Circularity in Integrated Systems: Resource Recovery for Feed, Fuel and (Organic) Fertilizer Self-sufficiency in Ethiopia

South Achefer Case Study
Location of the study area
Description of the study area

Geographic position (UTM)
• Latitude: 11°12′0″-11°42′0″N
• Longitude: 36°35′0″E-37°5′0″E

Major soil types
• Nitisols
• Cambisols

Climate
Climate:
• Sub-humid
• Min t° = 12.1°C
• Max t° = 27°C
• Rainfall: 1499 mm
• Altitude: 1500 -2602masl
Crops in the study area

- Maize (*Zea mays* L.)
- *Tef* (*Eragrostis tef* Zucc.Trotter) Trotter,
- Finger millet (*Eleusine coracana* L. (Gaertn),
- Faba bean (*Vicia faba*),
- Field pea (*Pisum sativum*)
- Chick pea (*Cicer arietinum*),
- Niger seed (*Guizotia abyssinica*),
- Line seed (*Linum usitatissimum*)
- Rape seed (*brassica capmestris*).
**Livestock**

Cattle, sheep, goats, poultry, mule, donkey, apiculture

**Products**

beef, mutton, chicken, milk, butter, local cheese, honey
Forest trees

• Ecualyptus, *Croton macrosatchys*, *Cordia Africana*, wild trees

Products

• wood fire, timber, wood poles, honey, medicinal plants
Major crop management practices

- Composting,
- weeding,
- cultivation,
- zero tillage,
- minimum tillage,
- crop rotation,
- intercropping.

Manure used to prepare compost as input to potato and Rhodes grass
Why the project? Experience from CASCAPE

Introduction of Rhodes grass to compensate for the maize stover that was replaced by potato crop

Manure used to prepare compost as input to potato and Rhodes grass

High potato yield - high income

Potato and Rhodes grass helped farmers to introduce high yielding dairy cross breeds - More income from milk sale

Income

Improved livelihood
Effects of ISFM on maize yield
Changes in pH on farmers’ fields (OTIPAVA)
Change in OM on farmers’ fields (OTIPAVA)
Change in CEC on farmers’ fields (OTIPAVA)
In CFS project, we go from linear to circular!
Conclusion:
Working on circularity contributes towards
• feed and fuel recovery;
• fertilizer self sufficiency;
• food self sufficiency;
• livelihood improvement;
• Ecosystem restoration.

Suggestion:
Include a PhD candidate in the research
Thank you with greetings from the palm city of Bahir Dar at this victory day of March 02!