Welcome to Roads for Water Guided Learning
Negative effects of roads on water movement

- Road development changes runoff patterns; often causing concentrated water flow.
- Road development alters sub-surface water flow.
From **problem** to **solution**

Water is an important cause of damage to roads whereas in turn roads are a major cause for **local flooding, compaction and erosion**. These **problems** can be easily turned around into a **Solution**.

Bringing together agriculture, road and water practitioners, local governments and roadside communities to implement different **solutions**:
The benefit of road water management

- Moisture levels in soils will increase
- Shallow groundwater levels will increase
- Gully expansion will be stopped
- Reduction in flooding of dwelling houses and farmlands
- Reduction in damage to roads
Some results from Tigray pilots

In 200 kilometres:
• Erosion and sedimentation: 150 locations
• Flooding of houses and land: 45 locations
• Persistent waterlogging: 65 locations

Deficiencies in governance process
• Missing from guidelines
• No coordination
• No interaction with road-side communities

Social impacts
• Damage to land and houses, dust
• Poor – most vulnerable least access to potential
• No compensation, indirect litigation
What is water harvesting?

“The collection and management of floodwater and rainwater runoff to increase water availability for domestic and agricultural use as well as ecosystem sustainance.”
Road runoff

Storage Structures
- Ponds
- Earth dams
- Cisterns

Spread over land
- Bunds
- Terraces
- Pits
- Micro-basins
- Trenches
- Borrow pits

Shallow Aquifer Recharge
- Spread
- Trenches
- Recharge structures
- Tube recharge
- Borrow pits
Spread water over land

- From mitre drains water is directed to the field with ditches having a maximum slope of 1%;
- Water is slowly absorbed by the soil
Makueni, Kenya
Roads for Water Guided Learning objectives

By the end of the training, participants will:

• Be able to recall the design principles for feeder roads in different terrain and soil types

• Describe how road water damages roads and downstream land and how this damage can be reduced

• Be able to assess, plan and implement road rehabilitation works which are resilient and beneficial to roadside communities

• Describe how to better harvest, store and utilised road water for the benefit of roadside communities

• Describe the benefits of roadside vegetation
Field work introduction

• Objective:
  • Observe problems and solutions in different terrains
    • Flat
    • Rolling
    • Mountainous
  • Practice with the road inventory tool
  • Inputs to improve the tool
Road inventory tool

• Template to assess problem spots in a selected road
• To map problems and briefly describe them
• Can be done with GPS or NOT
• Base to come up with solutions and budgets
• Let's improve it together
By Group

• Explore the Inventory tool
  • Is it clear?
  • Are all the information easy to obtain in your Woreda?

• Are the information enough to do a first brief plan/budget?
  • Do you want to add something?
  • Do you want to delete something?
GPS reading

• Do you have an Android Smartphone?
• Download and install the App “My GPS Coordinates”
  • Free GPS app for coordinates reading (no internet required)
• After communicating with the satellites the phone gives you coordinate that you can use in the inventory sheet.
Let's travel together
Planning the way ahead

• Select a road in your woreda;
• Plan the road visit:
  • When can you go?
  • How many days?
  • Transport or Walk?
• Prepare your field assessment tool.
• Prepare your solution tool.
<table>
<thead>
<tr>
<th>Road name</th>
<th>Start/end</th>
<th>Importance for the community (0=low; 5 = High)</th>
<th>Water related problems with the road (0= low; 5 = High)</th>
<th>Roadwater problems in nearby land (0= low; 5 = High)</th>
<th>Totals</th>
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</thead>
<tbody>
<tr>
<td>Gaiuls road</td>
<td>From Antani to Gaiuls</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>10</td>
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<tr>
<td>Matapi road</td>
<td>From Kircha to Antani</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Boiadeh road</td>
<td>From Boiadeh to Antani</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>14</td>
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