



Pedro Ferraz de Abreu *Summary Presentation*

Air pollution in Europe is causing alarming increases in respiratory diseases. Specially among children and other vulnerable population. To help policy makers justify difficult decisions on pollution, scientists need to correlate these with indoor, outdoor and personal exposure data. But to gather extensive personal exposure data, through the specialized agencies and institutes, is a heavy burden – and expensive - which is preventing its large scale implementation.

Policy makers need also to raise awareness on air pollution, to gain citizen support to set in place good policies to curb pollution. Besides the importance of informed political support, citizen behavior is part of the problem and its educated improvement must be part of the solution. Political leaders agree on the strategic need to promote citizenship in the European Union. But indoctrination approaches, even if wrapped in the noble flag of democracy, clearly do not produce healthy results, in schools or elsewhere.

Schools seek ways to raise the quality of learning through experimental science and promoting social responsibility, but finding the right approach to motivate students remains a challenge.

The **EuroLifeNet Program** brings it all together.

EuroLifeNet objective is to connect the gathering of scientific environmental data with raising citizen awareness through participation, with focus on youth, targeting schools as a key partner. With **EuroLifeNet**, schools can provide a large network of valuable data sources, creating at the same time a sense of *European Scale Cooperation* at citizen level.

Scientists need personal exposure data. Current public services are not in condition to respond to this need, without substantial investment. Schools and students are a resource already in place, able to contribute to some of these requirements, thus minimizing costs. But as “co-authors” of the scientific data, the students become champions of its use for extracting real consequences, raising their personal awareness, as well driving the raise of educated public awareness through their parents and local community links.

EuroLifeNet addresses two strategic priorities in the European Union: the *Environment-Health* critical relationship, and fostering *Citizenship*. **EuroLifeNet** also responds to UN's *Decade of Education for Sustainable Development*. These priorities require inspiring, innovative projects.


EuroLifeNet is conceived as a long-term Program (fitting UN's decade time-frame), with a series of specific, focused projects, that respond to concrete requests from the scientific community and policy-makers. Each project is therefore to be dedicated to a subset of data indicators and related public awareness-raising themes and priorities.

CITIDEP presented for the first time its **EuroLifeNet** proposal the 26th May 2005, in Ispra, Italy, at the APHEIS¹ meeting hosted by the Institute for Environment and Sustainability (IES) of the Joint Research Centre (JRC) of the European Commission (EU). Thanks to the immediate interest and support of the Emission and Health Unit of the IES/JRC, EuroLifeNet first pilot project is designed to measure particulate matter (PM 10 or 2.5) and raise awareness on air pollution.

The **EuroLifeNet** proposal builds directly on CITIDEP and IES/JRC rich experience with **PEOPLE²** and “**PEOPLE-Citizenship**” projects. Its design is also inspired by other recent experiences of participatory science that were equally successful (NASA's GLOBE³, Berkeley's BOINC⁴).

In this summary we describe briefly the EuroLifeNet Program and the proposed first pilot project – EuroLifeNet-PM.

EuroLifeNet as a simple, sustainable concept, for a long term program:

In each School in the EuroLifeNet, groups of students lead by a teacher will “adopt” an “ EuroLifeNet Node ”, and keep a regular record of indicators measured on this Node.	
Node ID: School, GPS Long/Lat/Z, type	
Nodes may be indoor or outdoor	
Bio-Physics measures at the Node	
Socio-economic measures in a circle (or grid) centered at the Node	
Composite data (tracing data around the node, eg. students carrying sensor 24h measuring personal exposure, with diary)	

¹APHEIS - Air Pollution and Health: A European Information System (<http://www.apheis.net/>)


² PEOPLE - Population Exposure to Air Pollutants in Europe (<http://www.people-pt.net/>)

³ GLOBE (<http://www.globe.gov>)

⁴ BOINC – Berkeley Open Infrastructure for Network Computing (<http://boinc.berkeley.edu>)


All **“EuroLifeNet Nodes”** share their data at multiple scales, “feeding” different uses and aggregate levels. In many cases, procedures can be incorporated in curricula.

- Adoption of common data protocols
- Data validation procedures with institutions
- Sets of tool kits for schools and teachers
- Use of integrating tools and architectures*
- Events inter-schools and public awareness
- Scalable + modular, easy procedure to join




Pilot Project with focus on Particulate Matter (PM 10 / PM 2.5)
 The goal is to contribute to EU (APHEIS, JRC/IES) Environment-Health Strategy and to the United Nations **“Education for Sustainable Development” Decade**

- Scientific Coordination by IES-JRC
- 10 to 15 Schools in EU, distributed East-West, North-South, urban and non-urban
- Portable PM samplers + local station (right)
- Local partnerships with Schools + Gov/PAd + Environment/Health Institutions + NGOs
- Funding application to EU Programs and National funding sources (public & private)

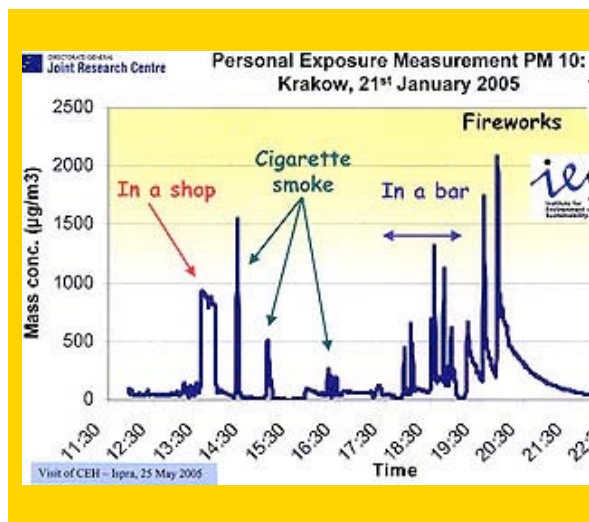


- IES-JRC will equip*⁵ EuroLifeNet schools and coordinate scientific procedures
- Students carry portable PM sampler (right), a portable GPS and make a 24h diary
- One student at a time, with different habits and trajectories, will provide a rich map
- Other associated projects may benefit from this pilot EuroLifeNet project, and amplify it



⁵ EuroLifeNet promotes local partnerships with Air Quality Agencies, to foster building local capacity

The electronic nature of the portable samplers allows for easy data extraction, network sharing and analysis. Together with a diary and GPS data, this becomes a powerful tool both for scientists and teachers.



In conclusion,

The Environment-Health-Education approach optimizes synergies:

1. To help policy makers justify difficult decisions on pollution, scientists need to correlate public health indicators with indoor, outdoor and personal exposure data, and improve continuously data quality and comprehensiveness. Schools and students are a resource already in place, able to contribute to some of these requirements, thus minimizing costs.

2. Any investment in School equipment and Teacher training for this purpose is a double gain, adding to School resources that improve quality of education.

3. Involving students in the data gathering is a triple gain: **scientists get valuable data**, class curricula becomes more motivating for students in their role as serious partners in the pollution analysis and, **as “co-authors” of the scientific data, they become champions of its use for extracting real consequences, raising their personal awareness**, as well driving the raise of educated public awareness through their parents and local community.

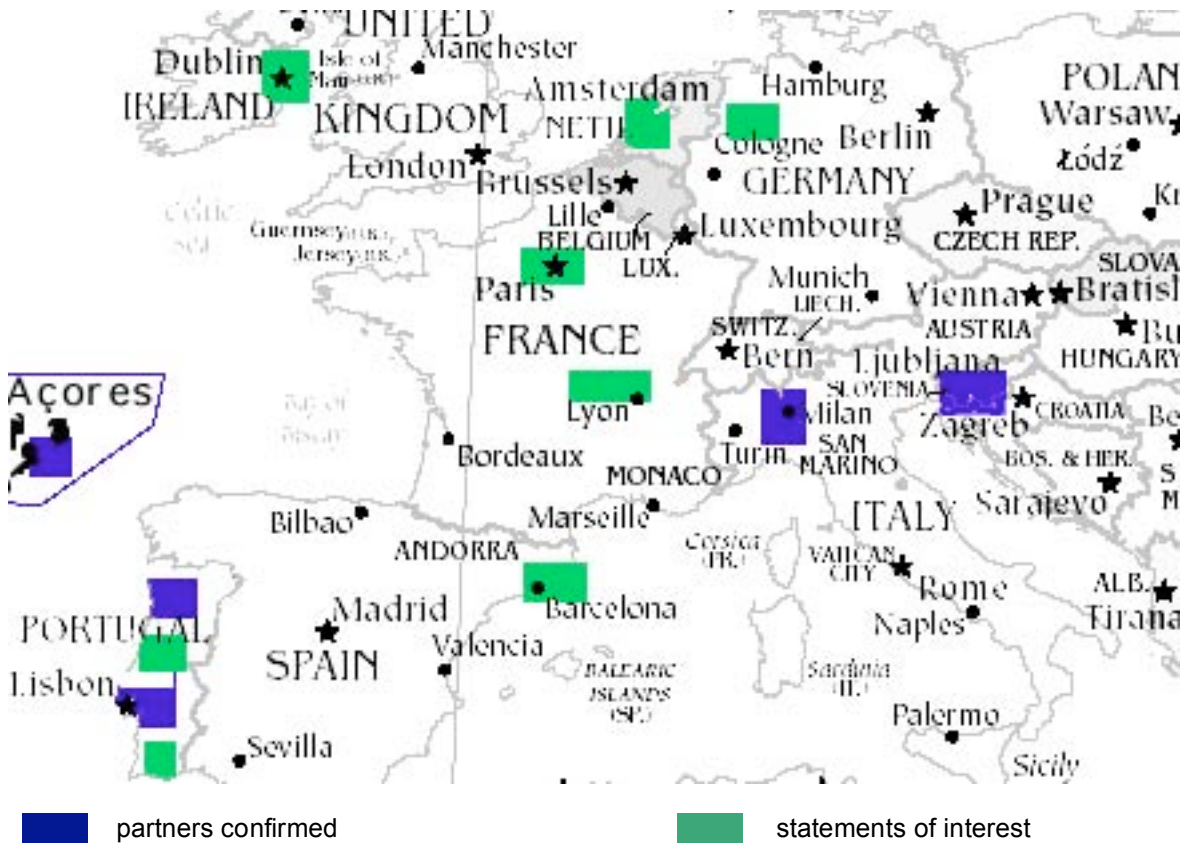
5. EuroLifeNet Pilot Project Partners.

Europe: **CITIDEP** leads the Operational Program, **IES-JRC** leads the Scientific Process.

Portugal: 3 regional clusters (Lisboa, Açores, Viana), with 6 highschoools, 4 universities, 1 research center and 1 ministry agency (environment); led by **E.S.E.-I.P.V.C.**

Italy: 1 regional cluster (Milan), with 3 highschoools, 1 medical and research center, 2 non-governmental organizations (environment, transportation); led by **Mamma Antismog di Milano**.

In Portugal, the Secretaries of State for Education and for Environment have stated their support to EuroLifeNet. The UNESCO Committee in charge of implementing United Nations **resolution 57/254 (Decade of Education for Sustainable Development)**, presented **EuroLifeNet** as an example of good practices.



<http://www.eurolifenet.eu/> * email: pfa@citidep.net

CITIDEP - Research Center on Information Technologies and Participatory Democracy (Centro de Investigação de Tecnologias de Informação para uma Democracia Participativa), is a private, non-profit, multi-national research institution, with official headquarters in Lisbon, Portugal, whose primary objective is to study participatory democracy, in particular through the research, development and demonstration of new information technologies, of its impacts, and of ethical, social, political and planning frameworks that enable participatory mechanisms in the information society.

CITIDEP membership includes a network of 70 researchers from Universidade de Lisboa, U. Nova de Lisboa, U. Catolica, U. Aveiro, U. do Algarve, I.Politécnico de Viana do Castelo, U. Lusófona, U. Estadual de Londrina - Brasil, U. de S. Paulo, Université de Paris, London School of Economics, Università di Firenze, U of Ljubljana, MIT - Massachusetts Institute of Technology, Harvard U., U. of Massachusetts/Boston, U. of California/LA, U. of Iowa, U. of Illinois, U. of Colorado, U. Buenos Aires, U. Autonoma del Estado de Mexico, U. de Guanajuato, Colegio Mexiquense.

More information is available at
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