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Integration of Traffic and Environmental data for improving green policies in the city of Bolzano
Bozen - Bolzano

# An introduction to the INTEGREEN project

## Consortium

Città di Bolzano
Stadt Bozen

**Coordinating Beneficiary.**
Participating through its Mobility Office

**Associated Beneficiary.**
Participating through its centre “Free Software & Open Technologies”

**Associated Beneficiaries*.**
Participating through two different departments:

- AIT Safety & Security Department
- AIT Mobility Department

*** Substituting partners**

# An introduction to the INTEGREEN project

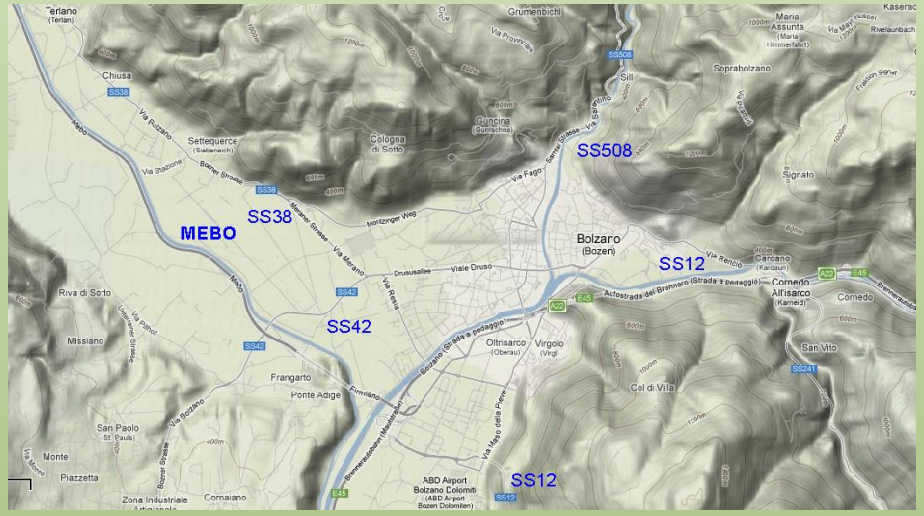
The project is co-financed by the **LIFE+ program** of the **European Commission**.

The project started in **September 2011** and is expected to be concluded on **February 2015**.

The project total budget is **1.311.810 €**, with a EU contribution of **614.610 €**.

# An introduction to the INTEGREEN project

## The reason why




Emissions are difficultly diluted:

- Thermal inversion phenomena
- Wind channelization caused by alpine orography

Emissions hotspot can frequently appear, in particular during the **winter season** and the **night hours**

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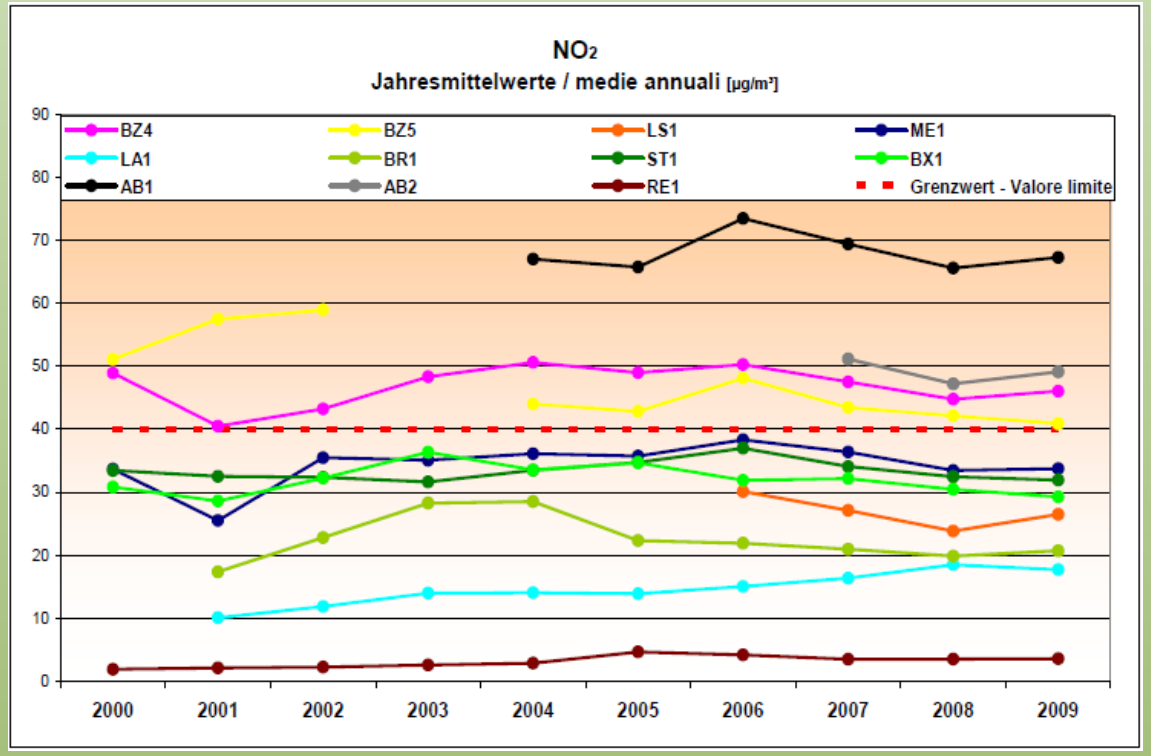


Main problem in Bolzano in terms of air pollution is the exceeding of **$NO_2$** annual average values (ref: 40 [µg/m3]).

**Traffic**, in particular the one on **A22 highway**, is the most important emission source causing this problem

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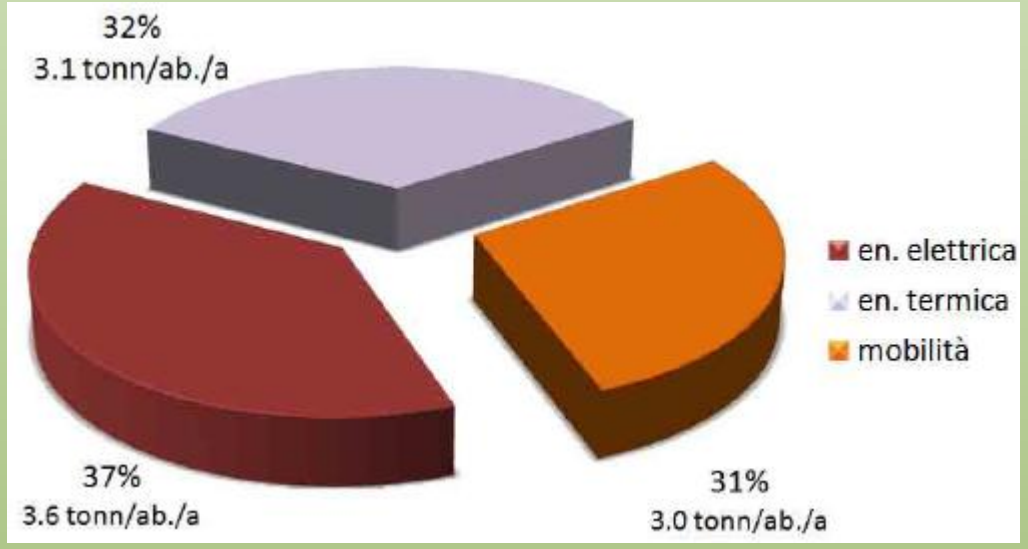


The city of Bolzano has defined a very ambitious target to **reduce emissions in 2030 from the starting value of 9.7 tons per inhabitant a year up to 2.0**

*Source: "Calcolo e valutazione delle emissioni di CO2 e definizione degli scenari di riduzione per la città di Bolzano", EURAC research, 2010.*

# An introduction to the INTEGREEN project

**Objectives**

- Create a demonstrative system for the Municipal Traffic Management Centre (TMC) able to provide **distributed and correlated traffic / air pollution information.**
- Test and quantitatively evaluate **"environmental" traffic management policies.**
- Carry out an awareness-raising campaign for **improving individual travelers' behavior and habits.**

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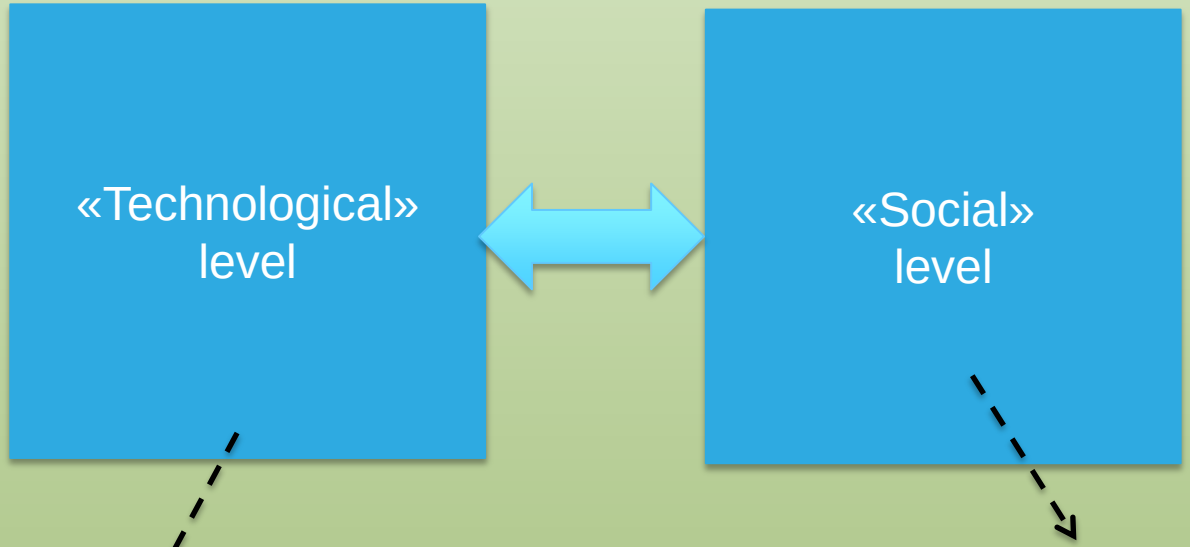


Assessment of the «**Environmental Traffic Management**» concept

Awareness-raising campaign: «**Green traveling**» concepts diffusion (ecodriving, etc.)

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## Correlation between traffic and environment

How it is possible to quantify in detail and on a “real-time” basis the impact of traffic emissions on air pollution (and vice versa)?

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## “Eco-friendly” traffic management policies

What is the environmental benefit of specific traffic management policies which try to minimize the environmental footprint of urban road traffic?

- Example of “eco-friendly” traffic management policies are the ones which target **traffic lights**:
- Several policies can be applied (traffic light counters, dynamic traffic lights timing, etc.) in order to <u>minimize stop&go</u>

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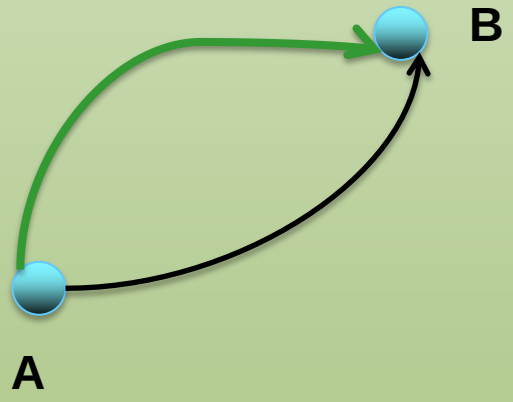
## “Eco-friendly” traffic management policies




**Pre-trip and en-route travel information for assisted urban navigation**

→ For instance, let travelers avoid to drive in critical areas and times (e.g. roadworks, accidents, queues, etc.)

**Eco-driving suggestions**

→ Drivers’ behavior can be optimized as a well for a reduced environmental impact ($CO_2$ emissions).

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## Environmental assessment of traffic management policies

How is it possible to quantitatively evaluate the environmental impact of a specific traffic management policy before and after its application?

## Awareness-raising campaign for improving individual drivers' behavior and habits

It is important to improve the awareness of local travelers (including tourists) on the environmental impact of their travel decisions.

Other means of transport alternative to private cars (e.g. e-bikes) are faster than cars in the city!

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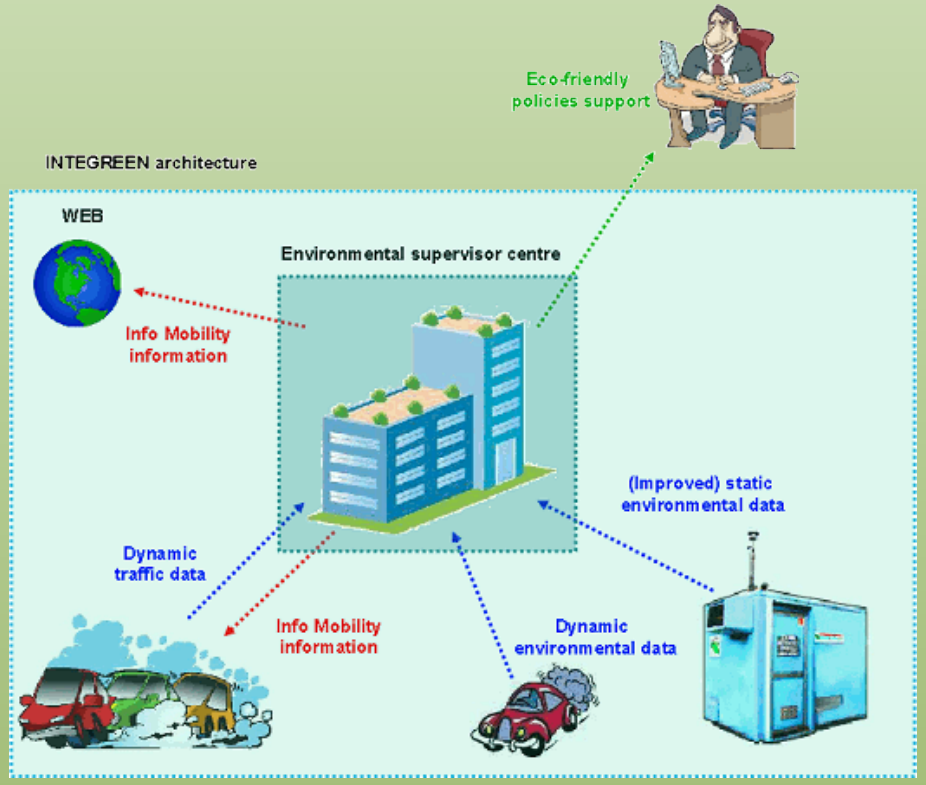
## The technological solution




### (1) Advanced monitoring system

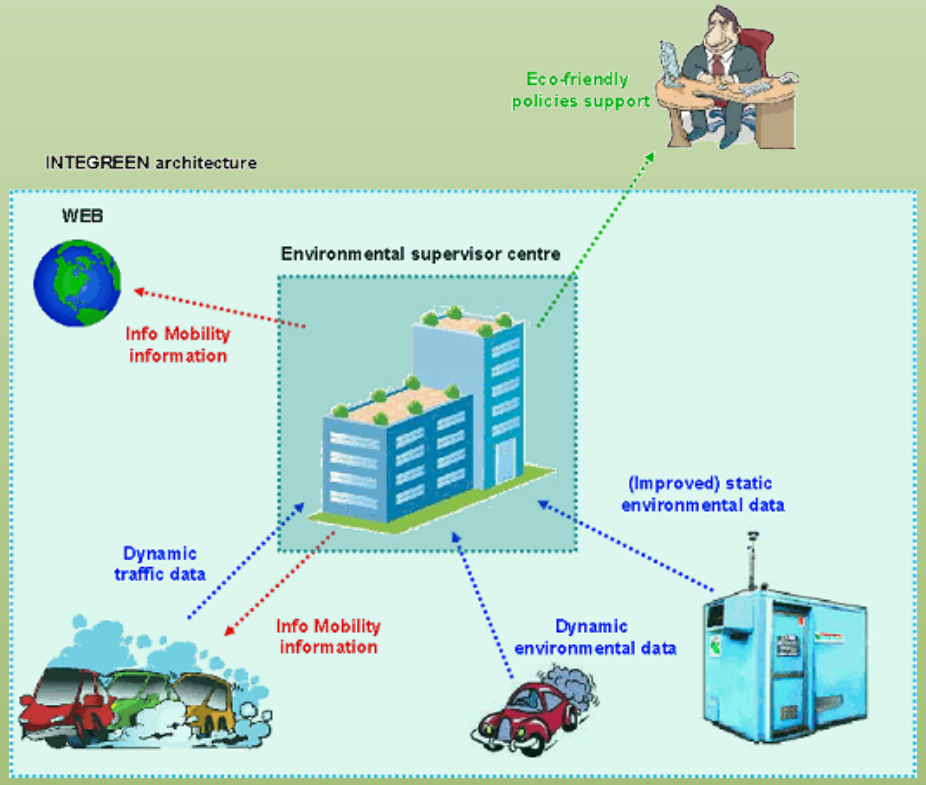
It is based on the **integration of static and mobile traffic and environmental data sources**.

Mobile probes allow to assess traffic and air pollution levels with higher precision in space and time.

A real-time environmental traffic management, with quantitative evaluation of the effects of specific policies, is possible.

# An introduction to the INTEGREEN project

## The technological solution




### (2) Advanced info-mobility system

"Environmental Supervisor Centre" will use processed information to optimize traffic flows in the city.

**Intelligent mobility information distribution** (e.g. through VMS, web site, apps, etc.) to the travelers will be enabled.

Advanced solutions will be also evaluated: for example, **info-mobility applications on board**.

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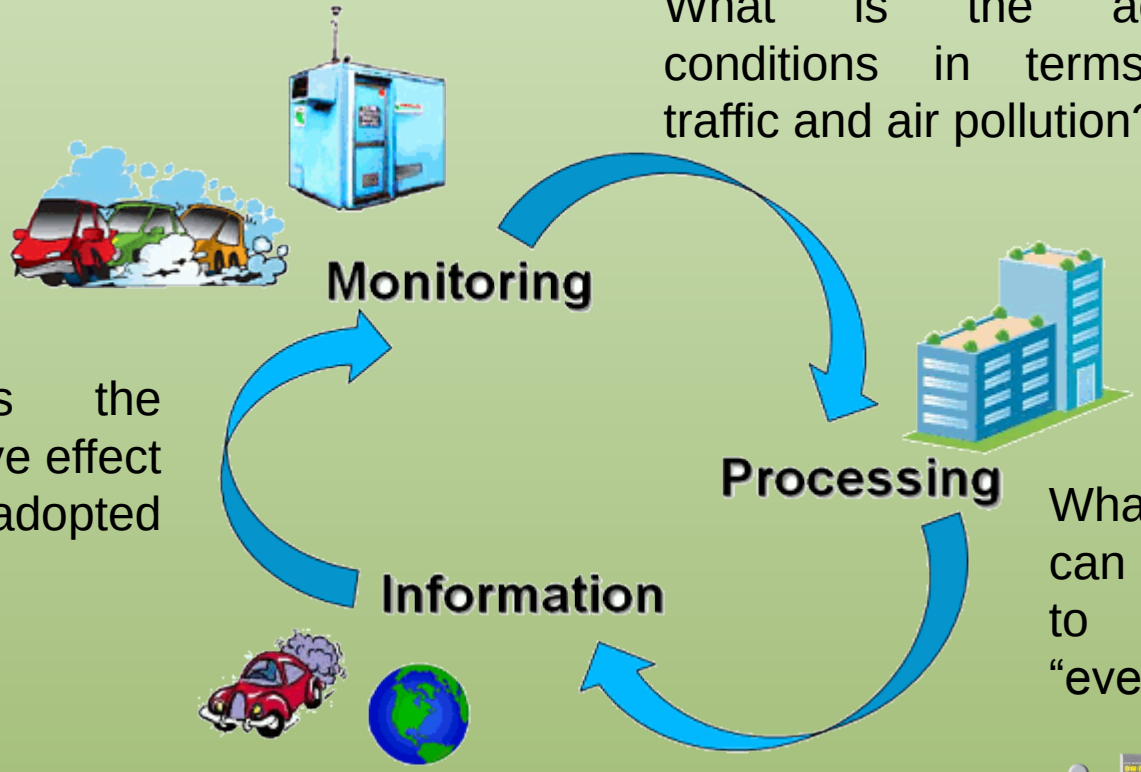
## The technological concept

What is the actual conditions in terms of traffic and air pollution?




What is the quantitative effect of the adopted policies?

What kind of policies can be applied in order to prevent road “events”?

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## Impact on road transport $CO_2$ emissions

**Reduction of 15-30%**

- **Optimized traffic policies (10-20%)**
- **Mobility participants education (3-10%)**

The impacts on air pollutants is expected to be of the same order of magnitude