

The Lake Victoria Ecosystem:

A deeper look into its true worth



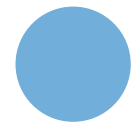
LAKE VICTORIA BACKGROUND

- catchment area covering 184,000 km² (*Lake Victoria Basin*)
- surface area of 68,800 km² (largest tropical lake worldwide)
- the lake is divided among **Kenya** (4,100 km²), **Uganda** (31,000 km²) and **Tanzania** (33,700 km²)
- **various stakeholders** (fishermen, farmers, industry, local/ governmental/ inter-governmental and international organizations, etc...)
- Maintaining the livelihood of about **30 million people**
- Its waters support **Africa's largest inland fishery**
- Important for **flood and microclimate regulation**



THE ECOSYSTEM'S PRESENT STATUS

- **densely populated area** → shores spotting cities and towns, several factories
- diminishing quality and quantity of **fish species** and other important **biodiversity functions**
- **Land degrading activities** affecting up to 60% of the ecosystem's land area
- **Declining water level and quality** as a result of human activities in the catchment area and near shore
- **Rapid population rise** hence further industrialization and urbanization
- Water level regulated by dams for **power generation**

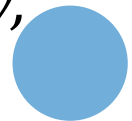


THE NEW BEST PRACTICE SCENARIO

Is an ecosystem different from business as usual possible?

- strictly observed **rules and regulations** that govern overexploitation of goods and services
- regeneration of **fish stocks and native species**
- implementation of **sustainable agricultural practices**
- restoration of **water quality and level**
- introduction of alternative energy sources to replace loss of the dams hydropower generation

→ Compliance with environmental regulations for industry, agriculture and all concerned parties is basic!




THE COST-BENEFIT-ANALYSIS (1)

- conducted for the **fishing sector**
- a **discount rate of 8%** was used for the cost-benefit-analysis (CBA), considering following factors:
 - **demographical composition and intergenerational equity** (all three countries have population aged below 15 years as the majority → *future counts!*)
 - **countries' development status** (less developed countries normally show a higher discount rate)



THE COST-BENEFIT-ANALYSIS (2)

... Further factors influencing the discount rate:

- **simulated stakeholder survey** (higher discount rate too, most of the “stakeholders” prefer more benefits later than less benefits now)
 - **earlier survey with CBA** (using a discount rate of 17.2 %, being the rate charged by the Central Bank of Tanzania to determine the present value of future cash flows (current variation between 8 – 13 %))
 - **opportunity costs** (rate of interest earned by placing the money in a bank account → various interest rates were found)
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CBA-RESULTS FOR THE FISHING SECTOR

Years	1	2	3	4	5
WITH PROJECT					
Benefits (million \$)	350	400	500	700	850
Costs (million \$)	50	25	25	25	25
Net Benefit (million \$)	300	375	475	675	825
WITHOUT PROJECT					
Benefit (million \$)	600	500	400	350	300
Costs (million \$)	0	0	0	0	0
Net Benefit (million \$)	600	500	400	350	300
Incremental Net Benefit INB (million \$)					
Incremental Net Benefit INB (million \$)	-300	-125	75	325	525
Discount rate (%)	8	8	8	8	8
Discount factor $1/(1+Dr\ (%))^t-1$	1	0.93	0.86	0.79	0.74
Present Value of INB (million \$)	-300	-116	64	258	386
Economic Net Present Value (million \$)	+292				

THANK YOU!

- The Lake Victoria Team -

