientiane Urban Infrastructure and Services Project (ADB Loan, TA No. 3333-LAO)
WASA	Water Supply Authority
WATSAN	Water and Sanitation Committee
WB	World Bank
WHO	World Health Organisation
WRCC	Water Resource Coordination Committee
WS	Water Supply
WSP	World Bank Water and Sanitation Program - South Asia
WSP-EAP	World Bank Water and Sanitation Program - East Asia and Pacific
WSP-EAP LCO	World Bank Water and Sanitation Program - East Asia and Pacific, Lao Country Office
WSS or WS & S	Water Supply and Sanitation
WTP	Water Treatment Plant
Yr	Year

SMALL TOWNS WATER AND SANITATION INITIATIVE IN LAO PDR

A comparative study of small town water and sanitation services management models in developing countries.

Introduction¹

In 1999, the World Bank Rural Water Supply and Sanitation Thematic Group (RWSTG) and the Water and Sanitation Program (WSP) undertook a joint global initiative to document management models for water supply and sanitation services in small towns. The main objective of the global initiative is to improve knowledge of 'small towns' – until recently governments and development agencies had focused exclusively on rural and urban areas only.

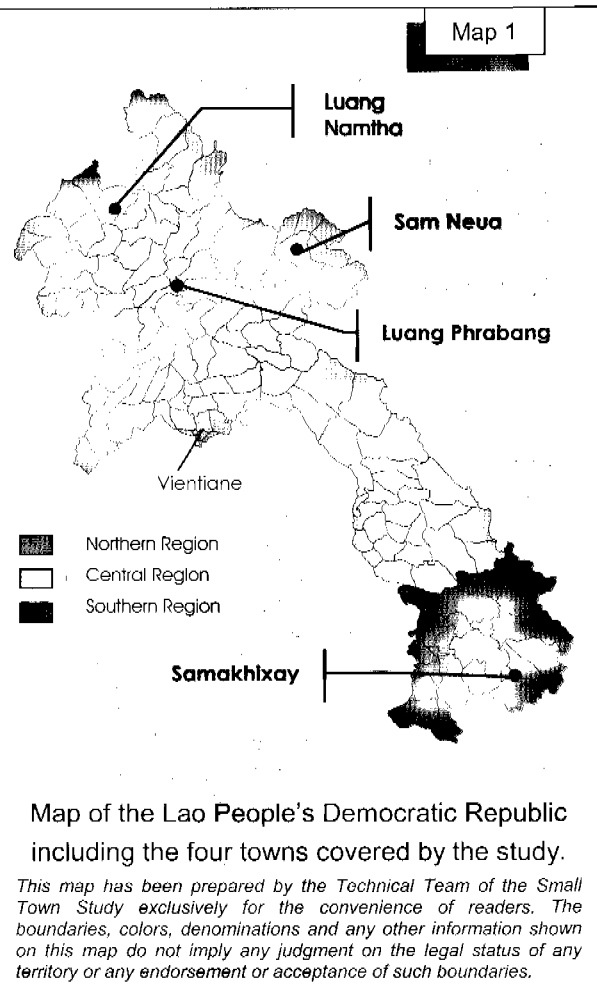
At the core of the global initiative are four case studies from Vietnam, Mauritania and Columbia and Benin. Additional studies are being carried out in other countries to capture learning internationally. These case studies highlight the key issues and opportunities for improvement of water and sanitation services.

As part of this global study, the Water Supply Authority (WASA) of the Lao People's Democratic Republic proposed World Bank Water and Sanitation Program – East Asia and Pacific (WB WSP-EAP) to assist the government in investigating the status of small town water and sanitation services in Lao PDR. The study aims to serve as a strong basis for future water supply, sanitation and hygiene activities² in small towns. This was the first time for Lao authorities in charge of urban/small towns WSS provision to undertake their own research, which included building on existing Government methodologies by using innovative research techniques such as the Methodology for Participatory Assessments, the Global Small Towns Study Methodology, and Benchmarking

The Small Town Water Supply and Sanitation (WSS) Study in Lao PDR began in April 2001 with a Technical Team of government staff gathering preliminary desk research with support from WSP-EAP. The agreed Terms of Reference for the study were signed in early August 2001 followed by field research in four small towns in August and September 2001. The following meetings involving sector partners were accomplished: -

Preliminary Consultation Meeting: 10 Oct. 2001
Sector Partner Consultation Meeting: 30 Nov. 2001
 leading up to the first National Consultation
Workshop on Water Supply and Sanitation: 13 Dec. 2001

This report presents the main findings and lessons learned from the Lao PDR Case Study³.



This case study has been carried out entirely by government researchers from the Ministry of Communications, Transport, Post and Construction (MCTPC), and more specifically by the following agencies: -

Water Supply Authority (WASA)
 Department of Housing and Urban Planning (DHUP)
 Urban Research Institute (URI)

Technical assistance has been provided by the World Bank Water and Sanitation Program – East Asia and Pacific.

This report is available in Lao language version.

1: Refer : 2001 : Vietnam Case Study Preliminary Findings, Columbia Case Study Preliminary findings – Draft Paper, Mauritania Case Study First findings.
 2: Refer: Terms of Reference, Attachment 4, Minutes of Meeting, 30 January 2001, No. 167/WASA.
 3: Some data here supersedes that collated in the Preliminary Desk Research Inventory (October 2001).

NATIONAL CONTEXT

Small Towns in Lao PDR

The population of Lao PDR lives predominantly in the rural areas of the country, with only 23% of people living in urban centers. Urbanization is beginning to increase steadily.

The current annual population growth is 2.8%, the highest in ASEAN countries, which means that the population of Lao PDR will double by the year 2025⁴. This rapid increase is already affecting the environment through the increased use of natural resources. In remoter areas, water supply infrastructure hardly exists, while there is a lack of access to adequate sanitation facilities. Lack of safe water supply, poor sanitation and inadequate hygiene are still leading factors for the high mortality in children under 5 years old in Lao PDR⁵.

'Small Towns' Global Definitions

Box 1

'Small towns are sufficiently large and dense to benefit from the economies of scale of piped systems, but too small and dispersed to be efficiently managed by a conventional urban water utility. They require formal management arrangements, a legal basis for ownership and management, and the ability to expand to meet the growing demand for water. Small towns usually have populations between 5,000 - 50,000 inhabitants, but can be larger or smaller.' (Refer to 'Country Case Studies Methodology', WSP, page 3, May 2000).

'The main points are rapid growth, a variety of [WS] systems and the need to take a long and flexible approach to planning [small towns'] needs. What constitutes a small town is highly context dependent, perhaps the simplest way to think of them are as rural areas that are in the process of becoming urban, and that need support in making the transition!' (Refer to 'Between Rural and Urban, IRC Working Paper,' January 2002).

There are 143 settlements⁶ that are currently classified as urban centers. The five largest settlements (which include the capital city and the four secondary towns) are situated along the Mekong River. These five settlements⁷

⁴ Refer: Mr. Noulinh Sinhbandith, President of the Science Technology and Environment Agency - article in the Vientiane Times, November 9-12, 2001 and UNFPA State of the World Population Report 2001.

⁵ Refer: Lao Health Master Planning Study, Ministry of Health and JICA, Progress Report 1, September 2001, pp10-1.

⁶ Settlement is a word that is difficult to translate into Lao but in this case refers to the 141 districts centers, 1 special region of province and 1 small town (Km 52).

⁷ Capital City - Vientiane Prefecture (9 districts);

account for some 45% of the total urban population⁸. When taken together with the 13 other provincial centers, the main urban cities and towns encompass 58% of the urban population. The remaining 42% of the urban population (or 9% of the total population) lives in 117 small district centers or towns, ranging in size from 19,000 people (Seno, Savannakhet Province) to just 300 people (Samuoi, Saravane Province). More than 90 of these small district centers are without a piped water system with house connections.

Box 2

Lao PDR at a glance

Total Population	5.2 million
Urban/Rural	20/80 %
Population Growth	2.8%
Life expectancy at birth	55.5 years
Infant mortality rate	82/1,000 live births
Literacy	60.2 %
2000 GNI per capita	US\$ 290

Percent of Population*^a with

Access to Improved Water:	55 %
Urban / Rural	49/60%
Access to Adequate Sanitation:	53 %
Urban/Rural	70/36%

UNDP HDI Rank (2001)	131/162
Exchange Rate ^b	US\$1= LAK 9,540

East Asia and Pacific

Total Population	1.9 billion
Urban/Rural	47/53 %
Population Growth	0.9%
Life expectancy at birth	69 years
Infant mortality rate	35/1,000 live births
Female youth illiteracy	4%
2000 GNI per capita	US\$ 1,060

Percent of Population*^c with

Access to Improved Water:	73%
Urban / Rural	85/61 %
Access to Adequate Sanitation:	61 %
Urban / Rural	76/46 %

Refer: - Preliminary Desk Research: Inventory Page 6, October 2001, Prepared by DHUP, WASA and URI.
 - World Bank Annual Report 2001, Volume 1, pp 71, 140.
 - UNDP: Human Development Report, 2001.

GNI means Gross National Income

^a Refer Preliminary Desk Research Report, October 2001

^b Exchange rate: BCEL January 21, 2002.

^c Source: UNICEF Statistics (2000).

* These figures are for general comparison purposes, as data from some countries did not have records or records were incomplete.

Secondary Towns - Luang Phrabang, Khanthabouly, Thakek, and Pakse.

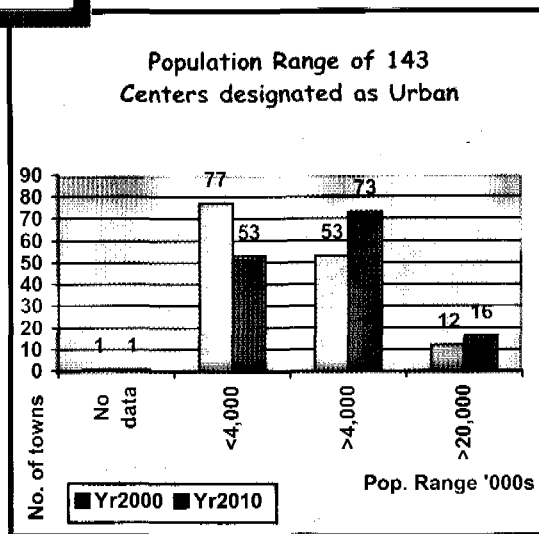
⁸ Refer: Appendix 4: Urban Populations as defined by the municipal areas (from data collected by the Water Supply Authority in 1999).

The Government does not apply a formal definition of small towns in Lao PDR. The Lao language does not include 'small towns' and 'multi-village' (as understood globally)⁹. There are several other terms related to 'settlements' that also do not exist. Perhaps historically, due to the small population and low population density, there has been no need to define these terms. However, now that the urban population is growing, the need to define these terms for common understanding for the development of policies, regulations and new management models has become more urgent.

inconsistencies as some municipalities would be classified as rural because they did not meet all the established selection criteria.

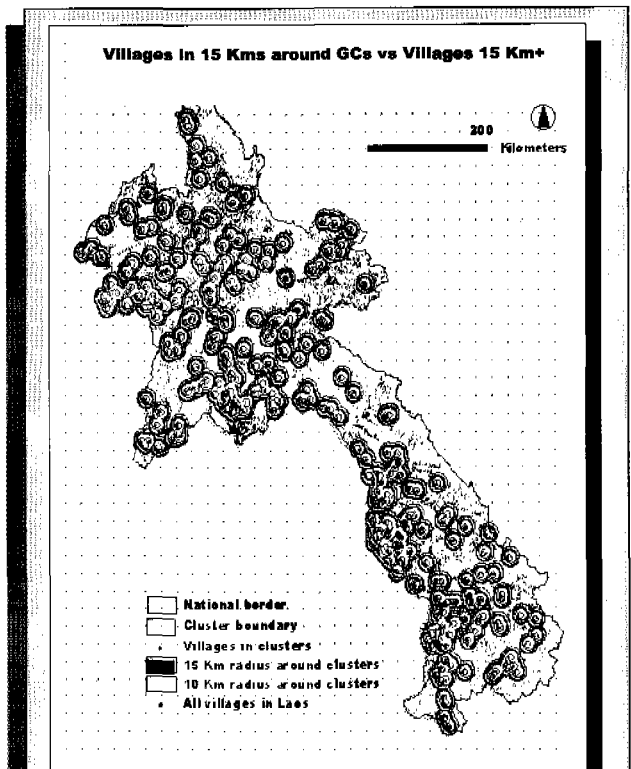
Referring to the graph opposite, data from the analysis of the population distribution¹³ clearly show that, according to the criteria developed for the WSS Sector Project¹⁴ (whereby towns will have to fulfil the criteria that their population must be between 4,000 – 20,000 by the year 2010 to qualify for a Nam Papa), a significant number of more than 50 small towns will have a population of less than 4,000 by the year 2010.

Graph 1



The NURBIDS study has also been analyzing population data¹⁵ to define different categories/types of urban settlements. So far, 192 urban growth centers have been identified. Within a 15km radius of these growth centers (GCs), 68% of the population can be found.

It was only recently that Nam Papa¹⁰ and ADB begin to develop criteria¹¹ for classifying different levels of urban settlement in the context of water supply. Data have been collated by the size of the population within all of the municipal boundaries. These municipal data assist in the planning of water and sanitation services, as all villages that would potentially be served by a water supply are included. Previously, data were collected on the basis of whether a village had access to certain facilities that would then classify it as being either urban or rural¹². This led to



Map of Lao PDR showing the 192 urban growth centers as identified by the NURBIDS research.

⁹ Refer: Appendix 1: Terminology.
¹⁰ Nam Papa, the State-owned Enterprise for Urban Water Supply.
¹¹ Through the ADB-funded Water Supply and Sanitation Sector Project, Loan No. 1710 [SF].
¹² National Statistics Center: Criteria for urban or rural – the village must satisfy at least 3 of the 5 criteria to be considered as urban.
 - Permanent Market in the village.
 - Access road driveable throughout the year.
 - Village is in a zone that has Provincial or District Administrative staff.
 - Most households use electricity.
 - Most households use drinking water supplied by household connection or public water point.

¹³ The calculation used for the population analysis is given in Appendix 4, Main Data Tables as an endnote. There are a number of different calculations that could be used, and the report does not try to define which is the most relevant, rather to highlight the nature of the range of populations and how they might change over time.
¹⁴ Refer: Water Supply and Sanitation- an overview leading into the new millennium, pp15.
¹⁵ Refer: National Urban Rural Basic Infrastructure Project (NURBIDS) presentation, WASA Consultation Meeting, November 30, 2001.

Some of these settlements might be genuinely urbanized though small in size; others could be more underdeveloped and might suit a multi-village approach. Should these be public, privately or community-managed? Who will be responsible for each of the components of water supply, sanitation and hygiene promotion that help to bring the significant health impacts of an integrated approach to sector investments? How will the systems grow and adapt to changing needs over time? These are fundamental questions that need to be addressed to ensure equitable delivery of services to these smaller and generally poorer urban communities.

There is currently only one main management model being used in urban centers in Lao PDR. Improvements to this model are currently being implemented¹⁶.

The State-owned Enterprises (known as Nam Papa) currently manage all urban water systems. Until 1998, these were all centrally organized by Nam Papa Lao headquarters in Vientiane. Now, each province is responsible for water supply within its own boundaries. As the province is the owner of the facilities, and the State-owned Enterprise is the operator, this can be described as a **Delegated Management Model**. The Provincial Nam Papas have full financial autonomy and can organize their own budgets independently of the government system. They have responsibility for capital investment, for management and operation on commercial principles, and for maintenance and renewal.

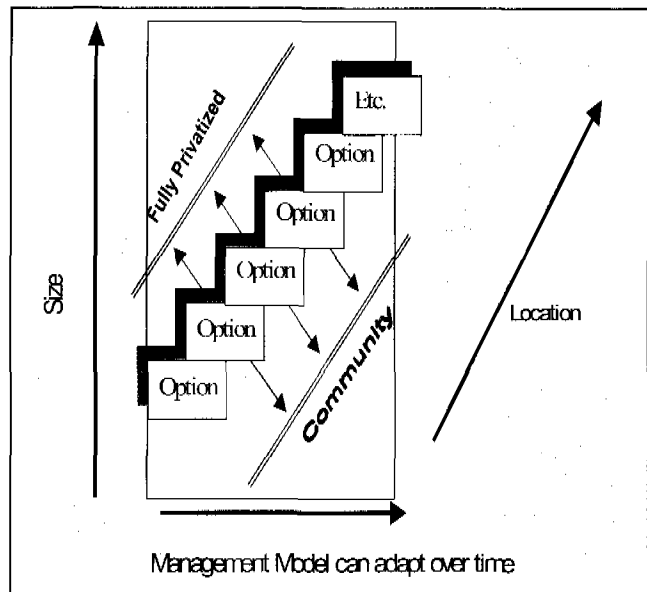
There is no agency directly responsible for sanitation in urban centers countrywide.

Box 3

MANAGEMENT MODEL DEVELOPMENT IN LAO PDR

WASA, URI and Nam Saat, together with line agencies and sector partners, have recently begun to address the issue of a comprehensive management model that could serve different levels of population and have many management approaches within an overall guiding national framework. A National Consultation Workshop, supported by the World Bank Water and Sanitation Program – East Asia and Pacific, was held on December 13, 2001 that brought senior colleagues from the urban and rural sectors together for the first time to share lessons learned, bring experience of other management models (including the private sector) and discuss about the next steps forward.

At an East Asia and Pacific regional meeting in February 2002, supported by WSP-EAP, senior Lao PDR Government officials (responsible for the urban and rural water and sanitation sectors) were able to discuss issues affecting the development of models for small towns. The participants talked about the 'gray' area that exists in the present administrative definition of small towns and how this relates to the definition of 'urban' and 'rural' settlements. The ideas discussed at this meeting have resulted in this proposed outline diagram to develop models appropriate for Lao PDR. The diagram is based on the premise that 'urban' approaches can be used in villages and 'rural' approaches can be used in towns; but the choice for the type of management model comes from the users. Hence, the models need to be demand-responsive, be able to adapt over time, and be flexible to changes in location.



¹⁶ The technical and financial management capacity building of Nam Papas is being carried out by the Government through the ADB-funded Water Supply and Sanitation Sector Project, Loan No. 1710 [SF], Part D, Package B (NORAD co-financing). Refer: 'Capacity Building for the Water Supply Sector Project, Project Bulletin No.2, Review of Financial Situation in Nam Papas. Refer Technical Management of Provincial Nam Papas, July 2001.

The Government of Lao PDR has recently introduced a policy on decentralization and the eradication of poverty¹⁷. Following the promulgation of the Prime-Ministerial Decision on 'Management and Development of the Water Supply Sector'¹⁸ and this process of decentralisation, the responsibility to manage water supply was passed to each province. The Provinces have financial autonomy, and in the case of water supply facilities, these assets belong to the province. The district municipal centers are designated as the planners and financiers of the projects, and the villages have now been formalized as project implementers. Within this framework, more authority has been transferred to the provincial municipal centers to put into operation the necessary strategies to encourage development.

In urban centers, the State-owned Enterprise (SOE) is responsible for all operation and maintenance of water supply services. In rural areas, users are expected to be responsible for operation and maintenance of water supply and sanitation facilities; but there is no legislation that directs how this should be organized.

The fact that all water utilities follow the same management model and that only relatively small percentage of the urban centers have been covered, means that Lao PDR is in a unique position to be able to introduce and develop policy, regulations and community participation techniques that are distinctly Laotian and can be put in place before the remaining infrastructure works begin.



Community meeting led by the Government staff. MPA was used to gain insights into the benefits of the water supply and latrines, as perceived by women and men in separate groups (Refer to page 14).

Pha Baht Tai Village, Luang Phrabang Municipality.

¹⁷ Refer: Prime Ministerial Order on the Preparation of the Program to Eradicate Poverty, Article 2.2, 25 June 2001.

¹⁸ Refer: No.37/PM.

There are some other examples of management methods that have been tried in district centers (for piped systems with some house connections). These are: -

- Management by the **Lao Women's Union** (from 1996-1998) and then the **Village Administration** (from 1998-2001) in Old Namtha and Sing District Centers, Luang Namtha Province.

These methods have not been successful due to insufficient training of the staff responsible who did not have a background in WSS service provision. The provincial Nam Papa took over the management of these systems in 2001.

- **District Nam Papa** that was taken over from a local private operator in Khoua District Town, Phongsaly Province.

In 1978 a GFS with 3 public tapstands was constructed. In 1994, the system was taken over by a private operator, who expanded the system to metered household connections. However, there were many faults with the scheme, particularly related to insufficient water supplies to meet consumer demand. The system was rebuilt as part of the Provincial Infrastructure Project (IDA Cr. 3131-LA). Commissioned in October 2001, it is now managed as a District Nam Papa with assistance from Vientiane Nam Papa¹⁹.

- **Community management** in Pha Nom Village, Luang Phrabang Municipality: *Urban and rural WS systems running in parallel.*

In 2001, the Provincial Nam Papa extended the municipal water supply to a number of outlying villages (within the municipal boundary) not previously connected to the system. Most households have been connected to the new system. However, in Pha Nom village a GFS system with public standposts was constructed in the early 1990's. In consultation with the Provincial Nam Papa, the users decided to keep the existing public standposts for poorer members of the village who could not afford the household connection fee to the new mains supply. There is a village water committee who looks after and collects fees for the maintenance of the public standposts and GFS system.

¹⁹ Refer: Phongsaly Province, Project Implementation Plan, 1998, pp7.

■ In the only **public/private partnership** identified in the field study, Luang Phrabang Nam Papa has joined with a hotel company (Villa Santi) to extend the water network to 3 villages to the south of the municipality. The hotel company is building a new resort beyond the 3 villages and has agreed to fund the cost of the mains pipe. The users will then be able to connect to this pipe through their own funds.

In the rural area, there are some interesting examples of private sector involvement:

■ In Luang Phrabang Province, the Provincial Nam Saat uses **private contractors** for the construction of most water supply systems. The contractors are paid by External Support Agencies.

■ In Oudomxay Province, the Provincial Nam Saat has started to use private contractors; but here the provincial authorities are in direct control of the **bidding, hiring and payments process**.



Discussing the cost of the system compared to the benefits, using MPA.

Tong Chay Neua Village, Luang Namtha Province.

■ **Design, Build, Lease for Rural Nam Papa:** Morphu Village, Pathumphone District, Champasak Province. This is an example of a community directly contracting a private company with no external assistance from government or ESA. For more information, please refer to Box 4 below.

Box 4

GOOD SUSTAINABILITY

Morphu is a village located in Pathumphone District, Champasak Province. It has a total population of 1001 people in 174 households. In the early 1990's, Morphu received support from an External Support Agency for the construction of 17 boreholes with Tara Hand Pumps. In the late 1990's, the wealth of the village had increased, and the community proposed to have a new piped water scheme with household connections.

In 2000, the users in collaboration with a private company constructed a new piped water system with electrical pump. The private company set the initial cost for each household at LAK 700,000 (approx. US\$ 80) plus household connection fees. The construction was done by the private company and supervised by the community. The users paid 70% of the capital costs, with the private company covering the remaining 30%, which it will reclaim through the user fees.

After construction, the scheme has been leased by the village to the same private company for management of the system for 5 years. The company has set the user fees and hired a few users from that village to be responsible for billing and repair. These people have been trained on technical and accounting systems. The company is fully responsible for operation and maintenance of the scheme.

There has been no complaint on the services provided by the company and there has been no default on the payment of bills.

As per the contract signed between the users and the company, the users will manage the system by themselves after the 5-years of lease. However, there is a possibility that the private company could extend its services upon the community's satisfaction during the 5 year lease.

This example is taken from the 'Mini-Assessment of the Use and Sustainability of Past RWSS Services' undertaken by Nam Saat Central in collaboration with local partners, NGOs and ESAs with the support of WSP-EAP. The Mini-Assessment used the Methodology for Participatory Assessment (MPA) to discuss these issues with the users and this village received a 'good' rating for sustainability.

NATIONAL STRATEGY AND PRINCIPAL STAKEHOLDERS IN THE SECTOR

There has been no national strategy combining the urban and rural water supply sectors. Both areas have functioned separately; urban water supply through the MCTPC (WASA and the Nam Papas) and rural through the MOH (Nam Saat).

In 1997, Nam Saat developed and launched the National Strategy for Rural Water Supply and Sanitation²⁰; a comprehensive guideline framework to encourage demand-responsive community approaches in the provision of rural water supply and sanitation services. This process is being institutionalized through the National RWSS Programme. The strategy emphasizes the importance of informed choice so that communities can make decisions based on all the relevant facts and their ability and willingness to contribute. A range of options is offered for water supply and sanitation investments, and a further range of options is being developed for hygiene promotion activities.

The small town and urban water supply and sanitation sector lacks an overall guiding detailed strategy, although with the setting up of WASA in 1999²¹, the Sector Investment Plan (SIP) for the priority urban towns has been developed. However this plan does not address the needs of the smaller, poorer urban communities. Different levels of small towns or multi-village systems have not previously been recognized as distinct.

Small towns are not specifically mentioned in any government legislation on water supply, although they are referred to in the SIP. It is anticipated that by the year 2020, through the SIP, 80% of the urban population will have access to clean water²². There are no standards set for daily water consumption levels, although a 'per capita consumption figure of 120 lcd²³' has been proposed. There is a need for the sector partners to come together and share experiences, especially as there are plenty of opportunities for learning.

Box 5

POVERTY-FOCUSED INVESTMENTS

ADB Participatory Poverty Assessment*

The GOL and ADB have recently produced a report on the dynamics of poverty in Lao PDR. In this report, the poorest 25 districts in the country are identified.

The Sector Investment Plan (SIP) and the Poor

The SIP aims to bring 'equitable development benefits'²⁴ to all areas of the country. There is no mention of poverty-focused investments in the SIP, or how these might be achieved through alternative financing or management arrangements. There is mention of private sector participation in the Sector Policy Statement; but only that 'the involvement of the private sector may lead to higher tariffs but at higher service levels'²⁵. No mention is made of how this statement is derived. The SIP proposes providing water supplies to the 60 towns with smaller populations between 2011-2020 at an investment cost of about \$150 per capita (US\$ 50 million for 340,000 people), following completion of water supply services in the larger towns. The SIP has 4 levels of priority (1,2,3 and Long-term); but it is not stated how these levels for towns were prioritized.

Government Policy

In June 2001, the Government of Lao PDR introduced a policy on decentralization and the eradication of poverty through the Prime Ministerial Order on the 'Preparation of the Program to Eradicate Poverty'. The SIP was prepared before this important policy document.

Present situation with regard to poor districts (Refer Appendix 2)

Of the 25 poorest districts, 4 will receive investments through the ADB-funded WSS Sector Project. These 4 towns were already in Priority Level 1, before the publication of the new Poverty Assessment. One of the district towns in Priority Level 2 has been constructed and one more of the poorest districts (Priority Level 'Long-term') is also being supported. There remain 19 of the poorest districts without support under current funding arrangements, and 18 of these (72% of total poor districts) are in the Priority Level 3 or Long-term categories i.e. are expected to receive investments after 2010.

Is there a need to emphasize, as the highest priority, investments in these 19 poorest districts for 'equitable development benefits' in line with Government policy?

Note: * Refer: Participatory Poverty Assessment - Lao People's Democratic Republic, Appendix 1, Table A1.14, ADB, December 2001.

²⁴ Refer: Lao PDR Water Supply and Sanitation Sector Project, ADB RRP: Lao 30451, Appendix 3, pp1.

²⁵ Refer: Lao PDR Water Supply and Sanitation Sector Project, ADB RRP: Lao 30451, Appendix 2, pp4.

²¹ Refer: No. 66/PM, Decree on the Organisation and Function of MCTPC, Article 8, May 20, 1999 and Refer: No. 3170/MCTPC, SIP, 10 September 1999.

²² Refer: No.37/PM, Article 8.1.

²³ Refer: Lao PDR Water Supply and Sanitation Sector Project, ADB RRP: Lao 30451, Appendix 13, pp2.

²⁰ With support from WSP-EAP.

Institutional Setting

Table 1

GOL Administrative Levels	
Level	Responsibility (for WSS Sector)
Central	Regulation (WASA)
1 Prefecture and 17 Provinces	Strategies (<i>Nam Saat</i> for rural WSS; <i>Nam Papa</i> for urban WS)
141 Districts and 1 Special Region of Province	Planning and Financing (<i>Nam Saat</i> for rural WSS; <i>Nam Papa</i> for urban WS)
10,089 Villages	Implementers

Source: National Statistics (2000)

In urban areas, the facilities are generally designed by foreign consultants and constructed by international companies through grants, loans or credit. The completed utility is then handed over to the provincial authorities, which assign *Nam Papa* to manage the utility. In the rural areas, the communities themselves, with technical guidance from *Nam Saat* staff, have usually built the facilities.

There is a need for clarification as to who will be responsible for activities for water supply and sanitation survey, design, construction and post-construction management in small towns and multi-village schemes.



A member of the Study Team (right) discussing issues with Provincial *Nam Papa* staff in Sam Neua.

BENCHMARKING*

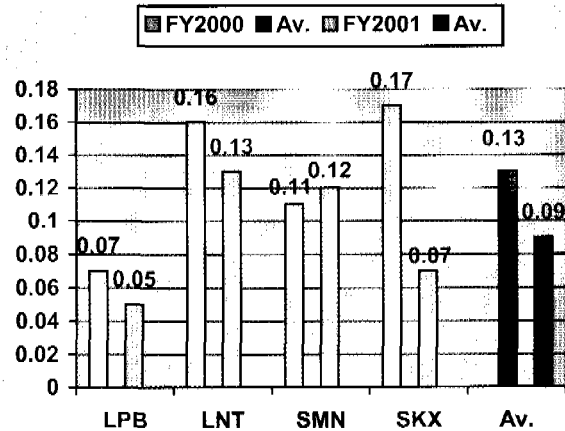
The existing regulations (37/PM, 1728/MCTPC), the regulatory body WASA, and most of the water utilities in the main provincial centers have only recently been created (since 1998). The concerned authorities recognize the need to develop the institutional model at the national level.

In this regard, WASA advised the study team to test **Benchmarking** as a method for comparing water utility standards in the four small towns. This is the first time that Benchmarking has been used in the WSS Sector in Lao PDR.

An example of the benefit of using this reporting system is the ability to be able to compare figures over different years:

Graph 2

Average Tariff (US\$/m³):



In this example, the US\$ cost/m³ for average tariff levels is given. Except for Sam Neua, there is a reduction in the tariff level from FY 2000 to FY 2001. If the Lao Kip/m³ version was used, all the tariff levels (except for Samakhixay) have increased; but as can be seen here, not enough to keep pace with Lao Kip inflation.

Note: In some graphs and tables used in this report, the following abbreviations refer to:
 LPB – Luang Phrabang; LNT – Luang Namtha;
 SMN – Sam Neua; SKX – Samakhixay; Av. – Average.
 In some graphs, the abbreviation BP is used to highlight 'Best Practice' as a guide to standards suggested in World Bank Viewpoint #242, *A Water Scorecard, Setting Performance Targets for Water Utilities* (Refer: Tynan N. and Kingdom W., April 2002).
 Refer: Appendix 6 for Benchmarking results.

The main actors involved at the National level in the water supply and sanitation sector are summarized below⁴:-

MCTPC – overall responsibility for water and wastewater management systems in urban and rural areas throughout the country;

DHUP – assists the Minister of MCTPC in state administration on the water supply sector;

WASA – directs the management of the water supply sector, the planning of projects in urban and rural areas, and is the regulator for the water supply and wastewater sector;

MoH – overall responsibility for rural water supply, and urban and rural environmental hygiene;

Nam Saat – facilitate, advise, train and promote rural water supply, and urban and rural environmental hygiene, through community-based approaches;

MoF – supports and arranges investment and finance of water and wastewater management systems and environmental hygiene;

WRCC – coordinates water and water resource protection to secure sustainable development of these resources;

Nam Papa Vientiane (NPV)⁵ – NPV is the largest and most experienced water utility in the country, and has specific responsibility for human resource development in the sector.

Although not included in the main existing sector regulations, there are several line agencies that are also involved in the sector: -

MoE – coordinates with Nam Saat for the planning and implementation of the School Sanitation Programme and curriculum development;

DHDP – Organizes and oversees the work of Nam Saat;

Food and Drug Control – Checks water quality annually at the water treatment plants;

WS Division of DHUP – Overview of all sector investments for budget and planning;

LWU, LYU, RDC - assists Nam Saat on community dialogue activities for rural water supply, sanitation and hygiene promotion.

Provincial Level

Provincial Governments – have to fulfill a number of duties that are not clearly defined related to water supply, wastewater, sanitation and environmental hygiene, although the Provincial Government owns the small town water utilities.

DCTPC – Principal actor at the provincial level for large urban water supply; but only mentioned in existing regulations as far as collaboration with Provincial Government to find suitable solutions to assist low income households which cannot afford the cost of a sanitary facility;⁶

Nam Papa State Enterprises (NPSE) – manage and operate all water supply and wastewater systems and develop raw water in urban centers within their respective provincial boundaries, and manage sanitary facilities with the sanitation regulation issued.

Water Administration Board⁷ – not defined in the regulations, but oversees the NPSE.

Provincial Department of Health - not defined in the regulations, but oversees the district and provincial Nam Saats.

Nam Saat – implements community-focused projects for rural water supply and urban and rural environmental hygiene.

LWU, LYU, RDC - assist Nam Saat on community dialogue activities for rural water supply, sanitation and hygiene promotion.

District Level

There is no formal definition of who is responsible at the district level, although provincial by-laws may exist. District Nam Papas are not mentioned separately in existing regulations, although assumed to be within the responsibility of the PNP's. However, when related to RWSS, the district Nam Saat is the implementer supported by the District Health Office, LWU, LYU, and RDC who assist with the community promotional activities.

Community Level

Although community awareness and participation are mentioned in No. 37/PM, **there is no regulation that gives rights to the consumers, especially to establish the Water and Sanitation Committee and to handle community funds.**

Sanitation sector

There is no detailed law or regulation dedicated to roles and responsibilities for the sanitation sector in the urban area, and the institutional set up for this is not yet clear. Nam Saat is responsible for sanitation in the rural area.

There are a number of ESAs and NGOs supporting the sector⁸. However, there appears to be no organization focused on developing small towns and multi-village WSS management and financing options within a regulatory framework that interlinks the urban/small town/rural nexus.

⁴ Refer: No. 37/PM; Preliminary Desk Research: Final Version, pg 12, October 2001; National Consultation Workshop on Water and Sanitation, Report, 13 December 2001, Attachment 8.

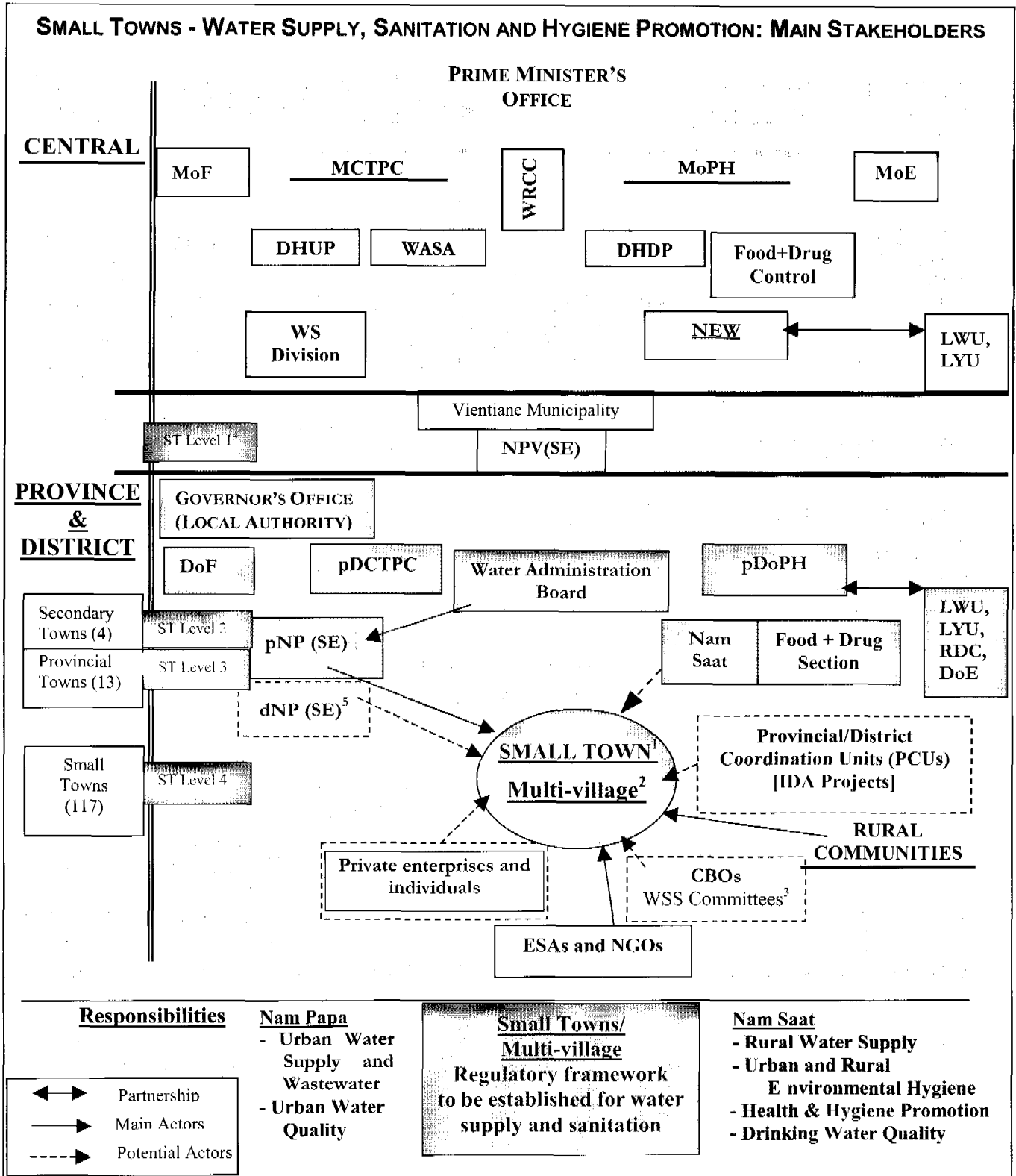
⁵ Nam Papa Vientiane (NPV) is the water supply utility in Vientiane Prefecture. Prior to decentralization and Decree No.37/PM (1999), NPV was within MCTPC and was known as Nam Papa Lao (NPL). Refer: Decree No.37/PM (1999), Article 7.1 for NPV human resource development responsibilities.

⁶ Refer: Decree No.37/PM (1999), Article 2.5.

⁷ Refer: page 22: Utility organization.

⁸ Refer: Appendix 2 for support partners for urban water infrastructure development, and for NGOs and ESAs supporting the rural sector in each province.

Figure 1: Based on findings from the National Consultation Workshop for Water Supply and Sanitation^a



¹ Population of 2000 - 15,000 people (as defined through ADB-funded WSS Sector project).

² Multi-village is not yet an official term for a Level of settlement, but is used here to describe small towns with different centers and different populations.

³ WSS Committees as yet have no statutory regulations.

⁴ ST Levels mean Small Towns Levels 1-4 (as per definition through ADB-funded WSS Sector project).

Note: Official GOL definitions and criteria for urban, small town, multi-village and rural are yet to be established.

⁵ An example of a dNP (SE) is Meuang Khua, Phongsaly Province (Constructed in Yr 2001).

^a Refer: Report of the National Consultation Workshop for Water Supplies and Sanitation, 13 December 2001, Attachment 8.

Refer: Management and Development of Water Supply Sector, No. 37/PM, 30 September 1999.

Refer: Promulgating the Law on Hygiene, Disease Prevention and Health Promotion, No. 49/PR, 23 April 2001.

Refer: Decree to Implement the Water and Water Resources Law, No. 204/PM, 9 October 2001.

Table 2 *continued*

Main Regulatory Framework²⁹		
Year	Title	No.
1996	Law on Water and Water Resources <i>Presidential Decree</i>	106/PR
1997	National Rural Water Supply and Sanitation Strategy and Guideline National Framework, MOH <i>Ministerial Strategy</i>	14/11/97
1999	Urban Planning Law <i>Presidential Decree</i>	11/PR
	Establishment of WASA <i>Prime Ministerial Decree</i>	66/PM
	Water Supply Sector Investment Plan <i>Ministerial Strategy</i>	3170/MCTPC
	Management and Development of the Water Supply Sector <i>Prime Ministerial Decree</i>	37/PM
2000	Decision and Activities of WASA <i>Ministerial Decision</i>	1728/MCTPC
2001	NURBIDS Framework Agreement signed	59/CIC
	Law on Hygiene, Disease Prevention and Health Promotion <i>Prime Ministerial Decree</i>	49/PR
	Decree on Implementation of the Law on Water and Water Resources <i>Prime Ministerial Decree</i>	204/PM
	Urban Water Quality Regulations and Tariff Policy	WASA (Drafts)

Recognizing the need to develop an overall framework for water supply, sanitation and other basic infrastructure to reach the poor, in early 2001, the DHUP finalized the Framework Agreement for NURBIDS. The aim of this Strategy is to bring together actors in both urban and rural fields to improve these linkages for the coordinated planning and construction of basic infrastructure.

NATIONAL CONSULTATION WORKSHOP

The first National Consultation Workshop on Water Supply and Sanitation was held on December 13, 2001. The workshop was organized by WASA, URI and DHUP with support from WB WSP-EAP.

(continued opposite)

Box 7



The aim of the workshop was to bring sector partners together to share experiences on urban and rural sector issues, particularly in relation to address the needs of the many small towns and multi-village areas that are presently without WSS services.

Some of the main points highlighted from this workshop are:

- i. Strategy/policy framework/management models are required for small towns.
- ii. Projects should be demand-responsive and need to be designed to allow the poorer members of a community to afford water supply and sanitation.
- iii. There is potential to pilot innovative solutions for the involvement of private enterprises in WS provision, for example but not limited to Design, Build, Lease (DBL) contracts.
- iv. The need for complementary roles between the principal institutions, and clarification of the role of some of the actors in the overall institutional framework.
- v. Water quality testing needs a central institution to oversee the development of this sector
- vi. It is possible to use participatory techniques developed in the rural area of Lao PDR and adapt them to the urban setting.



Participants map out the WSS institutional situation.

²⁹ Refer: Appendix 1, Regulatory Framework.

Water and Sanitation Facilities in Small Towns

Water Supply

Lao PDR has the Mekong River flowing along its western border, which is fed by 11 major tributaries. There is significant rainfall for 6 months of the year, followed by a dry season with little precipitation. This affects the design of water systems, particularly in relation to high turbidity levels in surface water sources in the rainy season. The major population centers are along the Mekong River.

Data at the provincial Nam Papis identifying the quality of surface and ground water within their provincial boundaries are limited. No data could be found on the status of the water supply systems in smaller urban settlements, although some of these settlements have received assistance in the past for basic piped water systems with public standposts, shallow wells or boreholes.

A total of 30 municipal centers⁹ currently have water supply systems that have household connections. A further 33 district centers¹⁰ will benefit from these services under current funding arrangements. Thus, all Priority Level 1 district centers and most of the Priority 2 district centers (according to the SIP) have agreed financing. There are 81 small towns remaining (or 57% of the total municipal centers) that presently use communal water supply facilities (such as, public standposts, shallow wells etc.), lack sanitation services and require infrastructure improvements.

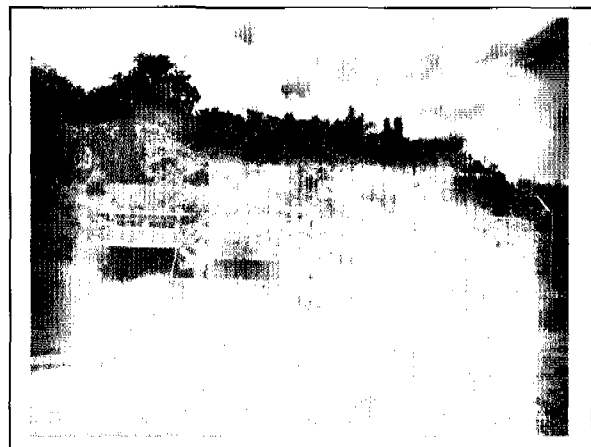
Of the total 143 urban centers¹¹, there are 77 settlements (or 54%) that currently have populations of less than 4,000 persons. Of these 77 settlements, 37 'urban' centers have populations less than 2,000 inhabitants. There are also 21 rural villages that have populations higher than 2,000 inhabitants, and are thus bigger than some of the municipal centers. These large 'rural' villages have not been included in the SIP. If the data from NURBIDS are also included (which looks at 192 urban growth centers, rather than only the officially designated 143 urban centers), there are many

more settlements to be taken into consideration, and some of these may fall within the concept of multi-village systems.

Among these more 'urban' centers there is a need to pilot appropriate management models. In Lao PDR, there have been occasions where water systems have been built that encompass a number of villages. However, there appears to be little recording of how the management arrangements were agreed upon or how these fit into the national strategies.

Nam Papa defines an urban piped water supply as having the following characteristics:

1. The water is treated to WHO drinking water quality standards
2. The system is piped with individual house connections
3. The 'urban' center has more than 2,000 dwellings (the number of people is not given) and a population density greater than 30 persons per hectare.



Water Treatment Plant, Luang Namtha.

However, a problem occurs when a population is considered to be too small by the Provincial Nam Papis. There are existing regulations¹², which are known to those working in the WSS sector. However, these have not been communicated well to the provincial or district authorities, and the small town/multi-village falls into an undefined 'gray' area where neither Nam Papa nor Nam Saat is given responsibility for the design and management of the system. There is also no existing legislation to clarify appropriate management models for this 'gray' area.

⁹ Includes La District Town, a multi-village system, which is being constructed at the time of the writing of this report.

¹⁰ Of these further 33 district centers with agreed financing, 30 are being funded through ADB projects (of which 18 are confirmed sites [1 site is upgrade – Samakhixay], 12 have yet to be decided). Refer: Appendix 2.

¹¹ Refer: Appendix 4.

¹² Refer: 37/PM, and 209/MCTPC – Rules and Regulations of Town Planning.

Sanitation

Nationally, there are no current figures for sanitation coverage in urban centers. The most recent figures are the 1995 census. No urban centers have access to a comprehensive piped sewerage system. The small-bore sewerage pipe system, recently installed in a limited area of Vientiane Municipality³⁴, is not functioning properly because the treatment facilities are blocked by solid waste mixed with the sewerage stored in the disposal basins. It costs about \$1 for a truckload of sewerage to be deposited at this site. In other places, where they exist, sanitation facilities are on-site and the responsibility of the individual household.

There is no agency responsible for sanitation countrywide. Although there are supposed to be 'model' sanitation regulations developed in the Secondary Towns Urban Development Project³⁵, these have yet to be prepared. The Urban Development and Administration Authorities³⁶, recently set up in the secondary towns, have been given the duty to 'construct, improve and maintain the urban infrastructure area services, including sanitation and protection of the environment'. It is not clear how this is being done at present with regard to sanitation. The Nam Papas are supposed to be responsible for 'compliance of the management of sanitary facilities with the sanitation regulation issued'. None of the Nam Papas in the small towns visited were undertaking this role.

Luang Phrabang has the only regulations on sanitation in the country. These regulations are in effect local by-laws³⁷. The four secondary towns (which include Luang Phrabang) also have guidelines for project implementation to assist poor families³⁸ that were developed by DHUP and project partners. There is also an innovative project in Luang Phrabang, being run through the UNESCO 'La Maison du

Patrimoine³⁹. The project aims to build a database of household sanitation investments so that future projects can be targeted effectively. As part of the proposed DANIDA-funded 'Urban Environmental Improvements Project', sanitation improvements are also planned in Sam Neua.

The Law on Hygiene, Disease Prevention and Health Promotion was promulgated in April 2001. The MOH, provincial and municipality health departments, and the district health offices are the agencies in charge of managing and supervising the law⁴⁰. Although there are few specifics about sanitation, the law is a good starting point for developing more detailed regulations.

The Government through the Urban Research Institute is proposing to open further study in this area to complete these regulations and set up a national urban sanitation program.

Box 8

DIFFERENT PERCEPTIONS

Although the official words for each of the following terms exist, generally people in Lao PDR understand that the word for 'town' also has other meanings^a.

ເມືອງ (meuang) can mean country

ເມືອງ (meuang) can mean city

ເມືອງ (meuang) can mean town

ເມືອງ (meuang) can mean district

ເມືອງ (meuang) can mean urban

'Multi-village' as a word or concept does not exist.

So how can the process of understanding the needs of 'small towns' or 'mutli-village' be defined in the Lao context? A potential solution to this problem might be to change the approach to classifying the management models^b, such that rather than 'rural' and 'urban' models, the models are defined in terms of being

**'institutionally-managed' or
'community-managed'.**

^a Refer: Appendix 1 for further examples of settlement classifications and official terminology.

^b Refer: Discussion group led by Richard Hopkins, WSP-

³⁴ Vientiane Urban Infrastructure and Services, ADB TA No.3333-LAO, Final Report. Also refer, Vientiane Times, March 19-21, 2002.

³⁵ Financed through Secondary Towns Project, ADB Loan No. 1525 [SF].

³⁶ Refer: Decree No. 177/PM, Organization of Urban Development and Administration Authority (UDAA), December 22, 1997. Five UDAs have been set up one each in Vientiane Municipality and the four Secondary Towns.

³⁷ Refer: Secondary Towns Project, ADB.

³⁸ Refer: Minutes, DHUP, 16/3/2001 Secondary Towns Project, ADB Loan No. 1525 [SF].

³⁹ Refer: Appendix 7: Examples of Environmental Sanitation Mapping, Luang Phrabang, UNESCO/ La Maison du Patrimoine, 1999.

⁴⁰ Refer: Law on Hygiene, Disease Prevention and Health Promotion, Article 40, 23 April 2001.

CASE STUDY METHODOLOGIES

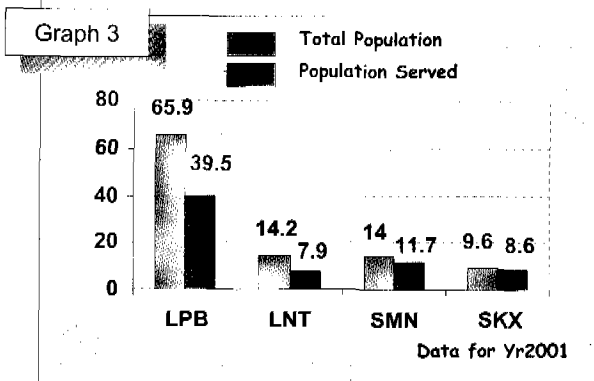
Provinces and Small Towns Studied

This is the first time the Government undertook a study on small town management models in the country. The Field Study Team from WASA and URI conducted the research in four small towns using innovative research techniques such as the **Methodology for Participatory Assessments, the Global Small Towns Study Methodology, and Benchmarking** that built on existing government methodologies. The following criteria were employed for the selection of the towns:

- different management models,
- different types of water source,
- minimum 2 years of system operation,
- funding source, and
- town size distribution.

However, it should be noted that the criterion for different management models could not be fulfilled in Lao PDR because the management model for small towns in its current definition is similar throughout the country.

Total Population and Population Served



Box 9

COST-BENEFIT ANALYSIS USING MPA

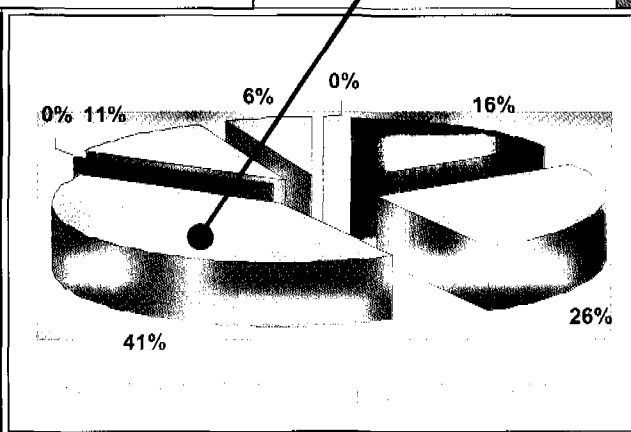
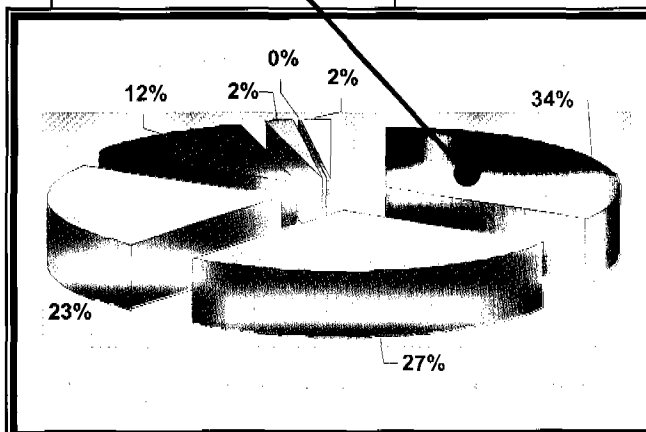
In the course of the research, government staff and senior water utility representatives in each small town investigated using the **Methodology for Participatory Assessment (MPA)** to discuss the costs and benefits of the water and sanitation services as perceived by the customers themselves.

This was the first time for provincial Nam Papa and central level staff in the urban water sector to use these techniques and hold this kind of customer meeting. The most important benefits raised are: -



Water Supply:
convenience

Sanitation:
cleanliness



LEGEND

Cleanliness	Health	Safety	Other
Convenience	Economic	Privacy	^a Refer Appendix 5

Techniques such as 'Community Dialogue', 'Informed Choice' and MPA can be developed in Lao PDR for the urban / small town setting.



View from the elevated storage reservoir in Samakhixay Town, Attapeu Province showing the low population density of the small towns that results in high investment costs.

Small Towns sampled:

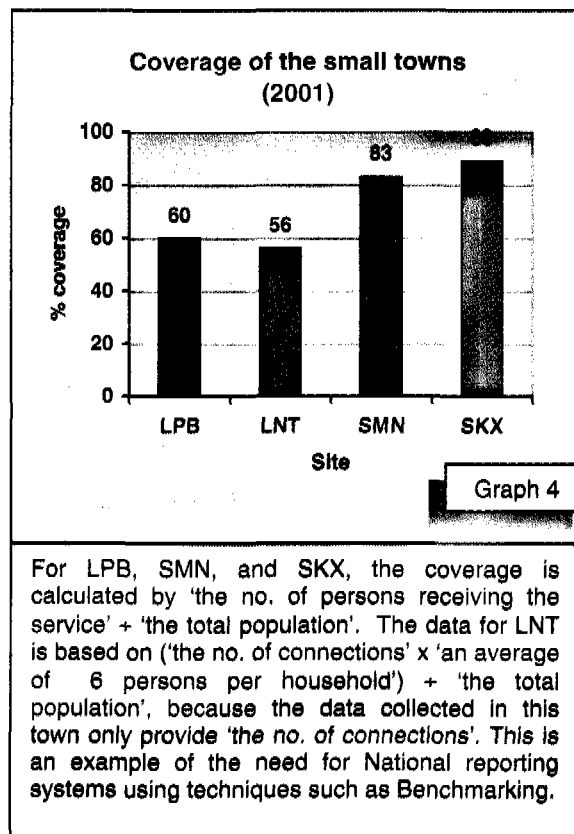
- 3 small towns in the North, 1 in the south, representing 4 water systems;
- Population range from 9,600 to 65,900;
- Systems from 3 years old to 32 years old (two of these systems with expansions in the past year). The population in Luang Phrabang is high for small towns. In Lao PDR, it is designated as a Secondary Town/Regional Center, not a small town. It was included in the study because it is one of the few water utilities (outside Vientiane) that have a long history of management to learn from (more than 30 years experience). Most other utilities have been in existence for a very short time (less than 5 years). It is one of the best-managed provincial utilities in the country. Also, the utility currently serves some 39,000 people, which would allow it to fit within the global definition.
The utilities studied were all provincial municipal centers. No district centers/smaller small towns were included in the study as there are few utilities currently operating at this level, and no recorded examples of good management models to learn from.
- 1 management model identified, State-owned Enterprise;
- 4 systems use surface water, 2 with full treatment, 1 with treatment by slow sand filters (not functioning properly) and 1 with treatment by an infiltration gallery leading to a 'wet well' (not functioning properly).
- No comprehensive sanitation strategy identified, although there are positive developments on-going in Luang Phrabang, and plans for urban environmental improvements in Sam Neua.
- Environmental assessment reports available only in 1 of the Nam Papa offices visited.
- Hygiene promotion is being undertaken in secondary schools in all 4 towns.

The village is the central unit of life and administration in Lao PDR. It is called the 'ban' in Lao language. Even within the major urban centers, the 'ban' remains a distinct unit. In this study, 9 'ban' were visited for community meetings that were held in separate groups for men and women.

TECHNICAL ASSESSMENT

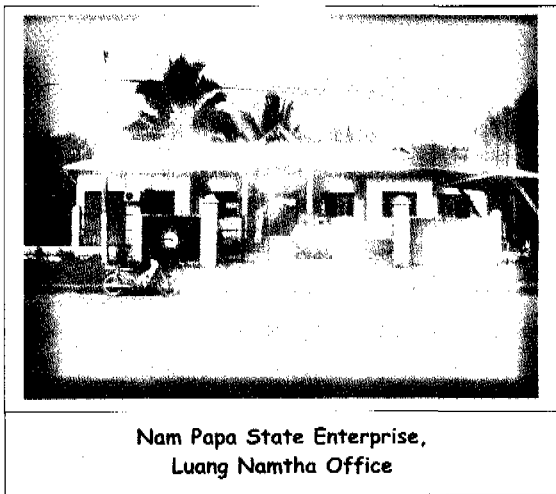
Geographic Coverage

There is only one piped network system per small town, and no competition. Coverage in the towns ranges from 56% to 89%.



Technologies

- ➔ There were some examples of unsuitable designs by external consultants not taking into account local conditions and experience, level of service choice or affordability and willingness to pay e.g.
- 1/. In Sam Nuea, for example, there is no pre-sedimentation tank before the slow sand filter (which is not functioning correctly due to high turbidity), even though this was a design learned from lessons from previous projects⁴¹. The storage reservoir has been constructed at a height that prohibits future expansion of the town to the surrounding hills. The users were not consulted regarding the choice of the spring source.
- 2/. In Samakhixay, a sand island in the river has been used to function as an infiltration gallery leading to a 'wet well', even though NPL did not want the design⁴², and the system is not functioning properly. In addition, the UV water treatment technology broke down soon after construction due to the high turbidity, and the province's inability to get or afford spare parts.



Nam Papa State Enterprise,
Luang Namtha Office

Environmental Issues

Environmental issues and water quality have only recently been given priority and they are now the responsibility of WASA Technical and Appraisal Division. There was limited information available on these issues.

⁴¹ Refer: Southern Provincial Towns Water Supply Project, ADB Loan 1122-LAO (SF), Final Report, June 1997, pp3.

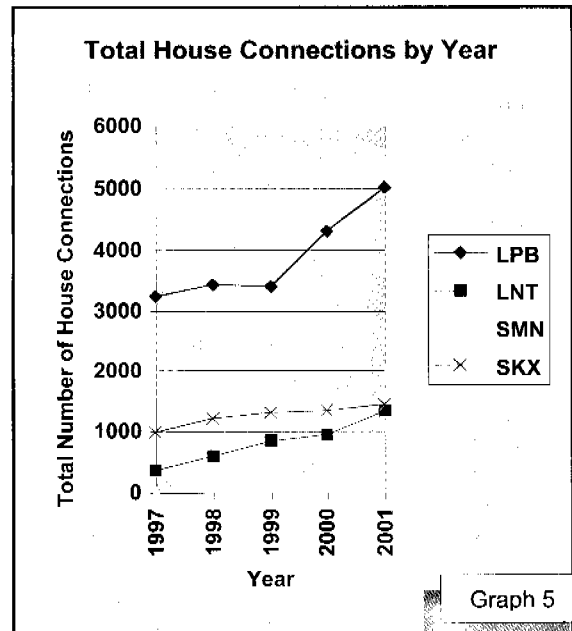
⁴² Refer: Southern Provincial Towns Water Supply Project, ADB Loan 1122-LAO (SF), Final Report, June 1997, pp19.

Note: Improvements to both Sam Nuea and Samkhixay will take place through the WSS Sector Project (1710-LAO).

Service Delivery

Water is provided through house connections in all 4 towns. Due to the poor quality of the water (high turbidity) in Samakhixay, some institutions have put boreholes with hand pump instead. However, the cost of a borehole is prohibitive to many households. Despite poor quality water, Samakhixay has achieved almost 90% coverage, showing the demand for piped water supply direct to one's home. The number of connections has rapidly increased in the last 2 years in Luang Phrabang, particularly because of the recent extension of the system to outlying villages that previously had no piped water supply system.

User satisfaction has never been measured previously in any town in Lao PDR. There is no formal recording of complaints from customers. During the MPA exercises for this research, senior management was able to have a dialogue with the users via participatory techniques. The results are encouraging, prompting Nam Saat to propose to hold similar users' meetings; but would like to have training on participatory techniques in order to gain full benefit from these meetings.



Graph 5

Existence of Alternative Sources

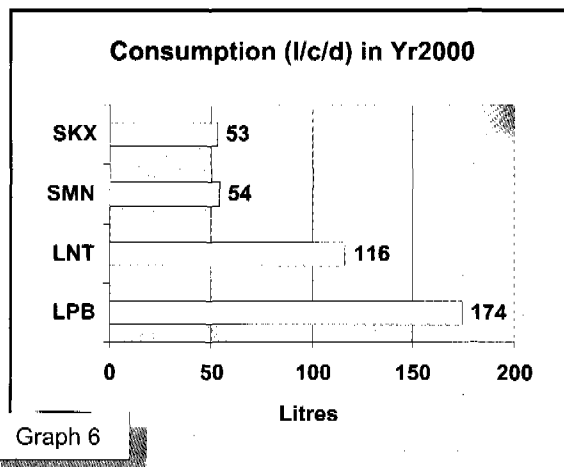
In Luang Phrabang, 5% of households (in the urban area that is serviced by the water utility) were reported to share a connection with neighbors because these people are too poor to pay for their own connection. There were no instances of neighborhood resale recorded. It was also reported in other towns that families

who cannot afford a connection share a water point with a neighbor.

No figures were recorded for the use of alternative sources. Some households were reported to be using shallow wells within their household compound. In Samakhixay, many users go traditionally to the Xe River for bathing, clothes washing and other household chores. In Sam Neua, the villages during the MPA stressed the benefits of the closeness of the household connection that saved a round trip collection time of more than 30 minutes for two buckets (30 liters) of water.

Water Production and Consumption

Each provincial Nam Papa for the Benchmarking results reported the water production and consumption figures differently. This points to the need for a standardization of the definitions required for the Benchmarking to be set up so that results can be easily produced, analysed and compared.⁴³ Data can then also be analysed for production versus metered consumption, consumption sold, unaccounted for water or age of the system.

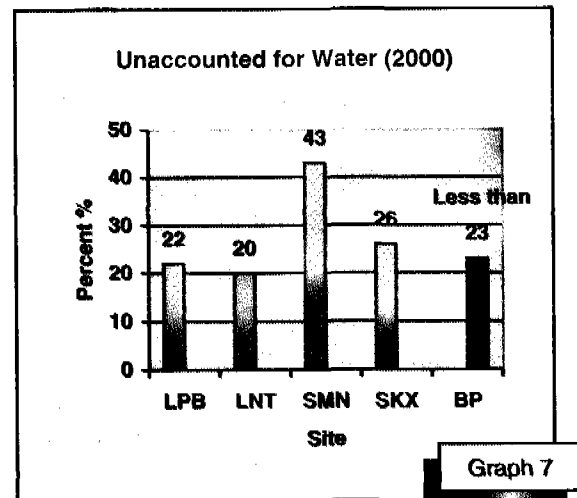


Graph 6

For this graph, the results were calculated from 'total water sold' (m³/year) converted to liters/day divided by the 'population served'. Luang Phrabang has much higher per capita consumption than other utilities, probably due to the high number of tourists visiting the town (i.e. non-residential water consumption). Figures for Samakhixay could be affected by poor quality water and, as in Sam Neua, faulty meters.

⁴³ Refer: Benchmarking Results, Appendix 6. The data for Sam Neua and Samakhixay have also been reported differently to other studies. For this study, the results are based on the data received from each Nam Papa.

The figures for Unaccounted for Water (UfW)⁴⁴ in the graph below are dependent on the accuracy of the recorded meter readings. In Sam Neua, it was observed that one of the main meters at the outlet from the reservoir was not functioning properly. None of the utilities kept records of the condition of meters or tested regularly the metered connections in the distribution network.



Graph 7

In Sam Neua, UfW is very high at 43%. The system was completed recently in 1998 and the NPSE is already requesting external support for additional storage and treatment facilities. The coverage is 83% (Graph 4, pp15), and 'Production compared to Design Capacity' is 86% of present capacity⁴⁵ (Graph 10, pp 21). Further investigations should be carried out to determine this high UfW figure.

WASA at present is in the process of developing technical design standards⁴⁶. The design criteria for the 4 utilities visited in the study appear to have been set by each consultant design team. It was not possible to verify this information in all the field survey sites, as the Main Report (prepared prior to project construction) was only available in one of the Nam Papa offices visited⁴⁷.

⁴⁴ This graph is calculated using 'water supplied (m³/year) - water sold (m³/year) and as a percentage of water supplied'. Refer: World Bank Viewpoint #242, A Water Scorecard, Setting Performance Targets for Water Utilities, (Tynan N. and Kingdom W., April 2002, pp2).

⁴⁵ Current water production capacity is 1000m³, but design capacity after system expansion is expected to be 2,600 m³.

⁴⁶ Refer: The technical and financial management capacity building of the Nam Papas is being carried out by the Government through the ADB-funded Water Supply and Sanitation Sector Project. Loan No. 1710 [SF], Part D, Package B (NORAD co-financing).

⁴⁷ Refer: Refer Luang Phrabang Water Supply Project, Phase II, Detailed Design Main Report, August 1997, Section 3.

Water quality, Reliability and Pressure

Luang Phrabang Nam Papa has the most advanced water quality testing of the four sites visited, with 24 parameters being tested⁴⁸. Daily records are kept for a monthly report that is sent to the provincial DCTPC and WASA.

People only mentioned water quality as an issue during the MPA activities in Samakhixay, due to the poor quality of the water. The water quality (as tested by the Study team) was equal to or above the minimum standard of 5 NTU (WASA draft regulations standard) at all test sites in Samakhixay.

Odor of the water was also mentioned in one village meeting. The users had only recently been connected to the mains and had not experienced chlorine before. This would point to the need for hygiene promotion activities before and after connection to explain, together with other priorities identified by the users, the benefits of using chlorine.

- These issues are being addressed by WASA through the development of urban water quality legislation. This would also be a good example for the setting up of a benchmarking system to compare water quality standards nationally.

Service delivery hours are 24 hours per day in all of the 4 small towns, except Samakhixay where there is an 18 hours service due to the high cost of pumping from the river source. However, many households have a water storage system for periods of low pressure.

Maintenance works are usually carried out quickly. In Luang Phrabang, these repairs are carried out under a service contract.



Slow sand filter in Sam Neua. The filter is dry and does not function at the correct loading rate.

Note: Upgrading of the system will take place through the WSS Sector Project (1710 – LAO).

⁴⁸ Refer Appendix 6.

Investment Costs

The analysis of the investment costs (refer to graphs on the next page) shows that these are high compared to, for example, Vietnam. In Luang Phrabang, the calculations were based on a design period of 20 years (1995-2015) and water demand projected to this time⁴⁹. The design, however, is separated into phases that could spread some of the capital cost over time. In Luang Namtha, the investment cost is very high compared to the capacity⁵⁰.

The SIP is based on a per capita cost of US\$130, which is similar to the US\$135 found in the 4 towns studied⁵¹. The SIP also expects that the total cost to reach the Government's target of 80 % coverage by the year 2020 will be **US\$188 million** (including expansion of existing systems). However, if the per capita cost US\$23 from Vietnam is used, together with a short design period of 5 years, then about **US\$5.6million** (not including expansion of existing systems) could be sufficient for the 52 new schemes needed to reach this level of coverage. (See Box 10 for details).



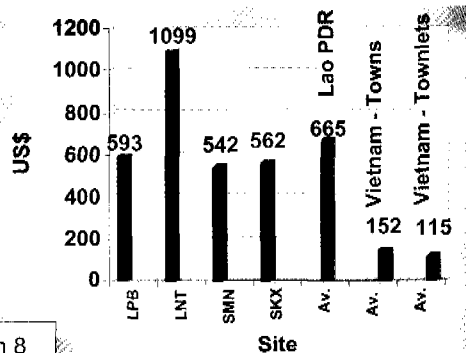
A member of the Study Team discussing issues with the Head of Provincial Nam Papa (right) in Sam Neua.

⁴⁹ Demand was separated into Domestic (85 l/c/d), Administrative and Commercial Consumption. Refer Luang Phrabang Water Supply Project, Phase II, Detailed Design Main Report, August 1997. Section 3.

⁵⁰ The figure for LNT is much higher, partly due to 2 projects being averaged together – for Old Namtha and New Namtha. However, even when separated, these figures are still high at \$1,002/m³/day for New Namtha and \$2,100/m³/day for Old Namtha.

⁵¹ The historical investment cost is about US\$265 per capita. Refer 'Water Supply and Sanitation in Lao PDR', Final Draft, February 2000, pp41.

INVESTMENT COST RELATED TO CAPACITY
 [= initial investment cost (US\$) +
 Design capacity (m³/day)]



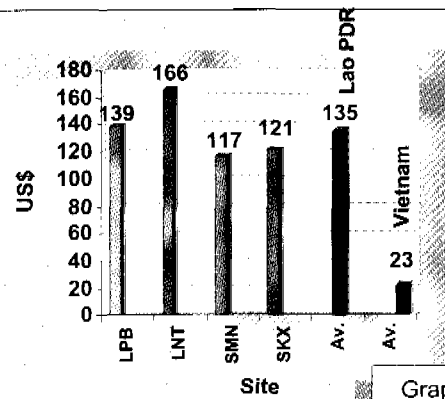
Graph 8

Average design investment in 4 towns = 665 US\$

Average design investment in Vietnam = 152 US\$
 (for towns)

Average design investment in Vietnam = 115 US\$
 (for townlets)

INVESTMENT COST RELATED TO POPULATION
 [= initial investment cost (US\$) +
 Total Population]



Graph 9

Average per capita investment in 4 towns = 135 US\$

Average per capita investment in Vietnam = 23 US\$

INVESTMENT COST CALCULATION for Towns without WS schemes (household connection)

Box 10

Designated urban centers:

Total No. of District Centers (142) + Small Towns (1) = 143 urban centers
 SIP to achieve 80% coverage by 2020, therefore 143 x 0.8 = 114 urban centers

Present situation (Refer: Appendix 2)

Constructed WS systems (30) + Agreed funding (33) = 63 - (one of these is for upgrading),

= 62 urban centers have been completed or have agreed funding. No calculation is made here as to investment costs for expansion of these systems.

- Target (114) - Existing (62) = 52 new WS schemes for 80% coverage
- Remaining = Total (143) - Existing (62) - New (52) = 29 WS schemes for 100% coverage
- Also there are 21 'rural' villages that have a present population >2,000 persons

If 20-year design period and per capita design cost US\$135:

52 new schemes	= per capita cost	(135) x predicted population of all these towns	(405,000)	= US\$ 54.6	million
29 new schemes	=	(135) x	(72,000)	= US\$ 9.7	million
21 villages	=	(135) x	(117,000)	= US\$ 15.8	million
				= US\$ 80.1	million

If 10-year design period and per capita design cost US\$23:

52 new schemes	= per capita cost	(23) x predicted population of all these towns	(287,000)	= US\$ 6.6	million
29 new schemes	=	(23) x	(51,000)	= US\$ 1.2	million
21 villages	=	(23) x	(83,000)	= US\$ 1.9	million
				= US\$ 9.7	million

If 5-year design period and per capita design cost US\$23:

52 new schemes	= per capita cost	(23) x predicted population of all these towns	(242,000)	= US\$ 5.6	million
29 new schemes	=	(23) x	(43,000)	= US\$ 1.0	million
21 villages	=	(23) x	(70,000)	= US\$ 1.6	million
				= US\$ 8.2	million

In this example to compare investment costs, 100% coverage of all remaining district centers, small towns and large villages could be achieved for about 1/10th of the cost of using the existing per capita calculation. This calculation has been done on the basis of the average investment cost per capita in Vietnam. This doesn't mean that this will be applicable in Lao PDR (e.g. cost of imported materials are higher); but it shows a clear indication that there is an opportunity to reduce existing cost.

Refer: Appendix 2 for details of these estimated investment cost calculations and population forecasts

These calculations are rough estimates based on the information from these four small towns in Lao PDR and compared with the information from the Vietnam Small Towns Study (Refer Lao PDR National Consultation Workshop on Water and Sanitation, December 2001, Attachment 2). Further, more detailed calculations based on previous and predicted investment costs (of projects that have either been completed or have agreed funding) are required by the national agencies to provide a more detailed estimate.

Table 3

Institutional arrangements for Construction Phase in the 4 small towns visited		
Item	Institutional arrangements	Remarks
Management model (operator)	'Nam Papa' - a State-owned Enterprise	
Investor	Central Government Provincial Administration	(Luang Phrabang has the only example of an extension that will be paid for by a private company)
Financing	Public (loan/credit/grant through MoF) and Provincial Administration as Owner	For urban users, there is no user contribution toward construction, but connection fees and tariff fees are paid after commissioning. In the rural area, users contribute labor, local materials and some cash toward the construction.
Design	Contract out to Consultant companies Nam Papa Vientiane supervises	Communities not involved in the choice of design.
Appraisal	Nam Papa Lao ²⁵ DHUP	
Construction	Contract out by competitive bidding to private companies	All major construction by foreign companies.
Supervision	Nam Papa Lao ²⁵ and Consultant companies (includes sub-contracting to other consulting companies)	

INSTITUTIONAL ARRANGEMENTS

The project cycle for these small towns was mainly undertaken at central level (these were all initiated before the process of decentralization). Project agreements, loan/credit/grant agreements⁵², and bidding were undertaken and signed at the central level. The project documents are either in English, or the donor countries' language and not translated into Lao. Hence, people responsible for operating the system were not involved in issues that could help promote the sustainability of project investments. It has been reported in some cases that external consultants have taken key decisions for the design and construction of systems with disregard to the wishes of the provincial water authorities and communities themselves.

⁵² Funds and disbursements have previously been handled through the MoF, who transferred the funds to the provinces through Nam Papa Lao. For new projects the funds can pass through MOF direct to the provinces. Refer: Appendix 9, Fund-flow mechanisms.

Design

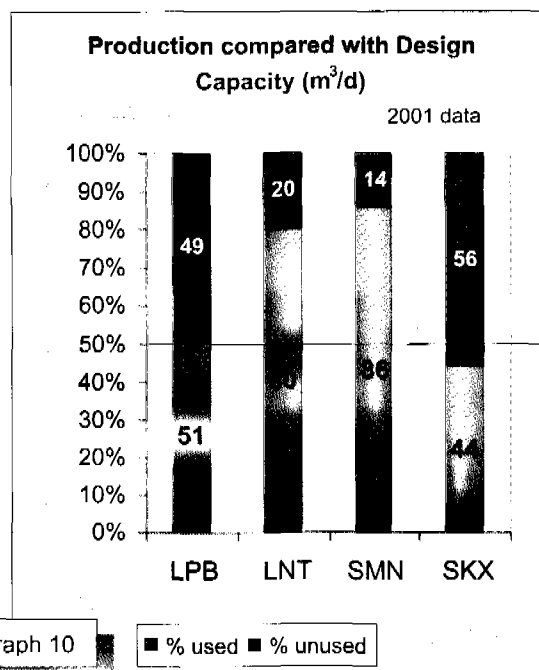
All four projects were begun before the setting up of WASA in 1999, which has now been delegated the responsibility for setting technical specifications and standards⁵³.

It seems that no dialogue has taken place with the communities in these small towns regarding the level of service choice for the water supplies provided. It is not clear how the community awareness components of these projects have integrated into existing methods being applied and institutionalized by the national government for promoting design choice through such techniques as the water supply ladder and sanitation ladders⁵⁴.

⁵³ Refer: Ministerial Decision on the Organisation and the Activities of Water Supply Authority, No. 1728/MCTPC, Article 2.2, May 26, 2000.

⁵⁴ Refer: Informed Choice, Design options for the Rural Water Supply Ladder (4A) and Sanitation Ladder (3A), prepared by National Center for Environmental Health and Water Supply (NEW). The sanitation ladder is available on the following web-site - http://www.wsp.org/English/eap/sanitationladder/san_ladder.html. Further design options within each of the core designs are being prepared by NEW.

The water systems in the four small towns are working at the following rates of their respective design capacities: -



Graph 10

The graph shows that 2 of the systems are functioning well below design capacity, and that the systems appear to be over-designed.

Construction

Private companies under contract have carried out major construction works. These contracts were all signed prior to the process of decentralization.

There were some good examples of bidding documents and contract conditions in Sam Neua.

Supervision

This was usually completed according to the project agreement with the financing organization e.g. Supervision Missions with agreed Aide Memoire as a record of the mission. The Aide Memoires were not translated.

Project Implementation Coordination Committees (PICC), Project Monitoring Units (PMU) and Project Implementation Officers were organized at the central level to monitor the works. Generally this system did not work due to the lack of defined relationships

between the agencies, and unclear delegation of responsibilities and authority⁵⁵.

Districts and users have not been involved in the supervision.

Table 4

Institutional arrangements for Operation Phase in the 4 Towns	
Owner	Previously MCTPC, now Government of the concerned Province ⁵⁶
Operator/ service provider	Nam Papa State Enterprise (NPSE)
Remuneration of operator & workers	NPSE: Full revenues/ expenditures/taxes Workers: Fixed wages ⁵⁷ and annual bonus
Main maintenance and renewal operations	Operator for major works Some contracting for minor works e.g. leakage repair
Financing of renewal	NPSE (possibly with subsidies from provincial and central level)
Tariffs choice/ revision	Proposed by NPSE through Water Administration Board/ Approval and decision by Provincial Government
Contract for operator/user, invoice	No, Water fee invoices by computer or by typewriter

Ownership

Nam Papa is accountable to the Provincial Governor and Governor’s Office; but there does not appear to be any formal regulation or license stating the ownership of the Nam Papas by the provinces or how other operators might apply for a license if wanting to set up a water supply business, either in the urban or rural areas. In the rural area, ownership is usually defined through a village agreement, signed between the Province, District and village. However, there are potential conflicts when many partners are involved in supporting or contributing toward the WS facilities (e.g. community, Government [province and district] and ESAs). With the prospect for mixtures of public/private/community management in future small towns and multi-village systems, these issues will need to be clarified.

⁵⁵ Refer: Southern Provincial Towns Water Supply Project, Final Report, June 1997.

⁵⁶ After the promulgation of Law No. 37/PM.

⁵⁷ Approved by the Provincial Government.

Utility Organization

The development of the individual Nam Papa institutions can be seen in their organizational charts⁵⁸. Nam Papa Luang Phrabang, which has been operating since the 1930's (becoming a distinct water utility in the 1960's), offers perhaps the best example of how the management model in these 4 small towns has evolved and developed over time, including the setting up a 'Project Implementation Office' in response to the Phase II expansion works started in 1996. The utilities differ in management set-up in each town and this could be clarified by learning from good examples of management in each utility.

Nam Papas are regulated within the provinces through the 'Business Law 42/PR'. Each of the provincial Nam Papas visited for the study was responsible to a *Water Administration Board* consisting of 5 persons, although there are no specifics in the Business Law defining how this Board should function in relation to the water supply sector.

Table 5

Actors at Provincial Level: Provincial Nam Papa Water Administration Board				
	Luang Phrabang	Luang Namtha	Sam Neua	Samakhixay
# of Members	5	5	5	5
Meeting	Quarterly	On request	Weekly	On request
Chairman	DOF ^a	DOF ^a	DOP ^b	DCTPC ^a
Vice-Chair	DCTPC ^a	DCTPC ^a	DCTPC ^b	DOF ^a
Member	DOP ^d	DOP ^d	DOT	PAdmin ^a
Member	PAdmin ^a	PAdmin ^a	DOF	DOP ^a
Secretary	PNP ^c	PNP ^c	PNP ^d	PNP ^c

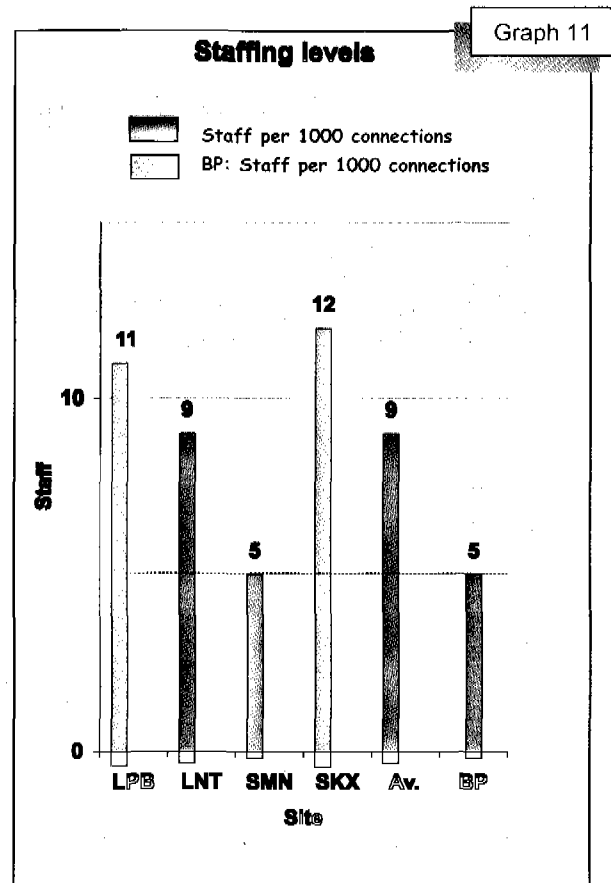
^a= Head ^b=Deputy Head ^c=Manager ^d=Deputy Manager
 DOF stands for Department of Finance
 DCPTC stands for Department of Construction, Transport, Post and Communication
 DOP stands for Department of Planning
 DOT stand for Department of Trade
 PAdmin stands for Provincial Administration
 PNP stands for Provincial Nam Papa

The members of this board, and the frequency with which they meet, vary in each town. The Board meets to review activities, make plans and approve proposals from the Nam Papa Manager. Once all members agree, then the Chairman can approve of the budget and plan. All decisions can be made in the province. Roles of the Board members were available in

⁵⁸ Refer: Appendix 9.

Samakhixay that had been prepared by Nam Papa Vientiane.

Board membership is a voluntary position and members perform their tasks within their normal work functions. In Samakhixay, they were entitled to 15m³ of free water per month. There are no users' representatives on the Board. For example, non-residential water use in Luang Phrabang (2000) was 72% of total annual water consumption, which is mostly used by the hotel trade; but representatives for this important sector of the local tourism industry⁵⁹ are not represented on the Board.



Operational Efficiency

The data series shows the number of staff per 1,000 connections, using this 'to measure operational efficiency as an indicator of the ratio of inputs to outputs. A high ratio may indicate inefficient use of staff. The mean value for developed countries is 2.1 staff.⁶⁰

⁵⁹ Refer: Appendix 6, Luang Phrabang Benchmarking results.

⁶⁰ Refer: World Bank Viewpoint #242, *A Water Scorecard, Setting Performance Targets for Water Utilities* (Tynan N. and Kingdom W., April 2002, pp2). 'The staff ratios achieved by the top 25 per cent of developing country utilities...suggest that a target of 5 or fewer staff per 1,000 connections is achievable'.

Only permanent staff were included in the results. All the Nam Papas used contracted staff for some activities. For example, Sam Neua has a policy of training interns (not included in the results) who may become full-time staff in the future. Sam Neua Nam Papa has good scores, equal to or below the 'Best Practice' mark⁶¹. The other utilities have quite high scores, suggesting the need for a review of operational practices.

Staffing

Training is required for Nam Papa and WASA staff on computer-aided design for water distribution modelling. This will allow 'informed choice' to be offered to users through community dialogue because a large number of scenarios can be calculated faster.

In Sam Neua, there was a very good example of Civil Servant trainees being employed as interns and gaining experience (refer above).

The O+M manuals available in Luang Phrabang are very detailed but written in English. Luang Namtha also has O+M manuals, but only one of the six volumes could be found, also in English. It is very important for future development of O+M that these documents are translated and the operating staff receive full training.



The MPA process actively involves communities in assessing the benefits of the water system and sanitation in Ban Meuang Mai Village, Samakhixay.

⁶¹ The 'Best Practice' mark given is for developing countries (Refer: Tynan, N. and Kingdom, W., April 2002, pp2).

Remuneration

The workers receive fixed salaries with an annual bonus. Staff of the Nam Papa State Enterprises are members of their respective NPSEs, not government employees. Their wages can be set by the NPSEs with approval from the Provincial Governor.

FINANCIAL ASSESSMENT

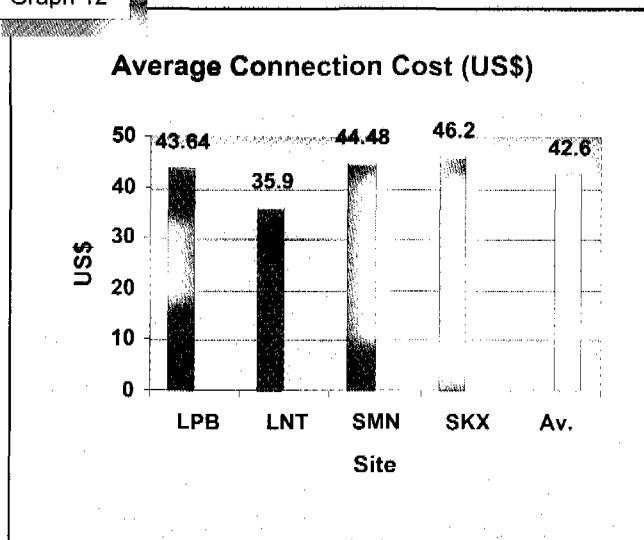
Unlike in the rural areas, where communities are expected to contribute to civil works through cash, labor and local materials, urban water supply users do not contribute to the construction costs of the systems. Yet, users are expected to contribute to the completed services through connection fees. It is not clear what discussions are held with households before the construction works begin regarding their contribution towards the connection fee⁶². The cost of the connection fee includes materials and labor, for example:

- In Luang Phrabang, the consumer purchases from Nam Papa 2 valves, the water meter, meter box and GI 1/2" pipe. There is no subsidy for these materials and normally 100% of the cost must be paid before connection. For connection to the nearest water mains, if the pipe size is greater than 50mm then this is Nam Papa's responsibility, less than 50mm pipe size then the household pays 70% of the cost and Nam Papa supports the remaining 30%. Following connection, all repairs after the first valve are the responsibility of the household owner; the first valve and before is the responsibility of the Nam Papa. For poorer families, this connection fee can be paid in a maximum of 2 instalments, 50% before connection and 50% after connection within 2 months.
- There is no direct subsidy for the connection fee in Sam Neua or Samakhixay.

Each of the Nam Papas had a system for payment of the connection fee over an extended period for poorer families. All charges had to be paid by instalments within a maximum of 3 months.

⁶² Nam Papa Vientiane sometimes acts as a sub contractor for connections in the provinces; but also provides advisory and supervision services (e.g. Khua and Xay Nam Papas). These multiple roles should be clarified in the future.

Graph 12



The average yearly household income for a poor family in small towns is about US\$161 (1999). The average connection cost in the study towns was about US\$43. This represents about 27% of annual household income⁶³ and may well be a hindrance to many poorer families connecting to the system. There is no subsidy system to assist poor families in the towns visited, although new projects in other towns are focussing on 'a deferred payments scheme, with payments spread over 24 months'⁶⁴. This study did not undertake any assessment of wealth classification and connections; but would suggest that this needs to be undertaken to assist the concerned parties with being able to develop strategies to allow access to the improved services for poorer families. None of the Nam Papas had a policy of low or discounted connection costs to encourage users to join the system (with this cost then being regained through the tariff).

Tariff setting

Before decentralization, DHUP set the tariff levels for the whole country. At present, the NPSEs, in line with Law No.37/PM, are supposed to have a tariff that meets "all recurrent costs including operation and maintenance costs...and should be set to

generate surplus revenue in order to meet a proportion of depreciation or debt service". The provincial NPSE proposes tariff levels to the Water Administration Board. These tariffs then have to be approved by the provincial authorities, with the final decision resting with the Provincial Governor. Hence, the provincial authorities decide tariff definitions. There is presently no institution at Central level to oversee or review the tariffs set by the provincial level Water Administration Boards.

However, WASA has recently started to be involved in tariff setting. Although existing legislation does not give WASA this role, reference is made to this role in the WSS Sector Policy Statement and in a new urban water tariff policy under draft⁶⁵. In November 2001, WASA was asked by the Minister MCTPC to set the tariff for Nam Papa Vientiane, the first time it has been asked to define and approve tariff levels (which are currently being prepared). WASA acts as both the agency for sourcing funding and for regulation. This dual function could create conflict of interest and WASA is looking into ways to resolve this situation⁶⁶.

Average tariffs ranged from 0.05 to 0.13 USD/m³, which includes the service fee. The highest tariff rate was in Samakhixay where the water quality is poorest; the utility runs at a loss and has to be supported by Central government. Tariffs are set in progressive block rates. Tariffs are in effect subsidized, as they do not cover all costs.

In none of the sites visited had the users been involved in the setting of the tariff, nor was the tariff explained before the system was built. There is potential for the use of 'informed choice' to allow the users to be involved in the choice of technology for the system that would be reflected in their setting of the tariff level.

Tariffs and the process of tariff setting are currently being discussed by WASA and the Nam Papa utilities⁶⁷. Present solutions to the problem of tariff setting for full cost recovery seem to be focusing on the mechanical issues of tariff calculation. However, from the experiences gained with the MPA cost-benefit

⁶³ Average monthly household income for a poor family in small towns (1999) is about US\$13.40 (125,000 LAK @ 1US\$ = 9,300 LAK: Refer Lao PDR Water Supply and Sanitation Sector Project, ADB RRP: Lao 30451, Appendix 14, pp7.

⁶⁴ Refer Lao PDR Water Supply and Sanitation Sector Project, ADB RRP: Lao 30451, Appendix 14, pp3.

⁶⁵ Refer: Formulation of a Lao PDR Urban Water Tariff Policy, Draft, January 2002.

⁶⁶ Refer: WASA Consultation Meeting Report, November 30, 2001: Attachment 5, Capacity Building and Regulatory Development (Interconsult).

⁶⁷ Through the WSS Sector Project 1710-LAO (Package D, part B grant-funded by NORAD)

analysis activities undertaken for this study⁶⁸, it would appear that there is potential for users to also play an important role in tariff setting through dialogue, informed choice and understanding the full costs of the system before and after construction of the improved services. In other countries, Vietnam for example, users were prepared to pay more for a better service⁶⁹.

The Nam Papas, however, are reluctant to increase the tariff to cover the full costs of the system as they think the consumers will return to former, unprotected sources if the tariff rate is too high. This has not been discussed with the communities.



The Study Team discussing institutional issues with the Head of Provincial DHUP (left) in Luang Namtha

There is little reported default in tariff payment from household consumers or private businesses. However, there are two problems:

- i. late payment from public institutions⁷⁰
- ii. collection of tariff payments from household.

All the utilities visited had a system for late payment, with the maximum limit being 3 months. After this time the connection is cut off and a fine is charged until the outstanding payment is cleared, although this system was not generally used toward defaulting public institutions.

In response to the problem of the collection of tariff payments, Luang Phrabang Nam Papa management is beginning a process to

⁶⁸ Through 17 group meetings with users (men and women separately), senior Nam Papa management staff, and the WASA and URI Technical Team.

⁶⁹ Refer: Lao PDR National Consultation Workshop on Water and Sanitation, Attachment 2, Presentation on Vietnam Small Town Water Supply Services Management Models, December 2001.

⁷⁰ Refer also: Capacity Building for the Water Supply Sector, Interconsult International, Section 3.3.6.5, page 68 and Section 4.5, pp82.

respond to the demands of users, initially through an innovative tariff collection policy. In one 'ban' in the municipality, many people were often out in the paddy field when the tariff collector visited. They were then reluctant to travel the long distance to the Nam Papa office to pay the bill of arrears left by the tariff collector. Following a community meeting with the Head of Nam Papa Administration and Planning to resolve the issue, the users proposed that the tariff collector stay in the 'ban' meeting hall for 2 days every month. They could then arrange for someone to go to pay him. The provincial Nam Papa agreed to try this idea as a pilot, and since then tariff collection has increased. There is a system of 11 zones in the municipality (each with a number of 'ban') for collecting water fees, and the Nam Papa is looking to extend this innovative solution to all of the zones.

Funding of Investments

Expansion Investments: Capital costs are based on agreements between the GOL and the different donor agencies, and is generally in the range of 10 – 20% financing by the GOL, and 80 – 90% by the external support agency⁷¹.

- In the case of Luang Phrabang, the grant from Germany was agreed with the Ministry of Finance (representing the GOL) who then turned this into a loan⁷² for Nam Papa Lao Luang Phrabang (interest at 6.6% per annum, 5 year grace period, 25 years to repay).
- Luang Namtha Nam Papa was financed through World Bank IDA credit. According to the Credit Agreement, different expenditures categories are financed at different rates⁷³.
- In Sam Neua and Samakhixay, the project agreements were not available in the Nam Papa offices.
- In all cases the project/loan/grant/credit agreements were not translated into Laotian and consequently senior members of the PNPs were unable to read these important documents.

⁷¹ In contrast, the Government is piloting subsidy levels in some rural areas e.g. Oudomxay Province, that vary with the type of technology chosen. The communities also contribute labour, materials, and cash to approximately 45% of the capital cost for water supply and approximately 80% for sanitation.

⁷² Refer: Luang Phrabang Water Supply Project, Phase II, Construction Works for System Extension, Final Report, page 15, August 2000.

⁷³ Refer: Luang Namtha Urban Water Supply Project Completion Report, IDA 2579-LA, Appendix 1, Revised Budget for Water Supply Component; and refer Luang Namtha Provincial Development Project, Project Appraisal Document, 18 February 1994, pp 22.

Graph 13

Renewal: Government regulations encourage full cost recovery and for the NPSEs to have responsibility for “all capital investments for water supply and wastewater management systems”⁴. However, Nam Papas are reluctant to increase the tariffs too drastically to cover all costs because senior management feel that customers may either use less water or return to unprotected open water sources, which may have a negative impact on their cash-flow.

Investment Funding Patterns: All the systems that were visited were financed by a loan through MoF. This is because previously the provinces had to apply to the central level for this help; but following the policy of decentralization they can now contact support agencies directly. The Nam Papa financial year is from January to December, different from the Government Fiscal Year Planning Cycle (October – September). Generating own income and following own planning cycle are advantageous when a utilities are financially viable. However, there are difficulties when Government funds are required (e.g. to subsidize tariffs, loan payments etc.) because of the conflicting planning cycles.

The WSS subsidy guiding policy (No 37/PM, for urban and rural areas in Lao PDR) lacks details for the rural area. Generally, any subsidy is provided on a case-by-case basis, depending on rules stipulated by each of the Institutions or ESAs.

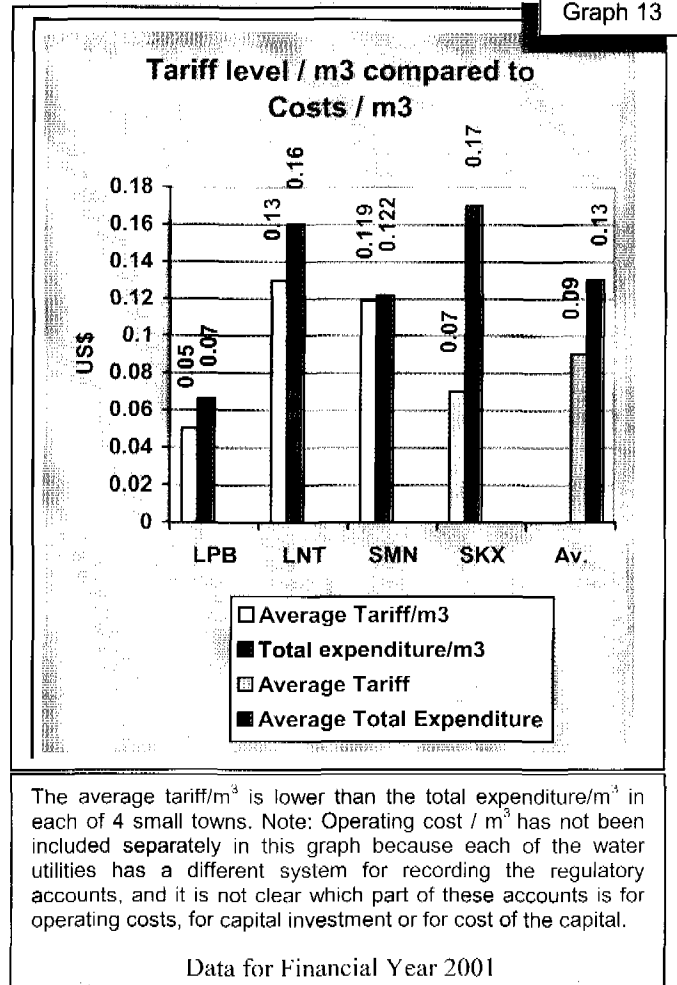
Financial Viability of Systems

When compared to the total yearly expenditures, the tariff level is too low to cover direct costs and this means that depreciation, system expansion and loan repayments cannot be funded except by external subsidies. The average tariff (US\$0.09/m³) represents 0.04% of average monthly household income of poor families in small towns (US\$13.5/month) for 20 liters of water per day (or 0.6 m³/month - WHO minimum water requirement)⁵. This actually makes the relative cost comparable to water provided in developed countries, and is perhaps at a level the poorer consumers can afford to pay for water supply services. However, according to Law No.37/PM, the 'NPSEs should aim at an affordability level of about 3% of the household income'⁶.

⁴ Refer: No.37/PM, Article 4.1.

⁵ Refer: Tynan, N. and Kingdom, W., (April 2002), pp4: 'In developed countries, customers ...pay between 0.036% and 0.12% of annual per capita GDP.'

⁶ Refer: Article 4.6, for lower block domestic tariffs.



There are no private operators of mains water supply in provincial centers, district centers and small towns. Both state water utilities and private companies sell bottled drinking water. The utilities make a profit on this part of their business, but overall they still make a loss.

In the case of Luang Phrabang, all money is collected and dispersed by Nam Papa. There are no funds from the province. The management can source any loans. In other provinces the tariff rate was coupled with the small size of the revenue from collections, meaning that the provinces are unable to cover the interest payments for the loan.

The sustainability of the existing Nam Papas, with regard to income, expenditure and tariff reform, is increasingly coming under the umbrella of WASA's responsibilities as it gains experience as an independent regulator.



H.E. Mr. Khamla Lolonesy, Vice-Minister MCTPC, at the first National Consultation Workshop on Water Supply and Sanitation, 13 December 2001.
 [seated from left] Dr. Nouanta Maniphousay (Director, NEW), Mr. Noupheuk Virabouth (Deputy Director General, WASA), Dr. Somphone Dethoudom (Director General, WASA), H.E. Mr. Khamla Lolonesy (Vice-Minister, MCTPC), Mr. Keophilavanh Aphaylath (Director, URI), Mr. Santanu Lahiri (Country Team Leader Lao PDR, WB WSP-EAP).

SOCIAL ASSESSMENT

Social Issues

- Social issues have increasingly become the responsibility of the WASA Technical and Appraisal Division. At present there is limited experience on participatory techniques for working with communities in the urban water sector. This suggests the need for partnership with existing institutions, such as Nam Saat, the Urban Research Institute and NGOs that have considerable experience in this area.
- The system of government administration means that the village ('ban') is a very strong unit, even within municipal boundaries. Communities are able to actively participate in decision-making and are interested to be involved, as can be seen by the high turn out of users attending MPA meetings.

- Users need to be involved in the process to choose the level of service they want based on willingness and ability to pay, fully understanding of the tariff payments and future recurrent costs. WASA is currently looking into ways of developing a government system for this in the urban/small town/multi-village setting, in association with the existing process being implemented and developed by Nam Saat in the rural areas.
- Neither complaints are recorded, nor customer surveys done.
- Quality of service from the users' perspective has not been addressed by any of the Nam Papas visited, although Luang Phrabang NP are starting to initiate 'ban' meetings. There needs to be a way of measuring service quality involving regulated reporting e.g. Benchmarking, and consumers, e.g. MPA.

RECOMMENDATIONS

POLICY FRAMEWORK

- Development of the existing Sector Investment Plan (SIP), which will have a greater focus on poorest communities for poverty reduction nationally.
- Clarification of ownership issues, particularly as to how this would relate to community managed and privately owned utilities.
- Establishment of a regulatory authority for sanitation.
- Development of WSS Sector Laws, Regulatory Framework and National Strategy that encompass the urban and rural sectors.
- Study on sanitation situation that is potentially leading to a Decree on the Management and Development of the Sanitation Sector.
- Legislation for the formalization of Community-based organizations, e.g. WATSAN committees, Users Associations, use of community contracting (Refer: 37/PM, Article 6).
- Further development of the Water Supply Sector Policy Statement⁷.
- Study on the potential for public/private/community management models for water utility operators (Refer 037/PM, Article 9.2). The models would need legislation to allow the agencies responsible for water supply flexibility to use different management model options for urban and rural water development within (and possibly outside of) their respective provincial boundaries.
- Law on Enterprises for public/private collaboration in the water supply sector.⁸
- Law on Domestic Investment Encouragement.⁹
- Law on Drinking Water Supply, incorporating water quality regulations and tariff policy.¹⁰
- Complete database listing of all urban centers/small towns/multi-village schemes by defined category, with data sheet on each settlement to cover previous investments, management models and future plans.

INSTITUTIONAL STRENGTHENING

- Establish association for professionals working in the WSS sector.
- Dictionary of technical and management terms for water supply and sanitation in Lao, English and French¹¹, including development of common understanding of Lao terminology used to describe settlements for urban/small towns/multi-village/rural and criteria for the different levels of small towns to plan with the management models.
- Reference binder folder of all laws, policies, strategies and regulations relating to the WSS sector so that additional laws etc. can be included if necessary.¹²
- Reference binders with guidelines for bidding documents, contracts etc. available in both Lao and English languages.
- Training for Public Communication Programs for effective stakeholder involvement in projects.¹³
- Training for Nam Papa, WASA and Nam Saat staff on computer-aided design for water distribution modelling to enhance and speed up the process of informed choice.
- Need for translation into Lao of project appraisal documents, project agreements, grant/loan/credit agreements, bid documents, manuals etc. to improve understanding and ownership.
- Development of a faculty at the National University of Lao PDR dedicated to water, sanitation and hygiene with recognized qualifications.

⁷ Water Supply Sector Policy Statement, Lao PDR Water Supply and Sanitation Sector Project, ADB RRP: Lao 30451, Appendix 2.

⁸ Refer: Lao PDR, Business Law, 1994 and Law on Enterprises, Socialist Government of Vietnam, June 12, 1999.

⁹ Refer: Law on Domestic Investment Encouragement, Socialist Government of Vietnam, May 20, 1998, Socialist Government of Vietnam.

¹⁰ Refer: Draft Urban Water Law/WASA Charter/Urban Water Quality Regulations/Urban Water Tariff Policy being prepared under the ADB-funded Water Supply and Sanitation Sector Project, Loan No. 1710 [SF], Part D, Package B (NORAD co-financing) 'Capacity Building for the Water Supply Sector Project'.

¹¹ Refer: Example of the American Water Works Association *Drinking Water Dictionary*.

¹² Refer: Example of 'the Organization of the Government of Lao PDR' prepared by the Department of Public Administration and UNDP.

¹³ Refer: WB Report on Assessment of Public Communication Programs in Urban Water and Sanitation Projects, October 2001.

- Research into successful management models used in other countries and potential for these options in Lao PDR.
- Development of a national reporting and database system for WSS investments, such as 'Benchmarking'.
- Development of a Resource Center at WASA for all WSS Sector documents relating to norms, regulations, technical designs and standards, completed projects and project management.

INSTITUTING LEARNING

- Produce a manual detailing the management models and how they are applied and can be standardized throughout the country.
- Development of effective incentives for efficient O+M of the schemes and for full cost recovery for extension and renewal. The introduction of more incentive-based remuneration may help to improve service quality. Innovative solutions can be tried to improve performance of staff, and linked to payment incentives to improve utility service, which can be monitored once a benchmarking system is in place. Remuneration can then be paid based on the level of target reached.
- Further development of participatory demand responsive techniques (such as 'Informed Choice', 'Community Dialogue' and MPA being developed by Nam Saat, the national agency for rural WSS) in all stages of project design and implementation, and for gauging users' satisfaction with the WSS services. These should promote a Lao-led process of development through consultation for decision-making at the lowest level.
- There is a need to pilot innovative, cost-effective technologies that will reduce the initial system capital costs, and that can be expanded over time as small town/multi-village populations grow.
- Preparation of Learning and Field Notes in Lao and English languages, with inputs from all sector partners, for dissemination of lessons learned in the WSS Sector in Lao PDR.
- Designing and posting of a Water Supply Authority website to link with other GOL websites¹⁴, which includes training of sector partner Government staff for the updating and maintenance of the website.

¹⁴ Refer: Vientiane Times, April 30-May 2, 2002, pp14. (The Ministry of Commerce will be opening the first web-site for a Ministry in Lao PDR)

Web Links

The following web-sites contain useful resource material and links to further information related to this Small Towns Water Supply and Sanitation Case Study.

Water and Sanitation Program

<http://www.wsp.org/english/links.html>

Water and Sanitation Program: Links

<http://www.wsp.org/english/links.html>

Water and Sanitation Program: Small Towns

<http://www.wsp.org/english/activities/small-towns.html>

World Bank: Water Supply and Sanitation

<http://www.worldbank.org/html/fpd/water/>

Methodology for Participatory Assessments: *Helping Communities Achieve More Sustainable and Equitable Services*

http://www.wsp.org/pdfs/eap_mpa_helping.pdf

Benchmarking

http://www.worldbank.org/html/fpd/water/topics/uom_bench.html

Effective Water Service Provision: Performance Targets for a well-run utility

http://rru.worldbank.org/Hot_Topics.asp

Between Rural and Urban: Towards sustainable management of water supply systems in small towns in Africa: IRC Working Paper, January 2002

<http://www.irc.nl/themes/management/smalltowns/index.html>

Willing to Pay but Unwilling to Charge: Water and Sanitation Program, June 1999

http://www.wsp.org/pdfs/sa_willing.pdf

Independent Water and Sanitation Providers in African Cities: Full Report of a Ten-Country Study, Bernard Collignon and Marc Vezina, Water and Sanitation Program, 2000

http://www.wsp.org/pdfs/af_providers.pdf

Infrastructure Reform, Better Subsidies, and the Information Deficit: Andrés Gómez-Lobo, Vivien Foster, and Jonathan Halpern: View Point No. 212

<http://www.worldbank.org/html/fpd/notes/212/212summary.html>

<http://www.worldbank.org/html/fpd/notes/212/212gomez.pdf>

Better Household Surveys for Better Design of Infrastructure Subsidies: Andrés Gómez-Lobo, Vivien Foster, and Jonathan Halpern: View Point No. 212

<http://www.worldbank.org/html/fpd/notes/213/213summary.html>

<http://www.worldbank.org/html/fpd/notes/213/213gomez.pdf>

Information and Modelling Issues in Designing Water and Sanitation Subsidy Schemes

<http://www.dwaf.gov.za/FreeWater/Scripts/.%5CDocs%5CRef%5CInformation%20%20modeling%20issues.pdf>

WaterAID Framework Document

<http://www.wateraid.org.uk/research/index.html>

Bretton Woods Project Background Document

<http://www.brettonwoodsproject.org/topic/privatesector/p23waterpriv.html>

South African Municipal Workers Union Anti-privatisation Page
<http://www.cosatu.org.za/samwu/private.htm>

Regulating Quality: Bill Baker and Sophie Tremolet: View Point No. 221
<http://www.worldbank.org/html/fpd/notes/221/221summary.html>
<http://www.worldbank.org/html/fpd/notes/221/221Baker-10-24.pdf>

Utility Reform: Bill Baker and Sophie Tremolet: View Point No. 219
<http://www.worldbank.org/html/fpd/notes/219/219summary.html>
<http://www.worldbank.org/html/fpd/notes/219/219summary.html>

Lower Costs with Higher Benefits - Water and Sewerage Services for Low Income Households: Vivien Foster, Water and Sanitation Program, Vice Ministry of Basic Services, SIDA
http://www.wsp.org/pdfs/and_eapp.pdf

Durban Metro Water: Clarissa Brocklehurst, Water and Sanitation Program, May 2001
http://www.wsp.org/pdfs/af_durban.pdf

Link to Sanitation Connection: an online resource on sanitation
<http://www.sanicon.net>

Designing Pricing Policy and Tariffs to Help the Poor - Key Principles: Jan Janssens, World Bank

Pricing, Subsidies and the Poor - Demand for Improved Water Services in Central America, Walker, Ordonez, Serrano and Halpern
<http://www.wmrc.com/businessbriefing/pdf/infrastructure2001/reference/36.pdf>

Tariffs and Subsidies - Twelfth Meeting of the Urban Think Tank (India): Water and Sanitation Program, April 2001.
http://www.wsp.org/pdfs/sa_nagari12.pdf

Serving Poor Consumers in South Asian Cities - Private Sector Participation in Water and Sanitation: Clarissa Brocklehurst and Barbara Evans, Water and Sanitation Program, January 2001.
http://www.wsp.org/pdfs/sa_psp_sa.pdf

The Buenos Aries Concession: Marie-Helene Zerah, Kathleen Graham Harrison, Clarissa Brocklehurst, Water and Sanitation Program, January 2001.
http://www.wsp.org/pdfs/sa_buenos.pdf

Designing Pro-Poor Water and Sewer Concessions: Early Lessons from Bolivia: Kristin Komives, Department of City and Regional Planning, University of North Carolina - Chapel Hill.
<http://www.worldbank.org/wbi/infrafin/pdfs/2243propoor.pdf>

Who Wins, Who Loses - Assessing the Distribution of Benefits in Water Concessions: Caroline van den Berg, Viewpoint No. 217.
<http://www.worldbank.org/html/fpd/notes/217/217summary.html>
<http://www.worldbank.org/html/fpd/notes/217/217Vande-10-23.pdf>

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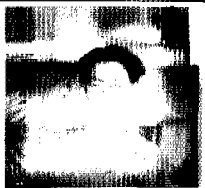
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