Proposed plan to improve use of seasonal flooding and the natural resources in Barotse floodplain system, Zambia

Barotse floodplain is an area that is characterised by high potential for agricultural and ecosystem services. The area also experiences high level of poverty among its incumbents (Madzudzo, Mulanda, Nagoli, Lunda, & Ratner, 2013). There is high settlement of people especially along the plains (Davies, 2004). Most studies found that literate level in Barotse land is quite high as it could be seen from the number of years people spent at school (Kazungu, 2014). Previous studies in Barotse floodplain also found that households engage in multiple income generating activities (Kazungu, 2014 ; Results of assignment 5 - MOOC). In the previous assignment it was also reported that the population in Barotse floodplain is youthful, the average age was 35 years.

Furthermore, we found that the use-value of wetland at the floodplain outweigh the non-use value. Some of the use-values were; Direct use value such as fish capture, papyrus for mat making and construction, water for domestic and industrial use; Indirect use-value were, water filtration for people in downstream, carbon sequestration. The option value include cultural preservation, flood regulation and temperature regulation. The non use value include existence value.

Problem statement

Barotse floodplain is an area with high agricultural and ecosystem potential. Despite this, poverty levels among the incumbents are characteristically very high. The local community largely depends on the wetland to derive their livelihoods. Being largely ecosystem dependant, put the wetlands at the core of exploitation.

Main Objective

To make effective use of the seasonal flooding and wetlands in the Barotse floodplain system

Specific objectives

1. Train on skills and empower people on alternative income generating activities in Barotse floodplain
2. Train people on sustainable fishing and agricultural practices in Barotse floodplain
3. Engage all the stake holders in natural resource co-management in Barotse floodplain.

Cost and Benefit analysis

With the project

We calculated the cost that accrue with the project (see Log frame in excel). The total cost was 58,387.03 USD. The project is expected to be implemented in one year.

The benefits that accrue after the project implementation are:

Extrapolated specific cost from Log frame for with project

Alternative income business training ($1127)

Training of conservation ($354.89)

Direct benefits

Increased small and medium enterprise

Increased value for fish due to mature catch (for example $232 * 3=$ 696 annually)

Increased papyrus growth and harvest (for example $142 *3=$426 annually)

NB: the values in with project benefit were adapted from the analysis in assignment 5

Indirect

Improved clean water

Improved carbon sequestration

Improved regulation of flood

Increased water for agricultural irrigation

Biodiversity protection

Non-use value

preservation of cultural value

improved recreation sites

Note: The project developer could not quantify some of the benefits.

Much as the implementation cost look large, the benefits are project to improve the livelihoods of the large community.

With project net benefit= with project benefit-with project cost

= (696+426) - (1127+ 354.89) = - 359.89 USD

Without the project.

Costs without the project

massive exploitation

little fish harvesting

depleting fish species

reducing water for industrial and domestic use

eutrophication

Other costs

fish license and market Levi ($ 19.71 annually)

labor ($30 annually)

NB: the costs in without project derived from the consultations from the fishers

Benefits without project

fish capture and sale ($232 annually).

papyrus harvesting and mat selling ($142 annually)

Without project net benefit= without project benefit-without project cost

= (232+142) -(19.71 + 30) = 324.29 USD

NB: the values in without benefit were adapted from the analysis in assignment 5

Incremental net benefit = with project benefit - without project benefit

= (- 359.89) - (+324.29) = -35.6

The incremental net benefit is negative, this imply the project is not worth undertaking. However, the project aims at improving the welfare of the society at large. We have noted that people's livelihoods will improve in the long run, the market value of fish will increase, reduced eutrophication leading to improved health of both the humans and aquatic species and increase in the number of people taking on alternative income generating activities hence, reduced wet land exploitation. With all this benefits accruing, the project is therefore worth undertaking.

References

Davies, S. (2004, 2007). *Proceedings of the International Workshop on the Fisheries of the Zambezi Basin, Livingstone, Zambia, 31 May-2 June 2004*.

Kazungu, M. (2014). *Socio - economic determinants for cooperation in a small - scale fishery management system in Barotse Floodplain, Zambia*. Thesis. Faculty of Agriculture. University of Bonn. Bonn,Germany.

Madzudzo, E., Mulanda, A., Nagoli, J., Lunda, J., & Ratner, B. D. (2013). *A Governance analysis of the Barotse Floodplain System, Zambia: Identifying obstacles and opportunities*: WorldFish.

NOTE: Attached is excel sheet of the project log frame

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