

## Community Water Supply and Sanitation in Nongteng, Vientiane, Lao P.D.R.

S. Kongmany, Lao, PDR

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*In the real world the population are lack of save water and sanitation especially in the developing and underdeveloped counties most people are poor, the children mortality are high rate, in the near future the lack of fresh water source would be affected to the living life including animals human been and lastly environmental changeable. In Asia including ASEAN member countries face to be challenge for those affect, the deforestation in the region would be huge damage of the water shed also the surface water from the river face to be serious drought this dry season of year for Mekhong river. In Vientiane the capital city of Lao P.D.R in April were face serious draught effect by lowest of Mekhong river compare to last 40 years, thus the effected to the demand capacity of both water treatment plan need full capacity to supply water to the two hundred thousand of consumer for one month. Refer to the real situation the Vientiane water supply company, trying to solved that problem by water tanker delivery to the high lacking point including resettlement zone that we namely Nongteng area but face to be not enough supply to whole city. There are a few water supply community served by local and village volunteer whose armature to be assistant by some donor appear not enough capability to supply due to the resettlement number are increased. The author highly to raise this topic for to have an any donor whose can assist for the capability to supply the clean water to the communities which more that thousand of household, and lack of good sanitation system due to lack of water supply. In the long run lack of clean water and bad sanitation would be effected to the human been hygiene and infected by disease especially for the school children sickness and might not attend the school age by normal life style that human been basic need.*

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### Introduction

Lao PDR is located in the Greater Mekong Region. Population 5.2 million; population growth rate is 2.8%; ranked 143 (out of 173 countries) in UNDP Human Development Index (2002); 77% of the population lives in the rural area. Many parts of Lao PDR are remote and difficult to reach, with many different ethnic minorities (40+). About 11,000 villages, mostly small population (250-1000 persons). Some 6,000 villages have received water supply services to date (55%), and about 4,500 villages have improved sanitation facilities. 142 district towns, 30 with water supply, some more with agreed financing, 90+ without formal water supply services.

### Objective

In the real world situation now, the human been were huge living in the earth more increasing and challenge with their environmental pollution, risk with high technology effected.

An aim of this project are focus in the following task:

1. To improving the need of infrastructure in the urban zone
2. To upgrade the people health and sanitation facilities
3. To supply clean water to the community level
4. To reduce the poverty in the resettle residential area

### Scope and Limitation

The scope of the project focus to the Nongteng resettle zone with more than 1000 household living together, those people have been remove from the urban center Nongchanh that site will be construction for the public park for the green and recreation area at present time.

### Rationale problem

When the resettlement residential have been moving, the need of their living like shall be arrangement too, unfortunately for Nongteng resettlement zone look insufficiency for shortage water before long due to the high ground and effect to the low pressure water.

However, the water supply agency try to supply water for them, there is one booster pump station to pump up to the that zone, but the inlet flow face to be low pressure. thus those pump shall be run only the evening time sometime nearly 10 PM.

### Literature Review

#### The government Policy and Improvement living life

In the strategic plan of the Lao government to be enforcing the good living life to reducing poverty in target year 2005 reduce the poor in Vientiane capital city to 60% of total population at present time.

### **The reducing urban poor**

In Vientiane the capital social cultural and business city that to be the priority zone for improving the living life, unfortunately the shortage budget of the government face heard to be cover all zone of the improving infrastructure including water supply.

However, the government led the policy to some organization how to adaptation improve the infrastructure for middle facilities of the supporting of their living.

### **The small modern industry scale strategy**

Refer to the strategic plan of Laos's government at present time the small modern industry now a day face to be booming, in every organizations enforcing their target to be achieve the goal of upgrading for the modern industry campaign.

## **The Vientiane Urban Development Plan Project**

### **Government policy for Vientiane mater plan**

The increasing population number in Vientiane face to be approximate 1 million in year 2020, while the service cover present only 50% of total population and population in service area present about 60%.

### **Vientiane Urban Environmental Management project**

Refer to the total population increase the people need more water face to be increasing too ,in fact the supply and demand present imbalance among them, thus the priority plan will be extension water treatment plan follow by master plan

### **Publicity for the development environmental campaign**

To be achieve on the slogan “ the clean, green zone the capital city “ of the mayor of Vientiane city, there are many activity on going to be make plan for improving urban environmental campaign such as : the solid wage activities, improved the conservation zone lake and marsh in surrounding Vientiane capital city.

At the same time the water supply for community are al so be race to be improving for sufficient service including the balance the water pressure in urban zone, unfortunately the full capacity are effect to the shortage water pressure somewhere else.

## **The Resettlement of the effected residential in Nongchanh Marsh.**

### **Population congestion area**

Refer to the Vientiane Urban Development Authority strategic project to remove the congestion area in center of Vientiane in year 1999, due to the selected zone would be arrange of the public recreation zone including the public green park.

Therefore some effected people in initial household; were not permanent style only some of wood house in numerous

,there also lack of good sanitation to discharge the waste to the surrounding environment .The project propose to remove those community to the new resettlement Nongteng zone.

### **Interview on resettlement residential at Nongchanh Marsh**

Base on interview of the people whose living in the Nonchanh that located in the center of Vientiane seen to most people agree to remove from there existing land house but they proposed to available of the land acquisition including basic infrastructure such electric, water supply or others support. In fact the supporting facilities are face to lack of other contribution from other source only small beget from the implementing agency and some of local government limited budget that shall be support only basic of the electric city, deep well water supply including insufficient facilities.

### **The in sufficiency budget for the resettlement site**

Due to in efficiency public water supply to that resettlement zone and seen to the destination of the supply compare to the high elevation of geography in Vientiane.

The existing community water supply included sanitation were funded be the Danish cooperation agency to support the basic need, while the deep well borehole were installed with the elevated tank with capacity 5m<sup>3</sup> content face to lack of enough whole supply to the communities, thus the villagers must be delivery water by hand carry or by small content of hand cart from the center supply to their household most of them are woman and children.

Due to limited budget of the donor funding source the demand and supply seen deficit ratio, the Vientiane water supply face to difficulty of the support budget of the extension special line direct to the community due to the low water tariff compare to investment to supply the water to the community.

The priority of the government raise to be proposed to the donor who shall be contribution some of the budget to implement of some scale of basic c infrastructure to mitigate of the basic need in average level.

## **The shortage water supply in new resettlement area and an effect to the Health and Sanitation of the urban poor**

### **Fact about relocation site**

The real situation location seen to locate in the high land average about 215-220 meter compare to the sea level, locate distant far away from Vientiane around 25 km that present the destination supply of water network face to very low pressure.

In fact there is the existing water supply with diameter 150mm of PVC, with distance 3km from the main No 13 north road that deal with location of the existing booster station. Unfortunately that booster station could not be boost the amount of water to the community due to there is lack

of enough pressure from the water treatment plant by small transmission line.

Thus, only the evening time that booster pump can be run depend on the water down stream pressure support enough capability, it seen to only mid nigh to the early morning around 3:00AM duration booster time

**Population resettlement zone and insufficient urban infrastructure**

In Lao there are no the complex public sewage or any good sanitation system, so the available only single household with their individual septic tank or latrine pit for their owned house, in some case if there are not available water for the sanitary it would be worse to the infected of the squatter disease such as diaries ,gorilla etc.

There are some small road line pass nearby community with no asphalt pavement, also face to be spill during both the rainy season and dry season, but the basic need look deal with water supply for household consumed of the cooking ,drinking, bathing and etc.

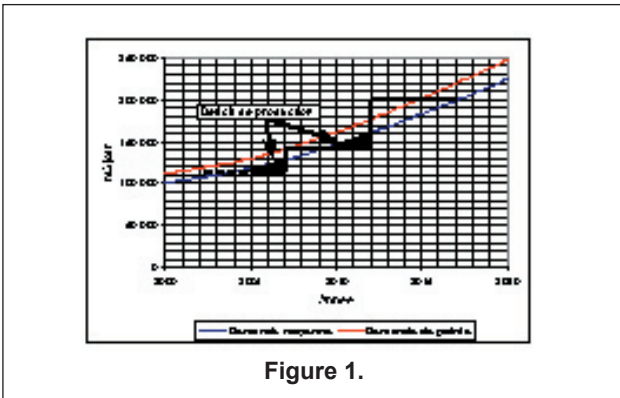


Figure 1.

**The proposed to solving problem on supply clean water to the community**

Water extension project urgently need to supply to the community. In the first phase of action plan during 2004-2005 and deal with the extension recently project are follows:

- Survey and collection data the population demand water consumption in the community by topography survey and villagers interview
- Basic and detailed design of the nature location site combination by the basic cost estimate, soft drawing and geography investigation of the pipe line system
- Design the booster pump station include the supporting facilities such: Electricity, control monitoring system and others as necessary
- Investigation of the existing pipe line location nearby how to connect with the existing and project pipe line in sufficiency system
- Evaluation of the existing borehole deep well including supporting system to analysis the capability to supply and demand for new project information

**Shortage water supply to the community base**

In the real situation the initial funding agency seen to be offering least of the water supply system compare to demand of resettlement population, the main support will be raise to the road, electricity, land acquisition and others need. Therefore, when during peak demand hour the real demand face more than many time with supply ,so the far away household must delivery of water by themselves due to the lack of capability to supply water compare to insufficient pipe line system .

**Water supply related to the health and sanitation facilities**

Water and sanitation services are failing poor people

- Public spending usually benefits the rich, not the poor
- Money fails to reach frontline service providers
- Service quality is low for poor people

**Alternative for solving problem on water supply**

The strategic plan for increase water supply production in the future of Vientiane water supply as the follows:

- Extension the product capacity up to 140000 m3/day in totally of Vientiane city in 2007 are:
  - Construction the additional capacity which produce 40,000 m3 of Kaolio water treatment plant
  - Rehabilitation of existing capacity which efficiency product of 20,000m3/day
  - To be combination the Kaolio water treatment plant in to 60,000m3/day
  - Maintenance of the Chinaimo water treatment plat which will be improved the storage and supply facilities by to laying separately with distribution system by new 700mm diameter of pipe
  - Construction the new reservoir with capacity 10,000m3 (See Figure 2)

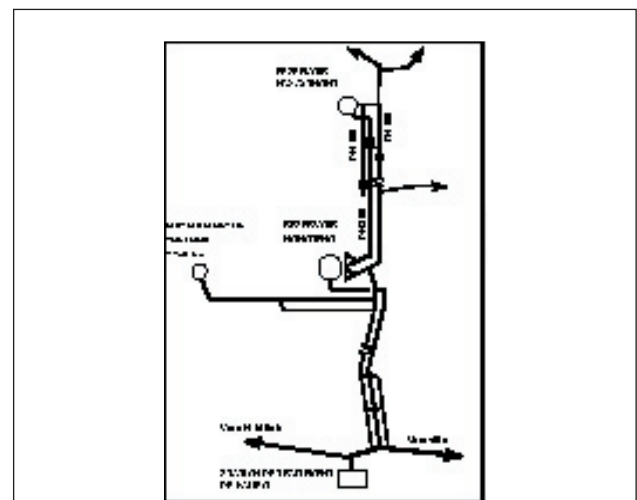


Figure 2. Schema D'aménagement de la zone de Nonteng et Naxaythong

## Way forward on human need for reducing poverty of Laos Government policy

The water supply sector already has a sector strategy and five years of experience of application of its strategy and lesson learned in selected zones in Lao P.D.R. The urban water supply sector strategy, developed through a national-led process following through out consultation with stakeholders, integrates the following guiding principles: the demand responsive approach, community-based development with community-ownership, offering informed choice, promoting institutional strengthening, establishing innovative vertical and horizontal linkages, bringing private sector's involvement, enhancing capacity and confidence building, and instituting learning.

The ongoing need for efficiency gains and creative solutions for improving quality and coverage of basic public services, particularly to the poor, are key priorities in the government's broad infrastructure agenda. As the solution continues to shift from reliance solely on either the public or the private sector, and given the governments. Competing expenditure priorities, many countries are now turning to partnerships with the private sector to design, build, finance, and operate key infrastructure projects

### Individual poverty

- Low levels of formal employment
- Difficult and expensive access to basic services
- Surviving below the poverty line
- Disease and poor health are constant realities.
- Low levels of education and literacy
- In Lao PDR, vulnerability to unexpected events (e.g. floods, droughts)

## Health and education of community

Community Dialogue – Assessment of Demand

1. Village History Profiling
2. Village Mapping
3. Gender analysis of Tasks & Roles
4. Control of Resources in the Household
5. Decision Making in the Community
6. Hygiene Awareness Assessment
7. Identification of Community's perception on the Routes of Transmission Faecal Oral Contamination
8. Local Blocking Methods of Faecal-Oral Contamination Routes
9. Analysis of Health Status of the Community
10. Prioritising of Problems of the Community
11. Sanitation ladder and Informed Choice
12. Water supply ladder and Informed Choice

## Pre -project capability for supporting on water supply

### Water, Sanitation and Poverty How to close the gap?

The ongoing need for efficiency gains and creative solutions for improving quality and coverage of basic public

services, particularly to the poor, are key priorities in the governments' broad infrastructure agenda. As the solution continues to shift from reliance solely on either the public or the private sector, and given the governments' competing expenditure priorities, many countries are now turning to partnerships with the private sector to design, build, finance, and operate key infrastructure projects including in the water and sanitation sector

### Solution: Create an Enabling Environment:

1. Community Dialogue and Informed Choice
2. Sanitation/hygiene as priority
3. Closing financing, knowledge, policy, and capacity gaps

## Conclusion and Recommendation

In the real world situation now more than one thirds are lack of clean water consumption also two third lack of good sanitation ,most of them are located in the least developed countries, the challenging problem when they did not have sufficiency water supply or poor sanitation the huge problem would be infected by the disease to them.

Other, case when they have been sick after that they can not survival by the routine household economic, basic education including chance to upgrade there living life.

In Nongteng area seen face to be relevant to that problem if there are lack of basic support of infrastructure such like water ,sanitation etc. However to gain the reducing poverty of the government policy the concerning organization may have demonstration project to develop some of the basic infrastructure such water & sanitation.

To achieve the purpose mention the good occasion would be link with demonstration project donors including local organization and others international to contribute some of the basic fund to conduct the procedure of that project.

Base on discuss with the Mr. Ya suhiro KAWASHIMA the JICA expert in Water supply Authority( WASA) face to be have trend to arrange some of good idea to support by JICA site in the suitable level involving the equipment supply or some technical assistant and workshop organize in some suitable time. When the completed project seen to raise of the pilot ADP in LAO that have many organizers concern to contribution on water supply and sanitation for better environmental protection for human been.

Finally the author would like to express great thank to the AIT SEA- UEM that contribution the supporting fund, the JICA may concerned of the technical assistant, The Vientiane water supply company whose organize the implementing project and good cooperate during the data collection. Thank you organizations concerning that have good coordination to support the successful of the project. The mention above seen to be follow the policy of the Government of Lao PDR.

### Contact address

S. Kongmany, Lao, PDR