

Operation and maintenance strategies for a sustainable dry sanitation system in Arba Minch, Ethiopia



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Outline

- Introduction
- The O & M challenge
- Methodology
- Results and discussion
- Conclusions



Introduction



- O & M is key to success in the sanitation sector
- In contrary - O & M is given less or no attention – **Even in the UN's definition of sanitation for MDG**
- Poor financing mechanism = poor O & M = poor sanitation
- Promoting businesses in sanitation – can be one good financing way
- A unique business model is required for sanitation because:
 - depends on community perception of sanitation & health
 - depends on willingness to pay
 - usually involves a lot of work for relatively low income
 - majorly considered a 'dirty' job
 - depends highly on availability of other infrastructures like roads



The O & M Challenge

O & M to blame again!!



Methodology



Capacity-Linked water and sanitation for Africa's peri-urban and Rural Areas



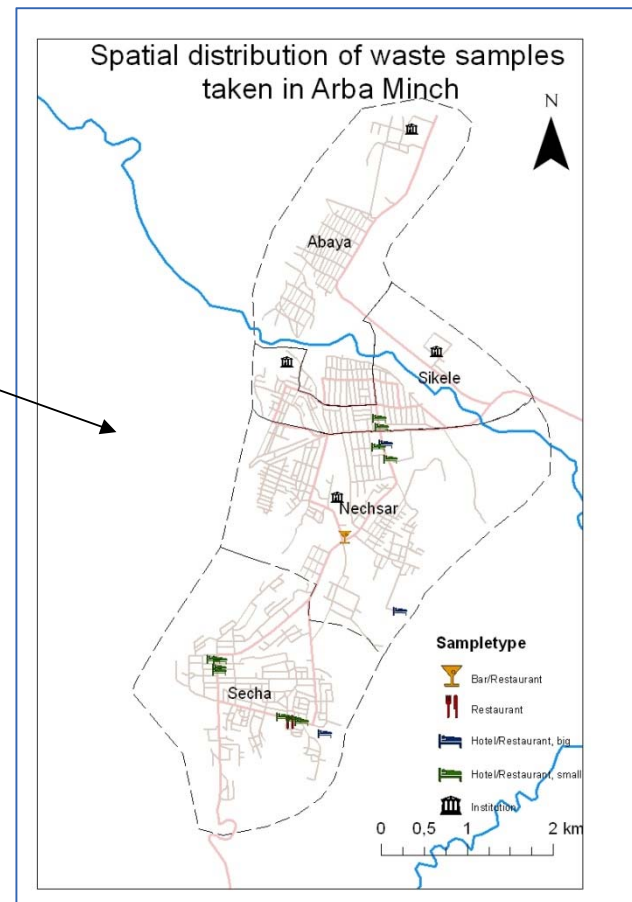
<http://wvp.greenwichmeantime.com/time-zone/africa/ethiopia/>

Population = 92,000
Growth rate = 4.5%/year

Area = 21 km²

Sanitation:

- 90% = pit latrine or improved pit latrine
- 10% = (pour) Flush toilets, UDDTs, fossa alterna, or open defecation



Methodology...



Description of the Small and Micro Enterprises

Solid Waste Collectors

- A solid waste collection enterprise
- Works mainly in the Secha sub city
- Established in 2005
- Has 8 members and two office project workers
- Has more than 900 customers

Compost Producers

- A compost production enterprise
- Operates mainly in the Sikela sub city
- Established in 2007
- Has 9 members and an office project worker
- Sells ornamental tree seedlings in addition

Both are responsible in emptying excreta from UDDTs !!



Methodology...



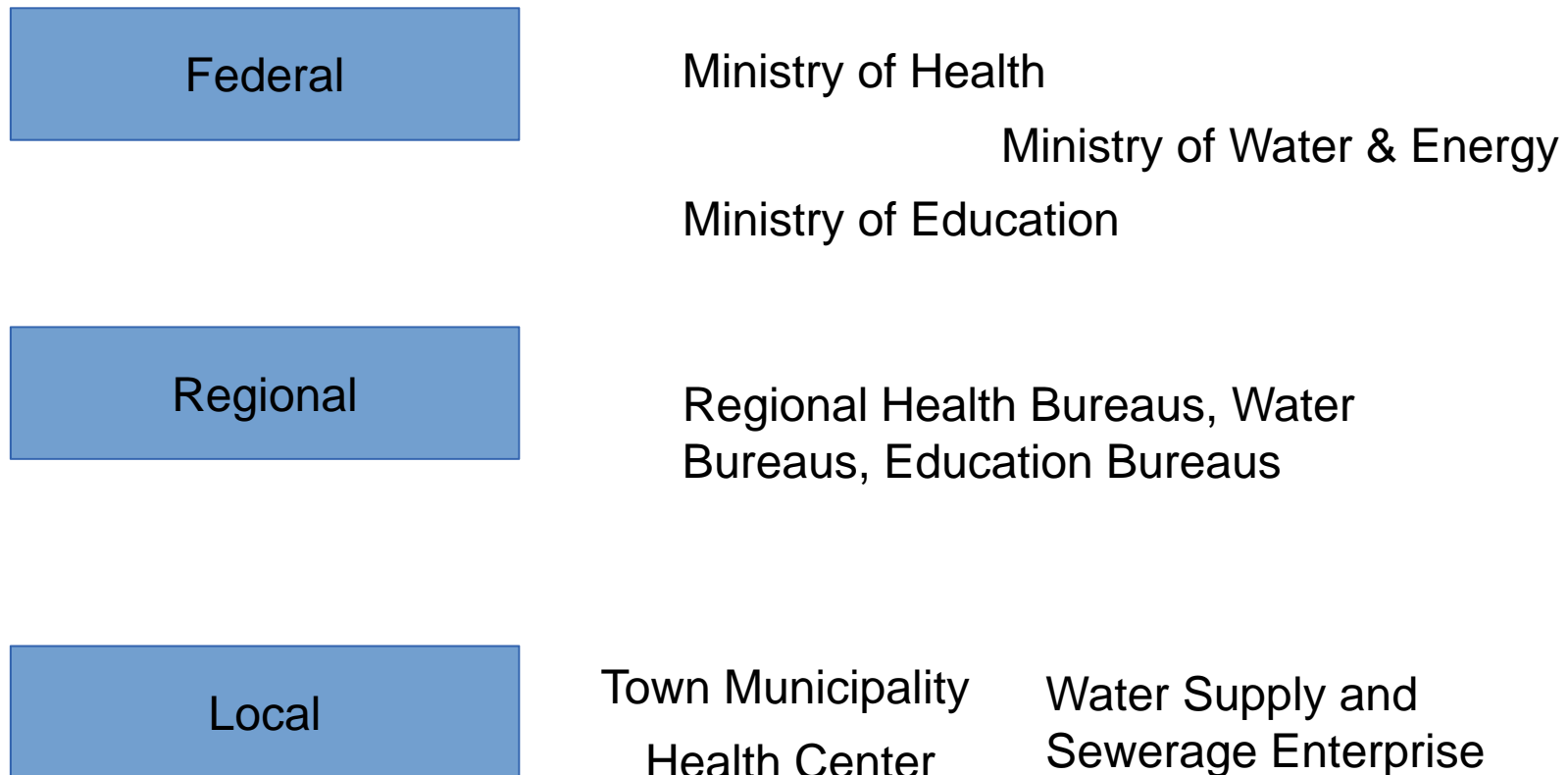
- Data collection and analysis
 - Participatory observation
 - Informal and key informants interviews
 - Documents and literature reviews
 - Workshops
- Sanitation supply chain analysis
 - Supply side analysis
 - Scenarios development
- Financial Analysis
 - Capital expenditure (CAPEX)
 - Operational expenditure (OPEX) – more emphasis
- Business plan development
 - Business Model Canvas & Business Model Generation



Results and Discussion



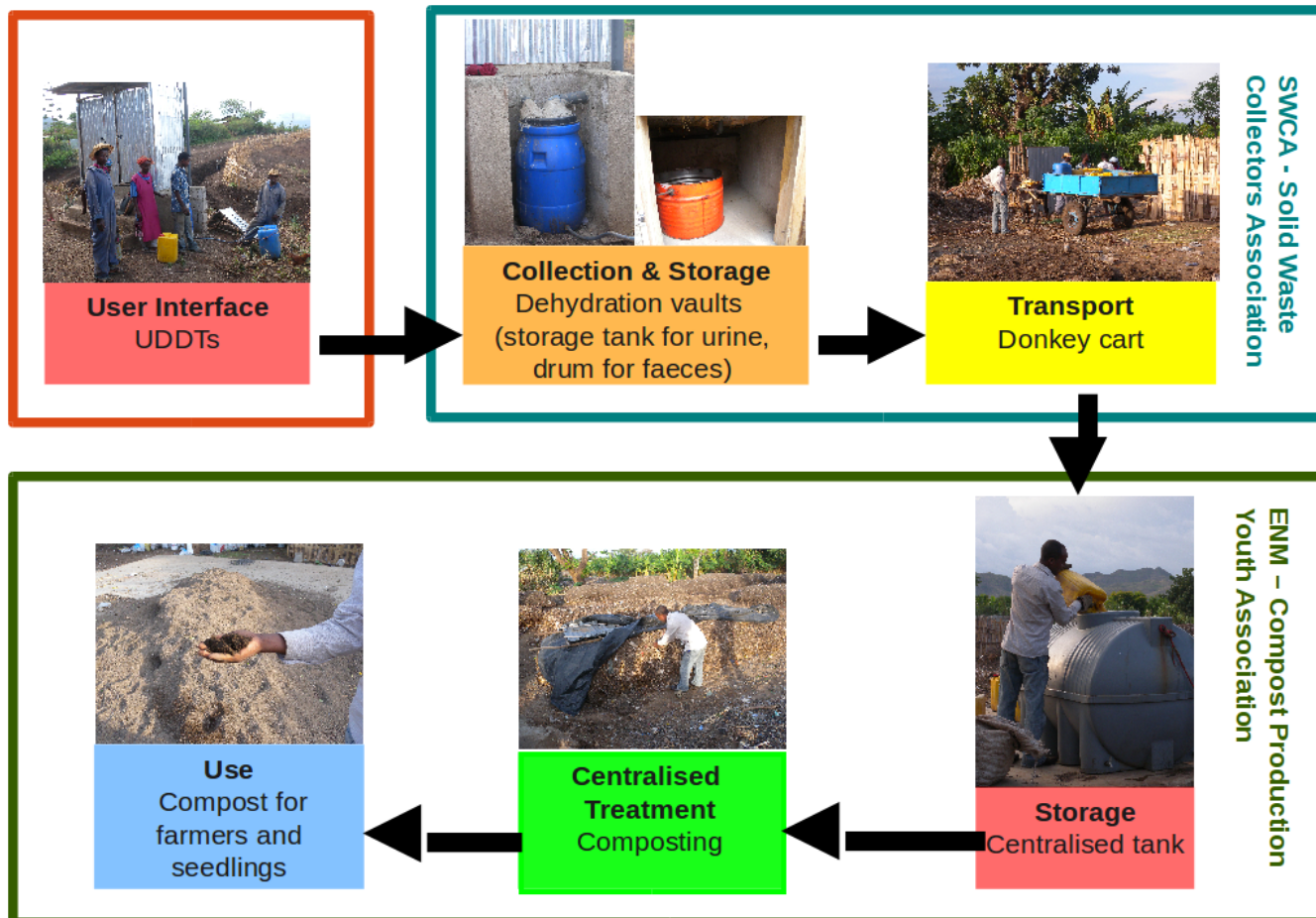
→ Legal framework – responsible for Sanitation in Arba Minch



Results and Discussion...

→ Sanitation supply chain in Arba Minch

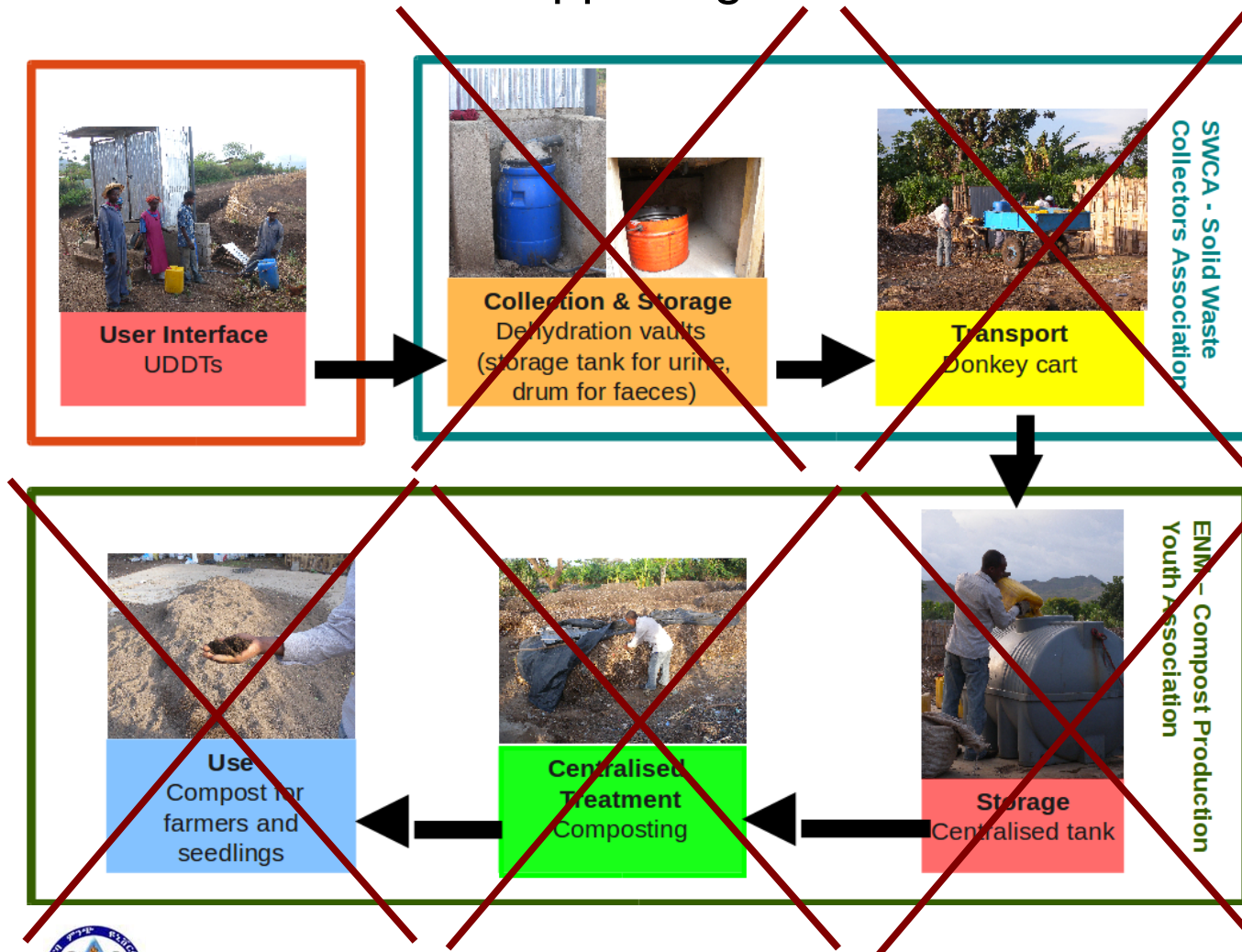
Scenario 1 - with proper collection



Results and Discussion...

➔ When no collection is happening

Scenario 2

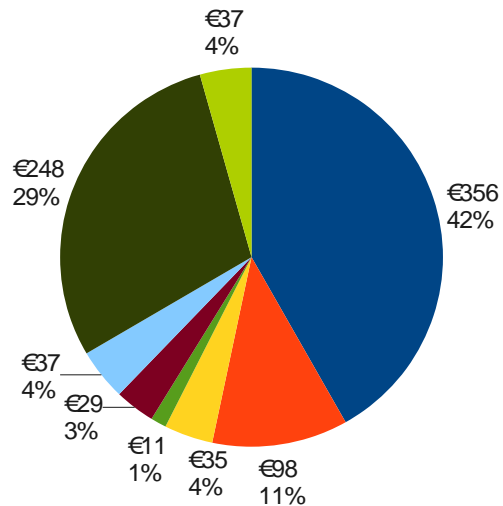


Misuse of facility

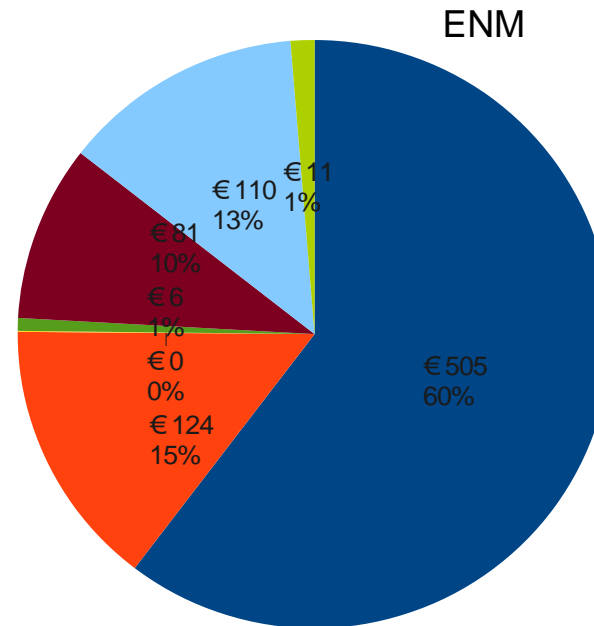
Results and Discussion...

→ Financial analysis:

AVERAGE EXPENDITURE OF SWCA per month



- 1. Personnel costs
- 2. Operational expenditure (variable costs)
- 3. Overheads (fixed costs)
- 4. Transport costs
- 5. Taxes and duties
- 6. Depreciation for investments
- 7. External Services

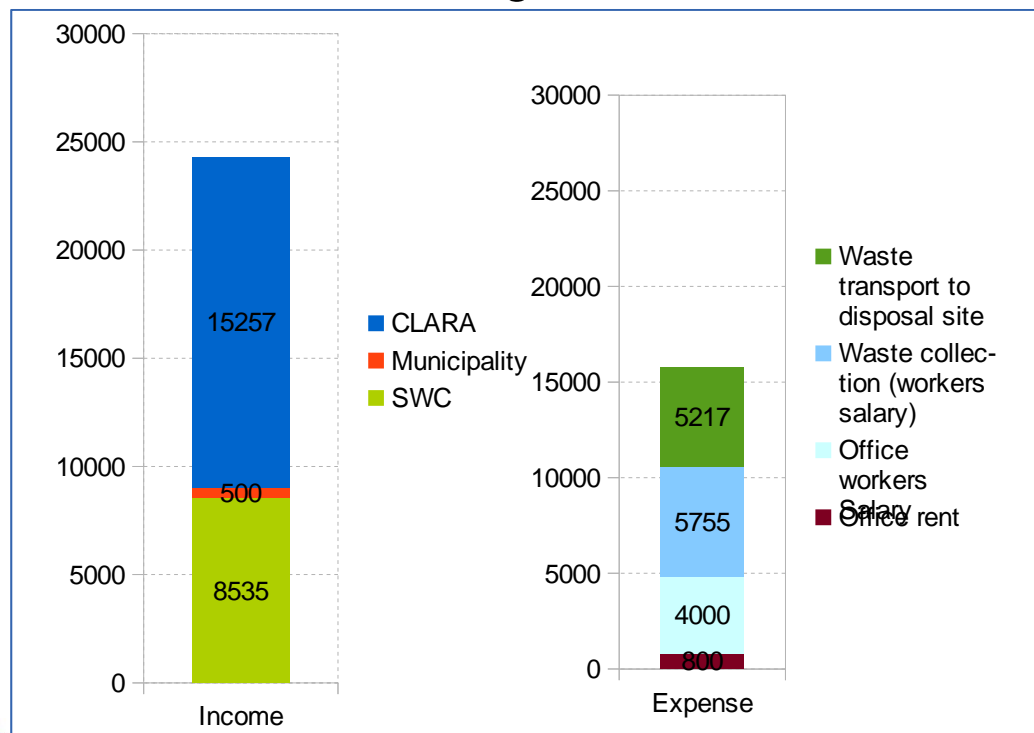


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- 5. Taxes and duties
- 6. Depreciation for investments
- 7. External Services
- 8. Other costs

Results and Discussion...



- ➔ Financial analysis: Cash flow
 - Current income source
 - Self generated
 - Governmental subsidies
 - External donor funding: CLARA



Not Sustainable



Results and Discussion...



→ Business model development

- Process: financial analysis-business planning workshop-legal frame work study
- Result:
 - Business model – PPP
 - Cash flow: Profitable when income increased and expenses reduced
 - Organizational: **NEW**- non-member office manager for each enterprise
- Progress:
 - Growing businesses of enterprises
 - Commitment from municipality in cash, in kind and following up the performance



Conclusions



- Only if the enterprises and the municipality work hand-in-hand the situation of O & M can improve in a long run
- The PPP business model is the best way forward in Arba Minch
- Sanitation services provided by enterprises can be run at a profit if different services are combined (e.g. UDDT emptying, solid waste collection, composting, tree seedlings growing)
- Organizational structure of enterprises should include a non-member office manager for better performance



Thank you for your attention !

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