

# AFR100 Field Trip

Landscapes near Mekelle, Tigray Region, Ethiopia

13-14 October 2016

# Mekelle University

Host – Prof. Mitiku Haile, Dept of Soil Science,  
Mekelle University, with Chris Reij, WRI



15 focal points from Cameroon, CAR,  
Ethiopia, Ghana, Kenya, Madagascar,  
Malawi, Mozambique, Niger, Rwanda,  
Senegal, Togo

Journalists from Benin, Burkina Faso,  
Ethiopia, Mozambique

And partners from BMUB, BMZ, FAO, GIZ,  
ICRAF, NEPAD, UNEP, USGS, WRI



# Restored landscapes – through exclosures

**Initiated with community based controls on wood cutting, livestock grazing, and local investment in soil and water conservation**

**Communities donate 20-60 days of labor/person/year  
Greener than in past 140 years**

**Low cost investments – social fencing through community support for by-laws and locally enforced sanctions to discourage “free riders”**

**Cut and carry system to utilize fodder; development of honey production and small scale irrigation**



# Abraha-we-Atsbeha

Abu Hawi – “man of fire”

Dynamic, charismatic and visionary  
community leader

Energetic and engaging story-teller

Observant, innovative, “barefoot”  
scientist

“To restore and increase water  
supplies, we needed to conserve  
the soil.”

“To conserve the water and soil,  
we needed to protect and  
regenerate the vegetative cover.”





## Water storage in the soil behind the check dams

“if we can keep the soil here – it acts as a sponge to store water”

“when we keep the soil in place, we avoid siltation and sedimentation downstream”

“the youth of the community were able to collect and sell enough sand to buy a vehicle”

“with increased water supplies, we have planted thousands of fruit trees downstream”

“conservation needs to benefit those who are responsible for achieving it”

# Locally designed and build check dams



# Welcome partnership - to support local initiatives

600 mm of rainfall, with 80% in one month

Invest in water harvesting to capture runoff, control erosion and sedimentation

Developed 350 shallow wells, used for small scale irrigation – to improve food and water security

“we can do it; we are the engineers; we can innovate and invent what is adapted to our needs”

“we can change the landscape, to increase the benefits for our community”

Low cost is not zero cost; MU, GIZ, ICRAF and World Vision provided critical inputs of technical support, cement, wire for gabion, other materials



# Water storage, groundwater recharge and development of fruit tree orchards



Household had farmed 0.5 ha to produce cereal; now irrigated coffee, citrus, mango trees with an annual income of 125,000 Birr (5000 Euros)

# *Faidherbia albida*

- “the professor of all trees”
- 2.5 million trees protected, regenerated, or planted in the landscape
- Visible improvements in maize and sorghum yields under or near the canopy of *Faidherbia*, which fixes nitrogen and replenishes soil organic matter
- *Faidherbia* and other flowering trees and shrubs in the landscape encourage bee-keeping and production of high quality honey, which benefits 54 female headed households
- Increased density of trees promotes rainfall capture and infiltration
- Community commitment to restoration and effects of environmental conservation have positively impacted hydrology; more water is now available



# Restoration benefits: artesian well (28 liters/sec) and improved crop yields



In 1987, a well was drilled and no water at 150 meters; in 2015, well tapped water table at 37 meters.

# Restoration through ANR and woodlots, for increased pasture productivity and poles



Remarkable transformation from a degraded, desolate landscape without hope



# Ethiopian TV broadcast crew eager to publicize the story on EBC



# Gergera – another community committed to and benefitting from restoration

- Landscape was originally forested
- Landscape was degraded with deep gullies; in 1994 decided to restore instead of migration
- With support from ICRAF, World Vision, Irish Aid, invested in large scale restoration
- “80:20” formula with community contributing 80% and NGOs contributing 20%
- Community invested 40 days/year
- Check dams along stream channels and restored river bed along 30 km with irrigated agriculture developed
- Now 1700 wells



Restored landscape through gully plugs, check dams, assisted natural regeneration, enrichment plantings



# Tree planting by moonlight!



# Wind farms funded by Government of Ethiopia and installed by French contractor



# Monasse

- Community mobilized to invest in constructing infiltration trenches, rock lines, half-moons for soil and water conservation
- Low cost investment supported by capacity building and technical assistance
- Community has secure land rights, and bylaws governing land use and harvesting (cut and carry of grass)
- Support by local government policy that views restoration as a path to improved livelihoods
- Judiciary doesn't impose government regulations; rather, they recognize community by-laws



# Results of community based restoration – reduced dependency on external assistance



In the past, communities planted trees with roots in the air – to continue flows of assistance and food aid; now with devolved rights, community is motivated and enabled to restore and manage their land and resources

# Waterfalls and lush pastures restored in semi-arid landscapes of Aba ala



# Field trip discussion and concluding remarks from MEFCC



# Some take-aways

- Restoration can be achieved through community mobilization
  - **Local labor** invested in building check dams, infiltration ditches, assisted natural regeneration; typically 40 days/year contributed by each community member
  - Evidence-based interventions are needed; community support reinforced by applying local knowledge and **demonstration** of successful outcomes, positive impacts
  - **Community based organizations** govern the equitable distribution of increased **economic benefits** that drive continued community investment
  - **Schools** provide an opportunity to **influence future leaders** by integrating restoration themes in curricula and encouraging restoration practices
- Government policies and technical support played a critical role in enabling farmers and rural communities to achieve their goals
  - **Regional government** viewed restoration as foundation for economic development
  - Communities benefit from secure **land tenure** and devolved management rights
  - Government enabled local communities to formulate and enforce **by-laws** governing use of natural resources and equitable benefit distribution
  - Encouraged support for **training** in soil and water conservation practices by NGOs and others working with rural extension programs and structures to accelerate dissemination
  - Engagement from government is crucial, however, empowerment at the grass roots level is needed or else what happens from the top levels will not work or be sustained

# Take away - continued

- Restoration contributes to resilience, food security, water supplies, income
  - Rainwater harvesting, expansion of fruit tree orchards, small scale irrigation
  - Increased fodder supply for stall-fed livestock production
  - Decreased reliance on rain-fed crops
  - Reduced water scarcity; surplus sufficient to provide water to neighboring communities
  - Increased household income enabled community to pay for costs of electrification
- What next?
  - Most stakeholders insisted on the need to further enhance agroforestry and other production systems to ensure additional benefits
  - Continued support for restoration can boost the productivity of natural resources and add value to natural resource-based livelihoods
  - Communities welcome continued local investment in restoration and further engagement with partners to build on the foundation and advance their development goals

# A few “key success factors” for the field trip



- Pre-planning with engaged host institution – Mekelle University well connected with local communities and able to mobilize logistical support
- Voice given to local communities
- Time for Q&A
- Attentive and informed translation
- Ideally can be scheduled before or during the conference