François-Rabelais University (France) would like to join a project on the interactions between biodiversity and ecosystem services

- FP7-ENV-2012-two-stage > ENV.2012.6.2-1: Exploration of the operational potential of the concepts of ecosystem services and natural capital to systematically inform sustainable land, water and urban management

Profile :

The **François-Rabelais University** in Tours (France) is a multidisciplinary university, with ca 22,000 students, 1,300 academic staff members, and spread over 7 faculties, 2 technological institutes and 1 polytechnic school. Over 100 Phds are defended each year. It is involved in numerous regional, national and European projects and is developing scientific programmes in cooperation with major public and private sector partners.

Our team belongs to CITERES, a joint research unit between the CNRS and the François-Rabelais University in Tours, whose research focuses on relationships between society and land settlement. We often work closely with other teams in FRU (CNRS-IRBI, CETU Innophyt, CETU Elmis), which allows us to develop a deep knowledge of the interactions between biodiversity and ecosystem services, such as conservation of native flora and fauna, enhancement of biological pest control and mitigation of agricultural non-point source pollution.

We analyze these issues across a variety of scales and particularly local, landscape and regional scales, and take into account several stakeholders, such as farmers, local extension services, design offices, urban planners and managers of public gardens and parks. We widely use plants, arthropods and aquatic macroinvertebrates indicators for assessing biodiversity conservation. At the moment we are addressing conditions for trade offs between conservation of native flora and fauna in urban woodlands, and urban planning ; we are also analyzing possible synergies between biodiversity conservation and biological pests control in road verges and field margins networks, in the frame of green infrastructure approach and ecological restoration of roadsides. We are examining balancing trade-offs between biodiversity conservation and reduction of nitrogen pollution in constructed wetlands, in the context of the implementation of the Water Framework Directive and ecological engineering. Indeed our team is involved in several projects at European, national (with the French Ministry of Environment) and local scales. Our study-sites are located in the Loire river basin, part of a French network of regional sites and interdisciplinary researches about interactions between environment and local societies, supported by CNRS (“Zones ateliers”).

In ENV.2012.6.2-1 call, a work package focused on ecological restoration and engineering for sustainable land management, involving framing of experimental design and dataset, and monitoring indicators, could be built with partner teams.

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University of Avignon (France) would like to join a project on underwater and coastal archeology

- FP7-ENV-2012-one-stage > ENV.2012.6.2-6: Development of advanced technologies and tools for mapping, diagnosing, excavating, and securing underwater and coastal archaeological sites

EoI Avignon University ENV.2012.6.2-6.pdf — PDF document, 103Kb

Profile :
Detection, survey, archaeological excavation, preservation, management and improvement of a coastal archaeological site, cultural heritage of the Eastern Mediterranean area.

The main aims of our projects are :

- Detection and location of the remains of a coastal archaeological site, Paphos, on the South-western coast of the island of Cyprus.
- Archaeological excavation and preservation of the site; chemical analysis (chromatographic techniques, spectroscopic methods) of the Roman wall paintings, of the construction techniques, biological and ecological studies of the evolution of the landscapes since the post glacial sea-level rise, master plan of the coastal archaeological site.
- Identification of the former environmental and landscape contexts of the archaeological sites.
- Management of the conservation, preservation and improvement of a coastal cultural heritage on the UNESCO list.

We are working on an archaeological site, under the behalf of the French Ministry of Foreign Affairs, of the French National Research Center, with the scientific labs of the University of Avignon et des Pays de Vaucluse, in collaboration with the Department of Antiquities of Cyprus and of the Cyprus Research Institute.

The site of Paphos, lies on the south-western coast of Cyprus in the Eastern Mediterranean. It was the Ancient Ptolemaic and Roman capital of Cyprus founded at the end of the 4th century BC but it was still important during the Frankish period (13th and 14th century). Since 1980, Paphos is recorded on the UNESCO Cultural Heritage list but part of the site, the Fabrika hill, stays out of the protected archaeological park and still can be built. We lead an important rescue archaeological excavation on Fabrika hill in order to do the detection and preservation of the remains of the ancient coastal city, to study the former plant composition and dynamics of the site, the chemical and technical ways of decorating and building the Greek and Roman houses and to manage an important improvement of the hill, important inhabited quarter of the ancient capital of Cyprus with its Greek and Roman dwellings, temples and theater.

We already have collaborations with several SMEs, working on :

- archaeological survey (laser or satellite detection),
- stone preservation and construction
- manager or developer to built the prototype of a Roman house as an exhibition place as well as an
- archaeological lab and dig house.
- master plan of the coastal archaeological site.
- palaeoecological teams (soil wood charcoal analysis).
- conservation and restoration.

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University of Avignon (France) would like to join a consortium on long-term monitoring in a geologically active regions

- FP7-ENV-2012-two-stage > ENV.2012.6.4-2: Long-term monitoring experiment in geologically active regions of Europe prone to natural hazards: the Supersite concept*

EoI Avignon University ENV.2012.6.4-2.pdf — PDF document, 889Kb

Profile :

LSBB ("*Laboratoire Souterrain à Bas Bruit*" or "*Low noise inter-Disciplinary Underground Science & Technology Laboratory*") is a scientific platform away from major anthropogenic disturbances located in the heart of the largest karst aquifer in Europe. It develops collaboration on perimediterranean management of groundwater resources, and promotes scientific observation and dissemination of data and knowledge of the seismic, hydrogeological, magnetic, and particle environments.

The LSBB develops continuous observation of the environment covering the areas of hydrogeology, hydromechanics, seismology, Earth magnetism, and radioactivity (in association with ONERA, and IRSN). It will give access to consortium to many experimental facilities:

- Gallery and subsurface vaults with instrumentation for the measurement of magnetic, gravimetric, seismic, poroelastic processes and test of sensors in borehole,
- Isolated low noise rooms with Internet connection, time, energy and telephony, for the installation or tests of sensors,
- Cored boreholes,
- Electromagnetically shielded and reinforced room,
- Distribution of GPS time via optical fiber in all galleries,
- Clean room for experiments that require optimal conditions of purity,
- Two galleries with an angle of ~80° and straight portions of 800m and 1200m long,
- Full geographic positioning system in all galleries attached to the French geographical reference RGF93.

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Citizens' observatories - community-based environmental monitoring

- FP7-ENV-2012-two-stage > ENV.2012.6.5-1: Developing community-based environmental monitoring and information systems using innovative and novel earth observation applications*

Partnership offer ENV.pdf — PDF document, 322Kb

Profile :

Since 1995, Cap Sciences relies on its expertise in science communication and its network in the creative economy sector to develop exhibitions, hands-on displays, serious games and editorial work in order to disseminate scientific and industrial culture and to enable its audience to understand the main science and society issues.

Cap Sciences' team cooperates with a large network of partners to build bridges between research, industry and the general public through its actions on the internet and on the territory.

Access to information for all is one of Cap Sciences' core values

Cap Sciences can bring to the consortium:

- Numerous cultural experiences and a wide range of audiences to test new technologies
- Its expertise in virtual exhibition design and production, 3D animations, serious game production and hands-on and digital interactives for educational and science communication purposes as well as for awareness raising on science-society issues
- Its experience in outreach programme design and implementation on observation and identification of flora
- Its expertise in mobilising of local and regional stakeholders such as policy makers, universities, associations, the industrial sector for its science communication and awareness raising projects
- Its expertise in communication and dissemination of research results

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Online profile :

http://www.pcn-environnement.fr/Members/europe/citizens-observatories-community-based

Institute of Reims Molecular Chemistry from France would like to join a project on water technology and management

- FP7-ENV-2012-one-stage > ENV.2012.6.6-1: EU-India cooperation in water technology: research and innovation

ProjectSearch-ICMR-ENV.2012-6.6-1.pdf — PDF document, 105Kb

Profile :

Within the framework of pollutants fate in environment, the safety assessment requires a complete knowledge of the mechanisms involved at the aqueous solution/mineral interface. Since pollutants migration through the geosphere is mainly governed by sorption and/or precipitation phenomena, it appears to be fundamental to investigate the retention processes at a molecular level. In such a way, the major experimental limitation arises from the difficulty to extract a local phenomenon contribution from the macroscopic system. Therefore, the use of atomic scale modelling makes possible to evaluate the contribution of each component of the global system. Multi-component reactive transport models are used to simulate the fate of chemical species in subsurface environments. These models account for the coupling of surface and homogeneous chemical reactions and physical transport processes. Efforts are also underway to obtain in-situ, on-line chemical front data, instead of the classical " break through curves ", and to couple transport in the aqueous phase to eventual redox reactions.

In a more prospective view, it could also be considered to develop integrated soil system models that can be transferred across a wide range of temporal and spatial scales, addressing the entire life cycle of soil systems and thus underpinning their restoration and sustainable management.

Our competency: Chemistry applied to environmental topics: geochemical approach of the soils pollution by organic (pesticides, PAH …) and inorganic (metallic cations) pollutants. Study of the understanding of pollutants transfer phenomena toward surface- and ground-waters. Search for remediation means of water pollution, application to the improvement of water quality.

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École des hautes études en santé publique (France) is looking for partners for its project on disasters and public health

- FP7-ENV-2012-two-stage > ENV.2012.6.4-1: Improving the resilience of society to catastrophic natural hazards through new risk-management partnerships
- FP7-ENV-2012-one-stage > ENV.2012.6.4-3: Integrating environmental and health data to advance knowledge of the role of environment in human health and well-being in support of a European exposome initiative

Profile :

In a dense population, accident (high-energy industrial or natural event or terrorist action) can lead to catastrophic consequences. Population growth and ongoing urbanization in the world thus promote the occurrence of disasters. The magnitude of a disaster depends on the vulnerability of populations (demography, health, topography, social inequality, preparedness ...). In addition, natural disasters may trigger technological disasters.

Whether natural or human, disasters pose numerous health problems. The issues are:

- decision-making (what allocation of resources, nature and extent of health surveillance and environmental monitoring to be established);
- cognitive (determination of risk factors, knowledge of health impacts);
- information (the aftermath of a disaster may be moments of confrontation between pressure groups (industry, representatives of the public, employees, elected officials and the media) in which epidemiological information becomes an issue;
- repair (compensation delays are likely to increase considerably the societal impacts of a disaster, to slow return to normal life and ultimately worsen societal impact overall, in particular when the populations affected are the most deprived).

II/ Objective

The initial step is building a theoretical framework to address public health needs in post disaster depends on the nature of the event and on the characteristics of the affected country. Then, information systems and methods of data gathering under different disaster scenarios will have to be tested. Useful data may be health events or non-health -but indirectly related to health-, that could carry a syndromic signal.

III/ Methodology

1. Data gathering

Not only health events are to be collected, but also data allowing to interpreting them, in particular exposure to known or suspected hazards, be they microbiological, physical or chemical. Thus, the input of several disciplines other than epidemiology aiming at a proper metrology is required. Since the role of rumours in the aftermath of a disaster may have important public health consequences, social sciences will have to mobilized too. The usefulness of remote sensing and distance-epidemiology will be assessed.

For the short term, the classical resources for collecting epidemiological data (questionnaire) and in development (mobile phone, web questionnaires, web search using e.g. Google and social networks) will be used.

We will establish, on the basis of various scenarios, the nature of syndromic surveillance data which is desirable and possible to collect. Appropriate experimental fields for simulations of disaster situations will be selected (including most likely Haiti where our consortium has gained some experience).

2. Data Analysis

We'll rely on data mining approaches, non-parametric methods, namely classification by learning, and/or graph theory.

Timeframe

The entire project spans over 4 years. The methodological framework will be completed during the first 2 years. The devices developed will be tested by the 3rd year simulation from data sets to recover post hoc (*e.g.*, Haiti) or generated from more recent disasters.

Skills and competencies to be sought:
- social sciences (sociology/anthropology)
- epidemiology
- biostatistics (non parametric approaches)
- remote sensing
- chemical metrology
- microbiology
- risk assessment

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