"Capacity Building and Strengthening Institutional Arrangement / Data Yearbook"

Workshop: "How to produce an Environmental Data Year Book"

Methodological Approach: APAT Environmental Data Yearbook

Ms. Mariaconcetta Giunta, Mr. Giovanni Finocchiaro,
Ms. Cristina Frizza, Mr. Luca Segazzi

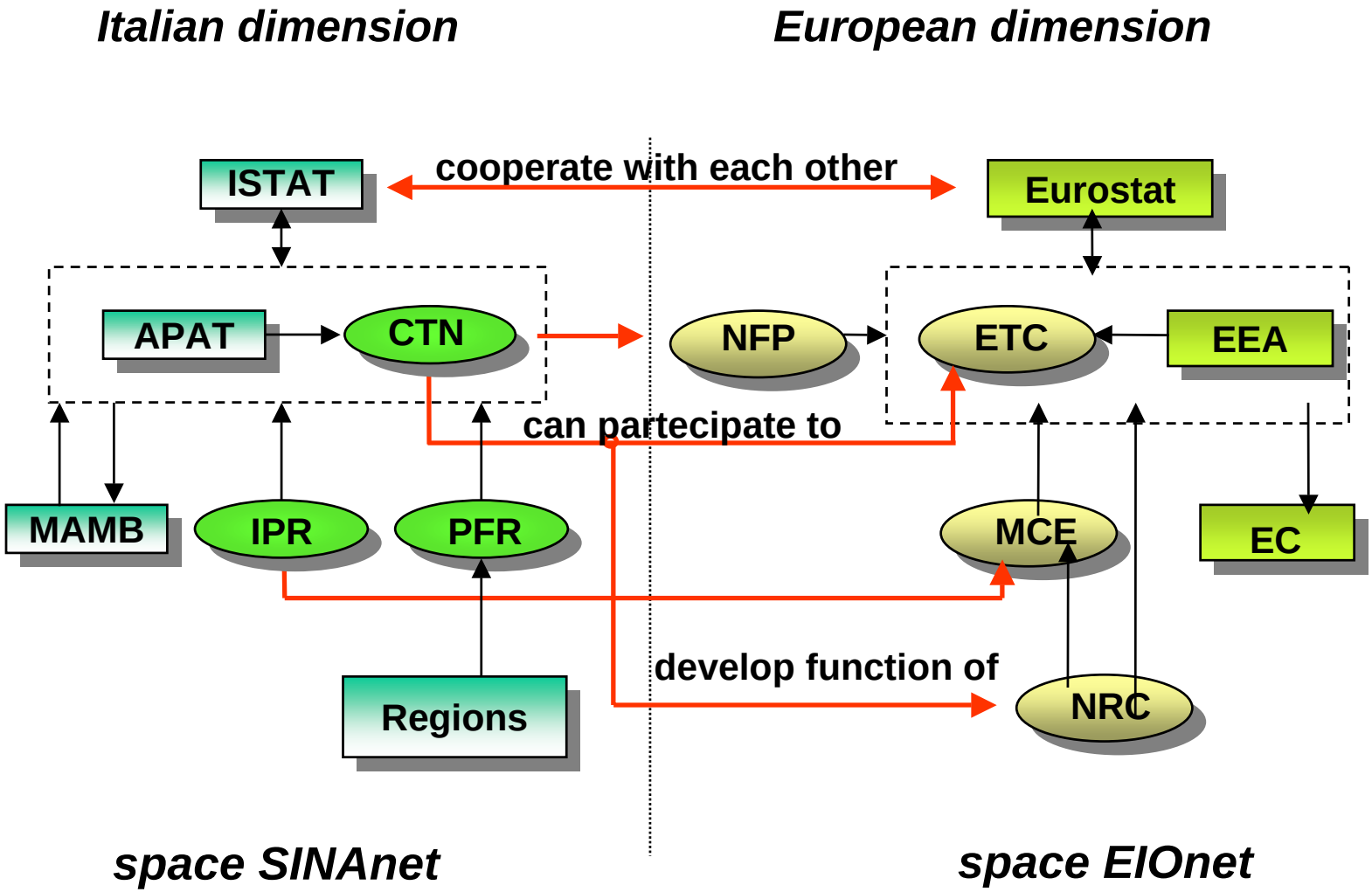
APAT

Agency for Environmental Protection and Technical Services

Environmental Data Yearbook

Main tool and product for disseminating of environmental data and information in Italy

Preliminary Steps

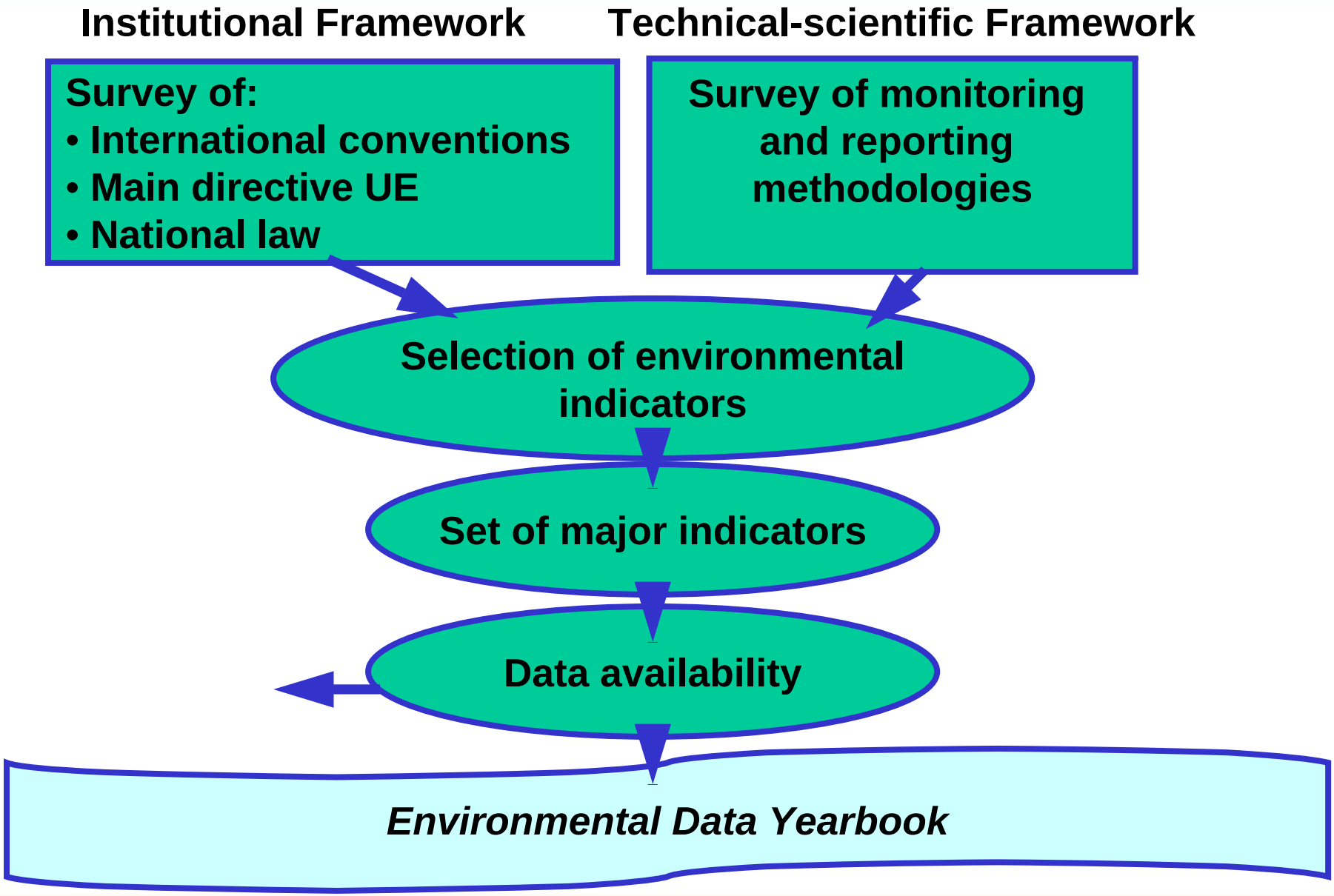


Preliminary Steps

SELECTION OF PRIORITIES IN TOPIC AREAS
(Air Quality, Emissions, Water, Nature, Waste, Soil, Contaminated sites, Electromagnetic fields, Noise)

- **Preliminary studies**
- **Data sources (E.g. APAT, Ministries, ISTAT, ARPA…)**

NETWORK OF REGIONAL ENVIRONMENTAL PROTECTION AGENCIES

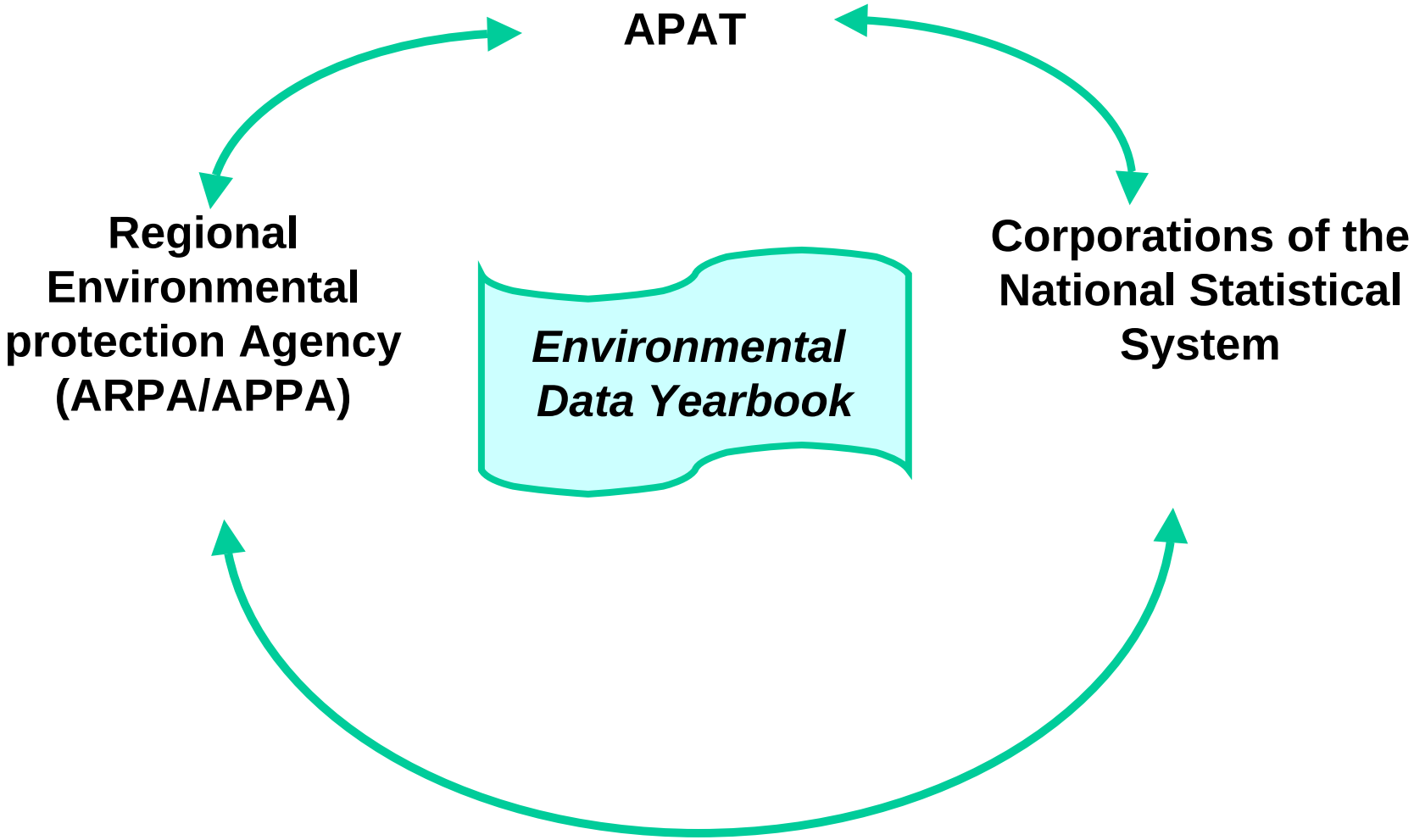

Institutional Framework
Technical-scientific Framework
Survey of:
• International conventions
• Main directive UE
• National law
Survey of monitoring and reporting methodologies
Selection of environmental indicators
Set of major indicators
Data availability
Environmental Data Yearbook

Methodologies used to realize Environmental Data Yearbook

Yearbook production steps:

- **Editorial project definition**
- **Task force**
- **Guidelines**
  - **Indicator Fact-sheet**
  - **Yearbook Database**
- **Production of the different Yearbook's Versions**

EXTERNAL NETWORK



ENVIRONMENTAL DATA YEARBOOK NETWORK

ROLES	ACTIVITIES
Focal point for the yearbook project	✓Coordinate all the process of building; ✓Interfacing with the Thematic Leaders and with the thematic referees; ✓Participate to thematic working groups.
Thematic Leaders:	✓Coordinate and certify the production (indicators) of the thematic working groups.
Thematic working groups:	✓Build the indicators including the fact sheet indicators.This group include the APAT topic expert and SISTAN topic expert.

Task force

Topic Experts and workgroups

- Propose indicators
- Select data and information sources inside and outside the National Agency
- Collected data
- Update indicator fact-sheets

Focal Point

- Define the contents and the target
- Define the editorial project
- Define the time scheduling
- Prepare Guidelines
- Validate data
- Review tables, graphs and maps
- Produce Yearbook

GUIDELINES

Who are these guidelines written for?

The guidelines are written for those involved in indicator development. In other words for all the components of the Internal Network.

What is the main purpose of these guidelines?

The main objective of the guidelines is to provide generic criteria and recommendations to document indicators through the fact sheet model. It is not a methodological paper: it does not aim to provide builders of indicators methodological recommendations on how to design indicators. Besides, the guidelines give information to use the **Yearbook Database** a web based application useful to manage and consult the fact sheet indicators.

GUIDELINES “Indicator Fact-sheet”

What is a fact sheet and why is it important?

A fact sheet is a tool to collect homogeneous information and data for indicators relating different environmental issues. Its main objective is to effectively communicate information, summarise general concepts and emphasize points of interest and concerns

Giving directives to topic experts to compile fact-sheet, table, graphs.

GUIDELINES "Indicator Fact-sheet"

The fact sheet attempts to answer the following questions:

- Is the indicator easy to interpret correctly? Does it match the interest of the target audience?
- Is the indicator representative of the monitored environmental issue?
- What are the causes behind the development of the indicator?

GUIDELINES “Indicator Fact-sheet”

- Is there a national/international reference value for comparing changes over time?
- Is the indicator based on accurate, reliable data, comparable over time and space?
- What is the methodology used to build the indicator? Scientifically, is the indicator well done?
- What is the quality of information provided by the indicator?

Indicator Fact-sheet

SECTION A: INDICATOR META DATA

A0: INDICATOR DEFINITION

A1: INDICATOR DESCRIPTION AND PURPOSE

A2: QUALIFICATION OF THE DATA

A3: QUALIFICATION OF INDICATORS

SECTION B: DATA (BUILDING)

Indicator Fact-sheet - Meta Data

A0: INDICATOR DEFINITION

Indicator title	*Each indicator must be given a clear title, reflecting its main purpose*
Environmental topic area	*See Annex 1*
SINANET Thematic	*See Annex 1*
Indicator Code/ID	*A unique code must be provide for tracking names of fact sheets, data files etc.*
Author	*List the names of the people collaborating on this indicator*
APAT contact/fact sheet responsible	*APAT contact point*
Name:	*Name*
E-mail:	*E-mail*

List of Institutes/Organizations responsible for the update/development of the indicator

Indicator Fact-sheet - META DATA

INDICATOR DECRIPTION AND PURPOSE

Description

Provide a short description of the indicator, highlighting: its main features, its limitations and the methodology used to build it.
Note that this section should contain text which does not change along the years.

Purpose

Illustrate the main objective of the indicator.

Policy objectives and references

This section should highlight the relevance of the indicator with reference to specific national or international targets. Include a list of these targets here. Whenever possible, include the relevant targets on graphs .

Indicator Fact-sheet - META DATA

CRITERIONS FOR SELECTION OF THE INDICATOR

An indicator to be select has to satisfy all and three the following criterions:

- Relevance and utility
- Scientific solidity
- Measurability

For a best definition it's opportune to underline what are the main characteristics inside every criterion. (For every criterion multiple choices are possible).

Indicator Fact-sheet - META DATA

Relevance and utility

Indicator :

- furnishes a representative framework in relationship to the objectives of normative specifications
- is sensitive to the changes that happen in the environment and linked to the human activities
- is simple, easy to interpret
- is able to describe the trend in action and the evolution of the environmental situation

Indicator Fact-sheet - META DATA

Relevance and utility

- furnishes a representative framework in relationship to the objectives
- is of national level or applicable to environmental themes to regional level but of national meaning
- exists a threshold or a value of reference with which to be able to compare indicator
- other (for instance it is meaningful also for other environmental themes or of general interest. eg. health)..... (to specify)

Indicator Fact-sheet - META DATA

Scientific solidity

Indicator:

- ❑ is well founded in technical and scientific terms
- ❑ is based on national/international standard
- ❑ is based on the national / international consent
- ❑ possesses elements that allow to correlate it to economic models,
- ❑ forecasts and systems of information.
- ❑ introduces trustworthiness and reliability of the methods of measure and data collected
- ❑ introduces the comparability of the estimates and the measures
- ❑ effected in the time.
- ❑ other…….. (to specify)

Indicator Fact-sheet - META DATA

Measurability

The data used to develop indicator are:

- ❑ easily available or available to forehead of a reasonable
- ❑ relationship costs / benefits
- ❑ adequately documented and of known quality
- ❑ adjourned to regular intervals according to reliable procedures
- ❑ comparable in the time
- ❑ comparable in the space
- ❑ timely and punctual
- ❑ other…….. (to specify)

Indicator Fact-sheet - META DATA

DPSIR	
Driving force(D)	
Pressures (P)	
State (S)	
Impacts (I)	
Responses (R)	

Indicator Fact-sheet - META DATA

DPSIR Definition

Driving forces are the human influences and activities that, when combined with environmental conditions, underpin environmental change. Indicators for driving forces describe the social, demographic and economic developments in societies and the corresponding changes in lifestyles, overall levels of consumption and production patterns.

Pressures are exerted on resources and ecosystems as a result of human activities (i.e. driving forces), and include consumption and waste generation patterns and trends.

State refers to the condition of the environment resulting from pressures (e.g. level of air pollution, land degradation and deforestation)

Indicator Fact-sheet - META DATA

DPSIR Definition

Impacts are the results of pressures on the current state of the environment, which occur in a certain sequence. For instance, air pollution may cause global warming (primary effect), which may in turn cause an increase in temperature (secondary effect), which may provoke a rise of sea level (tertiary impact), which could result in a loss of biodiversity and thus impact on human health and well-being.

Responses are the societal actions taken collectively or individually to ease or prevent negative environmental impacts, correct environmental damage or conserve natural resources. Responses may include regulatory action, environmental or research expenditure, public opinion and consumer preferences, changes in management strategy, and provision of environmental information.

Indicator Fact-sheet - META DATA

Documents of reference (Bibliography)

To report possible documents, publications, report, useful link for the understanding of the indicator.

Indicator Fact-sheet - META DATA

A2 :QUALIFICATION OF THE DATA

DATA SOURCES

To point out the data source used for populating the indicator. *(Multiple choice)*

- ❑Agency / Association / Corporate / Institution / Organism
- ❑ Other:..... (to specify) *(if the source is both a book / article to report the last names of the authors and the title of the publication, only in the case of Authors and not of corporate or institutions, because the used publications are reported in the bibliography)*

Indicator Fact-sheet - META DATA

AVAILABILITY OF DATA

To insert, if possible, the period of time and the geographical coverage of which it has the data, not inserted in the tables.

UNITY OF MEASUREMENT

List the units of measurement of the data used to define the indicator. Units should follow the International System of Units (SI) .

Indicator Fact-sheet - META DATA

A3: QUALIFICATION OF THE INDICATOR

Methodology of elaboration of the indicator

Synthetic description of the possible methodology applied for developing the indicator.

Reported the operations effected on the “raw” data to build the indicator, both, is the simple calculation (percentage, weighs, etc.) and is the equation or statistic method.

Indicator Fact-sheet - META DATA

GEOGRAPHICAL COVERAGE of indicators

National

Regional

Provincial

Comunal

Others

TEMPORAL COVERAGE of indicators

Clearly note all time periods covered by the data used to define the indicator; for each time span indicate the earliest and the most recent year.

Indicator Fact-sheet - META DATA

QUALITY OF INFORMATION

Quality Aspects: Indicator Level

At indicator level, we consider four attributes to describe the quality of information.

1) **Relevance**: relevance of the indicator for describing the environmental issue. "*Is the indicator what the user expects in relation to the issue monitored?*"

2) **Accuracy**: this attribute depends on several elements like: data comparability, reliability of information sources, spatial and temporal coverage of data etc. "*Is the indicator reliable?*"

3) **Comparability over time**: consistency of the methodology in time. "*Is the indicator based on data which are comparable over time?*"

4) **Comparability across space**: spatial consistency of the methodology. "*Is the indicator based on data which are comparable across the Country?*"

Indicator Fact-sheet - META DATA

Quality Aspects: Indicator Level

Quality Aspects	*Score*
Relevance	1,2,3
Accuracy	1,2,3
Comparability over time	1,2,3
Comparability across space	1,2,3
Overall Scoring	**SUM**

The overall scoring determines the *indicator quality of information*. If the quality is “High”, the indicator can be applied with confidence by users. If the quality is “Low” the users should be much more careful in the judgement.

Score	Quality of Information
Between 4 and 6	High
Between 7 and 9	Medium
Between 10 and 12	Low

Indicator Fact-sheet - META DATA

Frequency of data collection

For each dataset, make clear whether the data are collected regularly and how often (E.g: Annual, Every two/three/five years, variable frequency)

Type of representation

Most indicators are based on data which are displayed through graphs or tables (spreadsheets). Mark with a “X” what kind of representation is used on this fact sheet. Multiple choices are possible.

Tables

Graphs

Maps

Indicator Fact-sheet - DATA (BUILDING)

SECTION B: DATA (BUILDING)

TABLES AND DATA:

Insert here the tables listed in the meta data section ("Type of Representation" sub-section). Sort the tables according to the Progressive Number associated to each file name.

For each table provide:

- a technical title as it should appear in the final publication
- units of measure
- headings for all columns and all rows
- a source of the data

Please remember:

- decimal symbol is "."(point)
- put years on top of the columns
- eventual notes must be inserted at the bottom of tables

Indicator Fact-sheet - DATA (BUILDING)

SECTION B: DATA (BUILDING)

GRAPHS AND MAPS:

Insert here the graphs listed in the meta data section ("Type of representation" sub-section). Sort the graphs according to the Progressive Number associated to each file name. The graphs should be easily readable with proper scales and fonts and understandable without confronting the text.

For each graph provide:

- a technical title as it should appear in the final publication
- units of measure
- a source of the data

Indicator Fact-sheet - DATA (BUILDING)

SECTION B: DATA (BUILDING)

Assessment of state and trend

Through the Chernoff icons we provide users a visual assessment of the indicator trend. The assessment represents a personal evaluation of the expert on the basis of their knowledge of the monitored environmental issue, keeping into account eventual targets.

	the targets will reasonably be achieved
	the indicator subject-matter is moving in the right direction, but the targets will hardly be achieved within the established timeframe
	all other cases

Choose the appropriate Chernoff icon and summarise the reason of your choice

Indicator Fact-sheet - DATA (BUILDING)

SECTION B: DATA (BUILDING)

Comments to tables and figures

A short (5-10 lines) factual explanation for tables and figures should be inserted here

Further work required (at data and indicator level)

If you need, you can assess here what needs to be done to improve the indicator.
E.g: improvement in methods, new data, better data, improvement of coverage in space and time etc.

List of references and literature

List relevant scientific publications, manuals, web sites relating the references used or cited on the fact sheet

List of acronyms

Insert the acronyms and the related definitions used or cited on the fact sheet

The Support to the Process of Production of the Yearbook

YEARBOOK Database

a tool to

streamline and improve processing indicators (data and metadata)

provide search and navigation functionalities on all indicators

Crop "customized" version of the data Yearbook

Guidelines for Yearbook Database

The Yearbook Database is an application *web-based*, supported to a centralized database into APAT, through which are managed and consultable, with accesses through Internet differentiated for user profile, all the information related to the indicators, are already inserted in the various editions of the yearbook

Yearbook Database

CONSULTATION

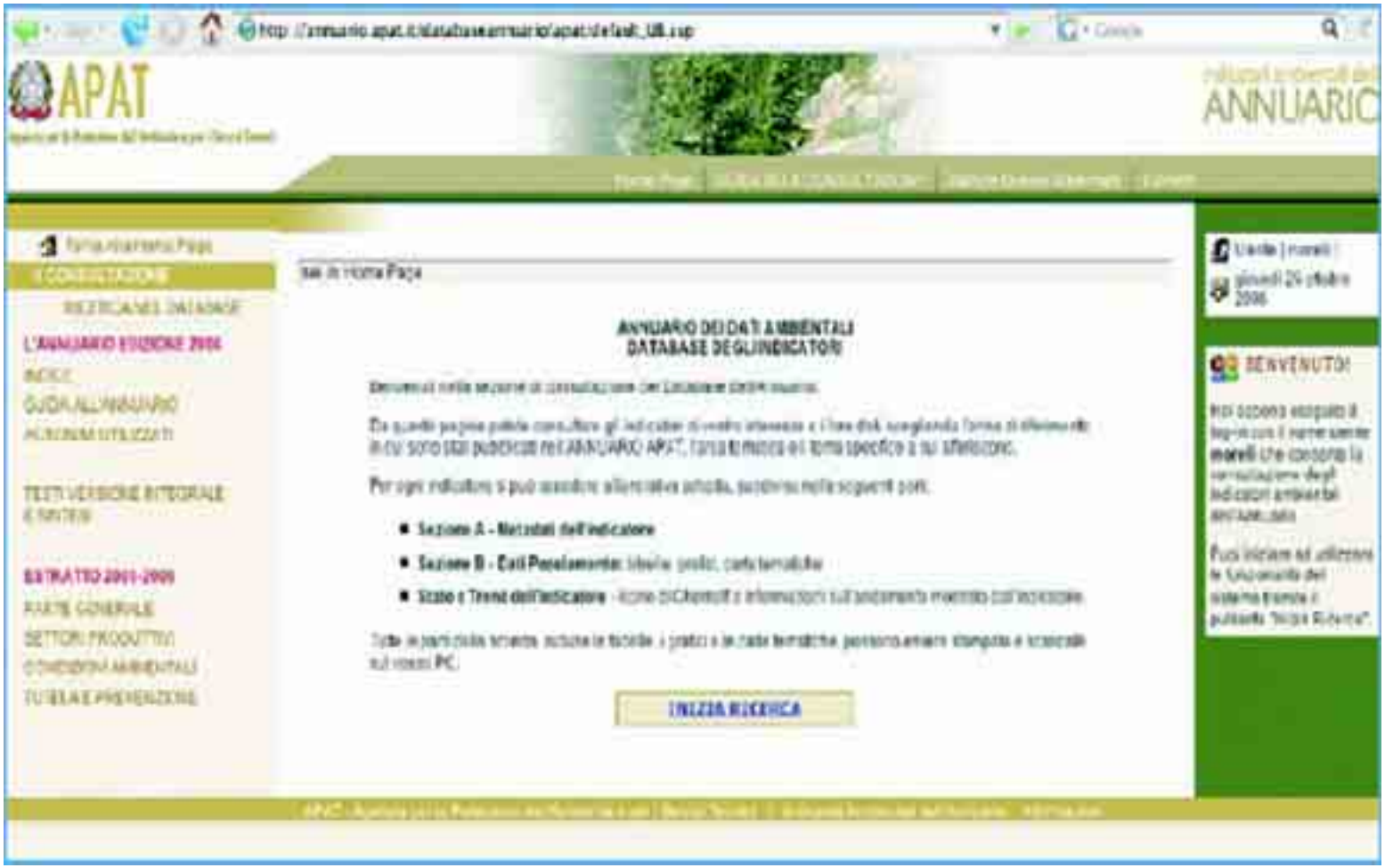
The database is accessible from the homepage of the site APAT or directly to the address http://annuario.apat.it

Home page Yearbook Database

Yearbook Database

Registration page

Yearbook Database

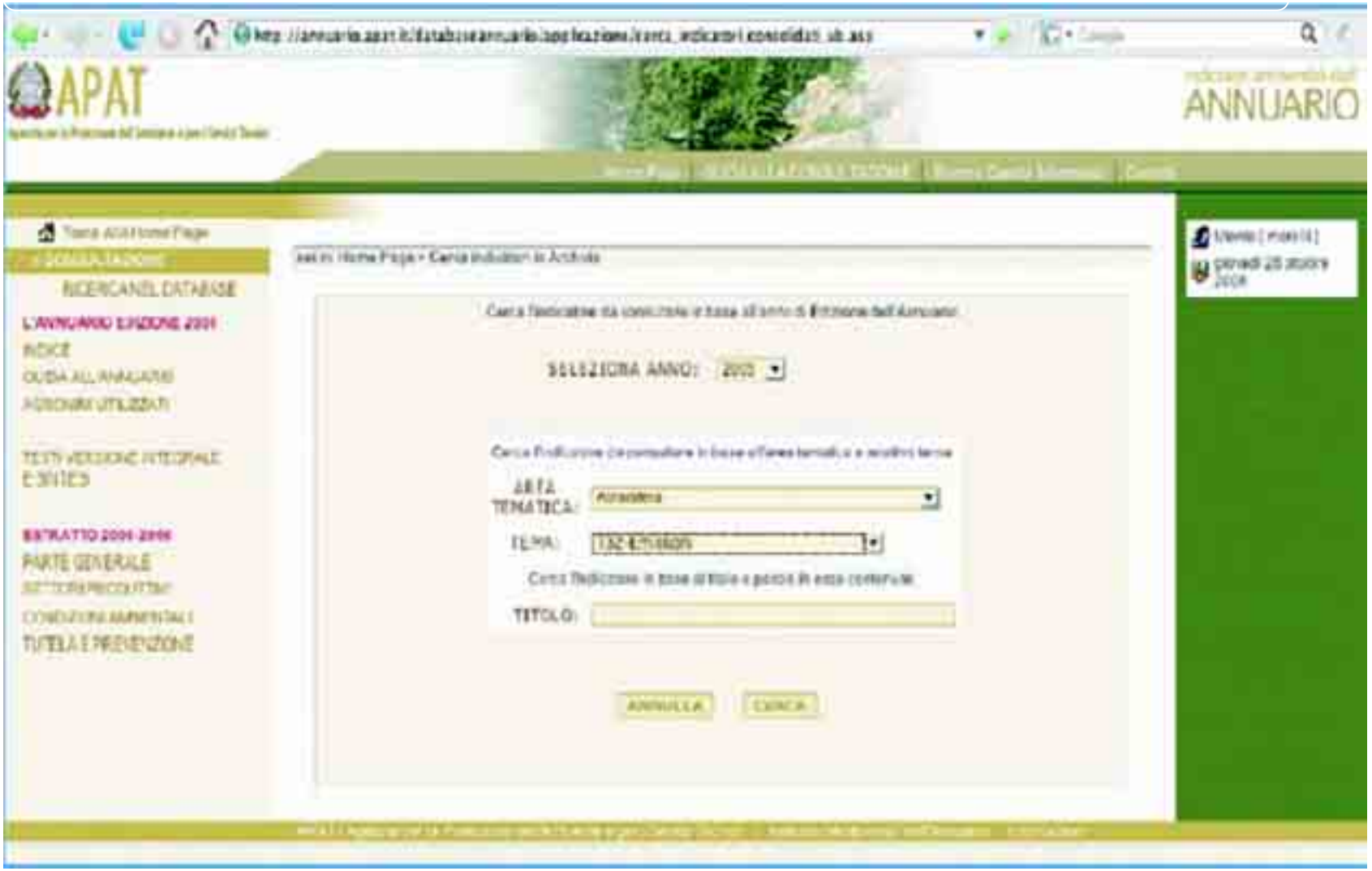


Home page “basic consumer”

Yearbook Database

Research for "test streak"

Yearbook Database



Research for “Topic Area” and “Tema SINAnet”

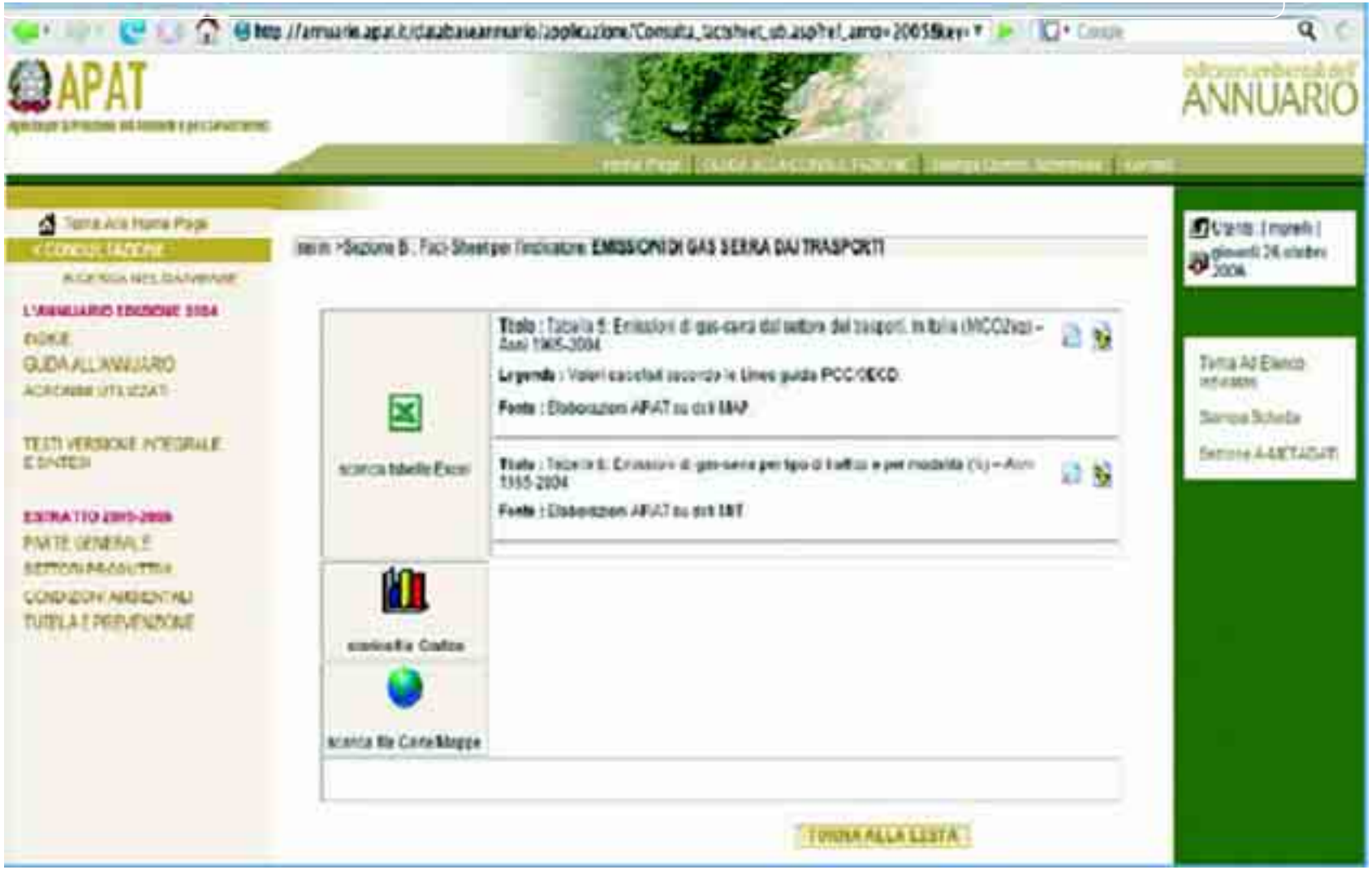
Yearbook Database

Result of the joined search

Yearbook Database

Metadata Fact sheet

Yearbook Database



Data Section