



Lake Chamo and its Biodiversity at Cross Roads: implications of letting business as usual



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The outline



1. Description
2. Background
3. Objective
4. Methodology
5. The findings
6. Implications of the findings
7. What next?
8. The Need for Ecosystem Based Management

1. Description: location



13/10/13



distance (km):

Addis Abeba = ~ 517

Arba Minch = ~ 12

1. Description: physical environment

every figure, highly variable



Elevation (m) = 1282

Area (km²) = 551

Depth (m) = 13

Max. length (km) = 36

Maxi. width (km) = 22

Volume (km³) = 2.1

The lake is:

- *terminal*
- *saline*

2. Background: lake biodiversity

Animals

- fishes (21sp.), compared to 2-3 in other RVLs
- birds (~ 33 sp.)
- hippopotamus
- crocodiles

important fishing ground of all RVLs, in qt & div.

Others

- plants
- invertebrates
- micro-organisms

plus:

- *those of NNP wildlife*
- *domestic AnGR*

2. Background: the lake water

2.1 Source of water



1. Rivers

- Sego = 28% (~123.6Mm³)
- Sile = 26.5%
- Kulfo = 28%
- ?

2. Runoff

3. Springs

- Hamosha (~ 100l/sec)

4. Overflow

2. Background: the lake, ...

2.2 Causes of water loss

1. Evaporation *1,381mm 1048)*

2. Pumping (lake & rivers)

- farmers
- investors

(locals & foreigners)



2.2 Causes of water loss, ...

3. Diversion of rivers

4. Consumption by:

- humans
- animals (domestic & wild)



2.2 Causes of water loss, ...

5. Other domestic uses

- sanitation



- car washing



2. Background: hitherto uses

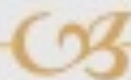
2.1. Source of income and occupation

- fishermen
- hotels
- traders
- tour operators and guides
- others involved in the tourism and fish production chain
- the country

including the illegals


2.2 Source of food & nutrition

- fishermen
- local communities
- large cities



2.3 Source of water

i. local use

- 
- consumption
 - farming
 - sanitation
 - livestock and wildlife

ii. investment

- Locals
- Foreigners

2.4 Source of dry period livestock feed

every accessible shore



2.5 Source of foreign currency

- i. tourism
- ii. fish export
(17,144,520 ETB in 2005/6)

2.6 Other uses?



3. Objectives



1. come up with clear picture on factors that directly and indirectly affect the lake ecology and its biodiversity, and
2. propose effective management strategy, taking into account ecosystem based management approach

4. Methodology



1. Ground-truthing and on-site data collection
2. Interviews
3. Review

5. The findings

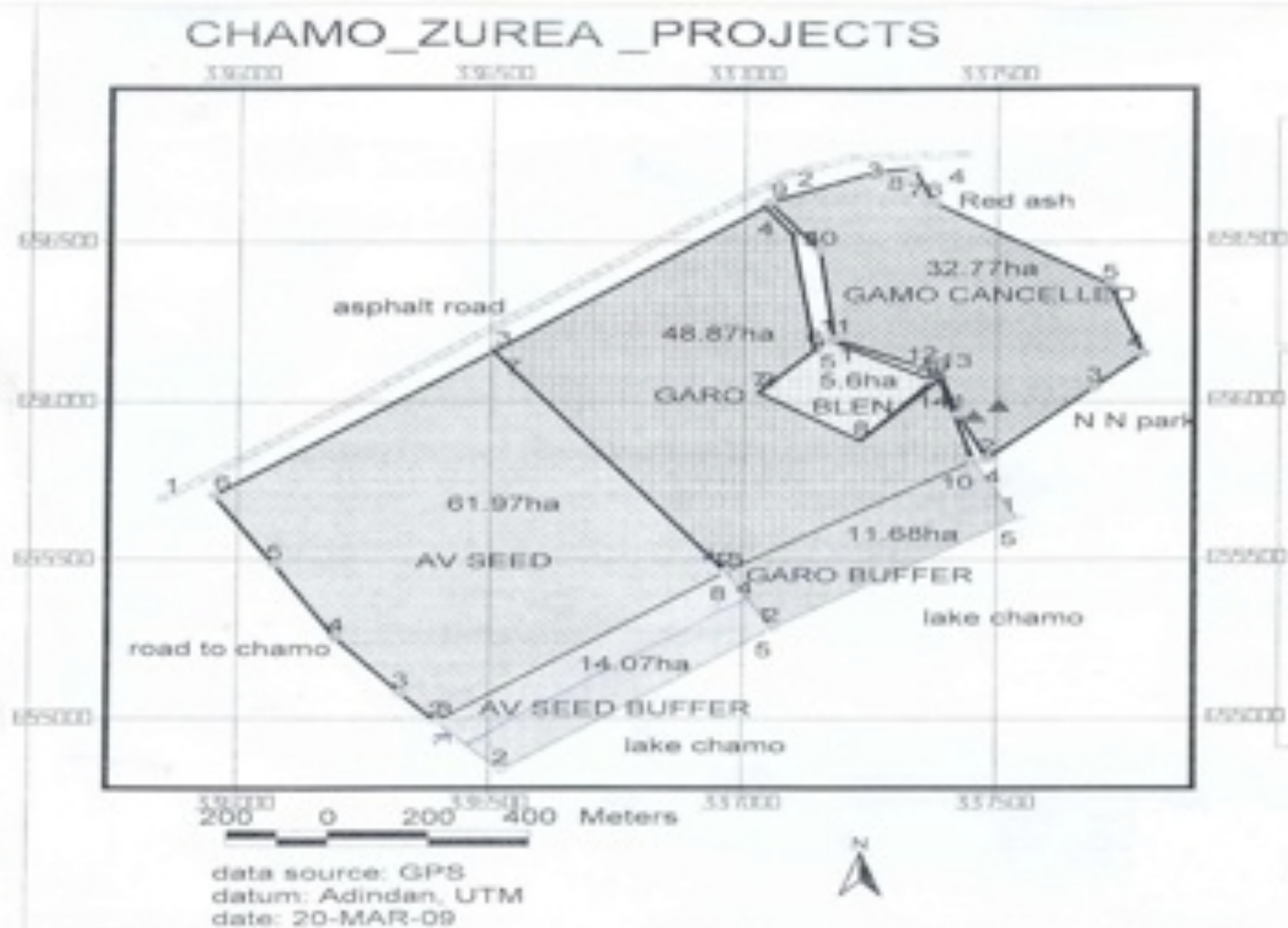
5.1 The lake shore environment

mainly of two types



5.2 The investment plan on the lake shore:

not exhaustive



Blen Development: Crocodile Farm (5.6 ha: 10 ha)



AV Seeds and Artemesia (61.87 ha)



GARO: Vegetables (48.87 ha)



Galov Agro-industrial PLC (3000 ha)

plus:

others at land clearing stage



700 ha under different crops

Cotton, banana, shallot, maize, masho?



Further expansion: agricultural



5.3 Fishing

- 151members (11♀s)
- seven landing sites



5.4 Tourism

17 members (all ♂s)



Lake tourism concentrated mainly to Azo Gebeya Areas & NNP



5.5. Future activities

1. The hitherto ones with:



- increased intensity in uptake (fish, water): **highlander influx**
- further expansion (investment area & increased water uptake)

2 New investments (e.g. cleared from the Segen side)

3. Proposed Sego Irrigation and Dam Project

4. etc.

6. Effects of the activities on the lake and its biodiversity

6.1 Effects of the hitherto activities

1. overfishing

- 800 vs 2290 (261%↑) tilapia nets, and the same for others
- 151 vs > 2000 fishers
- 7 vs ~ 50 landing sites



6.1 Effects of the, ...

2. destruction of:



- breeding
- brooding
- feeding, and
- hiding grounds of the lake shore, and
- migratory routes to upstream spawning grounds

... and destruction of fry through unregulated pumping

6.1 Effects of the. ...



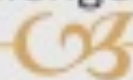
6.1 Effects of the, ...

3. shrinkage of the lake in depth and volume

- up to 35 km², since 70s
- shrinkage visible from year to year (up to 100m)

6.2 Effects of future planned/forthcoming activities

1. Exacerbating the existing challenges



Example: SIDP (in next 30 years)

- ↓ 2.2 - 4.6 m recession
- ↓ 28 - 53km² in area
- ↑ 40% salinity
- ↓ 6 - 14% in fish yield

Severely negative

plus:

possible effects of other forthcoming activities

SIDP: Description

- 72 m high
- 125 m wide
- 3 km long
- 44 Mm³ for 50 yrs
- 5,292 ha net com. area

SIDP: Benefits

- ETB 25.5m to 223.5m/yr
- 2829 families (17,000 people benefit from irrig.)
- 11,600 person days/year employment oppr. by the Farm

6.3 Other factors affecting the lake & its biodiversity

1. Unrealistic/lack of proper planning



- Proclamation No 78/2004, Regulation No. 62/99

= 1000m

- Zonal Office of Agriculture & Rural Development

= 100 – 120m

2. Weak capacity/shortage of facilities to enforce the existing rules & regulations

6.3 Other factors affecting, ...

3. Ever changing responsibility of management

- Region
- African Parks
- Federal (EWCA)

4. Waste disposal

5. Catchment degradation

6. Climate change



7. Future Scenarios

7.1 Business as usual

- eventual collapse of the biodiversity resource base
- eventual demise of the lake

... as was the case for lake Alemaya,

AND

the associated losses of all the benefits!

7.2 With proper intervention



- the lake ecosystem & its biodiversity conserved
- sustainable use of the lake biodiversity and its abiotic resources ensured, and improved

“ELF!”

Now comes the question:

WHICH INTERVENTION PLAN?

By whom & how

8. The intervention plans to lake Chamo: two steps

**Step I. damage control: assess feasibilities of
the existing and planned activities, and rectify**



1. relocate, resize, and/or terminate the ongoing operations, as necessary
2. regulate activities on the tributaries and allow their flow into the lake
3. Control/regulate flow of highlanders
4. define uniform lake resources management
5. control waste disposal & car washing

Step II. Plan: develop resources use plan (Ecosystem Based Management Approach - EBM)

The EBM: The basics



- **determine & characterize** the ecosystem area & its key species along with the associated economic activities
- **identify** stakeholders
 - primary
 - secondary
 - tertiary
- **determine** the relations between the above two
- **identify** all the existing and planned activities along the chain & their future impacts

ground truth data on:

- *physical*
- *biological & socio-economic situations*

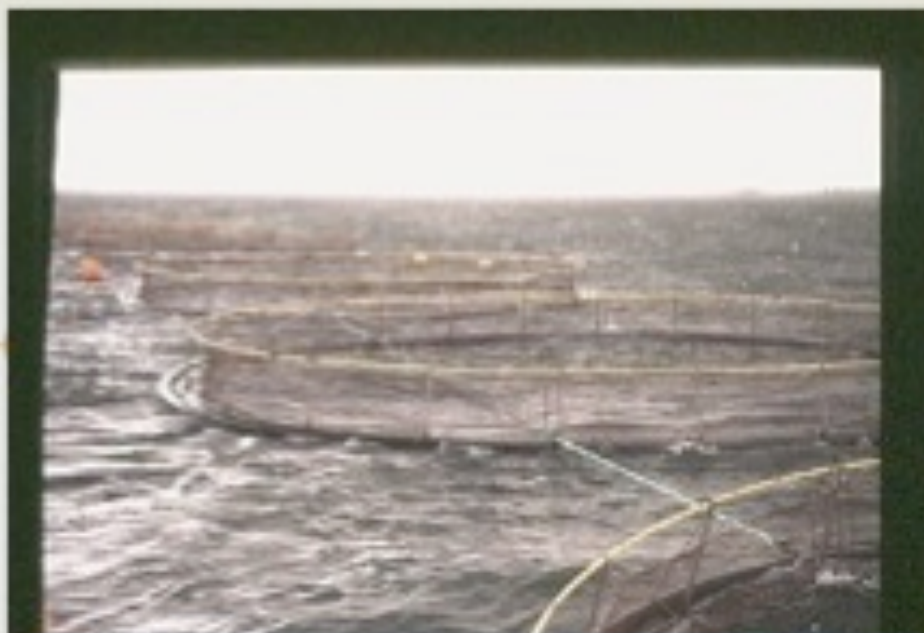
The EBM: The basics, ...

- diversify income generating activities such as forage prod., assoc. for crocs egg collection
- reduces post harvest loss
- add values to products



The EBM: The basics, ...

- **introduce** cage culture on the dam
- **identify other** tourist sites such as Azo Meda & other economic activities



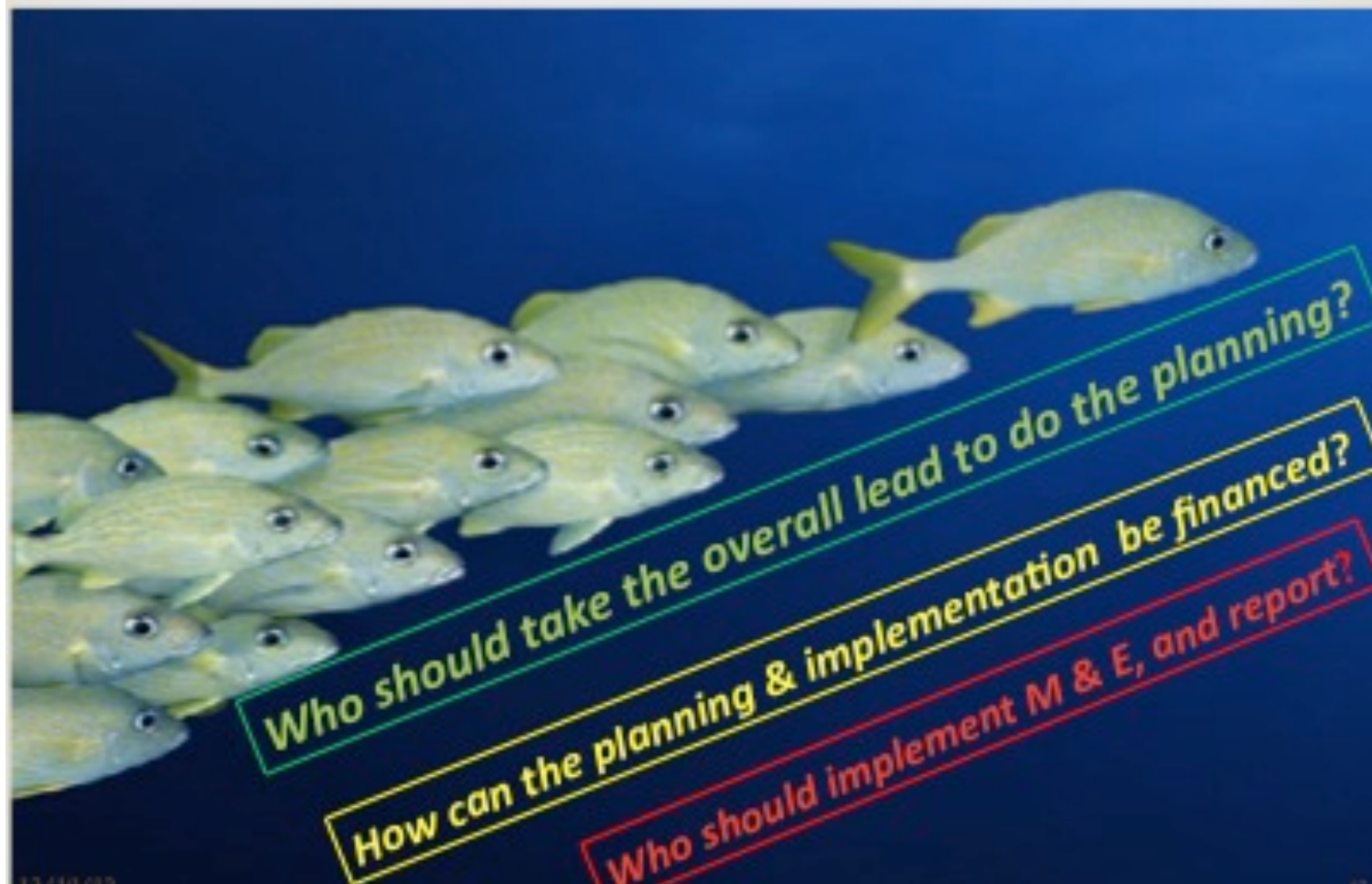
The EBM: The basics, ...

- **establish sustainable yield** levels for each activity with corresponding gear types & time/space implication (**regulation**)
- **forecast the** impact of the plan on the adjacent ecosystems
(**risk management plan for up/down scaling**)
- **ensure** grass-root level participation, and **plan** management
bottom up

The EBM: The basics, ...

- **devise mechanism** for:
 - awareness raising
 - mainstreaming
 - M & E (**who, what where, when?**)
 - reporting (**who, for whom, when, reporting format**)
- **ensure the continuity** of the newly developed management plan
 - create fora for stakeholders to discuss and decide :
 - bench marking
 - establish rules of incentives/dis-incentives

9. Planning the EBM to lake Chamo



9.1 The take-off for the planning



Will begin with an *ad hoc* committee

..., and organizers of this symposium may assign/propose combination of the *ad hoc* comm. Institutions, and they may also serve as Focal point (FP) to the whole process

9.2 Roles of the *ad hoc* committee



1. Proposing composition of Planning Team (PT) institutions that drafting the EBM, including professional backgrounds
2. Developing ToR for PT
3. Developing draft work plan for PT
4. Identifying all SHs and propose their potential roles
5. Submitting the above to the FP

9.3 Roles of the Focal Point

1. Assembling an *ad hoc* Committee
2. Assigning a Coordinator from FP to the *ad hoc* Comm. (the same person will also serve for PT)
3. Securing initial fund (short term financial need s) for:
 - activities of the *ad hoc* comm. and PT
 - conducting First SHs meeting (of the Steering Comm.)
 - communication, etc.
4. Possible sources of fund may include:
 - seed money lobbied and raised by the FP from different sources:
(federal, regional, local , international)
5. Conducting the First SHs meeting and finalizing draft proposals prepared by the *ad hoc* comm.
6. Formalizing establishment of the SHs forum member institutions, at First SHs meeting

9.4 The stakeholders forum and its role

Higher decision making body (the S. Comm.). Established at the First SHs meeting, the Forum should develop and agree upon modalities, based on proposal from the *ad hoc* comm. for:

- planning
- implementation
- M & E
- reporting, and other requirements, as per the plan of EBM specific to lake Chamo

..., and by doing so:

**I hope, we gradually can achieve
what we planned!**

13/10/13

dedicated leadership

timely action!





I thank you!