A FINANCIAL COST-BENEFIT ANALYSIS OF JOINT INVESTMENT OF BIOGAS SYSTEMS FOR ELECTRICITY GENERATION: A CASE STUDY OF SMALL AND MEDIUM SCALE SWINE FARMS IN THASADET SUB-DISTRICT MUNICIPALITY, MUANG DISTRICT, SUPHANBURI PROVINCE

SUPATTRA UM-KERD

A THESIS SUBMITTED IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE (TECHNOLOGY OF ENVIRONMENTAL MANAGEMENT) FACULTY OF GRADUATE STUDIES MAHIDOL UNIVERSITY 2010

COPYRIGHT OF MAHIDOL UNIVERSITY
A FINANCIAL COST-BENEFIT ANALYSIS OF JOINT INVESTMENT OF BIOGAS SYSTEMS FOR ELECTRICITY GENERATION: A CASE STUDY OF SMALL AND MEDIUM SCALE SWINE FARMS IN THASADET SUB-DISTRICT MUNICIPALITY, MUANG DISTRICT, SUPHANBURI PROVINCE

MISS SUPATTRA UM-KERD 5037632  ENTM/M

M.Sc. (TECHNOLOGY OF ENVIRONMENTAL MANAGEMENT)

THESIS ADVISORY COMMITTEE: PATOMPONG SAGUANWONG, M.B.A. SUVALUCK SATUMANATPAN, Ph.D.

ABSTRACT

The objectives of this research are to analyze financial cost-benefit of joint investment of biogas system for electricity generation and to study factors influencing joint investment of small and medium swine farm. The questionnaires were used as tool to collect data from 39 farm owners in the study area while financial feasibility of project was done according to the principle of cost-benefit analysis. The results indicated that net present value (NPV) was 16,648,780.82 baht. Benefit – cost ratio (BCR) was 1.47 times and internal rate of return (IRR) was 12.46%. Therefore, the project was worth for investment, the risk of project was low level and the project pay back period was within 5 years 6 months.

The benefits from biogas production system are revenue from electricity and fertilizers. The project shall also reduce wastewater discharging to canal that connects to Tha Chin River of which water quality are degraded. Concerning the factors, it was found that only age, experience, number of swine and number of labors statistically influence joint investment of biogas systems for electricity generation.

KEY WORDS: COST-BENEFIT ANALYSIS/ BIOGAS SYSTEM/ JOINT INVESTMENT

117 pages
A FINANCIAL COST-BENEFIT ANALYSIS OF JOINT INVESTMENT OF BIOGAS SYSTEMS FOR ELECTRICITY GENERATION: A CASE STUDY OF SMALL AND MEDIUM SCALE SWINE FARM THASADET SUB-DISTRICT MUNICIPALITY, MAUNG DISTRICT, SUPHANBURI PROVINCE.