



**TNA**  
**through TAP's to Concrete Actions:**  
**Costa Rica experience**

**Durban**

**November 2011**

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- TAPs: Main TNA Outputs
- TAP for the transport sector
- TNA Process
- Conclusions



# TAPs: Main output from TNA process

Sector	Technology	
Energy / Transport	Integration of Public Transport and Road Decongestion	Mitigation
Energy / Electricity	Electricity Efficiency and Conservation	
Water	Adaptive Co-Management of Watersheds	Adpatation
Metrics	Detailed Climate Scenarios of Vulnerability	Both
Agriculture	Sustainable Agricultural Production	

Technology action plans for 5 technologies defined by MINAET



## EXAMPLE FROM TNA



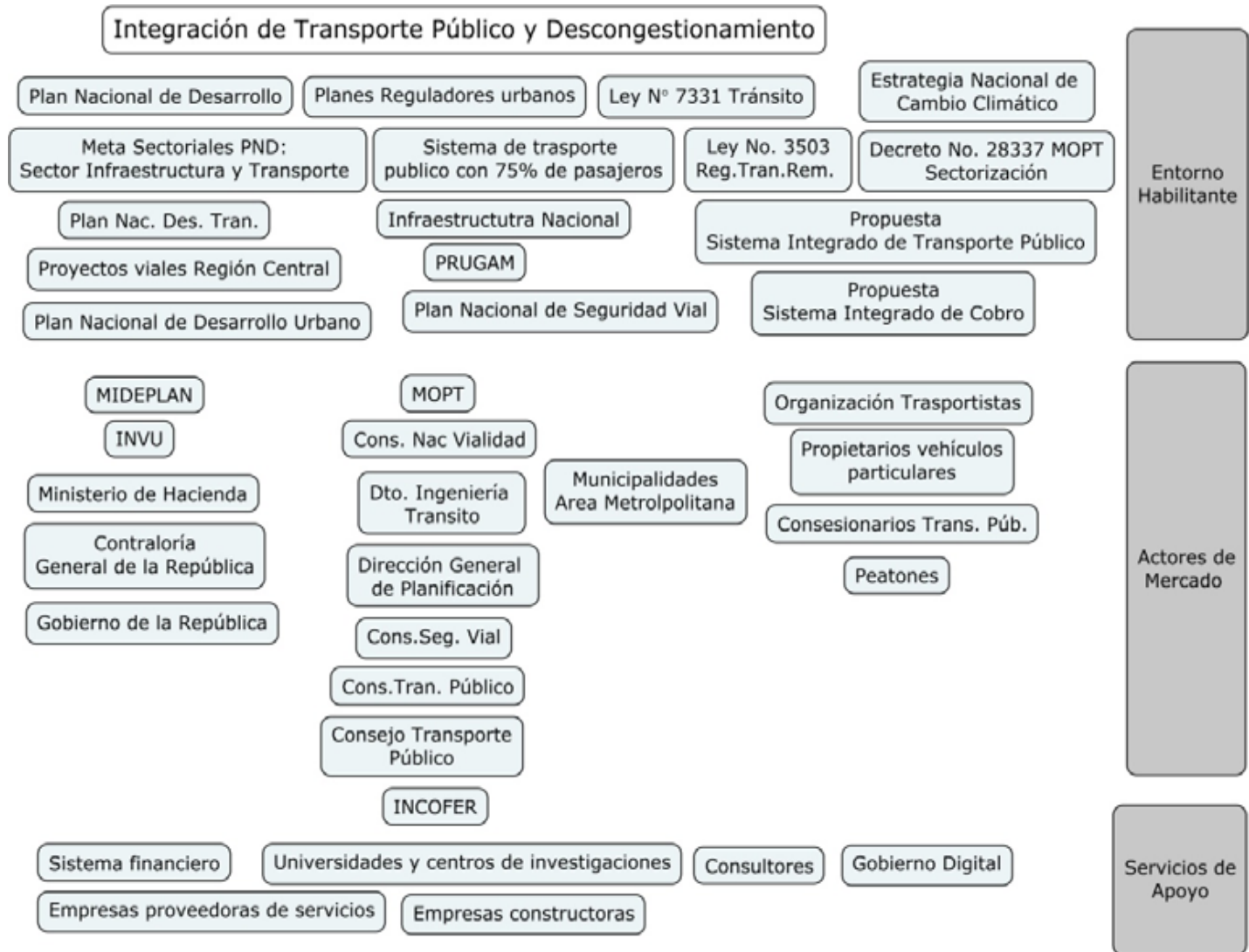
## Technology Action Plan for Integration of Public Transport and Metropolitan Road Decongestion



Goal of reducing emissions by saving fuel of 17,759,251 tons of CO<sub>2</sub> over a 20-year period



# Market Mapping



# Barrier Analysis



## Economic and Financial Barriers

Difficulty in obtaining financing from international cooperation

Scarcity of state resources for infrastructure investment

Poor use of financing structures and limited budget

Difficult budget execution

Unfavorable economic environment (liquidity constraint)



## Market Barriers

Pay differential between public and private employees

Concentration of power in a few transport operators

Encouragement of individual transport



# Barrier Analysis



## **Barriers to Institutional Organization**

Limited implementation capacity

High institutional and mandate fragmentation

High Sector Fragmentation

Weak coordination and joint execution

Dispersion in transportation planning

Lack of long-term planning

Planning with limited capacity for implementation

Chambers of transport operators with too much power

## **Capacity and Skills Barriers**

Low technical expertise and human competence

Poor implementation of quality controls

## **Barriers in communication**

Insufficient information systems

No media strategy

# Barrier Analysis



## Policy, Legal and Regulatory Barriers

Excessive legal red tape

Strenuous bidding processes

Lack of political commitment

Difficulty for expropriation

Permissive legal framework



## Barreras sociales y culturales

Users unfamiliar with payment systems

Low confidence in mechanisms of public works  
concession

Little understanding of the national transport needs

## Environmental Barriers

Persistent exposition caused by natural agents



# Measures to create the framework for overcoming barriers

## Policies, Legal and Regulatory

1. Establish private fleet management actions (standards, import fleet age, etc)
2. Integration with urban plans and policies and other modes of transportation
3. Change law to speed-up expropriation
4. Legal changes to streamline administrative contracting

## Economic and Financial

5. Define policies and standards for operation of concessions, structured financial products and private-public partnerships



# Measures to create the framework for overcoming barriers

## Institutional Organization

6. Separation of regulated sectors from MOPT Councils.

7. Review tariff models

## Communication

8. National Plan to raise awareness and promote road safety education



# Measures to accelerate deployment of technology

Strategic Measure	Accelerating innovation	Accelerating deployment	Accelerating diffusion
<b>Network creation</b>			
Create network of stakeholders for sectoral participation		✓	
<b>Policies and measures</b>			
Issue a General Policy on Transport		✓	
Establish Transportation Master Plan	✓		
Establish a Metropolitan Infrastructure Master Plan	✓		
Establish a Master Plan for Metropolitan Road Decongestion	✓		
<b>Organizational/behavior change</b>			
Strengthening a Transport Sector Council for policy-making and planning		✓	

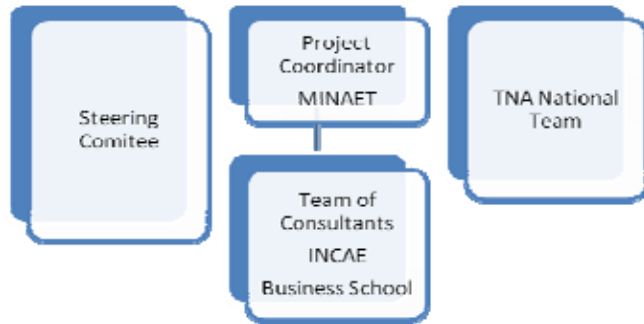
Strategic Measure	Accelerating innovation	Accelerating deployment	Accelerating diffusion
<b>Market support</b>			
Define and promote policies, legislation and incentive regulation		✓	
Design budget in accordance with transport tasks		✓	
Promote the national electronic payment system		✓	
<b>Capacity and Skills</b>			
ICT system integration in a single database		✓	
<b>International Cooperation</b>			
Definition of financial architecture for cooperation and funding		✓	

# Associated costs

Line	Cost
Integration of public transport	\$ 24.500 million (project of sectorization of public transport from PRUGAM)
Infrastructure works to support decongestion in the metropolitan area	\$ 335.800 million (based on projected investment in).
Decongestion of roads	\$ 300,000 (Assumes additional education campaigns)
<i>Technology Action Plan</i>	\$995,000
<b>Total</b>	<b>\$1,655,300</b>

# TNA Process

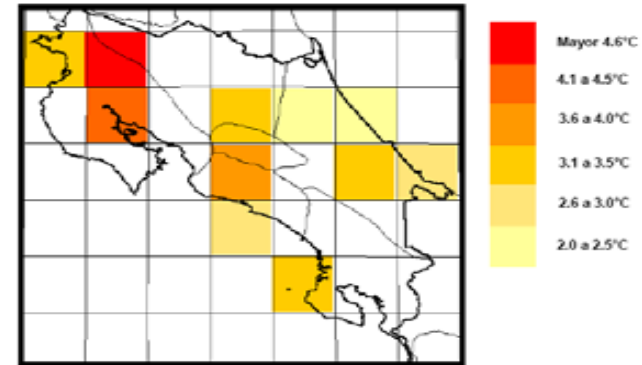
TNA structure  
August 2010



Stakeholders network and sectors  
September 2010



Studies & research systematization  
March 2010



Technology prioritization  
April 2011



Barrier analysis and TAPs  
August 2011



# Results of prioritization in mitigation and adaptation

Ranking	Sector	Technology option for Mitigation	Score
1	Transportation	Road congestion	75%
2	Agriculture	Sustainable Production in Agriculture	73%
4	Transportation	Improving road infrastructure	71%
5	Electricity	Conservation and energy efficiency	69%
6	Transportation	Integrated public transport	68%
8	Solid Waste	Waste to energy	64%
10	Forest	Extension of Payment for Environmental Services	63%
11	Electricity	Cleaner Electric Expansion Plan	61%
12	Waste management	Methane use in landfill	61%
13	Transportation	Rapid bus system	58%
15	Forest	Habicom - prefabricated wooden houses	57%
16	Transportation	Streamlining procedures by e-government	56%
17	Transportation	Electric trains	55%
18	Transportation	Cycle trails	54%
19	Transportation	Sustainable alternative for private transport	51%
20	Transportation	Carpooling	51%
21	Electricity	Distributed generation system	51%
23	Transportation	Biofuels	47%
24	Transportation	Telework	46%
25	Transportation	Changing residence	41%
26	Transportation	Car Sharing	32%

Ranking	Sector	Technology option for Adaptation	Score
2	Agriculture	Sustainable agricultural production	73%
3	Water	Adaptive co-management of watersheds	71%
7	Meteorological	More detailed climate scenarios	67%
9	Water	Rainwater harvesting and its use in irrigation	64%
10	Forest	Extension of Payment for Environmental Services	63%
14	Water	Geographic Information System for Irrigation	57%
15	Forest	Habicom - prefabricated wooden houses	57%
22	Infrastructure	Road construction standards	50%

Prioritization for 21 mitigation technologies and 8 adaptation technologies

# Barrier analysis

Barrier analysis applied for  
10 technologies

<b>Prioritization of Technologies</b>			
<b>No</b>	<b>Sector</b>	<b>Technology</b>	<b>Score</b>
1	Energy / Transportation	Reducing road congestion	75%
2	Agriculture	Sustainable agricultural production	73%
3	Water	Adaptive co-management of watersheds	71%
4	Energy / Transportation	Improving road infrastructure	71%
5	Energy / Electricity	Electric efficiency and conservation	69%
6	Energy / Transportation	Integrated public transport	68%
7	Energy / Electricity	More detailed climate scenarios for vulnerability	67%
8	Waste Management	Comprehensive Plan of Waste Management	64%
9	Water	Rainwater harvesting and irrigation systems	64%
10	Forestry	Extension of Environmental Services Pay	63%

# Conclusions

- Achievements
  - Awareness of importance of stakeholder engagement for analysis and deployment.
  - TNA ignites sectoral climate change strategies and team work team.
  - Technologies with positive cost-benefit ratio but not deployment, highlights importance of barrier analysis and strategy to remote them.
  - Better understanding about requirement of an enabling environment

# Conclusions

- Some technologies are better treated inside frameworks (as programs) than individually.
- TNA can conduct to the identification of possible programs to be included in a NAMA.
- Requirements
  - Support in financial architecture to allow funding strategy from climate change.
  - Better complementation an synergy between TNA and other related programs in the country
  - Support for further activities for TAPs implementation



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