

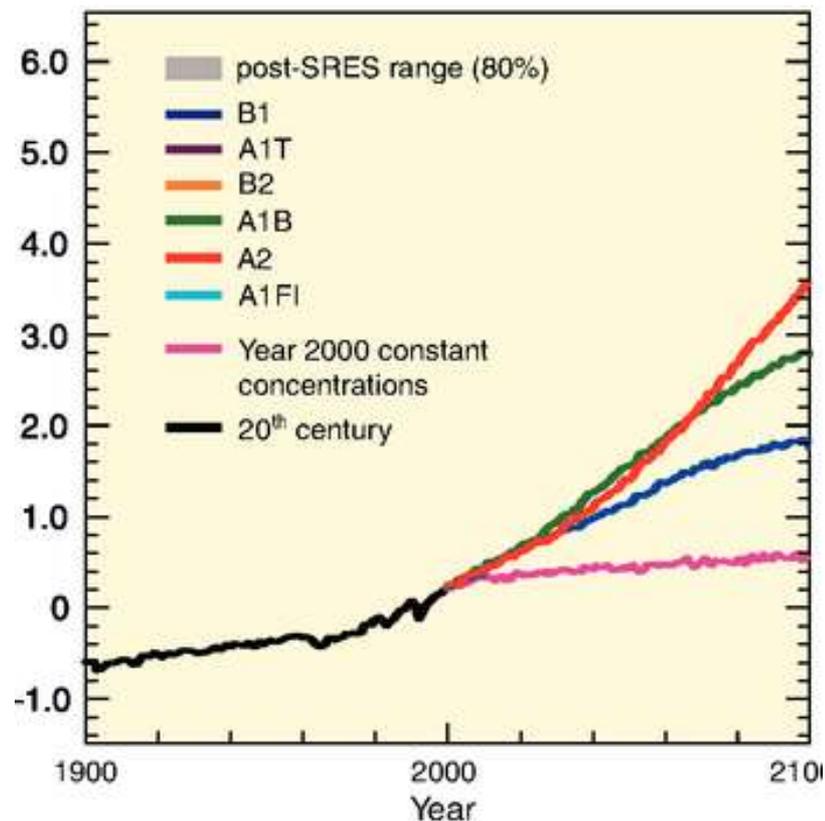


**Climate Change
Adaptation for the
Transport Sector in
Mesoamerica**

The challenges of Climate Change

Data, trends and projections

- Increasing global GHG emissions are considered *very likely* to lead to additional warming of surface temperatures in the 21st century
 - *It is a fact that the climate is and has been warming*
 - *The trend of warming average surface temperatures, which has become particularly noticeable from the latter part of the 20th century through today, is “very likely” to increase as the century progresses*
- **The precise amount of change is uncertain, but all projections point toward an increasingly hotter world (1.5 TO 6 °C by 2100)**
 - *Because temperatures drive other climate systems, the IPCC considers it to be:*
 - *Sea level rise and storm surge will constitute increasing threats for many coastal communities*
 - *The frequency, severity, and even directionality of impacts will differ by region*
- **Extreme weather and disasters that affect us today could increase in severity and/or frequency in the future**
 - *Adaptation may also consider extreme weather events that can and do affect us already, not just those that may occur someday*
 - *Adaptation is, in many ways, an extension of and complement to Disaster Risk Reduction (DRR) (or GRD, “gestión del riesgo de desastres”), the development of policies, strategies, and practices that minimize vulnerabilities, hazards, and disaster impacts (all types of disasters, not limited to weather/climate)*



The challenges of Climate Change

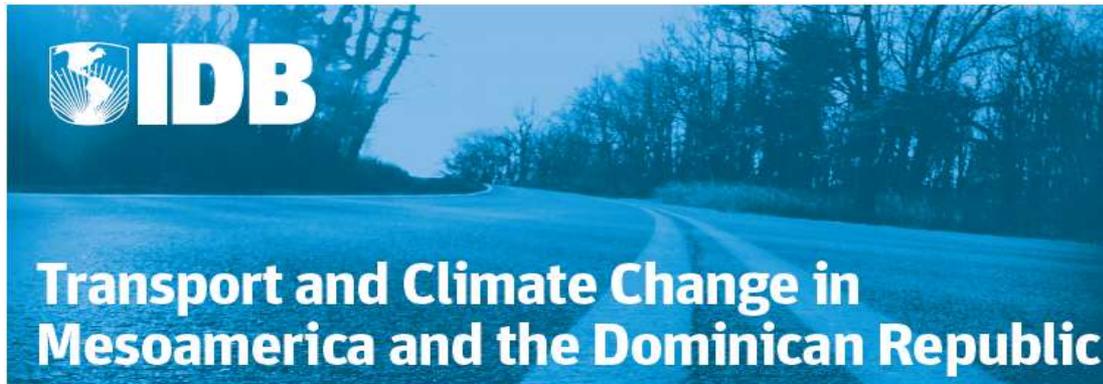
Data, trends and projections

- **What could climate change mean for our world?**
 - Estimated changes in the frequency and intensity of extreme weather events (e.g., heat, precipitation, storms, landslides), and increased sea level rise, with negative impacts to many natural and human systems
- **What could climate change mean for transport?**
 - More frequent, longer *disruptions* of service, operational impacts
 - Faster *deterioration* of assets, greater maintenance costs
 - Greater likelihood of *damage* and/or *destruction* of transport infrastructure
 - Undermining other transport goals: mobility, accessibility, reliability, safety, equity, cost-effectiveness, sustainability, etc.



Facing the challenges of Climate Change

Adaptation in the transport sector



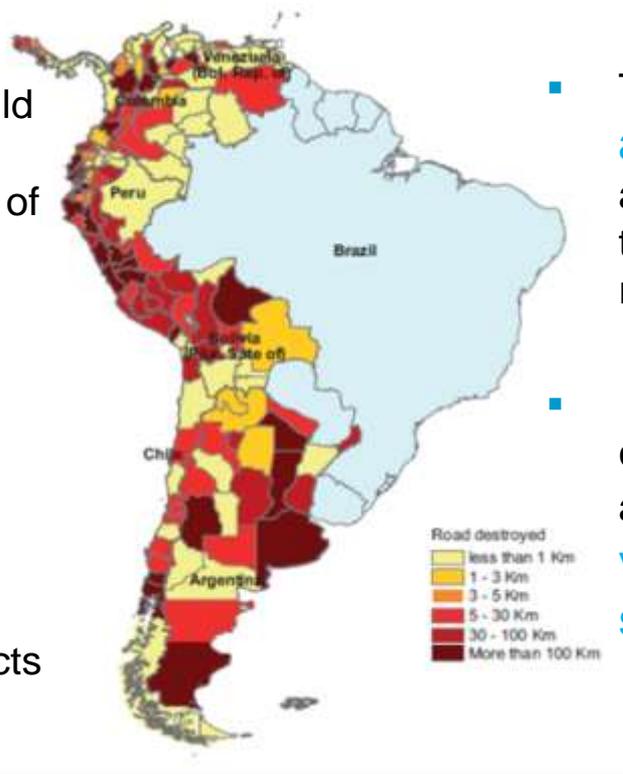
- **Adaptation—action to reduce climate vulnerabilities**
 - Goal is to identify potential climate vulnerabilities and take action to prevent, mitigate, manage, and/or take advantage of them
 - Balances risk tolerance, uncertainty, and cost-effectiveness/resource availability



Adaptation in the Transport Sector in Mesoamerica

Specific operation objectives

- To **raise awareness** and build the capacity of national and local government agencies, as well as of the private sector, to develop vulnerability assessments for the transport sector.
- To **identify and prioritize “hot spots”** and other vulnerable areas and identify potential resiliency measures to avoid some of the negative impacts of climate change on transport infrastructure and systems.



- To undertake **pre-feasibility analysis** for climate change adaptation measures in the transportation sub-sectors of roads and ports.
- To develop frameworks on climate change vulnerability and actions to be taken to **address vulnerability in a systematic manner.**

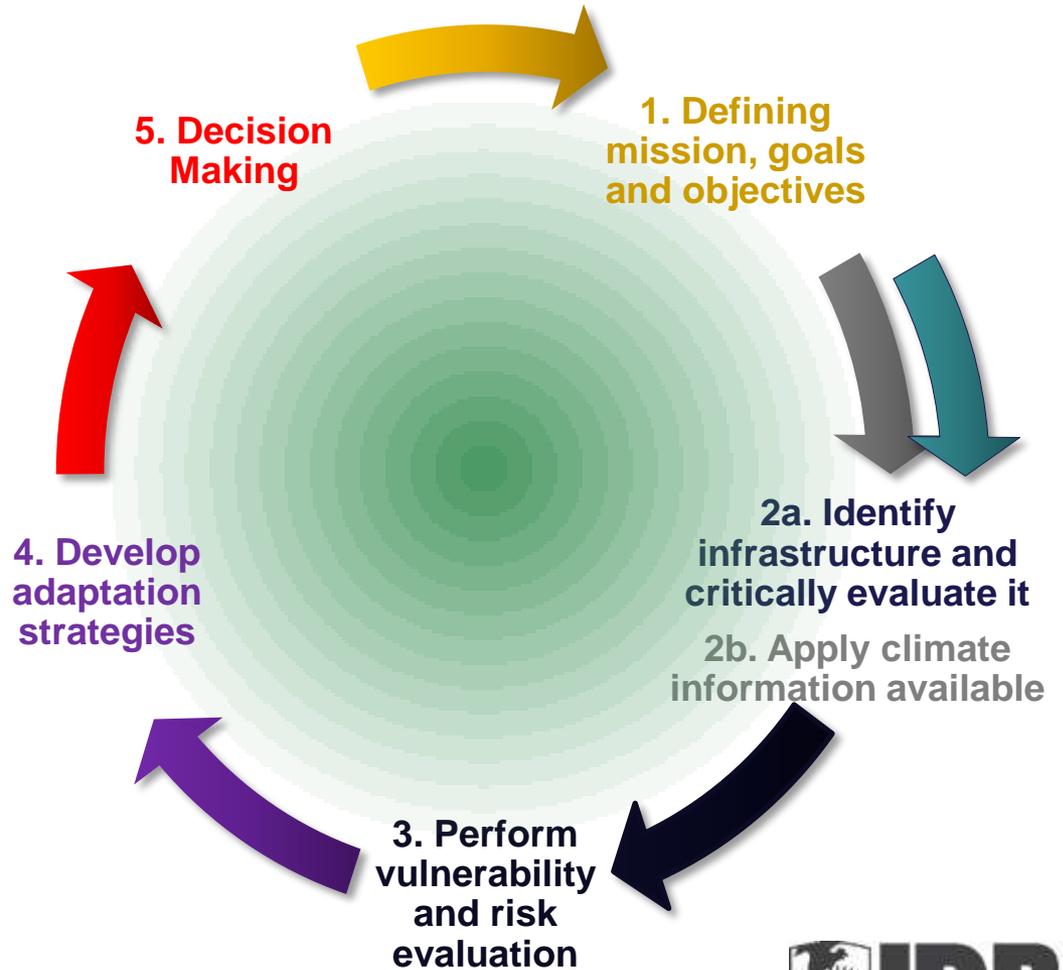
Destroyed roads caused by extreme climate events between 1970-2009 (Cepal 2012)

Adaptation in the Transport Sector in Mesoamerica

Output and products

Integrating adaptation in the infrastructure planning process

- Decision makers and technical staff working on transport projects in Central America will have **increased their knowledge on how to strengthen climate change resiliency** in the transportation sector.
- Decision makers and technical staff will have received **capacity building on how to incorporate resiliency measures across the whole project cycle**: planning (including cost/benefit analysis and prioritizing), design (including technical specifications, technical standards and guidelines, and environmental measures), implementation (including construction), operation and maintenance (such as frequency of operation).



Adaptation in the Transport Sector in Mesoamerica

Output and products

- Vulnerable “hot spots” across the region have been mapped.
- Development of a **Rapid Climate Change Adaptation Needs Assessment for the transport sector** attuned to the local conditions in Central America.
- The **findings of the studies and mappings are incorporated into the policy development**, regional and institutional frameworks of the Central American countries.



Adaptation in the Transport Sector in Mesoamerica

Specific Outputs of the Operation

- **Diagnostic and Analysis of the Road and Port Sectors**

The objective of Task A is to provide data, information, and context to drive the development of the subsequent Handbook, Tool Kit and Pilot Rapid Assessment Tasks

- **Handbook**

It is anticipated that the Handbook will be oriented toward fulfilling three complementary purposes:

Education. This section will address, in a general fashion, the common questions of “Why should I care?”

Action. This section will draw from the profiles and data gathering activities previously performed, as well as the literature review and research performed during the Tool Kit conceptual design, to provide specific guidance for enhancing climate resiliency/promoting adaptation action throughout the project cycle. This section also will emphasize actions that can be identified through use of the Tool Kit (in other words, it will promote and provide guidance on use of the Tool Kit).

Policy-making. The final section will provide paths toward climate change-oriented policy-making in the transport sector.

- **Tool Kit**

Based on the assessment processes conceptualized in the Handbook, the Rapid Assessment Tool Kit (Tool Kit) will be designed to assist Ministries of Transport in determining and taking action to manage the key risks of climate change to their transport infrastructure and assets. This tool kit will feature a GIS platform that will allow transport planners and decision makers to identify vulnerability “hot spots” using layered climate projection layers.

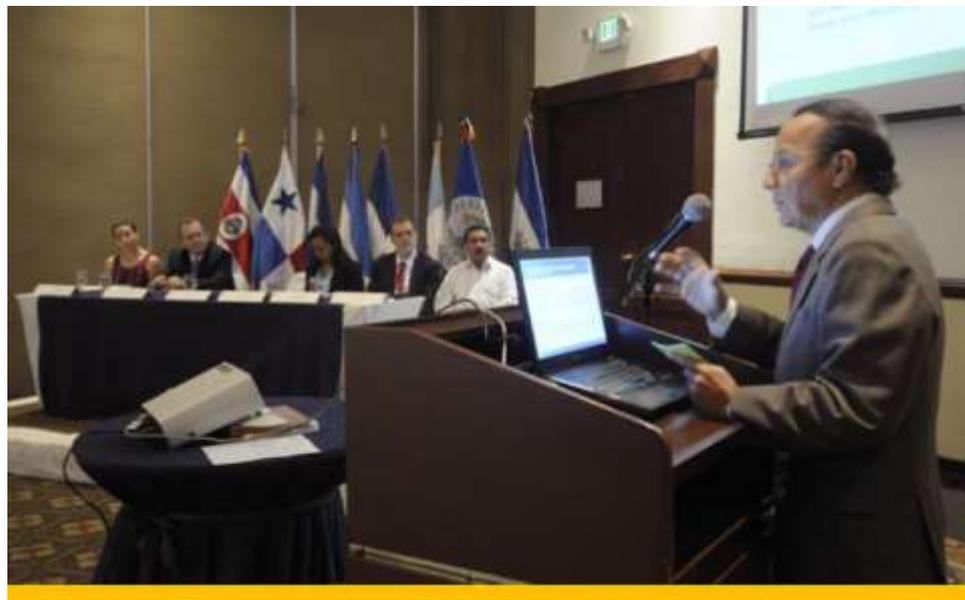
- **Pilot Rapid Climate Change Assessment**

Perform one Pilot rapid climate change assessment process focused on a segment of the Corredor Pacifico and supporting infrastructure . The pilot assessment will be performed in a section of the corredor pacifico in Nicaragua.



Adaptation in the Transport Sector in Mesoamerica

Knowledge Dissemination: Country Workshops



- **Kickoff project workshop: San Salvador, El Salvador April 2013**
Objective: to raise awareness and get a feel for adaptation work in the transport sector for the region, Also this workshop was useful to exchange expectations, priorities and opinions on the project.
- **Handbook workshop: Managua Nicaragua, Sept. 2013**
Objective: to present the content of the adaptation handbook as well as gather transport ministry feedback on the handbook content to ensure its effectiveness at incorporating adaptation projects into the planning process

Adaptation in the Transport Sector in Mesoamerica

Next Steps

- Data collection and country profiles
- Finalize adaptation handbook geared to decision makers
- Construct the rapid assessment tool and integrate transport infrastructure data collected for vulnerability analysis
- Perform a pilot assessment in Nicaragua's pacific corridor





Inter-American Development Bank / www.iadb.org