

ສະຫວີທະມາໄລແມ່;
ທິສະໜຸດກາງ

**National University of Laos
Faculty of Engineering**

**GRAVITY FED SYSTEM DESIGN IN SAVANNAKHET
PROVINCE, XEPON DISTRICT, DONG VILLAGE, LAO PDR.
(GFSD - SPXD V - LPDR)²**



ສະຫວີທະມາໄລແມ່; ທິສະໜຸດກາງ
ຂາເຈົ້າ 14.5.2009
ເລກທະບຽນ 039999
ເລກພັດທະນາ RS

363.61
PHO

Master candidate: Mr. Phoummixay SIHARATH

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE OF
MASTER OF SCIENCE IN ENVIRONMENTAL ENGINEERING
AND MANAGEMENT**

2008

In cooperation with EU-Asia Link

**GRAVITY FED SYSTEM DESIGN IN SAVANNAKHET PROVINCE, XEPON
DISTRICT, DONG VILLAGE, LAO PDR.
(GFSD - SPXD2V - LPDR)**

**THESIS
BY**

PHOUMMIXAY SIHARATH

**FIRST SUPERVISOR:
ASSOC.PROF. AMPHONE VONGVIXAY.
SECOND SUPERVISOR:
PROF. DR. ING.GERD FOERCH.**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE OF
MASTER OF SCIENCE IN ENVIRONMENTAL
ENGINEERING AND MANAGEMENT**

**THE NATIONAL UNIVERSITY OF LAOS, FACULTY OF
ENGINEERING
VIENTIANE, LAO PDR**

ACKNOWLEDGEMENT

Firstly, I sincerely say thank my project supervisors, Assoc.prof. Amphone VONGVIXAY and Prof. Dr. Ing.Gerd Foerch who helped me to suggest the topic and to check the outlines of my report and also gave me good pieces of advice to make my report more useful, completed and get the information whenever I need to know.

I would like to thank all lecturers who gave me a lot of knowledge about Environmental Engineering and management in theory and practice, because there will be a lot of benefit for Lao country, right now and future.

I also wish to thank profusely the Asia link project who offers me opportunities to study Master of Environmental Engineering and Management. Much appreciation is expressed to all professors of the program, colleagues, administrators .and my families as well.

I sincerely thank all missions of Asia Link project that gave me research grant to pay for my research writing and gave convenience to find data from internet.

I am really grateful Dr.Kongkham INTAPHOUTHONE, Chief of Water Supply & Environmental Health, Provincial Department of Public Health (PDPH) SAVANNAKHET LAO P.D.R, and Mr. Phouvang Engineer of Namsaat center who provided and suggested me with lots of information about Gravity fed system design.

I sincerely thank all the staff in Provincial Namsaat, officers in xepon district and all villagers at Ban Dong who supported and helped me everything ,when I was at the field.

ABSTRACT

Water is one of the most basic necessities for the existence of living things in general and human beings in particular, especially clean water in rural area. System design of gravity fed system is very significant for construction to supply water to people who need to use water in rural area ,the goal of the Government is that 80% of the population will have access to clean water by the year 2015 (source: Annual Report 2002, Lao Water Supply Authority)

This research will study on Gravity Fed System Design in Savannakhet Province,Xepon District, Dong Village, Lao PDR. The basic objectives of the study are to gravity fed system including :study on water demand, study on flow rate of each water during dry and rainy season, survey a water resources make a mark point, design the systems by using data that received from field, calculation population growth and material cost estimation.

More important, there will be essential design of the system like: dam, water treatment tank, elevated water storage tank (reservoir), pipeline system and calculation of materials for construction.

These things will help people in Dong village accessing more to clear and clean water, if has some fund to build system for them. The system can support water in both seasons and use water source to be useful, avoid using not clean water to reduce effect in long term and enhance technical system in rural area to receive the most efficient.