Impact of agroforestry on Landscape restoration for improved productivity

REGIONAL MINISTERIAL ROUND TABLE
EAST AFRICAN COMMUNITY
AND BONN CHALLENGE COUNTRIES FROM SADC
AND IGAD

July 26th -27th 2016

Kigali, Rwanda

Venue: Kigali Convention Complex

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Outline

- Land degradation in Rwanda:
  Major causes

- Consequences of land degradation on
  - Economic
  - Social
  - Environmental

- What agroforestry can do to restore degraded land, forest and improve soil productivity

- Approach for scaling up agroforestry technologies packages to meet land restoration at scale / Bonn challenges
Major causes of land degradation in Rwanda:

- Deforestation and poor management of woodlots
  - Erosion
    - Overexploitation and acidification
      - Land degradation
        - Soil Erosion + Low soil fertility
          - Food insecurity + malnutrition
            - Poverty, livelihoods
Consequences of land degradation

- 65% of Africa’s land is affected by degradation (700 million hectares)
- 2.8 M hectares of annual forest cover loss (Dakhite ---)
- 39% of cultivated land in Rwanda fall under the high erosion risk categories (MINAGRI, 2004)
- A total soil loss of about 15 Million tonnes per year, equivalent to loss of the capacity to feed 40,000 people annually (MINAGRI, 2004).
- River Pollution (Nyabarongo, Sebeya etc.
- 3% of DGP is lost annually from soil and nutrient depletion on farmland
Agroforestry Technology Package 1 for land Restoration

- AF tree species adapted for each land use systems (MAP) with appropriate packages
- Right tree to the right place
Package 2 for land restoration in Rwanda

- ICRAF, MINIRENA and RAB work together since 1988
- to establish TSC and provide qualitative and quantitative seeds and seedlings
- Need more attention to achieve
- Bonn Challenges
Package for restoring degraded land by soil erosion

- **Slope ranges**
  6-30%

- **Favour infiltration**

- **Appropriate to**
  volcanic soils and fragile soils (Sand soil)

- **Reduce erosion up**
  70% - 80%

Progressive terrace and restore soil carbon on bench by fertilizer trees
Package 3 Fertilizer trees for land restoration

Agroforestry Contribution

- AF Contribute significantly on soil fertility improvement, income and food security
- Increase organic carbon and N through fertiliser trees
- Combination of organic matter + inorganic fertilisers: efficient use of mineral fertilizers
The majority of Africa particularly Rwanda uses biomass energy, essential in rural areas.

A farmer shows a big harvest of firewood from a relay fallow of Tephrosia.

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Package 4 Biomass energy

- Biomass*: 56%
- Electricity: 9%
- Coal: 4%
- Petroleum Products: 25%
- Gas: 6%
Package 5: Trees Shade coffee

- Improve coffee quality
- Increase income for small holder
- Biodiversity
- Efficient use of fertilizers
- Increase Soil Carbon

Trees shade in Rubavu, Rutsiro
Examples of Landscape restoration

Karago watershed management

Before intervention

After intervention

Before intervention

After intervention

Ghana Project FMNR de Talensi

Forestry Restoration by FMNR in Ethiopia
Approaches for Scaling up massive agroforestry for landscape restoration

- Define the target and indicators
- Farmer Field School approach/ Twigire muhinzi
- Involve private sector (Woodlot, Tea, coffee)
- Stakeholder organization (R4D, IP)
- Germplasm availability
- Capacity development
Constraints to apply this approach

Lack agroforestry strategic plan
Agroforestry policy to be separated with Forestry policy
Define target and indicator