Eritrea’s Experience in Dryland restoration

KEFRI, Nairobi, Kenya
February 22-24, 2016

Zerai Sultan
Ministry of Agriculture
Major interrelated Challenges in Agriculture / Environment

For Food insecurity and biodiversity loss

1. Climate change
2. Desertification
3. Land degradation

1. Diverse climate & complex soils

- Sahelian Zone of East Africa (frequent & prolonged drought). => (> 70%) Arid to semi – arid very hot ( > 24°C);
- RF - extremely variable in space and time (high intensity, short duration storms) => heavy floods.
2. Natural resources declining / biodiversity loss due to drought, deforestation, Overexploitation, Soil erosion / loss of soil fertility and prolonged war.

**Forest status trend in a century = 30% to < 1%**
Some Factors contributing to Environmental problems:-

1. Deforestation:

- Fuel wood

- Agricultural expansion & Charcoal making

This house (hidmo) takes a staggering 100 poles (250 - 300 M³ wood biomass)
2. Soil Erosion

- Inappropriate land Use practices, improper farming practice (riverine areas), limited SWC, etc

3. Over exploitation

- Overgrazing
- Inefficient use of the resources (e.g. irrigation / ground water), low level of surface water dev’t,
INTERVENTIONS related to Dryland Restoration

Though the GGW not yet initiated the government has done a great endeavor that supports biodiversity conservation, environmental maintenance and poverty reduction
MoA - Vision & Mission

Vision

“Modern, efficient, competitive and sustainable agriculture sector to promote high value products through irrigation development”.

Mission

• “Creation of technologically advanced agriculture sector to contribute to food security, economic growth and improvement of the livelihood of Eritrean society”.
MoA Strategies

• Transforming the traditional subsistence to modern irrigation driven production system
• Increasing income of farmers through improved cultivars/breeds, practices & technologies;
• Enhancing national capacity
• Developing & managing natural resources through SWC practices, & proper utilization.
• Conducting Agricultural Research
• Strengthening trilateral linkages b/n research, extension & farmers
National Agricultural Policy and Strategies related to Natural Resources Management

Policy

- Promote *soil and water conservation* in catchment areas, farmland and along the rivers and streams
- improve the ecosystem through *natural regeneration*;
- Promote the *development of NWFP*; and
- Promote and Ensure the *sustainability of the Environment*

Strategy

- To address the interlinked problems of poverty, food insecurity, land degradation, and biodiversity loss through *community mobilization in SLM practices*. 
Vision on GGWI - Eritrea

To insure proper protection and judicious use of the environmental resources through effective harmonization of policies and programmes aimed at achieving sustainable socio-economic development in the country
OUR Motto

“We have not inherited this planet from our ancestors. We have borrowed it from our children”
1. Public Awareness Raising

- Religious leaders, students and other community members have been trained and sensitized on the need of land reclamation and environment conservation as a key strategy to proper natural resources management.

This will motivate a change in attitude
National Greening Day
Greening Day awards
2. Establishing enclosure & proposed Protected areas

<table>
<thead>
<tr>
<th>Enclosure (ha)</th>
<th>At present</th>
<th>In 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent</td>
<td>94,009</td>
<td></td>
</tr>
<tr>
<td>Temporary</td>
<td>214,133</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>308,142</td>
<td>334,477</td>
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<tr>
<td>National Park</td>
<td>188,527</td>
<td>214,862</td>
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</tbody>
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Semienawi Bahri
Closure establishment

Enclosure is an area kept back from livestock grazing, farming, settlements or tree cutting
(2 types Permanent & temporary)

Uses of enclosure:
• natural regeneration
• Protect the endangered species from extinction
• control run-off / Soil erosion downstream & retains moisture, improves ground water recharge
• Pastoral reserves for livestock and woody biomass for the local people will result
Benefits of community enclosure

In permanent enclosures, the surrounding communities obtain as many benefit as possible and as early as possible. These benefits include:

- Cut and Carry grass
- Collection of dry wood
- Collection of wild fruits and traditional medicines
- Placement of bee-hives (but care with fire!).

Enclosures that are being used for bee-rearing

Cut and carry by vehicles as well as by manpower
3. Planting trees/shrubs & SWC activities

1. Social Mobilization
2. National Service
3. Students summer campaign

Community

Diversion canals / spate irrigation

Check Dams
Activities | At present | Plan (3-years)
---|---|---
Planting Trees | 11,000 Sq km (20576 in last 5 Yrs) | 16 mil seedlings (8750 ha)
SWC | - Farmers in their farm  
- Spate irrigatn = 14,500ha | - 31,900 ha in 2018
SWC activities by the community
Bench terrace on farm land

Stone bund terrace on farm land

SWC at Farm land - increased yield by 40% (Mai Aini Area)
Hillside Terrace Construction  Zoba Debub
From Sand dunes to fertile soil (Eastern lowland)

Sand dunes → Initial stage
Final outcome → Structural intervention
Eritrean Green Clubs and afforestation

Main activities:
• Awareness raising
• Tree planting campaign and initiatives
• School tree nursery establishment

No. of Green Clubs 126 with 13,613 members
Source of seedlings

Handling

Watering

Planting
4. Improved stove (Mogogo)

<table>
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<tr>
<th>Adhanet Mogogo</th>
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<tbody>
<tr>
<td>At present</td>
</tr>
<tr>
<td>5 Years</td>
</tr>
<tr>
<td>In 2018</td>
</tr>
</tbody>
</table>

5. Alternative Energy

- About 300,000kwh **solar energy** for d/t agricultural activities
6. Construction of Dams, ponds & check dams for
- **Drinking**
- **Irrigation**: Irrigated & supplementary irrigated agriculture

=> *Current = 54,000ha & potential land for irrigation 600,000 ha*

>10 million m³ each dam

**Gerset**

**Fanco**

**Maize under sprinkler irrigation**
Community involvement in pond construction
Community efforts to construct check dams and ponds

Water relief for drinking and irrigated agriculture
Masonry check dam construction in Tsilma Plain

Low water table

Construction of check dam

Adequate water for drinking and irrigation
## Last 5 Years

<table>
<thead>
<tr>
<th>Project</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hillside Terracing (Ha.)</td>
<td>14,000</td>
</tr>
<tr>
<td>Check Dam Construction (m3)</td>
<td>1,185,153</td>
</tr>
<tr>
<td>Stone Bund Terrace km</td>
<td>1,185</td>
</tr>
<tr>
<td>Soil Bund Terrace km</td>
<td>2,650</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Project</th>
<th>Number</th>
<th>Capacity/Area</th>
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<tbody>
<tr>
<td>Dam construction (No)</td>
<td>45</td>
<td>135 Mil M3</td>
</tr>
<tr>
<td>Pond construction</td>
<td>67</td>
<td>2.65 Mil M3</td>
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<tr>
<td>Spate and Surface irrigation</td>
<td></td>
<td>57810 Ha</td>
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7. Providing improved species/varieties and breeds (from Research)

Local - , Cross - & Exotic - breeds adaptable to our condition

Eg. Livestock – for milk production – Barka,

- Crops and trees species

7. Diversification of crops (improve nutrition & soil fertility): Cereals 50%, oil crops 25% and legumes 25%
ex-fighters are assigned as national inspectorate

Inauguration ceremony of the National Forest and wildlife inspectors by H.E President Isaias Afewerki
Conclusion

• It has a high expectation that the GGWI will enhance the ongoing projects aimed at food security through increasing agricultural products, soil and water conservation, afforestation and other activities.
THANK YOU
For your Attention !!