

FINAL PROJECT COST BENEFIT REPORT

GROUP 2 CASE-FARMING LAND NEAR ZALEWA

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INTRODUCTION

- The cost benefit analysis has been based on non demand methods.
- The project deals with the water hyacinth problem in relationship with electricity generation using either hydro electric power plant or solar panels.
- Complete removal of water hyacinth and continue using hydro electric power plant has been another alterative.

WATER HYACINTH PROBLEM-ITS ORIGIN

- It is coming as an externality for using fertilizers.
- The use of fertilizers (both organic and commercial) leads to water hyacinth booming. Water hyacinth has negative influence in one way or another. It depletes lots of oxygen that is essential for fish in Shire River. It blocks the free movement of water thereby disturbing hydro electric production downstream thereby contributing to black outs in Malawi.

TRANSFER OF PAYMENT-DONORS/ RECEIVERS

- To a certain extent, there is some transfer of payment at Zalewa. The Malawi Government is implementing farm subsidy program whereby some targeted farmers are getting subsidized inputs. However, it is almost impossible to calculate the actual monetary value of this program as some funding is from the donors.

FIRST SCENERIO-USING HYDRO ELECTRIC POWER PLANT

- The cost for purchasing and installing the hydro electric power plant is **\$30,000**. Its life span is 10 years. Assuming that depreciation rate is the same every year, it means that each year the machine loses **\$3,000.00** meaning that for the initial value to be maintained, **\$3000.00** has to be added on the initial cost of the machine. In other words, the machine has to be replaced every **10 years**.

SECOND SCENERIO-USING SOLAR PANELS

- The cost for purchasing and installing solar panels is **\$100,000.00**. Its life span is 50 years. Assuming that depreciation rate is the same every year, it means each year the machine loses **\$2000.00** meaning that for the initial value to be maintained, **\$2,000.00** has to be added on the initial cost of the solar panel. In other words, the machine has to be replaced every **50 years**.

A BETTER ALTERNATIVE BASED ON ANALYSIS

- In a long run, say 50 years, it is much better to use solar panels as the source of electricity than hydro electric power plant. In other words, Electricity Supply Commission of Malawi is paying **\$2,000.00/year** for choosing solar panel as a source of electricity and at the same time, a company may lose **\$3,000.00/year** for opting for a hydro electric plant. For using hydro electric power plant, the company is spending **\$150,000.00** over a 50 year period while it is spending **\$ 100,000.00** for opting for solar panel. It is cheaper by **\$50,000.00** (**\$150,000.00-\$100,000.00**) to have a solar panel than to have the hydro electric plant over a 50 year period.

DAMAGE COST AVOIDANCE

- In Zalewa as it is the case with most farmers in Malawi, farmers rely on cereals for their food and the surplus for sale. Cereals in general are heavy nutrients feeders and thus they require more fertilizers. The damage can be avoided by using a number of interventions employed by the nearby farmers as follows:
 - Growing crops that are generally not heavy feeders such as sweet potatoes and cassava. These crops can provide food and at the same time can be sold. The cash obtained may be used for buying some cereals from elsewhere.

DAMAGE COST AVOIDANCE (CONT)

- Growing legumes as they are able to fix nitrogen for their own and some for the next cropping. Generally, nitrogen fixed by legumes is not too much to cause booming of water hyacinth.
- Complete elimination of all water hyacinth plants by employing a number of strategies at the same time (intergrated weed management) such as physical removing of the weed, use of herbicides and biological control at the same time. All in all, this strategy needs more weed management knowledge and most farmers can find it hard to implement. It is also detrimental as the entire ecosystem/food chain system may be affected in one way or another.

CONCLUSION

- It has been seen that using solar panels is much cheaper in a long run but the willingness of ESCOM to implement it will depend on their strategic plan whether they want short term or long term and sustainable results.
- The solar panels have another advantage in the way that are more environmentally friendly than hydro electric power plant.