Remote Sensing and Knowledge Management for Environmental Security: A Research Perspective for Information and Communication Technologies

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Several ongoing European research activities in the field of information and communication technologies (ICT) do focus on developing cost-effective services to better manage environmental crises. The general objective is to contribute to the deployment of a distributed and dynamic info-structure for environmental monitoring and risk management in Europe. The strategic approach was tailored to cover the whole cycle of disaster management from prevention to response and post-disaster assessment, and the full range of environmental hazards including systemic and cascading risks.

Twenty-five ongoing research projects, co-funded under the theme Information Society Technologies (IST) of the 6th Framework Programme (2002-2006) focus on new system architecture to improve reliability, scalability and interoperability between existing and future environmental information resources in Europe, with large scale pilot tests involving public authorities across Europe. They are looking at pre-standardisation activities and promoting open source software as means to improve the uptake of RTD results.

Remote sensing is an integral part of this effort. In particular, ICT technologies open the perspective for interoperable environmental monitoring networks, with a focus on smart in situ sensors networks deployment and operations. Investigated topics include the integration and optimisation of existing monitoring networks, the easy plug-in of new sensors, sensors cooperation, networks customisation, centralised and decentralised approaches towards network control and data processing, appropriate architectures and services for middleware, interfaces with Spatial Data Infrastructures and Web services.