Green Roads for Water Training in Sudan

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Implementation of GR4W for Water Sector

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- Water and roads-railways are major inputs of sustainable development, food and social security. The main challenge is how to design and to conduct tools and techniques to adapt and demonstrate the Climate change impact withen Sudan vast area which characterized by varies climatic, soil, topographic zones ,diversity of cultures and living activities.
- The Ministry of Irrigation and Water Resources (M.o.I.W.R) in it is strategy plan for water resource provided main space and interest for water resources allocation, managing and providing and supply for the purposes of the development and (food - social) security programs.
- Road and railway one of main important efficient water harvesting and floods management techniques, which can be integrated and adapted and managed under the policies and regulations of the Ministry of Irrigation and Water Resource, Ministry of Transportation (M.o.T) , and National Highways Authority (N.H.A) and other related sectors and organizations to meet the final goal of supporting the development, ecosystem and (food-social) security.
- GR4W is program been conducted and prepared to provide and support technicians and decisions makers as a guide of how to integrate and manage the relation between roads and crossing water ways to maximizes the benefits and to reduce the threats in integrated management concepts.

GREEN ROADS FOR WATER

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GR4W Regime	Geo-environment	Issue	Proposed intervention	Actors	Responsibility	Expected challenge
Areas of intensive Irrigation	• Flat land • Highland • Depression • Soil types • Clay soil • Black cotton soil • Sandy clay and silt	• Drainage • Flash floods by lands • Environmental impact from pounds • Human interventions and vandalism • Finical and fund issues	• rehabitation • planning drained and irrigations structure along the roads (GR4W). • Using pumps • Small local fund for pilot project • Remodeling • Weather stations • Injections wells • Manual and guidelines for road water harvesting	MoIWR	• Planning, design and implementing • Technical support • Policy and laws • Community engagement • Rehapitaions	• Fund • Lack of data • Coordination • EIA studies
				Mo.T and N.H.A	• Planning, design and implementing	
				Mo.F	• Fund • Economical polices and regulations	
				M.of Justice	• Regulations • Projects Laws enforcement	
				NGOs	• Capacity building • Increase Awareness	
				Community	• Sharing • protection	
				Privet sectors	• Investing	
				M of Agriculture	• Land use land cover management a	

GR4W Regime	Geo-environment	Issue	Proposed intervention	Actors	Responsibility	Expected challenge
Rain fed Agriculture Areas	• Flat land • Highland • Depression • Soil type -Clay soil -Sandy clay -Rocks -Silt clay	• Floods • Drainage • Climate impacts • Intensive rains • High runoff • Drought • Lack of Data (hydrology, climatic and meteorology • Local roads • Sedimentation	• Road water harvesting	Mo.I.W.R	• Planning, design and implementing • Technical support • Policy and laws • Community engagement	• Fund • Lack of data • Coordination • Conflict. • Security issues
				Mo.T and N.H.A	• Planning, design and implementing	
				N.G.Os	funds	
				Private sectors	Funding and implementation	
				Community	Share and protection	
				Mo.A	Land use land cover management	

GR4W Regime	Geo-environment	Issue	Proposed intervention	Actors	Responsibility	Expected challenge
The Agro-Pastoral Areas	• highlands • mountains • rivers • wadies • soil type (Sand clay, clay, sand	• Water harvesting • Paces and conflict issues. • Transportations • Food security • Climate and environmental impacts • Funding • Lack of data	• Water harvesting techies for GR4W • rehabitation • land cover protection • increase agriculture area • ground water recharge. • Polices • social • interventions	MoIWR	• Planning, design and implementing • Technical support • Policy and laws • Community engagement	• Diversity of community. • Security threast • Transboundary conflicts. • Migration • Funding • Lack of data
				MoT and NHA	• Planning, design and implementing	
				HCNR	• EIA support	

GR4W Regime	Geo-environment	Issue	Proposed intervention	Actors	Responsibility	Expected challenge
The Coastal Areas	• Mountains • Red see • Silt clay • Sand • Topography • Rocks	• Heavy rain. • Water logging. • High runoff	• Use road and highways to prevent the floods • Manage floods through road water harvesting. • Can use surplus water in fishing and planting	MoIWR	• Planning, design and implementing • Technical support • Policy and laws • Community engagement	• Interference between the see water and ground water. • Fund • Lack of data • Climate change. • Local communities
				NHA	• Planning, design and implementing	
				State government		
				Local community		

Thank you!

For more information visit www.roadsforwater.org
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