

“Capacity Building and Strengthening Institutional Arrangement”

Analysis and sampling of air and air pollution

**Working group n° 2**  
**“Define applicable criteria for an air  
monitoring network”**

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## Define applicable criteria for an air monitoring network

### Objective:

The aim of air monitoring activity based on collection of air pollutants is, principally: to judge compliance with and/or progress made towards meeting ambient air quality standards; to activate emergency control procedures that prevent or alleviate air pollution episodes; to observe pollution trends throughout the region, including non-urban areas; to provide a data base for research evaluation of effects.

In this sense, an air monitoring network should be designed to meet some basic objectives:

- to determine highest concentrations expected to occur in the area covered by the network;
- to determine representative concentrations in areas of high population density;
- to determine the impact on ambient pollution levels of significant sources or source categories;
- to determine general background concentration levels.

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### Objective:

These four objectives indicate the nature of the samples that the monitoring network will collect which must be representative of the spatial area being studied.

As is known, background pollution defines the level of pollution occurring in areas that are not directly affected by pollution sources.

Background pollution monitoring stations are sited in conventionally clean areas, located at altitudes ranging from 1,000 to 1,500 m, or minimum 20 km away from large human settlements, roads, railways, industrial units, etc.

The concentrations of polluting substances in the air and storm water as measured in these areas provide valuable information for the assessment of regional and global pollution.

## Define applicable criteria for an air monitoring network

### Activities:

#### 1<sup>st</sup> phase

Discussion about general criteria for air pollution sampling and analysis, peculiarity of different monitoring equipments; cost forecast for air monitoring network development; time requirements for project development; human resources needed to manage the network.

#### 2<sup>nd</sup> phase

Design a national air monitoring network suitable for measure background air pollution:

- realize an air monitoring site selection;
- determine the minimum (and maximum) number and location of monitoring stations to identify the occurrence of background concentrations;
- define air pollutants to sample (in air and in wet deposition);
- choose monitoring equipments (manual and/or automatic analyzers);
- specify, where is needed, required laboratory equipments (i.e. GC-MS, IC, ICP...);
- define a quality control protocol;
- determine national and local administrators of the network.

#### 3<sup>rd</sup> phase

Final presentation and discussion about working group's activities.