Forest Landscape Restoration in Ethiopia and the Importance of Tree Seed

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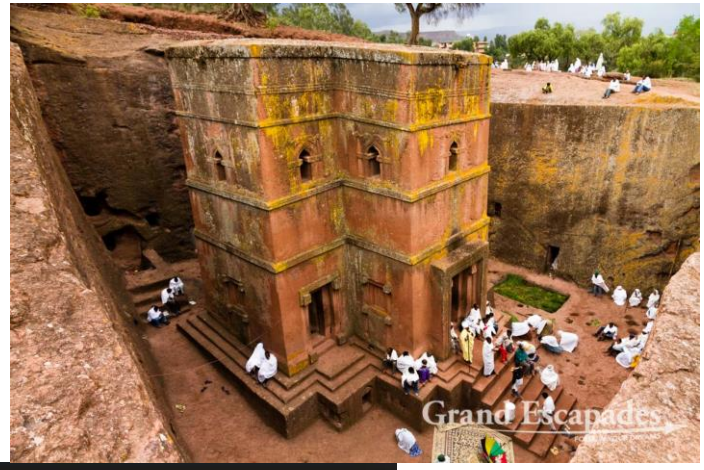
Some background

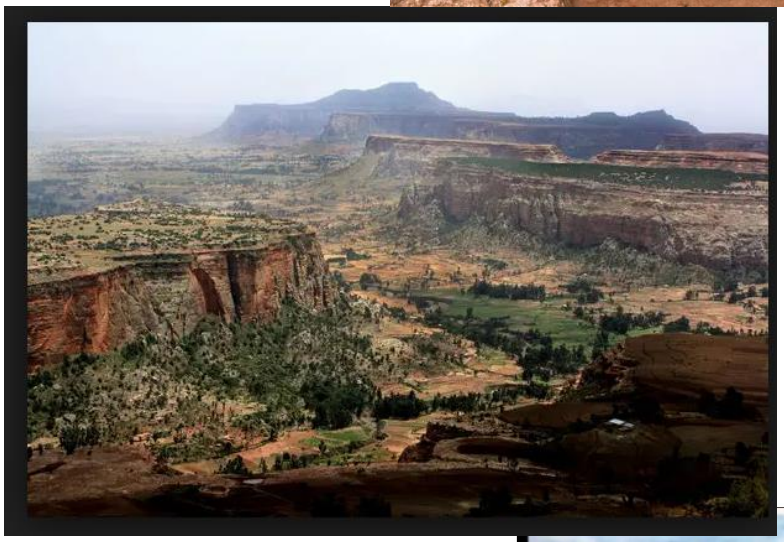
Long history of degradation in Ethiopia

Compounding factors

- Arable areas in highlands are densely populated
- Long history of settlement – ancient churches 700-1300 AD



- Rainfall less than 800 mm/y
- Mountainous
- Drought, war, famine - 1983-5
- Attempts to move population into lowlands during Derg regime – hot and malarial
- More felling of trees after fall of Derg in 1991



Since then vast sustainable land management programs – top down but with huge community involvement – not quite FLR but aspects of it

- Built on a history of annual free labour contribution
- Reinforced by cash transfers graduation programmes - Productive *Safety Net*
- 40 days communal labour a year, often terracing

Note tha landscape dominated by eucalyptu

Much of the SLM work focuses on holding on to water – gabbions, sand dams, check dams.

Where there is water, some biomass comes back. Agriculture becomes possible. Youth return.

Closing off areas to people and cattle to allow regeneration- practice of ‘exclosures’

Using grass to stabilize banks and soil

SLM introduced nurseries but species are limited

Success: the story of the Abreha we Atsbeha, a community that did FLR without calling it that, like Hojancha.

But just as that success comes in -- climate change affecting key & iconic species

Very little if any regeneration or recruitment of *Boswellia*, **Frankincense**

- Die back of *Juniperus procera* and *Olea Africana* which are main species on mountains

So what about FLR? **In 2016 Ethiopia committed to restore 15 million hectares.**

"This will require scaling up successful tree-based approaches to improve crop and livestock practices, food security, and farmer income; protect and re-establish resilient and productive forests rich in biodiversity; develop the forestry sector and wood- and forest biomass-based technologies, expand renewable power generation for domestic and regional markets."

- Ethiopia intends to expand its existing 15.5% forest cover to 30% by 2030.

Despite strong background in SLM, major challenge

- FLR requires the use of multiple tree species at the same time.
- In Ethiopia, as in most countries, the availability of seed of diverse species is limited, posing the risk of restoration based only a handful of species.

Provision of Adequate Tree Seeds Portfolio (*PATSPO*) Project

- Commission for Environment, Forestry and Climate Change of Ethiopia (CEFCC)
- Ethiopia Environment and Forest Research Institute (EEFRI)
- The four regional tree seed centres in Bahir Dar, Sebeta Hawasa, Mekele and CEE-FRC (seed centre)
- Private seed dealers, farme cooperatives & church
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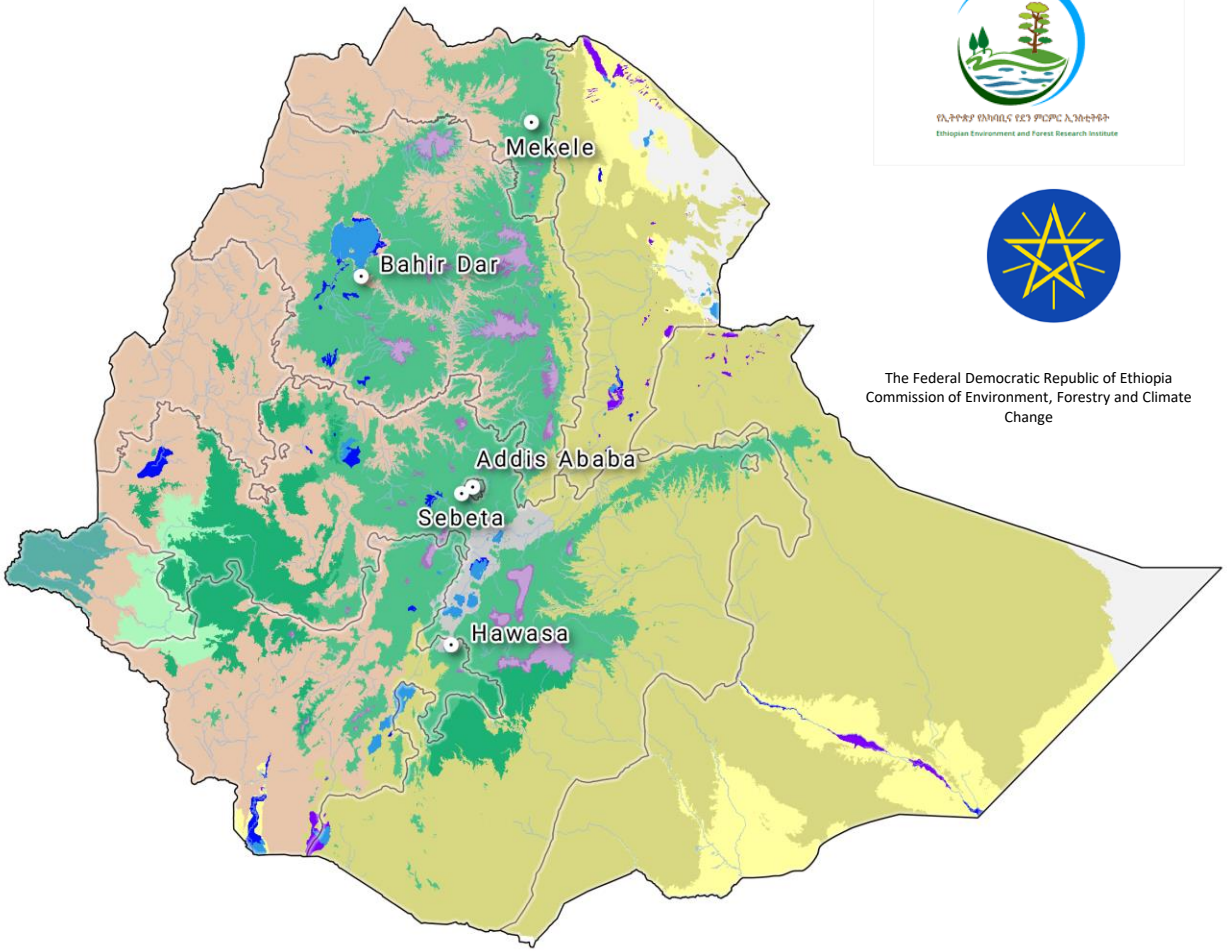
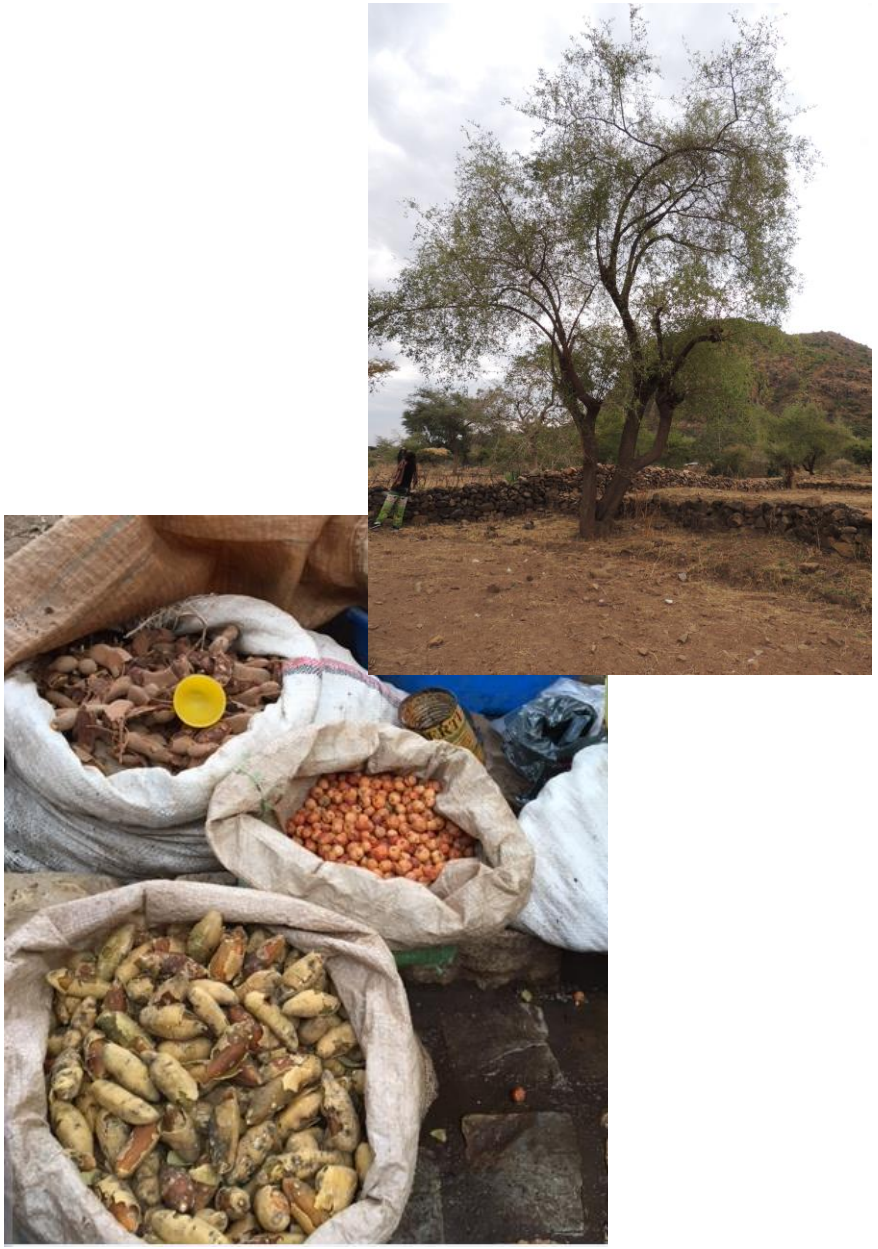


The Federal Democratic Republic of Ethiopia
Commission of Environment, Forestry and Climate Change

Norway's International Climate and Forest Initiative (NICFI)

Ethiopian church forests are repositories of seed

- PATSPO is supporting the Ethiopian tree seed sector, with the aim of invigorating and enabling it to provide high quality tree seed of priority species for largescale restoration.
- 150 species of priority among the approximately 1200 woody species that are indigenous to Ethiopia



Tree seed sector analysed and developed, including delivery systems

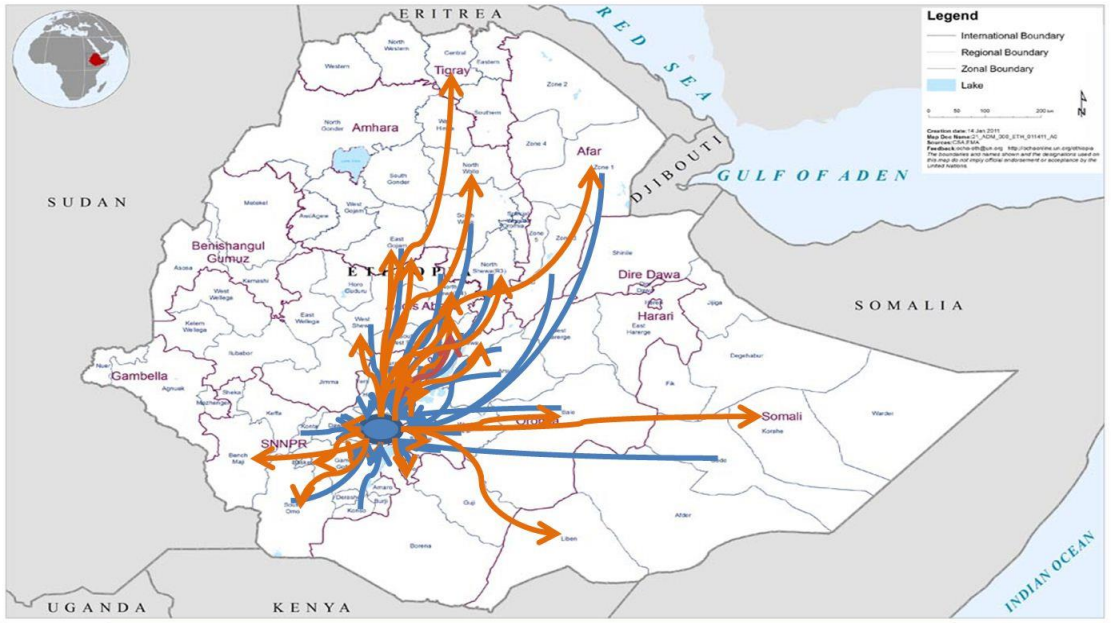
<u>Main Activities:</u>

i)Seed sector assessment;

ii) Develop policies and strategies;

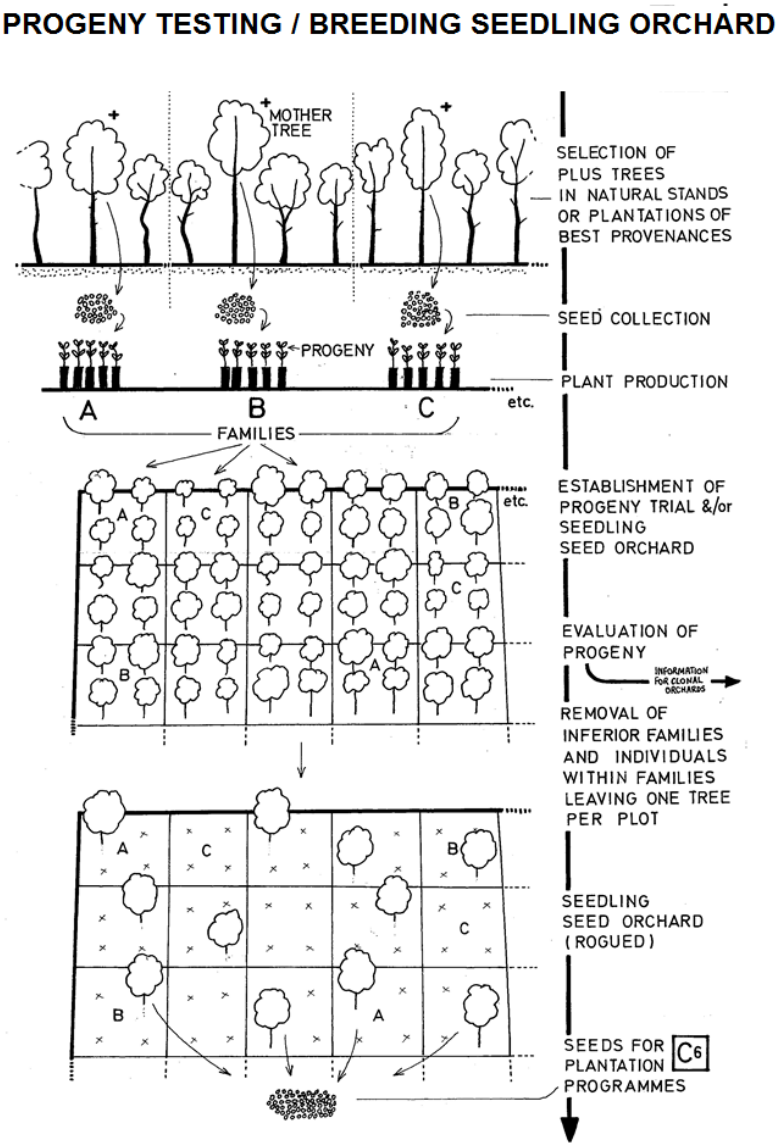
iii) Establish a 'tree seed network';

iv) Market intelligence and input supply systems.



Five breeding seedling orchards established

- Two species: *Cordia africana* all tree sites, *Grevillea robusta*
- Total area approx. 7 ha.; more that 13000 seedlings and 3000 meters of fence.
- Seeds from Australia, Kenya, Uganda and Ethiopia.
- More than 25 provenances and 225 single tree collections with family identity in the BSOs.



Tree seed and seedling knowledge and information systems modernised

Main Activities:

i) Develop Habitat Suitability Maps and Recommendation Domains;
ii) Document genetic differentiation of selected species based on field trials;
iii) iii) Genetic differentiation of selected species based on genomic studies;
iv) Develop a decision support system and interactive information portal (“choosing your tree for planting”).

Capacity building of the national and regional tree seed sector in Ethiopia

- Training, education and awareness programme, capacity building for major actors (e.g. seed centres, extension services) in the tree seed sector in Ethiopia
- Essential equipment for major national and regional organisations.
- Capacity platform to contribute new knowledge to higher education and for technology transfer

Is this FLR?

- It is a part of it.
- Population 90% dependent on fuel wood/biomass for energy - willing
- It will provide incomes from seed collection and processing, nursery establishment and when done in conjuncture with water management has been shown to restore livelihoods
- Necessary but not sufficient.
- Necessary partly because seed bank in the soil depleted. Gaps between forests far.
- Not sufficient because grazing and other practices are a threat
- But optimism is warranted given that control of livestock and other measures have become ingrained under SLM.