

**ECONOMIC ANALYSES OF COMMUNITY INITIATED PROJECTS,  
SUSTAINABLE LIVELIHOODS PROJECT, MONGOLIA**

**By**

**RENTSENDORJ, Orkhon**

**THESIS**

Submitted to  
KDI School of Public Policy and Management  
in partial fulfillment of the requirements  
for the degree of

**MASTER OF PUBLIC POLICY**

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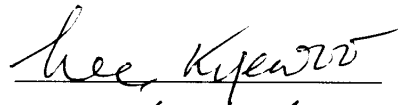
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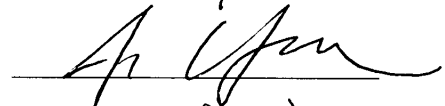
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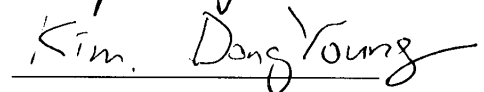
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## **ABSTRACT**

### **ECONOMIC ANALYSES OF COMMUNITY INITIATED PROJECTS, SUSTAINABLE LIVELIHOODS PROJECT, MONGOLIA**

**By**

**RENTSENDORJ, Orkhon**

The assignment aims to quantify costs and benefits of typical community initiated projects in comparison with similar facilities financed under the government line agency budgets. The purpose of this analysis is to find out the economic viability of the projects and make a judgment on whether government investment in these projects is economically justified or not. It covers several community initiated projects, such as school dormitory rehabilitation, school dormitory refurnishing, kindergarten rehabilitation, rehabilitation of school heating systems, public bath houses, hospital rehabilitation, drinking water supply and maternal rest home refurnishing. The assignment also provides insights into the social aspects of the projects as the aim of all these projects mainly meant to improve the health and education indicators of rural population by increasing the access and quality of social services.

#### **Findings of analysis:**

Most of community projects were implemented to address the very basic needs in health and education of the local communities. The high demand for these types of project

were result of the sharp decline of budget in social services, and local people were just left with nothing to survive in so called “market driven” economy. Although the shift from planned economy to market economy envisioned providing greater opportunities and choices for Mongolians, in fact meetings and discussions with local communities revealed that in order to survive or do the business they have to have firstly, financial resources to invest, know – how, skilled labor, favorable business environment and most importantly accessible markets.

Without adequate information and basic knowledge about market economy, different actors and their roles, few people benefitted and majority just trapped in poverty. Therefore, community’s need was not to do a business, but to re-gain what they’ve lost: access and quality of health and education services and be employed. In particular, in the rural Mongolia all population was employed in state cooperatives: herders, farmers, milkman, veterinary, truck and tractor drivers, stock keepers and administration people to manage the cooperatives. The soum schools and hospital provided education and health services to the population. Children of herders stayed in dormitories, and all these were provided by the state and free of charge.

Although during the privatization of cooperatives herders and milkman got livestock, drivers a tractor or truck, management and administration people the building, storage space, in general the privatization of cooperatives resulted in a bankruptcy of the cooperatives: loss

of well-established structures, loss of economic effectiveness and loss of the united management.

As individuals they were not able to deliver their products to urban part of Mongolia where the most consumers lived. And also without the united management they could not make products in early years, many of them started trading in pursuing higher short term profits instead of stable long term prosperity.

But that time many people did not possess these knowledge and analytical skills, and only after 10-15 years they realized that economic growth in a market economy requires a lot of different skills, knowledge and efforts. And now community people just had to step back and ask first what their priority needs are, how to address them and how, in return, the fulfilled needs will help them to achieve their future goals.

Recent 5 years, number of economic and employment opportunities are on rise due to mining sector boom. However there are still many Mongolians, especially from rural part, who cannot take advantage of it due to lack of skills, experience and knowledge. And here is a very clear link of the community projects and market demand. The priority needs of the community were to improve the access and quality of health and education services assuming that when people are in a good health and possess knowledge and skills, they can be competitive and the work they do in either in public or private sector will lead to a greater inclusive economic growth.

The economic benefits of these social and community projects outweigh the economic costs of the projects.

Therefore, in conclusion I would like to draw the main conclusion as following: to make an inclusive economic growth and to reduce the poverty it is important to increase access and quality in health and education for all, women and men, so people have abilities to contribute to economic growth and have abilities to grasp opportunities presented by the economy.

**Policy implication:** It is recommended to re-look at health and education policies to increase accessibility of social services through creative solutions and quality through advanced technologies and to increase budget allocation in health and education by providing a solid analytical survey with real life examples and recommendation for future interventions.

## **ACKNOWLEDGEMENTS**

Many people have given their precious time, good thinking and generous support to this thesis. First of all, I would like to thank the indefatigable Professors of the KDI who helped me to write this thesis. I also would like to acknowledge my sincere and deep gratitude to Kye, Woo Lee, the Professor of KDI (Project Analyses and Investment Criteria) for his valuable advice and guidance. My sincere gratitude goes to all staff of KDI who helped to make my study such a valuable, enjoyable and unforgettable experience. I wish KDI and its staff further success in the future.



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## **DEFINITIONS OF IMPORTANT TERMS USED IN REPORT**

### **Cost Effectiveness**

The level of effectiveness obtained for a given economic input.<sup>1</sup>

### **Cost Efficiency**

How economically funds, resources and inputs are converted into results and outputs.

### **Cost-benefit analysis**

Enumeration of range of benefits and costs, aggregating the effects over time, using discounting approach and arriving at currency-denominated “present value.”<sup>2</sup>

### **Net Present Values**

The discounted value of an investment's cash inflows minus the discounted value of its cash outflows. To be adequately profitable, an investment should have a net present value greater than zero. For investment in securities, the initial cost is usually the only outflow. It is a measure of discounted cash inflow to present cash outflow to determine whether a prospective investment will be profitable.

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<sup>1</sup> Organisation of Economic Development and Cooperation, Development Assistance Committee, Glossary of Key Terms in Evaluation and Results Based Management. 20020, [www.oecd.org/dac/evaluation](http://www.oecd.org/dac/evaluation). Website accessed 09-10- 2006.

<sup>2</sup> Organisation of Economic Development and Cooperation, Development Assistance Committee, Glossary of Key Terms in Evaluation and Results Based Management. 20020, [www.oecd.org/dac/evaluation](http://www.oecd.org/dac/evaluation). Website accessed 09-10- 2006.

## **Internal Rate of Return**

The rate of discount on an investment that equates the present value of the investment's cash outflows with the present value of the investment's cash inflows. Internal rate of return is analogous to yield to maturity for a bond.

## **ACRONYMS AND ABBREVIATIONS**

GoM	Government of Mongolia
WB	World Bank
EU	European Union
LDF	Local Development Fund
LIF	Local Initiatives Fund
SLP	Sustainable Livelihoods Project
CM	Community mobilizer
Bln	Billion
MNT	Mongolian tugrug (banknotes)
HSLPO	Household support livelihood project office
MIS	Management Information System
PM&E	Participatory monitoring and evaluation
Aimag	First level of administrative sub-division ( Province )
Soum	Sub-province, the second smallest administration unit
Bag	Sub-province, the first smallest administration unit

## **EXECUTIVE SUMMARY**

The current thesis tries to assess the small grant projects to support community initiatives from more than 300 sub provinces of Mongolia from economic and social points of view.

These small grant projects were initiated by local community people themselves through a very participatory process, where the local community people needed to discuss, prioritize and select only 1-3 projects with the total budget not exceeding 8000 USD.

Most of these projects aimed at improving the access and quality of health and educational services in sub-provinces. For example, many projects were to improve the condition of building of the school dormitories, kindergarten, heating system or provision of professional equipment for the hospitals. Therefore these community initiated projects were executed by the construction company, or by the procurement company specialized in a medical equipment and tools etc. However, community people participated in many stages of the project execution in order to ensure that company uses the adequate quality of construction materials, meets the deadline and the basic standards.

The funding was provided by the program called “Sustainable Livelihoods Project II”. The “Sustainable Livelihoods Project II” is being implemented by the Ministry of Finance and World Bank. The main donor of the “Sustainable Livelihoods Project II” is World Bank but some funding comes also from European Union and JICA.

The “Sustainable Livelihoods Project II” has 4 main objectives, which complements and fosters each other in achieving a broader development goal - decentralization process in the country by building and strengthening the local community’s capacity to participate in decision making, to be responsible for their own decisions and actions, implement and monitor the government programs and projects.

Carrying out a cost-benefit analysis of most of the types of projects implemented through the financial support from the Sustainable Livelihood Project II was a big challenge. The task was difficult to implement because of the variety of the projects. Also these projects were spread out all over Mongolia, and it was hard to monetize the benefits because the skills and knowledge, health improvements of the people occurred are not just because of the projects but also because of other factors too. Lack of data to make comparison makes it more difficult.

The social and economic costs-benefit analysis will assist in drawing the relevant conclusions to assure that addressing the community basic needs through government costs in return will yield greater economic and social benefits. The analysis shows that the pre-requisite conditions for inclusive development are the health and education level of the people. Therefore, if the country wants to develop, it is essential firstly to create a favorable enabling environment for its citizens to obtain basic health and education services, so in turn people can contribute to economic and social development of the country.



Many of the community projects have benefits that are difficult to quantify but have good social value and long term economic value. Each project needs to be analyzed individually and all possible benefits economically quantified to arrive at a relevant cost-benefit ratio. The economic value of new school desks, dormitory bedding, kindergarten toys and similar projects is especially difficult to quantify.

Regardless of the analytical problems it was possible to draw several important conclusions:

1. Most projects have a good cost-benefit ratio and internal rate of return.
2. Only one type of sub-projects has a potentially low cost-benefit ratio and negative internal rate of return.

The average number of beneficiaries in the education sector is comparatively lower than in the health, infrastructure, and other categories. The fact that more beneficiaries are reached with health, infrastructure and cultural projects does not necessarily mean that they are more cost efficient. It is important to note that long term benefits to society are very important in weighing the results. Therefore, the assessment of these community initiatives from the social viewpoint was essential and in a summary it looks as following:

1. Community initiatives were driven by community people themselves and thus the ownership of these projects implemented by community people is very high.

2. These projects greatly promoted the community empowerment process by providing the funding valued no more than 8000 USD and giving them the right to decide what projects to support
3. Participatory decision making mechanism is set up in a form of the council consisting of the local sub province Governor, member of citizen's representative meeting, local citizens, social development officers of the governor's office etc.

The community initiated projects created a platform for local people, businesses and local government to come together to discuss, identify and prioritize their issues, make participatory decisions and take responsibility for taking actions to solve the problems.

The whole process of implementation, monitoring and evaluation of these projects helped to establish trust and long lasting relations by increasing transparency and a level of responsibility of each responsible party. It created a social capital at the local level and increased collaboration between community people, government and private sector.

Improvement in access and quality of social services and basic infrastructure had significant impact on wellbeing of the household. It empowered individuals and communities. Participatory decision making process at local level increased local authority and the level of diverse opportunities to learn ways of solving problems, creating innovative occasions for change and opening venues for new ways of collaboration. Participatory, monitoring and evaluation planning resulted in improved efficiency and effectiveness in the delivery of local infrastructure projects and services. It also contributed to democratic governance, equity and poverty reduction. Infrastructure related projects to such as securing safe drinking water,

sanitation facilities, street lights and central heating improved the living conditions of the soum community. Improved kindergarten facilities resulted in increase of number of children, thus providing opportunities for mothers to work for paid jobs. Participatory monitoring and evaluation system set up in community initiated projects is a very effective and efficient tool to ensure the implementation, efficiency and assume responsibility. So, the social benefits of the community initiated projects outweigh the economic cost.

Economic analysis of these projects required to looking at the opportunity costs and make conclusion. For example, hospital and school renovation project is about improving the study environment and staying environment in hospital. When heating system is not working in the schools, many students get cold, and then cold transfers into pneumonia or angina. Students have to take medications and stay at homes. Cost of medication for 10 days will be at least 30,000 MNT (according to the price of the basic antibiotics and other medications); and one parent stays at home with the child to take a care of the child. It means that household loses income from not working on these days. Assuming that income is at least 10,000 MNT per day of a working person, it means 100,000MNT for 10 days. So, in total 130,000 MNT would be required for 1 child to overcome pneumonia or angina. The investment in the heating system for the school requires about 4,500,000 MNT, and about 600 students and teachers will benefit. In this case the economic cost for the person is only 7500 MNT ( $4,500,000 / 600$ ). If the heating is not in place, the cost of treatment for person is 130,000 MNT which is about 16 times higher. Investments to community initiated projects are far more important and valuable for communities. Moreover the economic savings are greater than the economic cost itself.

The analysis of the social and economic costs suggests that healthy, skilled and knowledgeable people create a wealth, and the wealth generated by the people is greater than the costs involved.

## **1. INTRODUCTION**

The main objective of this study is to quantify costs and benefits of typical community initiated projects in comparison with similar facilities financed under the government line agency budgets, to draw relevant conclusions on the viability of the projects and provide recommendations for policy implication. In addition, I looked at the main reasons of why community health and education projects were the priority projects.

### **1.1 Background and context of the country**

Mongolia is one of the least populated countries (2.7 million people) in the world covering 1.565 million square kilometers of land (1.7 person per square km). The country is characterized by high mountains in the west, wide-open steppes in the east, the great Gobi desert in the south and taiga forests in the north. The climate is continental: long winters with frequent snow blizzards and dzud (natural disaster); springs with persistent winds; hot and dry summers with low precipitation; and short vegetation season. All these affect the living conditions of people and also pose challenges to both livestock husbandry and land farming. However, over the centuries, the Mongolians have adapted well to the four seasons and harsh climatic conditions.

Mongolians have a rich National culture and traditions enrich the lives of. The survival and development of the Mongolians cannot be construed separately from their native culture of a nomadic lifestyle of communities that inhabited the Mongolian land. Local customs and

traditions have influenced the norms of daily lives; and art, religion, aesthetic education and beliefs shape people's mindsets. During the socialism regime religion and some of traditions were regarded as feudalistic and outdated. However, the nomadic lifestyle, culture, etiquette and intellectual qualities have remained to this day. Prior 1990 Mongolia was one of a socialist country since 1921.

The introduction of democracy in the 1990s has a mixed impact on livelihoods of Mongols. For some people it expanded their choices, but for many it did not provide such desired opportunities. So, currently 29 per cent of total population lives in poverty. Poverty rate is much higher in rural part of Mongolia. Mongolia's informal sector provides jobs and income for a large number of Mongolians. Mongolia has undergone dramatic changes since the transition period. Foreign relations have expanded. Rural-urban disparities have deepened, significantly contributing to internal migration and emigration of the population. The sharp economic decline during the initial years of transition in the 1990s caused people to take necessary actions to prevent deterioration in their livelihoods.

In relation to political system of Mongolia, according to the new Constitution of 1990, the legislative, executive and judicial powers are distributed between State institutions: Presidency, the Parliament, the Government and the Supreme Court. The Parliament and the President are elected through free public democratic elections every 4 years. All these support development of a democratic society in Mongolia.

Last 20 years changes in climate due to global warming and also due to human activities natural disasters, desertification, soil erosion, the drying-up of springs and rivers, water scarcity, loss of biodiversity and air pollution issues on the rise and significantly affect Mongolia's ecosystems and people's life. Consequently, these forms of environmental degradation continue to adversely affect the livelihoods of rural populations. Agricultural area constitutes 73.9% of total territory of Mongolia and of which 96.3% is classified as pasture land. According to the national statistics around 40% of the population is herders.

## **1.2 Sustainable Livelihood Project II (SLP II)**

Mongolia is a country with a rich history and great potential. The country is recovering from economic downturns primarily caused by a sudden shift in economic strategies and approaches in early 1990s. The Mongolian government, together with the donor organizations is implementing the "Sustainable Livelihoods Program" (SLP) as part of its poverty reduction strategy. The current SLP II has 4 components:

- Pastoral Risk Management
- Local Initiatives Fund
- Micro-finance outreach
- Project management

The Local Initiatives Fund (LIF) finances community driven development initiatives.

Communities select, co-finance, execute, and monitor small infrastructure and social services

projects. And the projects implemented under this component were the subjects of the thesis assignment. See table below for the type of projects and benefits:

**Table 1: Project type and main benefits**

<b>Project type</b>	<b>Main Benefits</b>
Hospital and school renovation	Increases in number of students and patients.
Wells for potable water	Improved health, less diseases from the low water sanitation
Ambulances cars and motorbikes for soum doctors	Improved and expanded coverage for treatment and prevention campaigns such as vaccinations
Solar batteries for schools and hospitals	Running costs are low, patient care and student study conditions improved

## **2. METHODOLOGY**

The main objective of this study is to assess the small grant projects to support community initiatives from more than 300 sub provinces of Mongolia from economic and social points of view. The main aim is to demonstrate and prove to Government of Mongolia that investment to these projects are economically viable and efficient and therefore, worth of investment. In particular, to show and make more clear which projects are more efficient based on research and economic calculations. Investment in rural part of the country is very limited, in addition to it a mid and long term budget planning is not very clear. Therefore, it is of high importance to identify the priority projects that should be implemented in the first turn. The significance

of this thesis is to demonstrate that this methodology is the most appropriate methodology to calculate the economic value of the investment and also can be effectively used for the decision making, e.g. for identifying the priority projects.

These small grant projects were initiated by local community people themselves through a very participatory process, where the local community people needed to discuss, prioritize and select only 1-3 projects with the total budget not exceeding 8000 USD. Most of these projects aimed at improving the access and quality of health and educational services in sub-provinces. A cost-benefit analysis methodology was chosen for an economic analysis of the community projects. Methodologies for cost-benefit analysis of small scale social projects<sup>3</sup> were explored. It is noted that the cost benefit analysis of the community projects is concerned with determining the economic viability of a particular project. The process of cost-benefit analysis involves monetary calculations of initial expense vs. expected return.<sup>4</sup> Quantified cost-benefit analysis is most commonly carried out *before* a project is implemented to determine whether it will be sufficiently useful to implement. However, in this assignment a cost-benefit analysis was conducted for selected community projects which

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<sup>3</sup> Cost-benefit analysis theory. <http://encyclopedia.thefreedictionary.com/cost-benefit+analysis,website> accessed 25-9-2006. Kaytaz, M. A Cost-Benefit Analysis of Preschool Education in Turkey, Mother Child Education Foundation (ACEV), September 2004. Organisation of Economic Development and Cooperation, Development Assistance Committee, Glossary of Key Terms in Evaluation and Results Based Management. 20020, [www.oecd.org/dac/evaluation](http://www.oecd.org/dac/evaluation). Website accessed 09-10-2006.

World Bank, Project Performance Assessment Report, Highway Rehabilitation Project Vietnam 1, Rural Transport Project 1, 2004.

World Bank, Project Performance Assessment Report, Indonesia, Second Village Infrastructure Project (Loan 4100) and Kecamatan Development Project (Loan/Credit 4330/3453), March 21, 2006.

<sup>4</sup> Cost-benefit analysis theory. <http://encyclopedia.thefreedictionary.com/cost-benefit+analysis>, accessed 12-10-2006.



were *already* implemented in order to use it as main facts and justifications for further support from the Government on implementation of these types of projects. The cost benefit analysis in this case attempts to assess the costs and the benefits based on existing data.

In addition, review of project documents and official central, aimag, and soum economic and demographic statistics was in place. Statistical data analysis was primarily focused on a review of the selected few projects and other statistical data collected during field visits was integrated where available.

Visits to project sites were combined with interviews with local authorities, school, hospital staff, well and public bath house operators, and local citizens and their representatives.

## **2.1 Selection of the projects**

From hundreds of the projects short listed 160 projects which were considered as one of important to assess. From that 20 projects were selected based on the following criteria:

- Geographical location
- Number of projects implemented in that soums
- Local partners' capacity
- Population of the soums

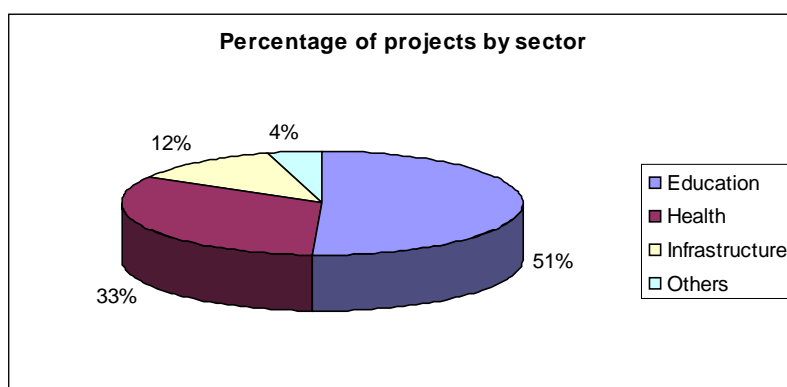
Practical aspects like geographical proximity to visit as many of the projects were considered too. All the selected projects reports were reviewed and visit of 20 projects was in place.

Time period of these projects were 3-5 months in duration.

Table of projects:

Name of aimag	Geographical location	Partner's capacity
Bayan-Ulgii	Western part	High
Uvurkhangai	Central west part	Good
Tuv	Central	Good
Khentii	Eastern part	High
Dornod	Far eastern part	Good

**Figure 1: Percentage of projects by sector**



The 20 selected projects were in Bayan-Ulgii, Uvurkhangai, Dornod, Tuv, and Khentii Aimags. Project funding ranged from a low of 468,600 to 31,844,527 MNT. Soum population in the selected locations ranged from 1,528 to 28,248 people.

The number of direct beneficiaries reported in projects was between 9 (Bayantumen, Dornod, hospital) and 6062 (Jargalant, Tuv aimag, hospital).<sup>5</sup> The cost per direct beneficiary ranged from 185 MNT per beneficiary (Jargalant, Tuv aimag, bridge) to 165,820 MNT beneficiaries

<sup>5</sup> Please note that there were some discrepancies between soums in their understanding of how to count the number of direct and indirect beneficiaries.

(Khairkhandulaan Uvurkhangai, kindergarten). The percentage of poor among the beneficiaries was between 0.95% for a dormitory and 0.46% for a bridge (both in Jargalant, Tuv) to 81,6% for a dormitory in Nariinteel, Uvurkhangai.

## **2.2 Analysis of the projects**

A combination of economic and social costs and benefits analysis was done. The selection of types of *costs* was straightforward and is based on actual implementation costs. Other costs such as maintenance and running costs, social and environmental costs were also considered where available. In addition, opportunity costs were considered.

The selection of potential *benefits* was based on:

1. an analysis of interviews with local authorities, local public sector social services staff, and local citizens on benefits from the projects.
2. a review of typical indicators for health and education projects in Mongolia
3. an analytical assessment of potential benefits of each type of project.

In general, the social benefits were extremely difficult to quantify, and it required a lot of time.

The process of a cost-benefit analysis included several steps:

1. quantification of costs in real prices including opportunity costs;
2. quantification of benefits in real prices;
3. Costs and benefits discounted to express them in the value of the initial investment year.

At discount rate 13% per year discounted value of costs and benefits is PVc and PVb.

4. Determination of the cost/benefit ratio taking time and other considerations into account;

5. Or identification of costs (c) and benefits (b) at “Net Present Values” (NPV) as follows:

$$NPV_c - NPV_b$$

6. Or calculation of Internal Rate of Return.

**Table 2: Costs and benefits for school and kindergarten renovation**

Sample Costs	Sample Benefits
<p>Construction (investment cost)</p> <p>Land acquisition cost: The land acquisition cost will be taken in consideration with building small to medium sized hotels (10-25 people) and shops. Land will be valued in shadow prices. If the land was not utilized economically without the project, it will have zero value with the project. But in places where there are not much economic activities, for example, tourism, mining the land acquisition is very little or zero.</p> <p>Schools running costs are provided from the Government based on the</p>	<p>Increased number of graduated children and their increased income.</p> <p>Employment of workers for implementing project has 2 sides: one side is that employment of workers regarded as social benefits because it generates employment and reduces poverty, the other side in terms of the economic analysis it is an operating cost. The main objective of the school and dormitory renovation projects is to improve and create more favorable conditions for study of school and kindergarten children.</p> <p>Decreased drop-out rates</p> <p>The Government of Mongolia is committed to achieving the Millennium Development Goals, and one of them is “Ensuring universal access to basic education for all”. Under this objective</p>

<p>number of students. And if number of students' increases, the fund from the government increases too.</p> <p>Increased number of teachers. The salary of the teachers is provided by the central Government.</p> <p>This situation will be changed in 2013 according to new integrated budget law.</p>	<p>government allocated the budget, and if the drop outs will decreased, the budget for that will be decreased and can be used for other purposes of that school. Decreased illness: numbers of students attending schools are higher, thus decreases the opportunity cost and increase the number of graduates, and therefore can be counted as benefits.</p> <p>Cancellation of classes: specially during the winter</p>
<p>Maintenance cost and running costs: Employment of additional workers e.g. cleaning people, watchman,</p>	<p>time children get sick, and if the number of sick children is high, classes have to cancel as the cold is very infectious. But teachers have to work and assigned by different tasks, and heating has go</p>
<p>Health problems of children caused by poor construction condition. For example poor quality of wall paints causes allergy. Then children have to be treated and costs associated with purchasing the medicines, or taking consultancy from the specialized doctors involves fee, transportation cost if person is required to go to other medical centers.</p>	<p>anyway because if the heating system will be closed, it get frozen and will be broken. Even classes will be cancelled salary for teachers and heating costs will be in place.</p> <p>Savings from more efficient system, heating, electricity, etc.</p>

<p>People's negative perception, if quality is poor.</p> <p>It means to redo it again. People have to work without pay but have to pay better quality materials.</p>	
<p>Environmental harm can be calculated through ecological assessment methodology.</p>	

### 3. PERLIMINARY FINDINGS FROM DATA

The average cost per direct beneficiary of education projects in the sample is 39,972 MNT.

Due to high variations in the number of beneficiaries in health projects, the cost per direct beneficiary also varies from 168 MNT to 134,336MNT. The average is 33,517MNT. The cost per direct beneficiary is 10,210MNT for infrastructure projects. There are some constructions issues to be addressed. *See annex 1.*

The average capacity increase in health (1252 citizens) and infrastructure (1223 citizens) projects is very high as compared to education (31 students). In the case of health projects, the introduction of medical transportation and hospital diagnosis equipment means that the increase in capacity includes all bag and soum citizens who benefit from the project.

The average number of people who participated in proposing a project in the education category was 45, for health it was 30, and for the category “other” it was 20. The average number of people who proposed infrastructure (wells, roads, bridges, etc.) projects is 248.

The higher number of initiators for infrastructure tends to support the view that infrastructure projects are perceived as having more direct and short term benefits. Interviewees noted the importance of projects with high evidence of direct and short term benefits.

As compared to similar government civil works, the duration from project submission to approval and implementation of construction or procurement is much shorter for LIF/LDF.

The average duration for SLP projects ranges from 197 days to 277 days, depending on the

location, while for government projects the duration is at least 2 years. *See annex 2.*

The following comparisons were made:

- Average cost ratio by project category.
- Average number of beneficiaries by project category.
- Average cost per direct beneficiary by project category.
- Average number of bag citizens proposed the project by category.
- Average Length of Time from Sub-Project Proposal to Completion of Civil work by Locations

### **3.1 Average Cost Ratio by Project Category**

The purpose of calculating the average cost ratio was to determine whether the initial estimated cost of the projects matches the actual cost and the difference between them. Thus, it provides insight into how efficient the cost estimation and implementation of the projects were.

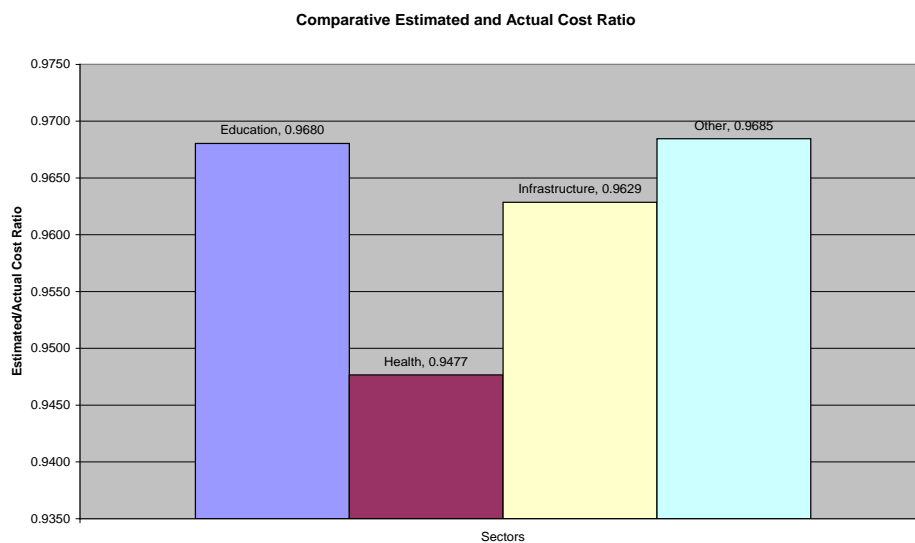
The cost ratio calculation came out either as 1.0 or close to 1.0 and it implies that the estimated costs was close to the actual costs. Civil works valued under US\$ 5,000 and are implemented through local participation. In the case of larger civil works, the difference between bid win cost and actual cost is minor with very few exceptions (such as the public bath renovation in Nariinteel, Uvurkhangai aimag).

Cost ratios averages range is 0.97 for school, kindergarten and dormitory renovations, supply



of furniture, and materials to create a friendly environment for better study. The ratio was 0.95 for hospital renovation, supply of transportation and hospital equipment. The ratio for renovation of central heating, construction and improvement of bridges, public baths, roads and dams was 0.96 and for renovation of cultural centers and TV station repair it was 0.97.

**Figure 2: Estimated and actual cost ratio**



### 3.2 Average Number of Beneficiaries by Project Category

The average number of beneficiaries in the education sector appears comparatively low as compared to those in the health, infrastructure, and other categories. Schools, kindergartens, and dormitory direct beneficiaries are composed of students and children who are studying and living there; teachers and other personnel, who are employed in the school, kindergarten, or dormitory. The indirect beneficiaries are the parents and families of children; employees' families; and suppliers of food, fire-wood or coal and other materials needed for daily activities; or those who indirectly benefit from the institutions in other ways.

The average number of beneficiaries in the education sector as a whole was 291 people. For primary and secondary school projects the average was 592 people, for kindergartens 222 people, and dormitories 119 people.

Considering the scope and extensive reach of health, infrastructure, and cultural activity projects a greater number of beneficiaries is identified. It is important to mention that the number of beneficiaries in health projects varies greatly, from 120 to 5,663 people.

The average number of beneficiaries of the health project is 1,511 people, for infrastructure 1,554, and for other projects 1,381 people.

### **3.3 Average Capacity Increase by Relevant Category**

One way to determine cost efficiency is to assess the average increase in capacity to serve or assist citizens as a result of the projects.

The education sector average capacity increase of school, kindergarten, and dormitory was 31 students. The increase was either due to a structural extension, renovation of heating system that in previously abandoned rooms, or due to availability of more tables, beds, beds sheets and mats or kitchen tables in schools and dormitories.

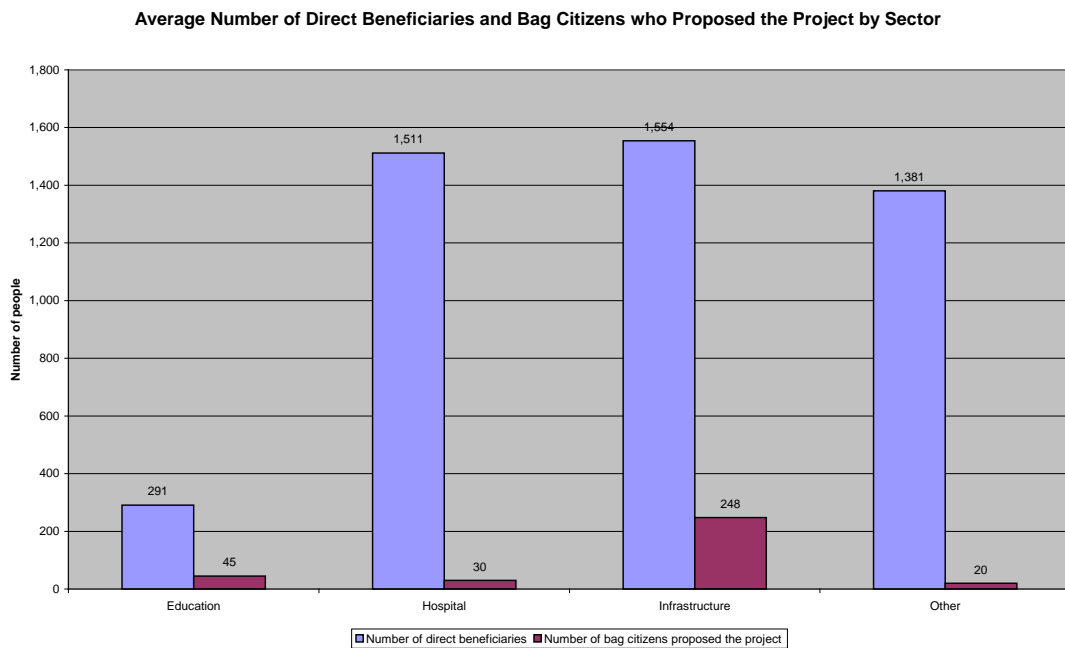
The capacity increase in health and infrastructure appears quite high as compared to education. The average capacity increase of 1252 staff for health projects was identified. The introduction of medical transportation and hospital diagnosis equipment means that the increase in capacity includes all bag and soum citizens who benefit from the project.

The average increase in capacity for infrastructure is 1223. The increase is the result of increased access through construction of bridges, roads, dams.

### 3.4 Average Number of Bag Citizens Who Proposed the Project by Category

An analysis of the number of people who signed to propose a project can provide some insight into the level of participation. There is no major difference between project category types in the number of citizens who proposed the projects with the exception of infrastructure. The average number of people who initiated projects in the education category was 45, for health it was 30, and for the category “other” it was 20. The average number of people who proposed the projects is 248 in the infrastructure category.

**Figure 3: Average number of beneficiaries and bag citizens who proposed the project by sector**



Some interesting interpretations can be drawn from these figures:

- citizens tend to be more interested in projects for which they see direct and short term benefit.
- The higher number of initiators for infrastructure tends to support this idea since such infra-structure projects are more often perceived as having direct and short term benefits.
- there were more initiators for one of the categories at all. The greater number of initiators for infrastructure indicates that it is possible to increase participation in decision making.

### **3.5 Average Length of Time from Sub-Project Proposal to Completion of Civil work by Locations**

The analysis aims to determine the time period from project proposal to complete implementation by aimag.

The construction and renovation projects, including civil work activities, in 2 soums of Khentii aimag required an average of 197 days from submission to completion of civil works.

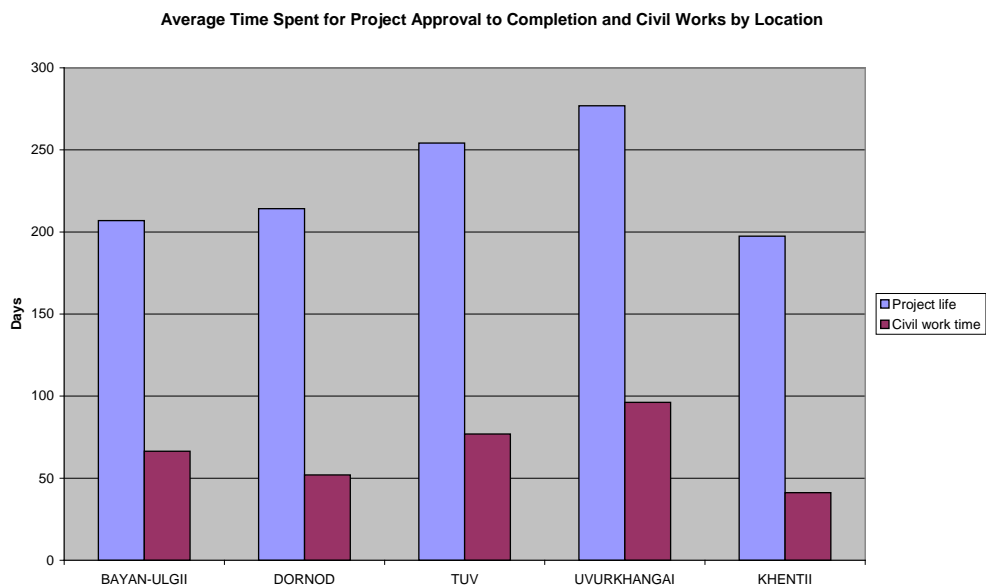
The actual civil works themselves were carried out in an average of 41 days.

The results for 3 soums in Bayan-Ulgii were an average of 207 days for the whole project process and 66 days for only the completion of civil work. The results for 3 soums in Dornod aimag were an average of 214 days for the whole project process and 52 days for only the completion of civil work. The results for 6 soums in Tuv aimag were an average of 254 days

for the whole project process and 77 days for only the completion of civil work. The results for 3 soums in Uvurkhangai aimag were an average of 277 days for the whole sub-project process and 96 days for only the completion of civil work (Figure 4).

As compared to government civil works the duration from project submission to approval and implementation of these community-initiated projects is much shorter. The duration of Government projects takes at least 2 and more years. The duration of project and civil works depends on many factors, such as size and complexity of the work, infrastructure and distance of the locations, availability of contractors and construction materials locally, and the season when sub-project approved and funds disbursed.

**Figure 4: Average time spent for project approval to completion by location**



## 4. CASE STUDIES

### 4.1 Economic Efficiency of Health Project

*Project:* Ambulance car for soum hospital

(2005) – 7,116,600 MNT (UAZ-469)

*Location:* Altantsugts soum of Bayan-Ulgii

aimag, 43km from aimag center



*Population:* 3,460ppl (2004), soum center – 967ppl (28%), rural – 2,493(72%), 789

households, 4 bags

*Economic indicator:* Inflation rate (last 5yrs av.) 7.9%, 189 (24%) poor households, 1126

(30%) economic active people, 434 unemployed, 97 female-headed households

*Health indicators:* 69 births in 2004, 23 deaths in 2004, 2 infant mortality cases/year average,

17 infant mortality cases since 2000, 6 infant mortality cases in 24 hours, 95 children under 2

yrs old., 8 contagious diseases, disabled:51

*Hospital service:* 1 soum hospital, 1850 check-ups/year, 3453 patient\*beds/year

*Existing (old) car condition:* Depreciated, 1 old jeep – mileage 280,000 km, procured in

October 1998

*Service per year:* 32,000 km/year, 300 emergency calls, average 75km in winter per call,

average 80 km in summer per call

*Running cost (Hospital responsibility):* 65,000 MNT- Tire replacement every year, 780MNT/ liter A-76 gasoline, 100,000 other costs (oil etc.)

*Estimated time life of ambulance:* 240,000km (MoH standard)/32,000 km = about 7 years.

Assumptions:

1. Considering in case of no immunization the exposure to disease is 3% of people, and economic cost of cure of the disease is 200,000 MNT per person
2. Considering 300 emergency calls are not life threatening.
3. Considering that not all health services are to reduce maternal and infant mortality.
4. Improved working condition and satisfaction of som emergency doctor and employment of driver are neglected.
5. Considering neglected effect of early emergency treatment on preventing a worsening of the patients' health condition.
6. Neglecting occurrence of accidents of ambulance vehicle.
7. Neglecting harmful effect of vehicle to environment, such as carbon dioxide gas emission.

NPV method:  $NVP = FV(1/(1+r))^1 + FV(1/(1+r))^2 + \dots FV((1/1+r))^t$

Internal Rate of return (IRR) .

IRR method=  $B_1/(1+r)^1 + B_2/(1+r)^2 \dots B_n/(1+r)^n = C_1/(1+r)^1 + C_2/(1+r)^2 + \dots C_n/(1+r)^n$

B and C are annual stream of benefits and costs, respectively.

n is defined for 7 years since the major investment is the automobile

Direct Costs (MNT)		Direct Benefits (MNT)	
Investment (from Project)	7,116,600	Savings from cure of diseases due to immunization	Immunization for 95 children / year. $95 \times 3\% \times 200,000 = 570,000$ /year
Maintenance (from Budget) /year	165,000 (tire , oil, etc)	Saved transportation cost emergency call patients to visit aimag center	300 emergency calls and respective services / year (Some emergency calls might include births also) $300 \text{ calls} \times 80 \text{ km/average} \times 250\text{MNT/km} = 6,000,000$ MNT/year
Running cost (from Budget) /year	4,864,000 (32,000*20litre /100km*760)	Saved time to visit soum hospital by mothers giving birth	Saved soum center visit time to give birth 70 births/average *72% (local citizens)*80 km/average * 250 MNT/km = 1,000,000 MNT/year
		Savings to cure serious illnesses at initial stage	n/a, see Assumption 5
		Information distribution to prevent diseases	Savings in spent money for treatment due to information distribution to prevent diseases. Assumption: Information distribution for 600 persons a year and will prevent diseases of 300 many persons a year.
Indirect Costs		Indirect Benefits	
Harm to environment	n/a, see Assumption 7	Savings from decreased maternal mortality	n/a, see Assumption 3
Accidental cost * Probability	n/a, see Assumption 6	Savings from decreased infant mortality	n/a, see Assumption 3
Opportunity cost (saving account interest income)	$(F \times (1+0.006))^7 - F = 4,225,222$ MNT.	Savings from reduced mortality of economic active persons	n/a, see Assumption 3
		Improved working condition of health personnel	n/a, see Assumption 4



Year	Cash flow	Present value
0	(7,116,600.00)	(7,116,600)
1	2,541,000	2,248,673
2	2,541,000	1,989,976
3	2,541,000	1,761,040
4	2,541,000	1,558,443
5	2,541,000	1,379,153
6	2,541,000	1,220,489
7	(1,684,222)	(715,896)
NPV		2,325,278
IRR		25%
	Interest rate	13.00%

Total yearly cost: 5,029,000 MNT in constant or real value

Total yearly benefit: 7,570,000 MNT in constant or real value

Net benefit: 2,541,000 MNT

Internal Rate of Return = 25%

Since the MDBs use 10%-12% as the opportunity cost of capital, and the IRR of 25% is greater than the opportunity cost of capital, the project is economically viable and worth investing in it .

#### **4.2 Economic Efficiency of Education Project: Improving school dormitory heating system**

*Project:* Renovation of heating system

*Investment Cost of the project:* T 4,430,000

*Location:* Altantsugts soum of Bayan-Ulgii aimag

*Population:* 3,460ppl (2004), soum center – 967ppl (28%), rural – 2,493(72%), 789

households, 4 bags (smallest administrative unit in rural part of Mongolia)

*Economic indicator:* Inflation rate (last 5yrs av.) 7.9%, 189 (24%) poor households

*Education indicators:* 1 soum school, 1 dormitory at soum center, 645 students (337 girls) in 22 classrooms (2005), 35 teachers, including 1 dormitory employee, 1 doctor, 1 accountant, 1 librarian and other 13 staff. Academic calendar is from September 1 to May 31 (9 full months). Completion through Full secondary school education requires attendance of 11 years. This is a full secondary school, meaning it requires 11 years for completion.

*Dormitory:* Built in 1985 with 24 rooms, kitchen and dining room in 850 square meters no major repair work since then. Because the central heating system cannot supply heat due to technical problems, the dormitory cannot operate in full capacity and only 10-16 students are accommodated per room. Now stoves are used in dormitories, and the dormitory can accommodate 30 more students if the heating system is repaired.

Assumptions:

1. Considering average dormitory service year per student is 11 years. Considering no big repair and extension work will be done in coming 11 years.
2. Considering the food cost per month per student includes additional salaries of dormitory teacher and other personnel added as part of the project only. Neglecting any possibility of damages due to poor quality of work

3. Considering improved sanitation, heating and omitted travel time to school and back to home can prevent from 10 % of total students possibility for catching diseases. The diseases would be in major due to cold and not serious (sore throat, flu, cough etc.).
4. Considering the cost of the student at home is 100,000 MNT/year.
5. Considering improved results on exams, increased student time for self-study, saved time of travel to the school due to improved dormitory condition would result in decreased drop-out rate for 30 children. Considering economically active average duration (age) for men is 25 years, and women 20 years, the average duration (year) of 23 years are taken in the calculations as period of benefits.

1. NPV method:  $NVP = FV(1/(1+r))^1 + FV(1/(1+r))^2 + \dots + FV((1/10r))^t$

2. Internal Rate of Return (IRR)

IRR method=  $B_1/(1+r)^1 + B_2/(1+r)^2 + \dots + B_n/(1+r)^n = C_1/(1+r)^1 + C_2/(1+r)^2 + \dots + C_n/(1+r)^n$

B and C are annual stream of benefits and costs, respectively.

Direct costs		Direct benefits	
Investment (production cost)	MNT 4,430,000 once. <i>Assumption 1.</i>	Cost savings from reduced student illness (due to a decrease of number of students in a room, improved efficient heating and decrease of diseases during the travel time)	11 cases (10%) * 30,000 MNT/case (treatment) = MNT330,000 / year <i>Assumption 6.</i>
Employment of workers implementing project.	MNT 820,000 once	Saved parents' cost per dormitory student	MNT 100,000 / year * 30 students = MNT 3,000,000 <i>Assumption 7.</i>

Maintenance costs: Structure	MNT 300,000 (minor repair work) / year <i>Assumption 2.</i>	Cost savings of travel of student to school and back to home	Students going back to home 2-5 times in a year. And Parents also visit their children to dormitory. $2.5(\text{times}) * 30(\text{students}) * 20.000\text{MNT}$ (average expenditure per student)= 1.500.000MNT
Food cost per dormitory student	MNT 110,950 / year * 30 students = MNT 3,328,500 <i>Assumption 3.</i>		

Indirect costs		Indirect benefits	
Health damages to students in the dormitory due to bad construction quality (broken parts, bad heat isolation)	n/a. <i>Assumption 4.</i>	Future income increase of 30 students attending the full secondary school. Their income increase will last for 25 years for men and 20 years for women, as shown in assumption 5. (comparing income level of full secondary school graduate vs. uncompleted secondary school graduate) <i>Assumption 8.</i>	Government average: MNT 105,400/month Ordinary unskilled worker average: MNT 77,100/month Difference: MNT 28,300/ month * 12 month * 30 students = 10,188,000/ year
Opportunity costs	n/a. <i>Assumption 5.</i>	Decreased number of children in child labor.	n/a see <i>Assumption 5</i>

Net investment: MNT -3,908,500

Net benefit per year from 1<sup>st</sup> to 11<sup>th</sup> years: +MNT 681,500

Net benefit per year from 12<sup>th</sup> to 34<sup>th</sup> years: +MNT 10,188,000

Year	Cash flow	Present value
0	(3,908,500.00)	(3,908,500)
1	681,500	603,097
2	681,500	533,714
12	681,500	157,226
13	681,500	139,138
14	10,188,000	1,840,733
15	10,188,000	1,628,967
36	10,188,000	125,102
NPV		15,301,405
IRR		28%

Interest rate 13.00%

Internal Rate of Return: 28%

The IRR of 28% is greater than the opportunity cost of capital, the project is economically viable and worth investing in it.

#### 4.3 Economic Efficiency of Potable Water Well Project: Repair of potable water well



*Project:* Renovation of water well (2006)

*Investment Cost of the project:* 5,180,333 MNT

*Location:* Jargalkhaan soum of Khentii aimag

*Population:* 2,043 ppl (2005), soum center – 633 (28%) in 144 households, rural – 1,410(72%)

*Water well in soum center bag:* No repair since 1999, when it was built. The pipe and water pumping system were broken which need to be replaced. All of the soum population uses this water well. The laboratory analysis showed a good quality of water.

Assumptions:

1. Considering average well service year is 10 years.
2. Considering no big repair and extension work will be done in coming 10 years.
3. Neglecting any possibility of mass poisoning and hygienic problems.
4. Considering 60% of soum center population is using the well and daily water usage per capita is 5liters.
5. Hourly salary rate is MNT 240 (based on minimum monthly salary is around MNT45,000). Only 1/3 of economically active people go to buy water and once in three days.
6. Neglecting any effect on human health caused by poor water.

1. NPV method:  $NVP = FV(1/(1+r))^1 + FV(1/(1+r))^2 + \dots FV((1/10r))^t$

2. Internal Rate of Return (IRR)

$$\text{IRR method} = \frac{B_1}{(1+r)^1} + \frac{B_2}{(1+r)^2} + \dots + \frac{B_n}{(1+r)^n} = \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \dots + \frac{C_n}{(1+r)^n}$$

B and C are annual stream of benefits and costs, respectively.

<b>Direct costs</b>		<b>Direct social benefits</b>	
Investment (production cost)	MNT 5,180,333 once. <i>Assumption 1.</i>	Additional water produced due to the project.	$(60\% * 633 \text{ ppl} * 5\text{ltr/day} * 365 \text{ days / year} * \text{MNT } 2/\text{ltr}) = \text{MNT } 1,386,270$ <i>Assumption 5.</i>
Maintenance costs	MNT 60,000 (minor repair work) / year <i>Assumption 2.</i>	Time saved due to the distance of new well (Economic savings due to readily available water source for personal and business purposes).	$1/3 \text{ hr (time spent to go 500 m extra)} * \text{MNT } 240 / \text{hr (min.wage)} * 60\% * 663 \text{ ppl} * 1/3 \text{ economically active citizens (2/3 are children or pensioners)} * 121 \text{ times/ year (once in 3 days)} = \text{MNT } 1,226,130 / \text{year}$ <i>Assumption 6.</i>
Running costs (Calculate: average cost per user per year)	MNT 20,000/month, (including electricity and other costs) * 12 months = MNT 240,000 / year + 549,091 MNT employment cost = 789,091/year		
<b>Indirect costs</b>		<b>Indirect benefits</b>	
Medical cost for hygiene problem due to well not maintained.	n/a. <i>Assumption 3.</i>	Savings from reduced morbidity rates.	n/a. <i>Assumption 7.</i>
Opportunity costs	n/a. <i>Assumption 4.</i>	Savings from reduced mortality rate of economically active citizens.	n/a. <i>Assumption 7.</i>

Year	Cash flow	Present value
0	(5,180,333)	(5,180,333)
1	1,763,309	1,560,450
2	1,763,309	1,380,930
3	1,763,309	1,222,062
4	1,763,309	1,081,470
5	1,763,309	957,053
6	1,763,309	846,950
7	1,763,309	749,513
8	1,763,309	663,286
9	1,763,309	586,979
10	1,763,309	519,450
NPV		4,387,810.96
IRR		31.9%

Interest rate 13%

Net investment: MNT - 5,180,333

Net benefit per year: MNT 1,763,309

Internal Rate of Return of the project: 32 %

IRR of 32% demonstrates that the project is economically viable and worth investing in it.

#### 4.4 Project with Low Economic Efficiency Ratio

Public bath houses as currently implemented tend to have a low user rate and high running cost. Efficiency of public baths is questionable in monetary terms but in terms of health and



sanitation it fulfills its objective. Children pay 500 MNT and adults

800 MNT. Most users are dormitory children.

*Project:* Construction of public bath (2005)

*Cost of the project:* T 6,276,484



*Location:* Delgerkhaan soum of Khentii aimag

*Population:* 2,339ppl (2005), soum center – 500

*Public bath in soum center bag:* Soum had no public bath for the last 20 years and 500 people of soum either go to the river or nearby lake, or visit tourist Spa close to soum center.

Assumptions:

1. Considering average public bath service year is 10 years.
2. Considering no big repair and extension work will be done in coming 10 years.
3. Neglecting any possibility of hygienic problems.
4. Considering 60% of soum center population is using the well and daily water usage per capita is 20 liters.
5. Salary rate is 240 MNT (based on minimum monthly salary is MNT 145,000). Only 1/3 of economically active people go to buy water and once in three days.
6. Neglecting any effect on human health caused by poor water.

1. NPV method:  $NVP = FV(1/(1+r))^1 + FV(1/(1+r))^2 + \dots FV((1/10r))^t$

2. Considering uncertainty of discount rate, Internal Rate of Return (IRR) is used.

Direct costs		Direct benefits	
Investment (production cost)	MNT 6,276,489 once. Assumption 1.	Total service output or sale value	(average 25 ppl/week * 52 weeks/year * MNT 650 / ppl (MNT 800 per adult, MNT 500 per child) = MNT 845,000 / year

Maintenance costs	MNT 60,000 (minor repair work) / year <i>Assumption 2.</i>	Savings of personal heating water and having bath at home <i>See Assumption 4</i>	290 MNT (MNT 40 (water 40 liter) + MNT 150 (4 kg wood or coal) + MNT 100 (other)) * 25 ppl/week * 52 weeks/year = MNT 377,000 year
Running costs (Calculate: average cost per user per year + costs of employees and rental costs)	290 MNT (MNT 40 (water 40 liter) + MNT 150 (5 kg wood or coal) + MNT 100 (electricity, soap, shampoo etc.)) * 25 ppl/week, 52 weeks/year = MNT 377,000 + MNT 490,117 (Employment of workers) = 867,117		

Indirect costs		Indirect benefits	
Harmful effect to environment (Unsafe disposal of used water)	n/a. <i>Assumption 3.</i>	Savings from reduced morbidity rates.	n/a. <i>Assumption 7.</i>
Opportunity costs	n/a. <i>Assumption 4.</i>	Savings from reduced mortality rate of economically active citizens.	n/a. <i>Assumption 5.</i>

Year	Cash flow	Present value
0	(6,276,484.)	(6,276,484)
1	294,883	260,958
2	294,883	230,937
3	294,883	204,369
4	294,883	180,857
5	294,883	160,051
6	294,883	141,638
7	294,883	125,343
8	294,883	110,923
9	294,883	98,162
10	294,883	86,869

NPV (4,676,377.05)  
IRR -11.8%  
Interest rate 13%

Net investment: *MNT* -6,276,484

Net benefit per year: *MNT* 477,800

Internal Rate of Return (negative): -11.8 %

## 5. CONCLUSIONS AND RECOMMENDATIONS

The current cost benefits analysis and also focus group discussions with community people clearly demonstrated that in order to bring inclusive economic growth of the country it is essential to ensure accessibility and quality of the basic health and education services to all citizens. And only when people are in a good health and possess required level of education and skills, then economic growth and poverty reduction will be in place through employment in private and public sectors and self-employment. Of course there other factors as well important, for example enabling legal framework, good taxation policies, and accessibility to concessional and long term loans etc.

Majority of community initiated projects were in a health and education, therefore it clearly says as the main pre-requisite conditions for human development are health and education. And only then we can talk about economic development. And therefore, investments to increase social services are far more important and valuable than the economic cost itself. Because skilled and knowledge people create wealth, and the wealth generated by

the people are greater than the costs involved. This is proved by the economic analysis of the case studies contained in this thesis. The internal rates of return of these community development projects were consistently higher than the opportunity cost of capital (10-12%) as estimated by the multilateral development banks like the World Bank. Therefore, the Government of Mongolia should allocate a greater amount of resources to these community development projects in the future.

Recent 5 years, number of economic and employment opportunities are on the rise due to mining sector boom. However there are still many Mongolians, especially from rural part, who cannot take advantage of it due to less of skills, experience and knowledge. And here is a very clear link of the community projects and market demand. The priorities needs of the community were to improve the access and quality of health and education services assuming that when people are in a good health and possess knowledge and skills they can be competitive and the work they do either in public or private sector will lead to a greater inclusive economic growth. Therefore, the main conclusion draws as following: to make an inclusive economic growth and to reduce the poverty it is important to increase access and quality in health and education for all, women and men, so people have abilities to contribute to economic growth and have abilities to grasp opportunities presented by the economy.

**Policy implication:** It is recommended to re-look at health and education policies to better access by introducing more creative ways of reaching out the herders and improve the quality

of their lives through innovation in technologies and to increase budget allocation for health and education services.

The quantitative and especially the qualitative components of the cost-benefit analysis provide a number of interesting insights into key aspects influencing the economic rate of return. Existing projects have a very positive influence on attitudes towards future projects.

As people start to see the benefits of the projects, local authorities, public service staff, and local citizens would be more interested in improving the quality of projects in the future. This, in turn, can influence their level of participation in cost sharing, maintenance, and protection of the buildings, materials, and equipment.

One of the major impediments to cost efficiency was the bidding process. The process is often perceived as excessively complex and cause delay in realizing the project implementation and outcome and therefore the benefits. Cost efficiency is influenced by other several factors and these need to be considered in the future to enhance the rate of their return:

1. The tendering process needs to be more streamlined and easy to understand for reasons of transparency. Public transparency will improve future selection, implementation, and maintenance of quality projects.
2. Mobilization of the population needs to increase the entire project selection and implementation process.

3. Capacity strengthening is needed for all stakeholders in communities to improve their ability to contribute to the projects
4. An early role of certified inspectors in the construction process is needed to help ensure professional quality control.
5. The roles and responsibilities of all stakeholders need to be clarified and publicized to improve the organization and quality of the projects.

From the social aspects all community initiated and implemented projects utilized participatory monitoring and evaluation system (PM&E) and the following steps were taken to ensure the cost efficiency and effectiveness of the projects:

1. Identification of “Who should, and wants to be involved”
2. Defining the priorities using the ranking method
3. Identifying the indicators for monitoring and evaluation
4. Agree on method, responsibilities and timing of information collection
5. Data collection and analysis
6. Reporting on findings and actions to be taken

Looking at the way of how the community projects were selected (by prioritizing the issues in the citizen’s meeting), approval process and then participatory monitoring during the execution of the project helped the community to enhance existing skills and enrich their knowledge; establish long lasting good relation of the community, local Government

and private sector. All these projects added a great value for creating a social capital in the community. Participatory monitoring and evaluation of the community initiated projects enabled information gathering, learning and analysis by local people. It was obvious that accountability is increased because of applying the participatory monitoring and evaluation in all community initiated projects. The PM&E promoted generating knowledge; problem-solving; releasing creativity; using multiple and innovative methods; learning, negotiating. All these aspects can yield much higher economic returns.

## **APPENDICES**



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### **ANNEX 1: Construction Quality Issues**

1. An early role of certified inspectors in monitoring the construction process is needed to help ensure professional quality control. Funding needs to be made available for this purpose since the government inspection agency does not have a budget for this purpose.
2. At least 2 inspections should be engaged in construction projects to inspect during construction and completion time to ensure the quality
3. Government inspectors should coordinate with the 3 community people and increase their skills on assessing technical quality.
4. A sufficient amount of finance, time should be invested to ensure quality work. This should be supported by capacity building for local authorities and other stakeholders.
5. Coordination with other donors should be encouraged on the capacity strengthening of local construction workers.
6. The bidding process is under the responsibility of the soum authorities who often do not have any background in the construction business.
7. It is important to ensure that the local contribution is paid prior to the commencement of the work by contractors.

8. Roofing should be a priority when renovating old buildings. Currently funds are spent on walls and other renovation which is easily damaged if the roof is not in good condition.

**ANNEX 2: Comparison of Community Projects and Government Civil Works Projects**

<b>Projects</b>	<b>SLP II</b>	<b>Government</b>
Size	\$ 8,000 US for LIF, (9,344,000 MNT)  \$ 4,000US for LDF (4,672,000 MNT)	Small: \$ 8,561 US (10 million MNT.)  Large: \$ 42,808- 171,232 US (50 – 200 million MNT.)
Initiators	Local bag people	Local administration
Approval	Soum/aimag secretariat	Min. of Fin. & Line ministries
Proposal duration	Within 1 year	More than 2 years
Bidding committee	Soum/aimag secretariat	Line ministry
Bid criteria	<ul style="list-style-type: none"> <li>-Local communities are entitled to participate for work &lt;5,000 US\$</li> <li>- Legal entity with civil work license</li> <li>- Quality consideration of previous work</li> </ul>	<ul style="list-style-type: none"> <li>- Legal entity with civil work license</li> <li>- Bid participation of 6 times, no more than 3 bid wins in a year</li> <li>- More than 500 mln.MNT. work previous year</li> </ul>
Bid process	<ul style="list-style-type: none"> <li>- min.3 bidder</li> <li>- lowest cost</li> </ul>	<ul style="list-style-type: none"> <li>- min. 3 bidder</li> <li>- lowest cost</li> </ul>
Change drawings & budget estimates	<ol style="list-style-type: none"> <li>1. No change drawings</li> <li>2. Budget estimates by experts</li> </ol>	<ol style="list-style-type: none"> <li>3. Drawings by licensed company</li> <li>4. Budget estimates by experts</li> </ol>
Guarantee	Usually given for 1 year	Contract to contract basis

Contractors	<ul style="list-style-type: none"> <li>- Local participation &lt;5,000 US\$</li> <li>- Aimag &amp; UB companies</li> </ul>	<ol style="list-style-type: none"> <li>1. Mostly UB companies</li> <li>2. Rarely aimag companies</li> </ol>
Monitoring	Regular check (Soum secretaries, evaluators, beneficiaries)	Final inspection (Aimag inspection agency only)
Payment	<ol style="list-style-type: none"> <li>1. 70% advance</li> <li>2. 20% after completion</li> </ol>	<ol style="list-style-type: none"> <li>3. No advance</li> <li>4. 100% after completion</li> </ol>

## **REFERENCE**

## REFERENCE

1. Gianakakos, Peter, and William Poweska, trans. *Studies of Transformation in Eastern Europe*. Buffalo, N.Y.: Touser and Blinken, 1991.
2. Tortelli, Anthony B., ed. *Sociology Approaching the Twenty-first Century*. Los Angeles: Peter and Sons, 1991
3. Santos, Manuel, comp. *The Collected Works of Henrietta Kahn*. Boston: I. J. Filbert, 1989.
4. Mill, John Stuart. *Autobiography and Literary Essays*. Edited by John M. Robinson and Jack Stillinger. Toronto: University of Toronto Press, 1980.
5. Harris, Mark. Introduction to *With the Procession*, by Henry B. Fuller. Chicago: University of Chicago Press, 1986.
6. International Monetary Fund. *Surveys of African Economies*. vol. 7, *Algeria, Mali, Morocco, and Tunisia*. Washington, D.C.: International Monetary Fund, 1977.
7. Thomson, Virgil. "Age and the Collage of Noises." Chap. 8 in *American Music since 1910*. New York: Holt, Rinehart and Winston, 1971.
8. U.S. Department of State. *Papers Relating to the Foreign Relations of the United States, 1914*. Washington, D.C., 1928.
9. Jackson and Kassam, 1998. *Knowledge Shared: Participatory Evaluation in Development Cooperation*
10. Narayan-Parker, 1993 Participatory Evaluation: Tool for managing change in water and sanitation
11. A collection of articles from academic journals and other books:  
Belli, Pedro, Jack Anderson, Howard Barnum, John Dixon, and Jee-Peng Tan  
*Economic Analysis of Investment Operations: Analytical Tools and Practical Applications*, World Bank Institute, World Bank, Washington, DC

12. The World Bank (1998) *Handbook on Economic Analysis of Investment Gh Operations, Operational Core Services Network, and Learning and Leadership Center*, The World Bank, Washington DC.
13. Asian Development Bank (1997) *Guidelines for the Economic Analysis of Projects*, Manila.
14. HSLPO MIS Database
15. Statistical Bulletin, 2005. Mongolia
16. Health Sector Master Plan 2006-2015, Government of Mongolia