XXIV^th World Road Congress Mexico 2011
Mexico City 2011.

Conserver la biodiversité dans le développement routier: une approche multi-niveaux

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TC A1 : WG2

Monitoring environmental impacts of roads

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WG2

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Focus

- What type of monitoring is taking place in member states ?
- Which environmental topics are covered ?
- What is the legal framework ?
- To what extent is the data used ?
- How is monitoring taken into account in the development of future policies ?
- How does monitoring feed back into the road planning and maintenance system ?

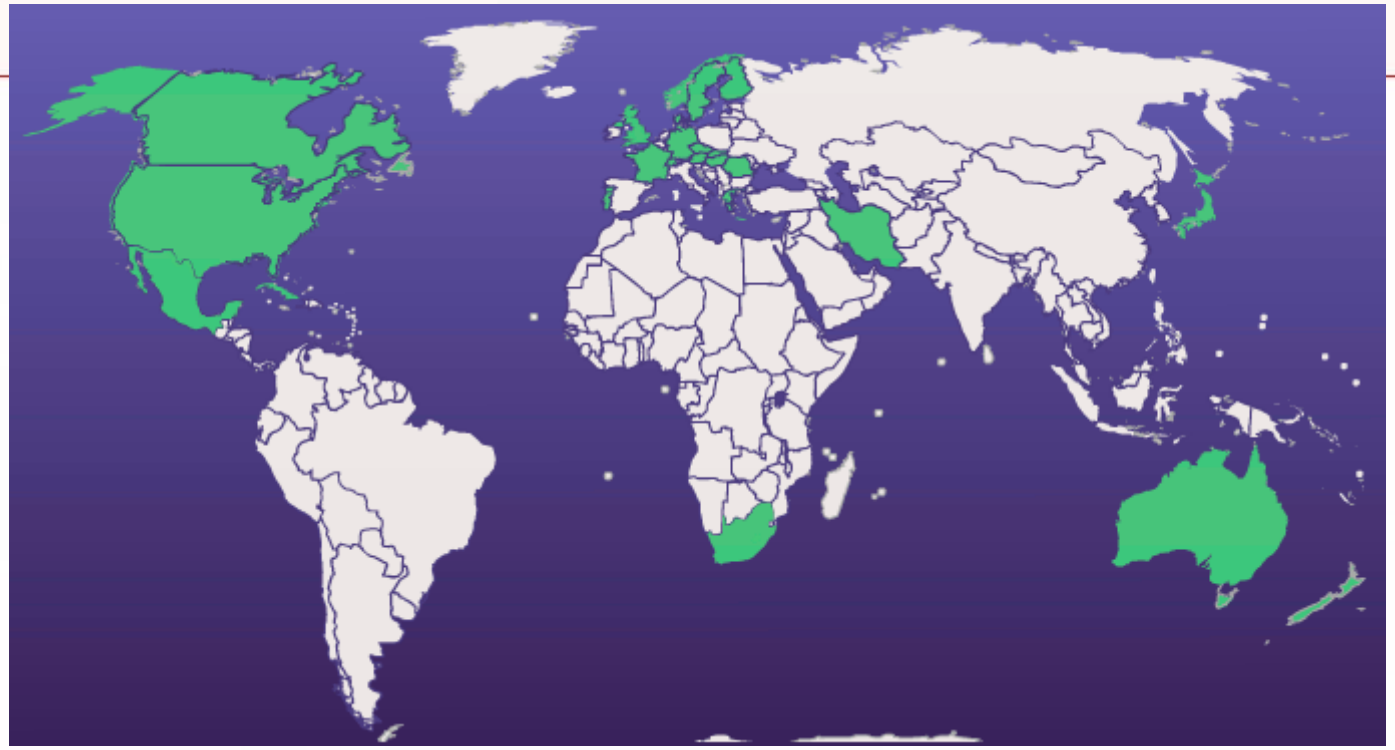
Methodology

- Areas identified: water, air, noise, soil, biodiversity, air, landscape, …:

- 2 questionnaires sent out to TCA1 (all working groups) asking about practice in each area:

- Literature search and review
-
- Resulting in :
- -choice of a case study for each area
- -international legislation
- -monitoring practice
- -trends for monitoring

Participating countries



- Sent : 37 countries
- Returned: 24 countries (Q1: 50%, Q2: 60%)
- 5 continents (mostly America and Europe)

•2 questionnaires sent out asking about practice in each area

Following the answers gathered from the questionnaire *PIARC A1.2 Monitoring of environmental impacts of roads* sent on 21.01.09 to the PIARC A1.2 members, we would like to obtain more examples, descriptions or further information from your country on the topics listed below.

Any contribution or response is very interesting for us and highly appreciated.

- Country:
- Contact person:

1. Air

- Do you monitor Air Quality?
  - ☐ Yes
  - ☐ No
- Which Emissions are monitored in your country ?

NOx	NO2	SOx	SO2	O3	CO	HC	CO2	Pb	PM2.5	PM10

- What are the pollutant thresholds?

NOx	NO2	SOx	SO2	O3	CO	HC	CO2	Pb	PM2.5	PM10

- Are they according with international thresholds (e.g. UNECE, WHO)?
  - ☐ Yes, with
  - ☐ No
- What happens if the thresholds are exceeded around roads? Are there any obligatory measures (like speed or traffic regulation)
- How is the monitored data used, what is their value (any influence on policy)?
- Do you have databanks ?
  - ☐ Yes,
  - ☐ No
- Do you use models to calculate air quality?
  - ☐ Yes,
  - ☐ No

2. Biodiversity

- Are possible effects of roads on fauna being monitored?
  - ☐ Yes
  - ☐ No
- Does a national biodiversity monitoring program exist?

Results

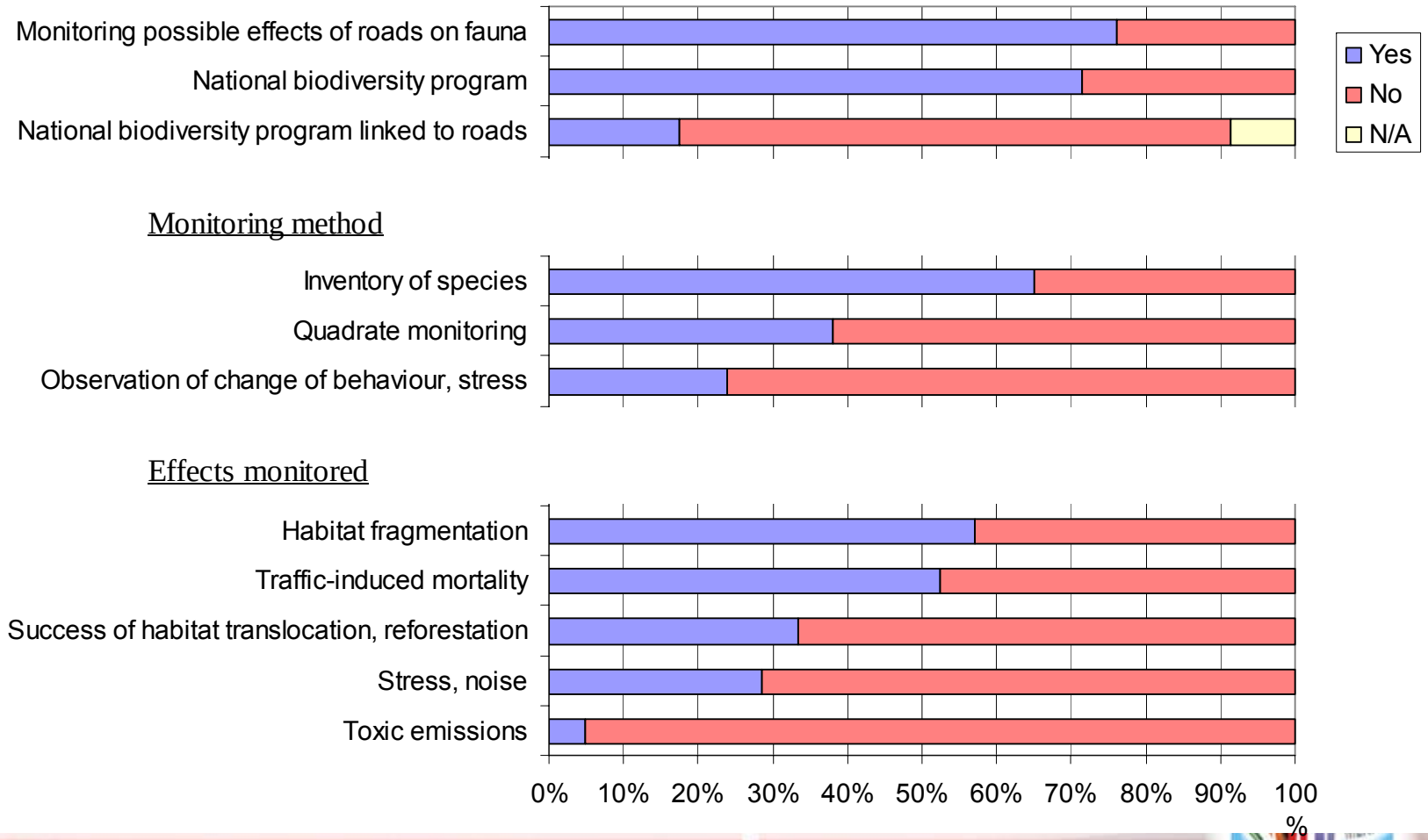
- Overview of current practice
- Case studies
- Recommendations
- List of indicators

Overview of current practice

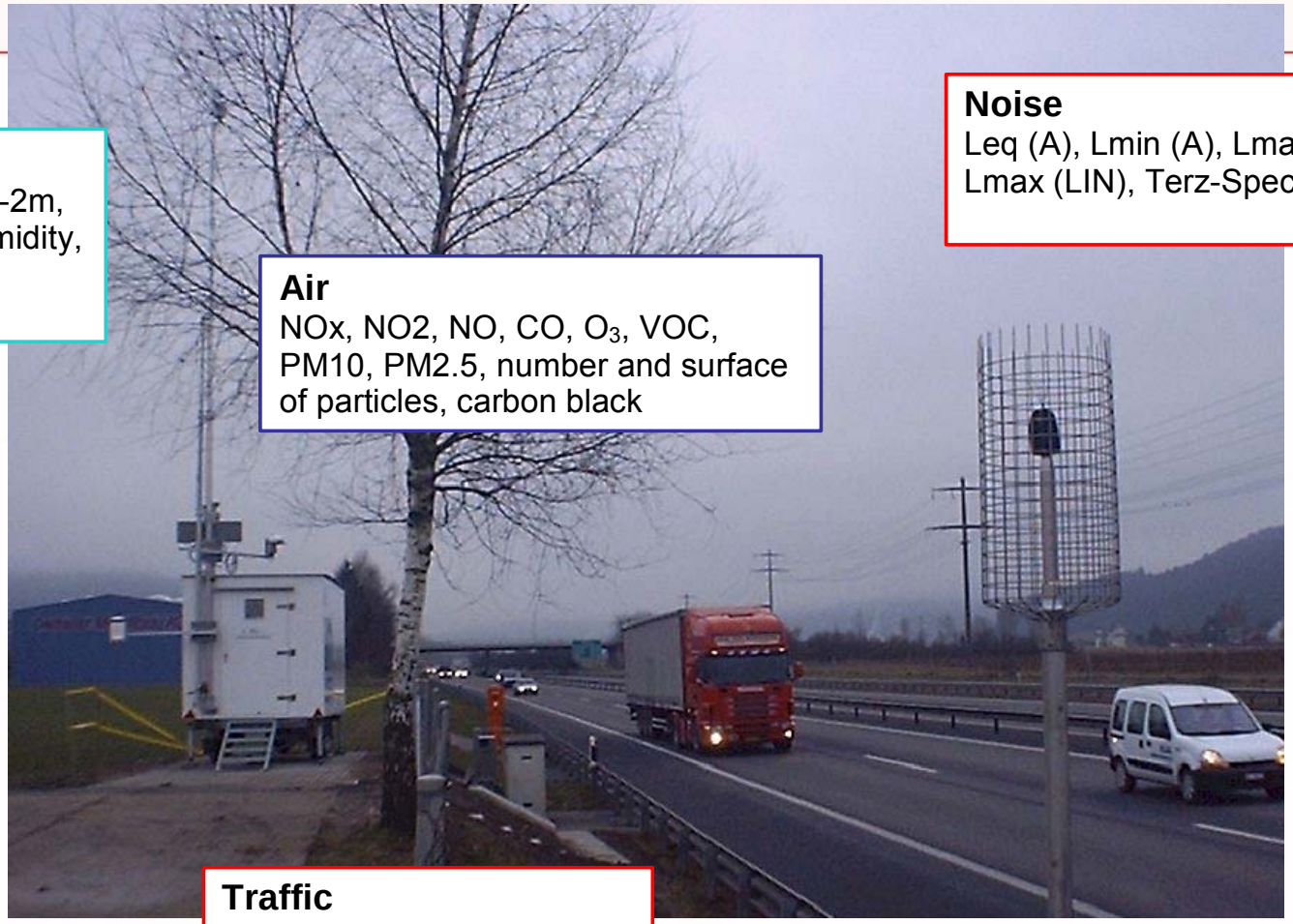
- Air, water and noise are mostly monitored
  - →Public health concern
  - →Media coverage
  - →Impact is felt strongly and is immediate

- Areas less covered: soil pollution, waste management
  - →Less visible
  - →Long term impact

Monitoring of biodiversity



Case studies (Context, problem,monitoring, impacts of results)



Meteo
Temp-10m -2m, Wind-v, humidity, rainfall, solarization

Air
NOx, NO2, NO, CO, O_3, VOC, PM10, PM2.5, number and surface of particles, carbon black

Noise
Leq (A), Lmin (A), Lmax (A), Lmax (LIN), Terz-Spectra

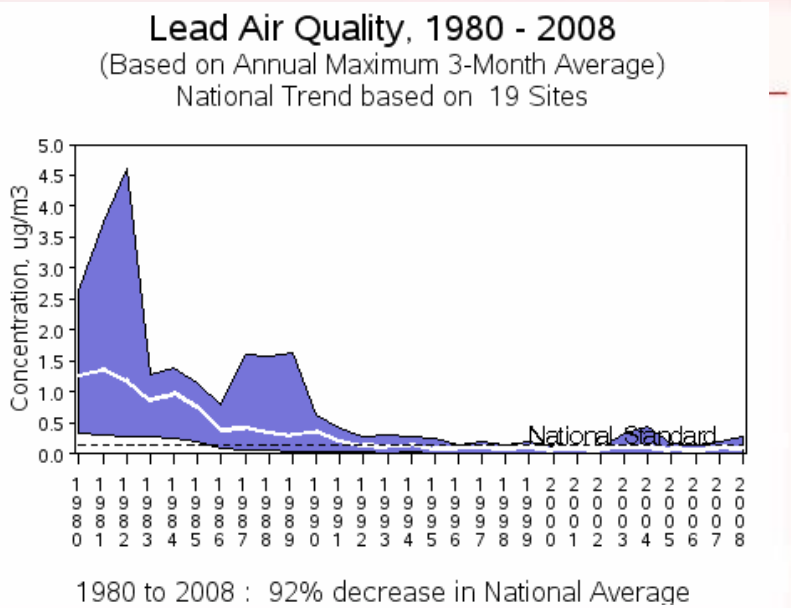
Traffic
10 categories, average v, Number PW, LKW

Influence of monitoring on policy

Finland salt in groundwater

- problem: chloride in groundwater
- Levels are rising
- Monitoring showed cause: De-icing salts
- Pollution risk database
- Change in policy:

  Rationalisation of winter maintenance (optimal dosage, temporary actions,) early detection system
- Monitoring shows effectivity of new policy



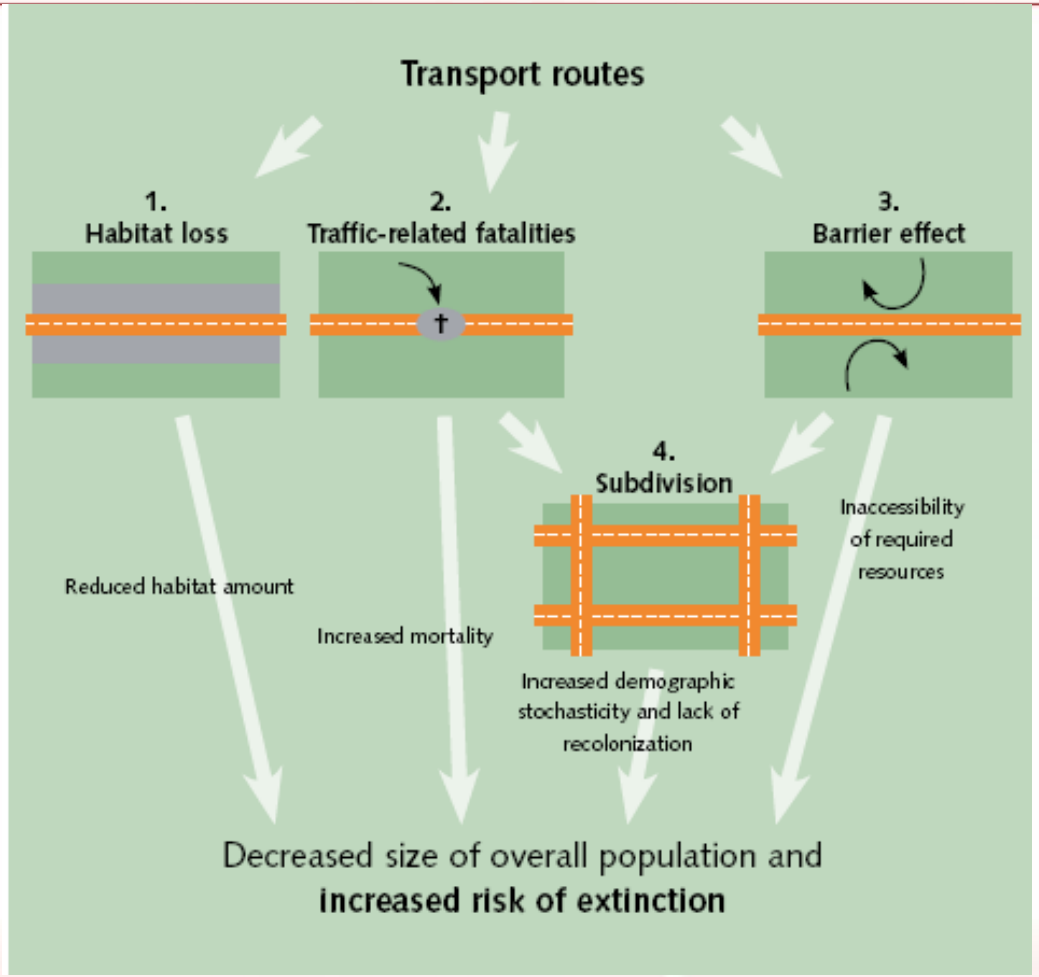
1980 to 2008 : 92% decrease in National Average

Lead in the environment

- High lead levels
- Increasing up to lead ban
- Cause: lead in fuel
- Change in policy:

  Lead ban
- Monitoring showed quick effectivity of policy

The four main effects of transport routes on animal populations



Conclusions – Recommendations

Monitoring objectives

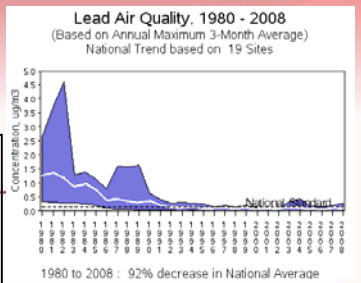
- Assess threats, detect new environmental issues
- Give basis for planning and assessment of protection measures
- Offer a basis to legislation on environmental quality standards
- Measure progress towards environmental objectives
- Provide input for remedial actions or optimization of processes
- Evaluate the effectiveness of mitigation measures taken
- Detect changes in the environment, trend analysis
- Improve the efficiency of environmental mitigation measures.

Conclusions – Recommendations

Implementation

- Planned as early as possible in the project
- Part of the planning stage, included in the environmental impact assessment.
- Implemented for a defined purpose, e.g. basis for status reports, deviation from targets, drafting of environmental objectives, environmental quality standards
- Cost-effectivity

When should monitoring of environmental impacts be implemented ?



Regulatory compliance — yes

no

Dissemination of information — yes

no

Tried and tested mitigation techniques — no

yes

Research on impacts and mitigation — yes

no

Unacceptable consequences of mitigation failure — yes

no

No monitoring

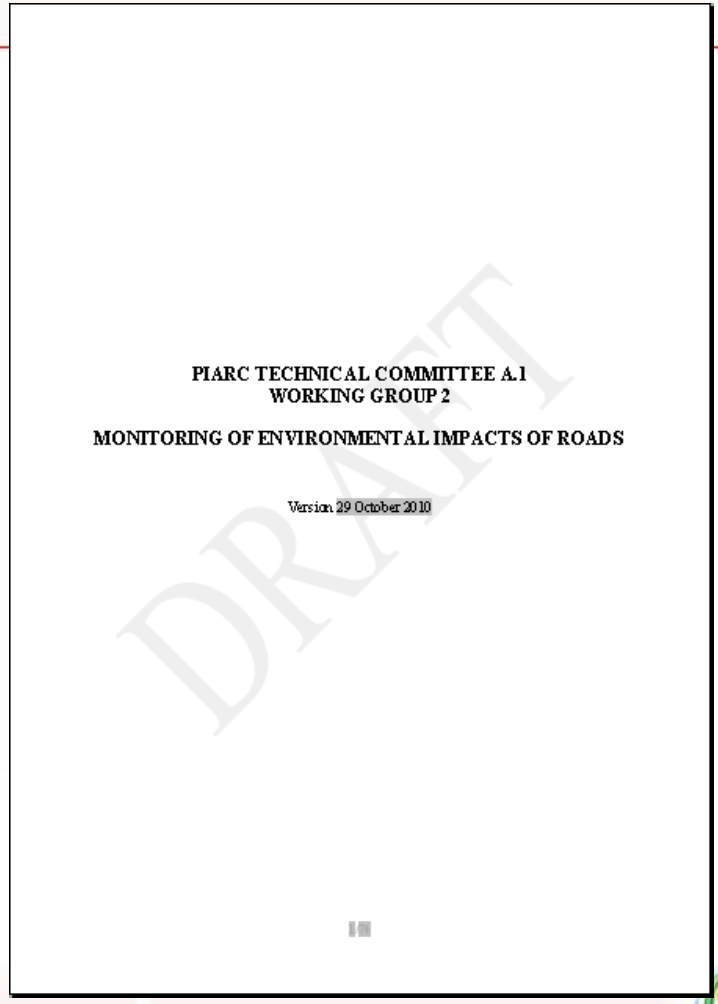
Monitoring

Results – Indicators

Air pollution	**At the network level:** **- CO2 (climate), contribution of the network to the national emissions** **- Pollutants: PM, NOx, 0zone** **- Traffic load monitoring (modelling of the fleet)**
Noise	**- Lden** **- Lday** **- Levening** **- Lnight** **- Number of people disturbed by noise** **- Number of houses disturbed by noise**
Biodiversity	**Fauna:** **- Number of wildlife casualties along roads (to detect black spots needing mitigation)** **Flora:** **- Follow up of changes in flora composition impacted on verges**
Landscape	**- Deforestation rate (area/time)** **Landscape fragmentation:** **- Effective mesh size** **- Effective mesh density** **- Area covered by the infrastructure**
Water resources	**- Percentage of network treated** **- Number of treated/untreated water evacuation points** **- Pollutants in effluents: TSS, Zn, Cu, HAP**
Soil	**- Surface of the country taken up by roads (percentage)** **- Area affected by the infrastructure**

To know more…

- Read the report ☺


PIARC TECHNICAL COMMITTEE A.1
WORKING GROUP 2

MONITORING OF ENVIRONMENTAL IMPACTS OF ROADS

Version 29 October 2010

DRAFT