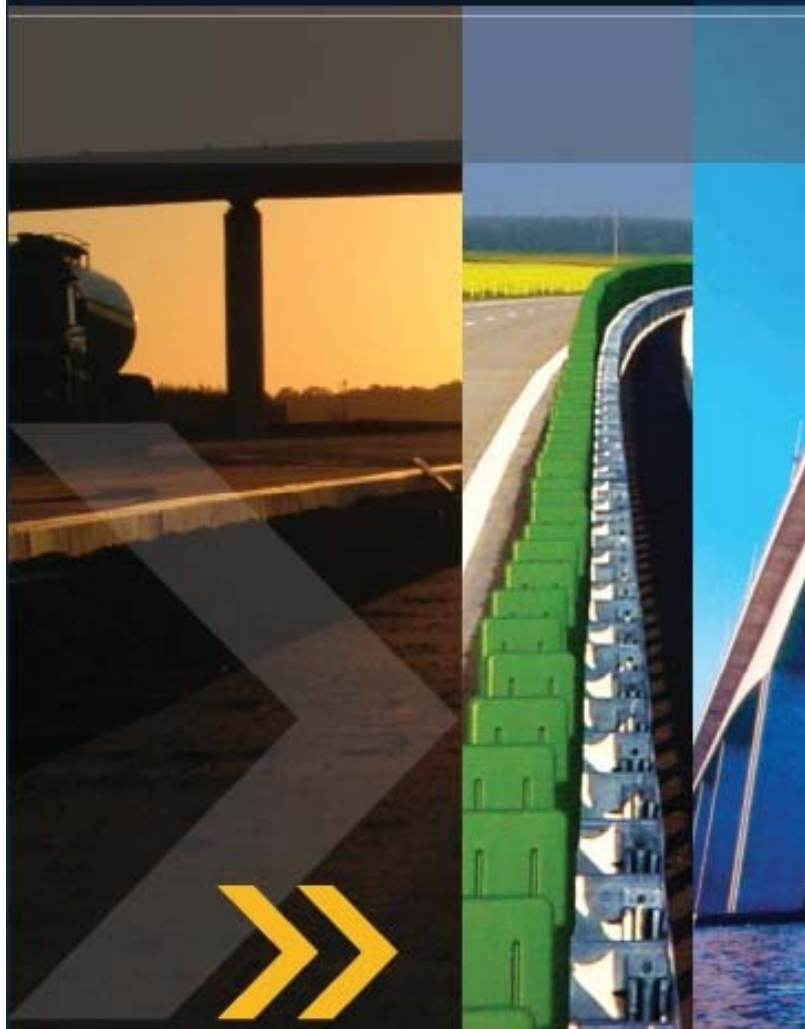




INTERNATIONAL ROAD FEDERATION
FEDERATION ROUTIERE INTERNATIONALE

Better roads, better world.

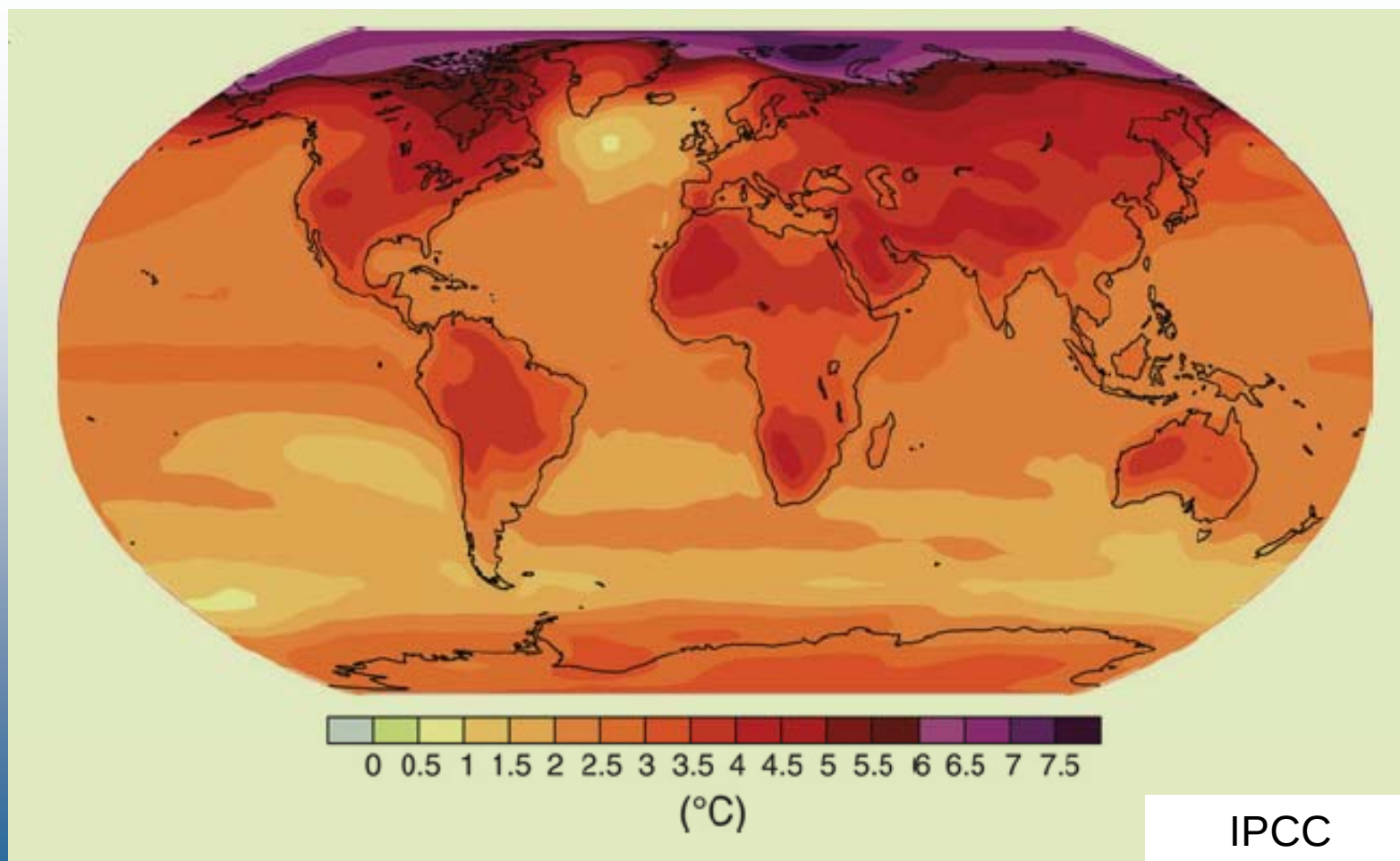


gTKP Workshop
Urban Mobility & Environment
Jinan, 26th October 2010



Greening Road Infrastructure

Susanna Zammataro
Deputy Director General



Sea level rise & airports: Honk Kong (China)



Sea level rise & coastal erosion: roads



GRID
Europe

Pascal Peduzzi, 2010

12

Coastal flooding: impacts on roads



**Extreme precipitations in mountainous areas:
impacts on roads and rails (Peru)**



GRID
Europe

Pascal Peduzzi, 2010

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Buckling

Fissuring

Rutting ...



© PhotoDisc

MITIGATION



Reducing the probability of risks

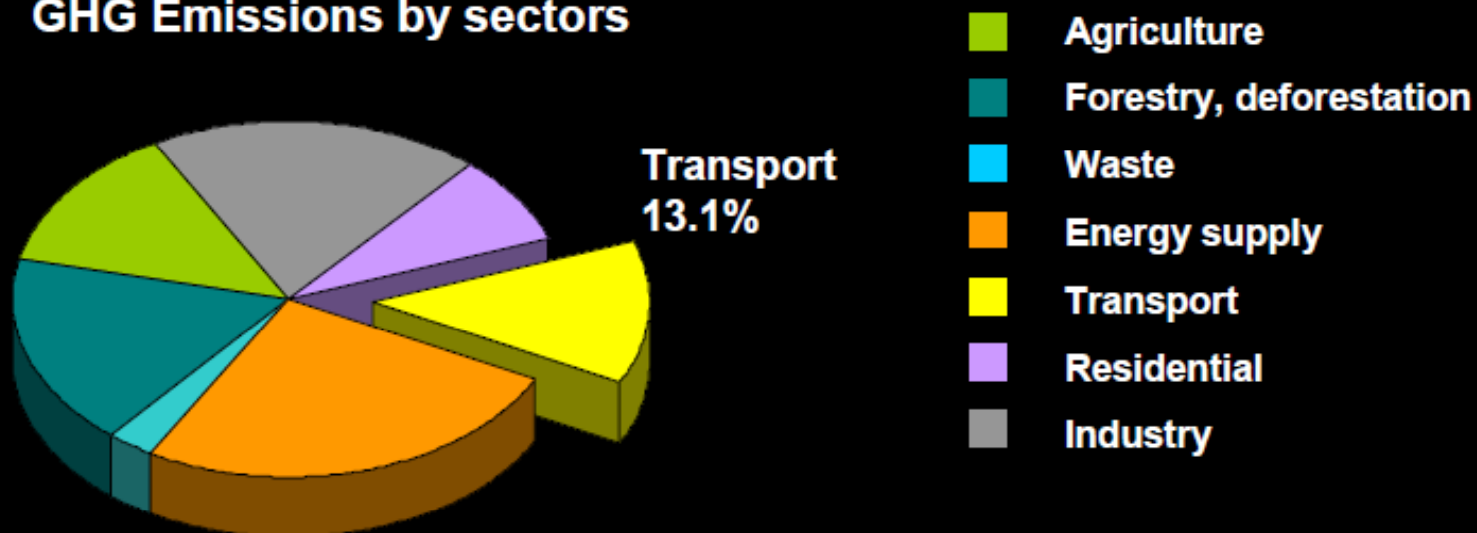
ADAPTATION



Reduce damages if risk scenario occurs

Transport is not **only** a victim from climate change

GHG Emissions by sectors



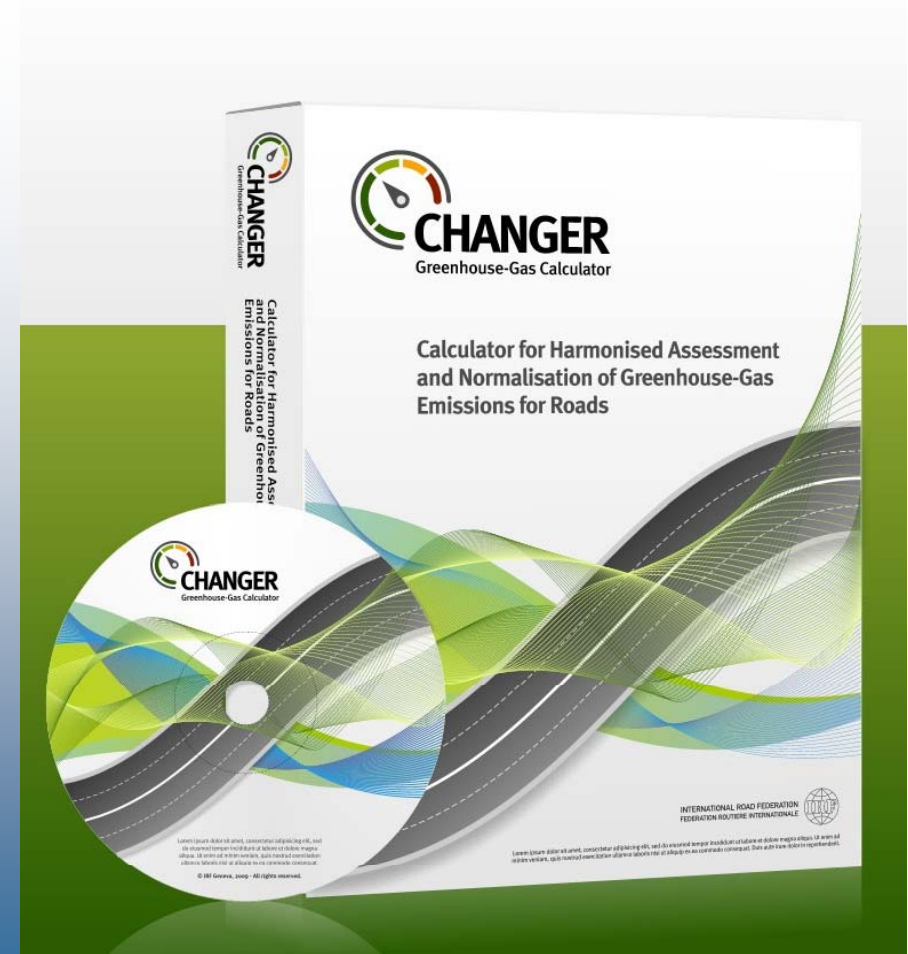
Sources: IPCC, AR4, Climate Change 2007: Working Group I: The Physical Science Basis.

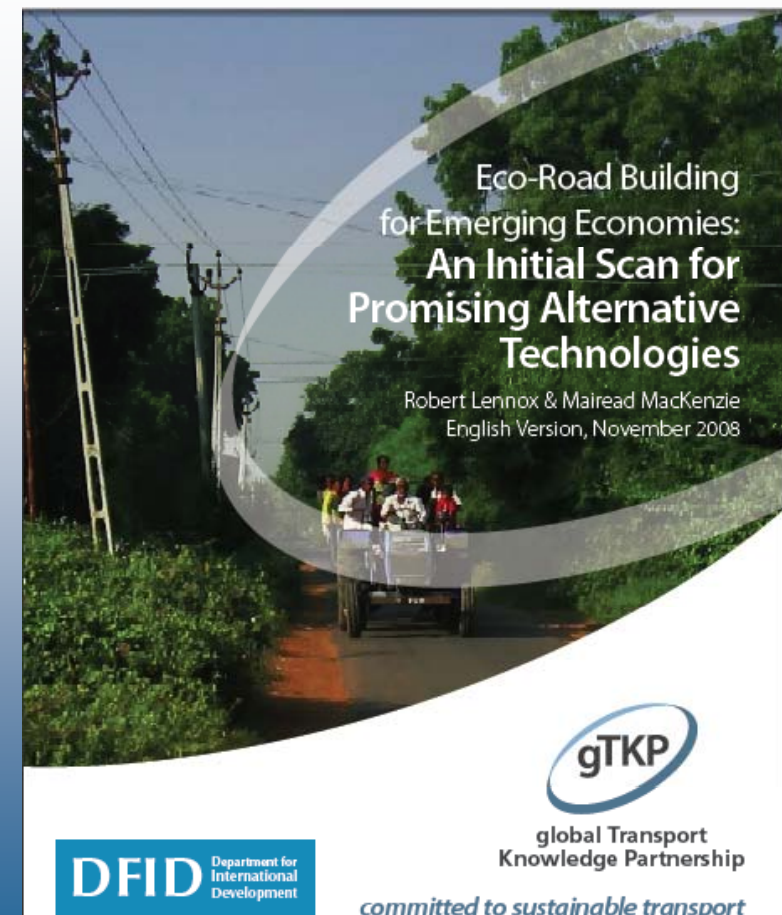
Pascal Peduzzi – UNEP 2010



Some facts

- **Transport responsible for 13% of all world GHG emissions**
- **Expected increase of 57% by 2030**
- **Transport in developing countries will represent around 80% of this increase**
- **Road transport accounts for 74% of total transport CO2**

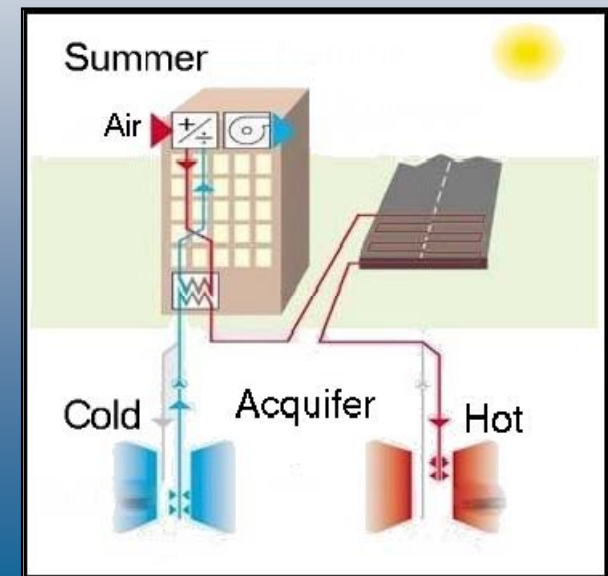




Greener Roads

1. Pavement

- Plant-based Binder
- Asphalt collectors
 - Energy stored through a hit exchanger
 - Used for pavement maintenance
 - Used in EU countries



Greener Roads

2. Vertical and horizontal signalisation

- Microprismatic retroreflective sheeting
- Road markings from oyster shells



Greener Roads

3. Innovative solutions for noise barriers

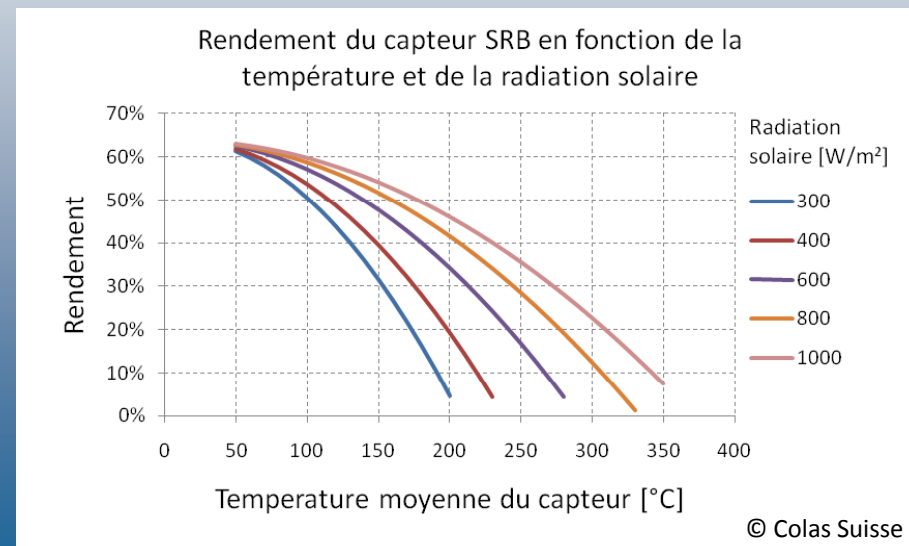
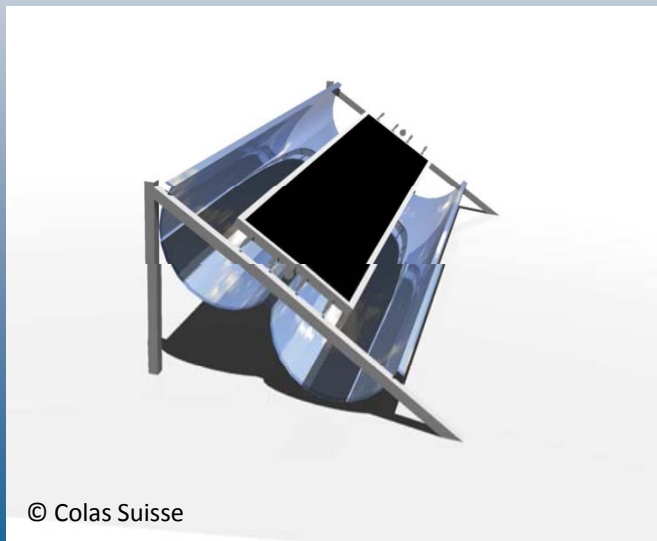
- The Noxer technique
- The Eridio project

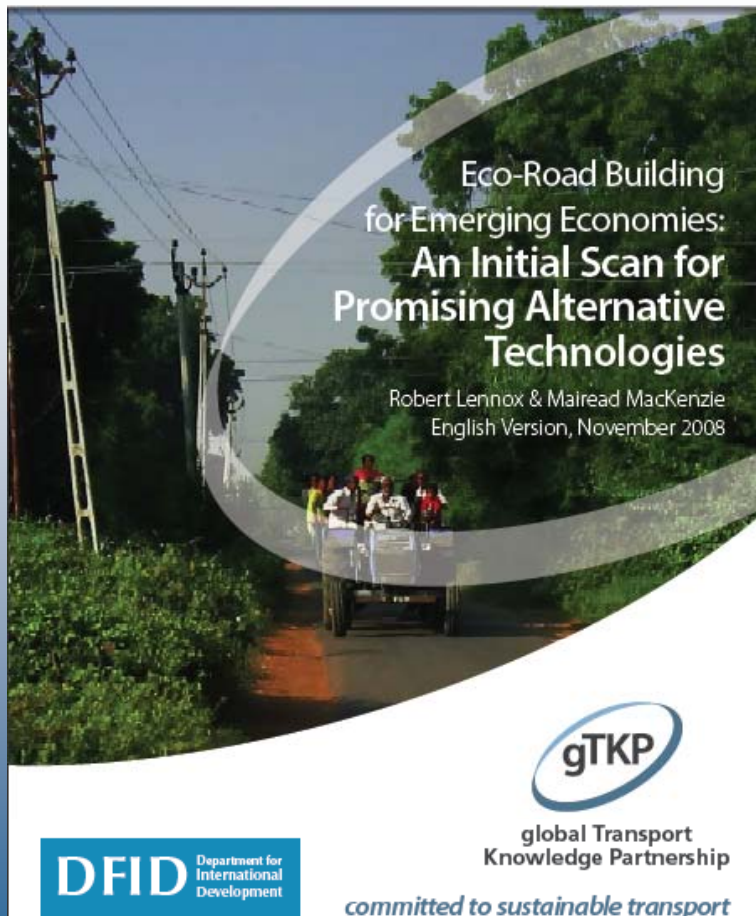


Greener Roads

4. Production Processes

- Solar boiler with ultra-vacuum flat thermal panels





Rob Petts

Robert Lennox

Mairead MacKenzie



The Problem

- Over a billion poor people do not have all-weather basic access.
- The Road Transport sector is 'hooked' on cement and bitumen for road infrastructure construction.
- Major request for binders and sealers.
- Need to find alternative low-cost, local resource-based, environmentally friendly solutions.

Methodology

- Technology scouting
- List of ideas for development not an academic dissertation
- Output source: academic papers, thesis, reports, patents, etc.



Scope

- Possible alternatives to conventional asphalt/bitumen and cement based pavement construction and stabilisation.
- Focus on alternative renewable or locally available waste stream materials.
- Includes existing or commercial or near commercial applications.

Six main technology areas:

- Wood and Palm Lignin
- Pine Resin and Tall Oil
- Drying Oils and Semi Drying Oils
- Oil, Resin and Biomaterial blends
- Pozzolanas and cement substitutes
- Geotextile and Biofibre Reinforcement



Benefits

- small scale production
- low capital requirements
- local employment creation
- reduced road maintenance
- reduced materials transportation
- reduced mining/quarrying



Next steps

- Run a series of workshops to select the technologies with the greatest potential in the region.
- Quantify the potential benefits: social, economic, technical, environmental, sustainability.
- Identify the potential barriers e.g. development of appropriate small scale technologies, demonstration of performance in the field



Conclusions



- More intelligent use of available resources and technologies (build and maintain more)
- Approach maximising existing technologies and best practices
- Strong political will
- Knowledge sharing and dissemination



Thank you
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