



# The Green Roads for Water Initiative



Can we think of roads beyond transport?



Can we make roads instruments for resilience, better water management, greening, and for better health?

**YES**

We can  
&  
We should

At present, **REALITY** is different...



**Erosion and  
sedimentation**



**Local flooding**

**Roads  
are a  
major  
cause of:**



**Water logging  
(crop loss and health problems)**



**Dust  
(Health problems and crop loss)**



This can be



roads can become  
**GREEN ROADS**

# What Are Green Roads for Water?



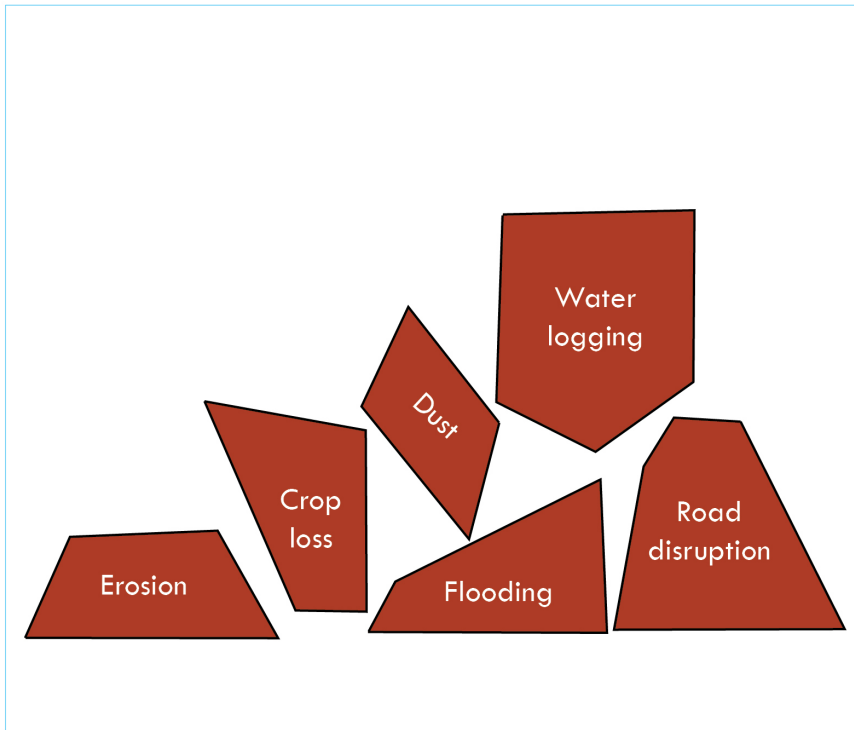
- Roads that have secure transport functions
- Roads that are instruments for water management
- Road that are used for flood protection
- Roads that stem erosion and promote good land management
- Roads side vegetation that controls dust and filters effluents

# GUIDELINE: GREEN ROADS FOR WATER

INTEGRATING WATER MANAGEMENT AND CLIMATE-CHANGE ADAPTATION  
IN THE DESIGN AND CONSTRUCTION OF ROADS

- Approach
- Geographies
- Techniques
- Governance
- Economics
- Technical Annexes

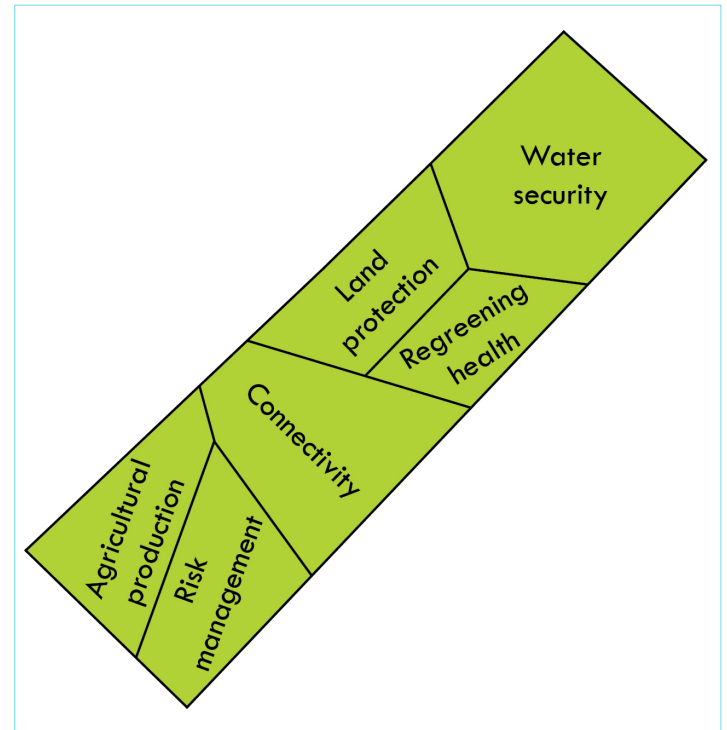
## Conventional road



We need to  
turn roads  
into



## Green road



## Why Green Roads: Big Scale and Big Impact



Roads are major investment globally  
(1-2 Tr USD/year)

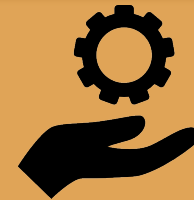
For instance: road network in SSA is to increase to 2.8 million kilometer by 2025 (up 80%)



Roads are one of the major impacts on (surface and subsurface) hydrology and flood patterns and air quality



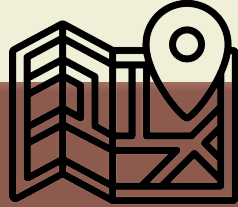
At same water causes 35-80% of road damage



Impact now often negative: turn around 'green roads' as instruments for (climate) resilience, beneficial water management and dust control



## Why Green Roads: Big Scale and Big Impact



Many tested Green Roads measures exist, suited to different geographies



Measures are low cost in comparison to total road investment (<5%) – and often saving cost of investment and maintenance



Green Roads can be a main instrument for climate resilience, health and increased agricultural production



Rate of return high (>4 in a year)

# Good news: many things can be done

Retaining water with road drifts



Feeding soil moisture with road drainage



Road side tree planting

Gardening with road side wells



Borrow pit converted to water storage



Road embankment creating storage reservoir

Harvesting fodder from culvert run-off



Water from spring opened by road construction



Safeguarding wetland functions with low embankment road



Road side recharge structures

Roads created from storage excavation



Roads leading to flood shelters, roads serving as (post) flood shelters as well



Roads controlling water tables between high and low land



Gated culverts for water management



# The Green Roads for Water Initiative:

Who are the core? (to ne confirmed)





# What are the ambitions?

- To promote Green Roads: to have roads for systematically used for water management, regreening and climate resilience throughout World Bank Operations and introduce as standard in at least 50% of countries in Asia/Africa by 2025
- To work with other organizations to adopt and support the same practices
- To fast track climate change adaptation by retooling roads for water and regreening and at the same time have more reliable transport connections



# How does what?

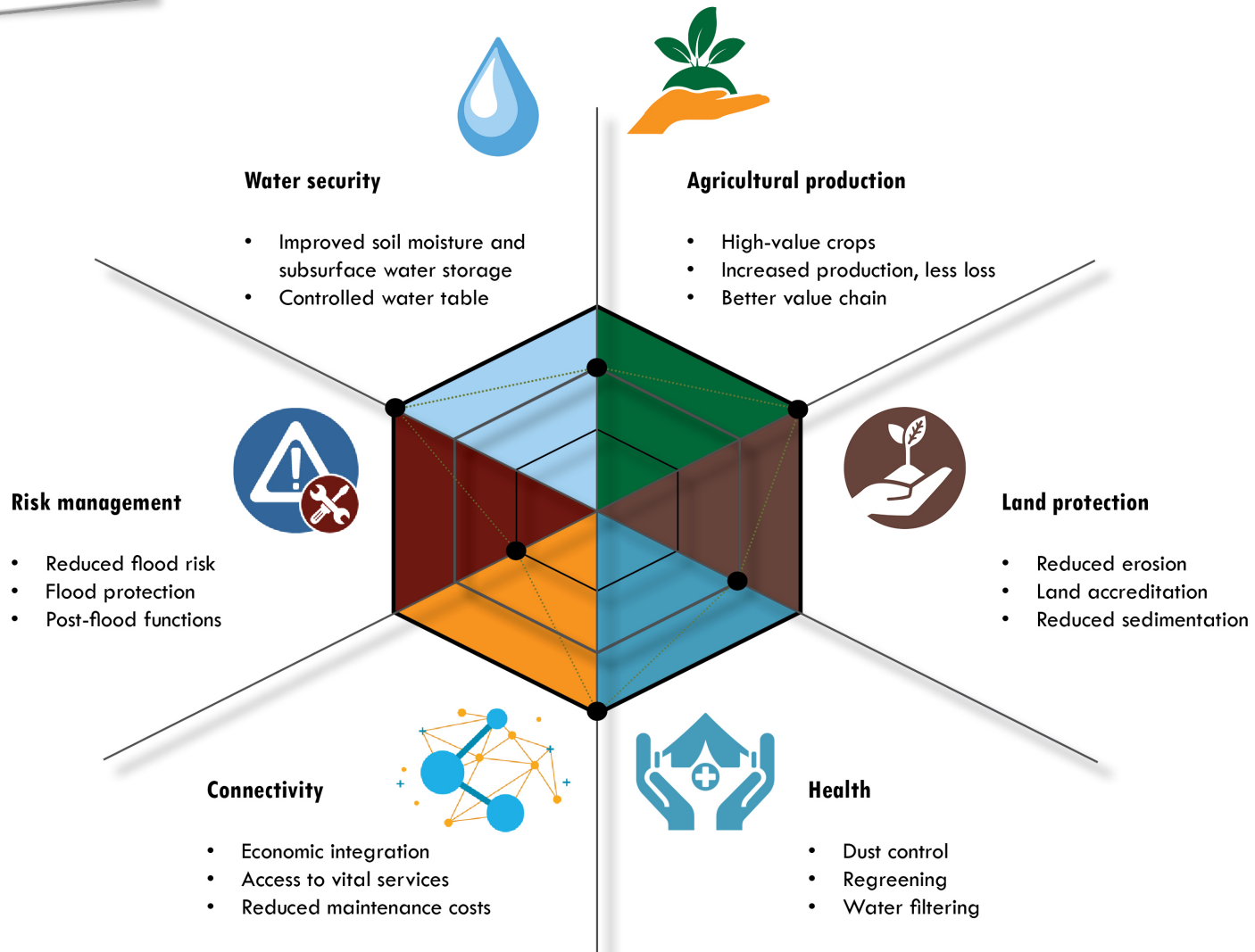
World Bank	Promote within operations, expanding learning through contacts, leadership among international organizations, financial support
MetaMeta	Lead/ coordination, operate CoP learning alliance, on the ground support, documentation. update guidelines
International Road Federation	Promote within global road community, technical support
Global Resilience Partnership	Promote in resilience community, M&E, financial support, networking
Zurich RE	Develop insurance finance modalities





# Green Roads Initiative

co-benefits such as:





# Green Roads Initiative

What will be done?

1. Mobilizing Green Finance
2. Community of Practice – Learning Alliance
3. On the Ground Support



# Green Roads Initiative

## Green Roads for Water Finance

### 1. Green Road for Water Finance

- Connect climate finance with road infrastructure in Bank
- Develop underlying numericals for additional costs and multiple benefits – co-benefits
- Prepare packages with Green Climate Fund
- Explore Green Bonds for verified Green Road programs
- Participation in co-benefits methodology -



# Green Roads Initiative

## Community of practice

### 2. Community of Practice – Learning Alliance

- Expand Learning Alliance (building on [www.roadswater.org](http://www.roadswater.org))
- Transport resilience COP (DRR/Transport) – broaden it
- Promotional training (TED Talks, webinars, blogs, presentation at events) within Bank
- Introduce technical training with (country) training institutes
- E-learning
- Monitoring and learning: promote and update Guidelines as live document
- Outreach to programs of different organizations – contribute to regional conference – SSATP/ Climate Change



# Green Roads Initiative

On the ground support

## 3. On the ground support to roads and water and greening programs – umbrella facility

- Special support to road and water investment projects (training, assessment, design)
- Support to national guidelines and capacity building
- Feed into Community of Practice



- World Bank Global Guidelines
- Support to Bolivia, Zambia, Mozambique, Tajikistan
- Interest from several other countries

## What went before





- Road for Water Programme
  - Support GRP, NWO, NERC, RAP3, Blue Gold
  - Global Road Achievement Award 2015
  - Runner Up Resilience Award 2018
  - Active in 10 countries
  - Road for Water Campaigns since 2014
  - Outreach > 6 M people

## What went before





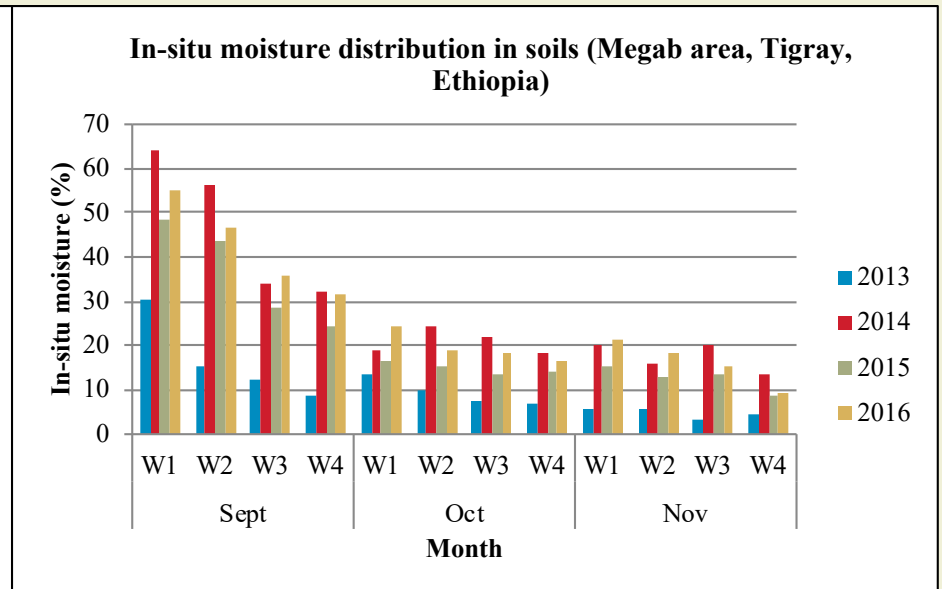
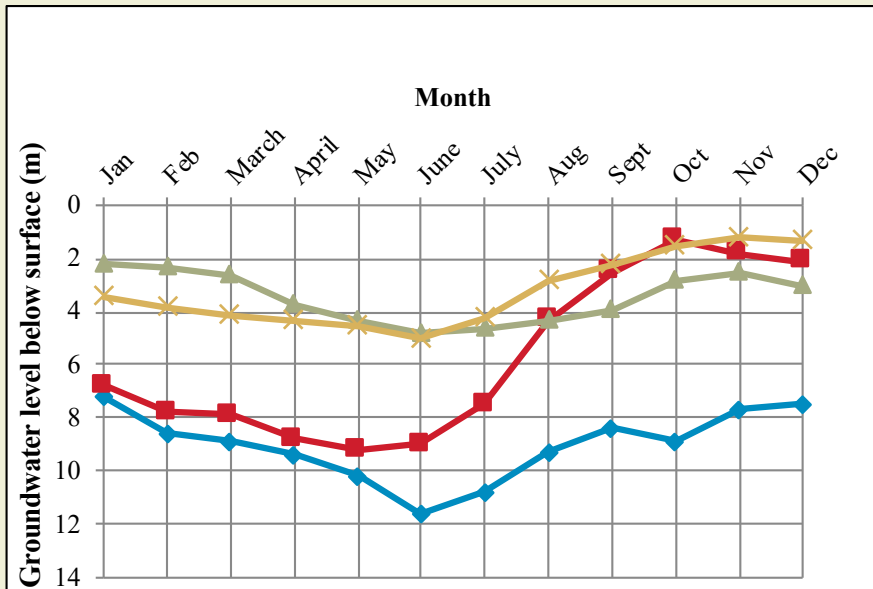
Road Water harvesting campaigns  
> 3 Million people benefitted since 2015





# Impacts

## Effects on soil moisture from road spreader



# Link resilience certification of road projects to finance

(World Bank Global Guidelines)

Road Resilience Class	
<b>Protective</b>	Roads can withstand climate change effects
<b>Adaptive</b>	Road environment modified beneficially contribute to climate resilience
<b>Pro-active</b>	Road bodies and alignments modified to optimally contribute to climate resilience



## Connecting with (in progress):

### National Programs



### Green Finance Initiatives



### Academia



### United Nations



### Bilateral & Multilateral Organizations



### Private Sector foundations



### Contractors



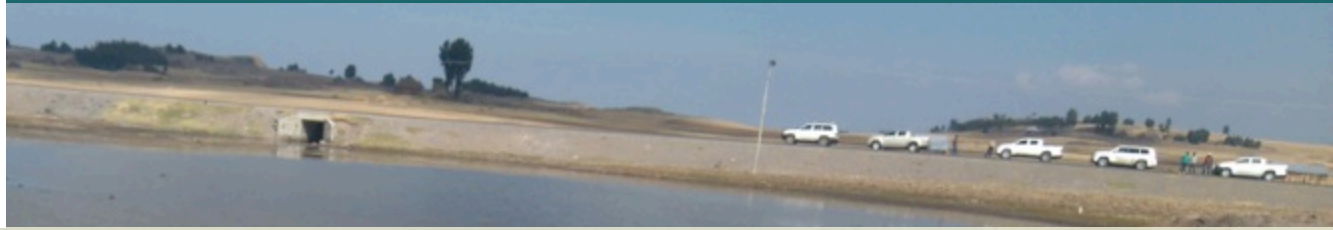
### Main NGOs





# Role of partners?

National programs	Integrate and implement, modify existing practice and governance
Green finance initiatives	Integrate in finance operations and safeguards, proote with clients
Academic organizations	Develop tools (models and designs), capacity building
UN organizations	Integrated in operations, support in networking and normative work
Bilateral/ multilaterals	Promote, network, financial support
Private foundations	Promote, network, financial support
Contractors	Implement in their operations, share good practice
Main NGOs	Implement in their operations, share good practice, development programs and follow on activities



# Be Part of the Green Roads Initiative



Converted borrow pit for water storage