

Technology Needs Assessments (A GEF Funded UNEP Project)



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TNA Project Highlights

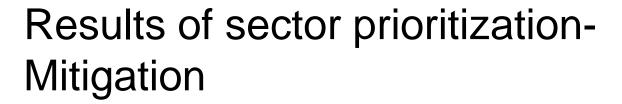


- TNA Project start date November 2009
- Selection of 15 countries for the first round –
 December 2009
- Completion of work by first round countries due in
 18 months June/ July 2011.
- Second round, involving 21 countries launched October 2010 (Bhutan, part of this 21 countries)
- Submitted to UNFCCC in March 2012

TNA- Project Objectives

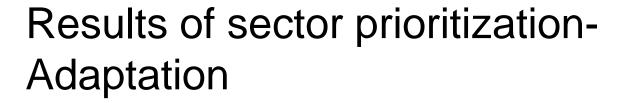


- To identify and prioritize, through country-driven participatory processes, technologies that can contribute to mitigation and adaptation goals of the participant countries, while meeting their national sustainable development goals and priorities (TNA).
- To identify barriers hindering the acquisition, deployment, and diffusion of prioritized technologies.
- To develop Technology Action Plans (TAP) specifying prioritized technologies, activities and enabling frameworks to overcome the barriers and facilitate the transfer, adoption, and diffusion of selected technologies in the participant countries.





			Economic development priorities	Environment development priorities	Social development priorities	GHG reduction potential	Mean
	Sector	Sub-sector	Mean	Mean	Mean	Mean	
Д		Enteric Fermentation	2.8	3.3	3.1	3.6	12.8
	Agriculture	Manure Management	3.4	3.5	3.6	3.4	13.8
		Agricultural Soils	4.1	3.8	3.7	3.1	14.7
	Energy sector (Fuel	Manufacturing Industries & Construction (3)	4.0	3.7	3.4	4.1	15.2
(combustion activities)	Transport (1)	4.1	3.9	3.4	4.3	15.6
	Industrial	Mineral Products	3.6	3.7	3.2	3.5	14.0
r	processes	Metal Production	3.6	3.6	3.2	3.6	13.9
	Waste	Solid Waste Disposal on Land (2)	2.9	4.5	4.1	4.0	15.5





	Economic development priorities	Environment development priorities	Social development priorities	Vulnerability reduction potential	Mean
Sub-sector	Mean	Mean	Mean	Mean	
Human health	3.9	3.2	4.1	3.6	14.8
Water resources (1)	4.5	4.3	4.0	4.3	17.1
Agriculture (2)	4.3	3.8	4.2	3.8	16.0
Forest and biodiversity	3.2	4.2	3.3	4.1	14.8
Natural disaster and infrastructure (3)	4.0	3.6	4.1	3.8	15.4





Technology Needs Assessment Mitigation & Adaptation

Technology Prioritization

IDENTIFIED TECHNOLOGY OPTIONS FOR THE Transport SECTOR



Transport Management Systems	
Mass Transit /Public Transport	
	Non-motorized Transport

IDENTIFIED TECHNOLOGY OPTIONS FOR THE WASTE SECTOR



Composting	
Reduce, reuse, recycle (3 Rs)	
	Anaerobic digestion/ biogas plants

IDENTIFIED TECHNOLOGY OPTIONS FOR THE INDUSTRIES SECTOR



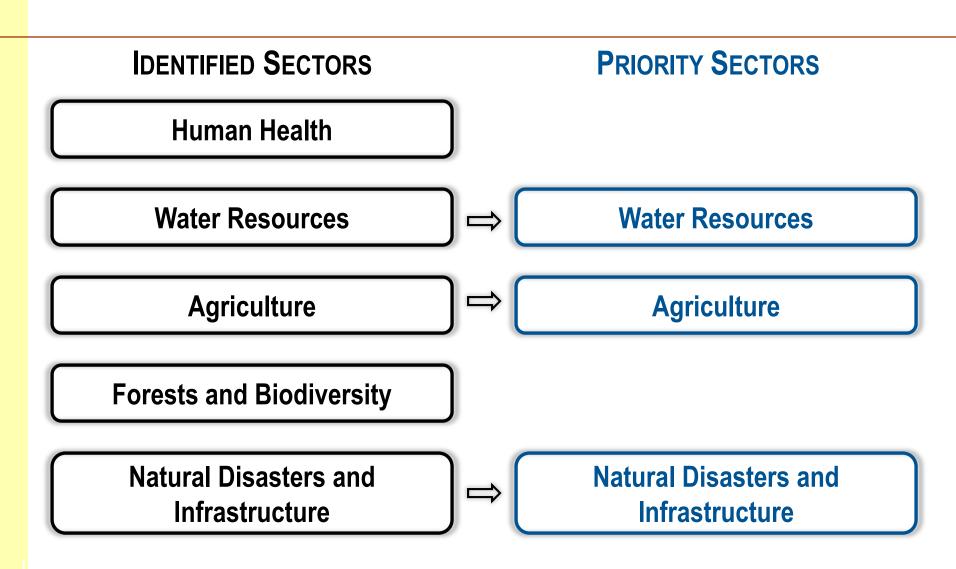
Construction of energy efficient infrastructure (Energy efficiency in construction)

Improvement in process-related energy efficiency (Cement, iron and steel and ferro alloy industries)

Anaerobic digestion/ biogas plants



Technology prioritization: Adaptation



IDENTIFIED TECHNOLOGY OPTIONS FOR THE AGRICULTURE SECTOR



Agro-forestry

Greenhouse farming

Development of drought- and pestresistant crop varieties

Climate-resistant productive livestock breeding

Storage techniques for grains and seeds

Seasonal weather forecasting system

Integrated pest management

Genetic profiling of indigenous crop varieties

Sloping Agriculture Land Technology

Index-based climate insurance

Priority TECHNOLOGIES FOR THE WATER RESOURCES SECTOR



Water use efficiency methods

Efficient irrigation methods

Rainwater harvesting (for groundwater recharge and run-off control)

Demand side management

Micro/ mini hydel

Rainwater harvesting (rooftop)

Reduction of chemical contamination

Solar (rooftop photovoltaic)

Waste to energy

Biomass

Wind

Soil erosion controls

IDENTIFIED TECHNOLOGY OPTIONS FOR Natural Disasters and Infrastructure SECTOR

River training works

Climate-resilient roads

Real-time weather stations and multi-range forecasting

Community-based early warning system

Forest fire management

Climate-resilient engineering and construction of private houses and public buildings

GLOF risk reduction

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Development of technology action plan projects



Project Ideas for TAP: Adaptation

- Technology Action Plan for Agriculture Sector
 - Action Plan for Drought and Pest Resistant Varieties of Crops
- Technology Action Plan for Water Resources Sector
 - Action Plan for Drip and Sprinkler Irrigation Systems
- Technology Action Plan for Natural Resources and Infrastructure Sector
 - Action Plan for Climate Resilient Farm Roads



Project Ideas for TAP: Mitigation

- Technology Action Plan for Solid Waste
 - Action Plan for Composting
- Technology Action Plan for Transport
 - Action Plan for Intelligent Transport System
- Technology Action Plan for Industries
 - Action Plan for Waste Heat Recovery Technology

TECHNOLOGY MECHANISM In Bhutan



- CTCN: NDE appointed (National Environment Commission: NDE)
- NDE: Structure

- TAP
 - Transport (Intelligent transport system)
 - Proposal submitted to CTCN
 - Energy: Heat Recovery (preliminary study done)
 - Specific assessment
 - Pilot



Thank you for your kind attention