

Executive Summary

Project Goals, Objectives and Achievements

Within the framework of the five-year Regional Environmental Reconstruction Programme for South Eastern Europe (REReP), the Development of National Environmental Information Systems “quick-start” project (April 2001 to December 2003) set out to help the region’s countries and territories build their own environmental information systems. Croatia was nominated by the region in March 2000 to lead the project and thereby to foster regional ownership and development, particularly through implementation of a pilot project: a web based coastal waters geographic information system (GIS). The REReP project’s main goals were to:

- enhance the accessibility of current, high-quality environmental information;
- offer a framework for long-term regional cooperation; and
- facilitate participation in the European Environment Information and Observation Network (EIONET) of the European Environment Agency and implement the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).

The project’s ultimate goal was to ensure greater access to environmental information for citizens and government authorities. It therefore focused on improving the collection, management and dissemination of environmental information. The project began with an initial needs assessment in 2001 to:

- analyse the current status of national/territorial environmental information systems;
- review the obstacles and challenges to future development; and
- determine future priorities within the framework of national action plans.

Targeted measures that responded to these needs were implemented during 2002-3, and ranged from local hands-on technical assistance to international training workshops to build expertise. Other measures included financial support for the purchase of equipment and the facilitation of dialogue with NGOs and other stakeholders. The sharing of best practices and experience underpinned all of these activities, while the national action plans have yielded a framework for activities over a five-year period at the national/territorial levels.

Ensuring greater access to environmental information for citizens and government authorities has been the project’s ultimate goal

Environmental information systems are comprised of networks of institutions relying on electronic tools and traditional mechanisms to support the manipulation and flow of information

What is an Environmental Information System?

For the purposes of this project, environmental information systems are comprised of networks of institutions relying on electronic tools and traditional mechanisms to support the manipulation and flow of information, from the monitoring station through to the interested stakeholder (a schematic diagram is provided on page 20-21). These systems vary in structure and complexity, but generally consist of monitoring networks; data correlation, management and storage systems; reporting frameworks; and a variety of tools used for dissemination. In today's information society, electronic tools, such as computer networks for the rapid transfer of data and composite databases for information storage and management, are central to ensuring effective environmental information systems. Other important constituents include proper operational plans, adequate and well-trained staff devoted to environmental information management, supportive legal frameworks, and mechanisms to raise awareness among potential users of this information.

Implementation in South Eastern Europe

The level of development of environmental monitoring networks and data collection mechanisms varies from country to country:

- In Bosnia and Herzegovina, there is no systematic collection, storage or reporting of water and air quality data in any format.
- In Kosovo, data is collected but is of limited value.
- In Albania, data collection occurs for a range of issues but only in selected regions and storage remains chiefly non-electronic.
- In Serbia and Montenegro, data is stored in both electronic and non-electronic formats, while in Bulgaria as much as 40 percent of the data remains on paper.
- In a number of countries (Bulgaria, Croatia, FYR Macedonia, Romania), monitoring networks are well developed, but data is being transferred manually from paper to electronic format (FYR Macedonia), or is stored in a variety of formats according to the institutions' own standards.
- In Serbia and Montenegro, monitoring networks cover all media, but geographic coverage is deemed inadequate.
- In all countries many institutions are involved in data collection, sometimes with overlapping responsibility and with limited coordination amongst them.

The lack of harmonised reporting formats and the diverse range of technical platforms constrains data integration, exchange and cooperation between institutions. This impacts upon the use of environmental information in the decision-making process. Concerning the region, it can be said that:

- No systematic approach exists for data storage and exchange, though some attempts are being made to introduce indicator-based reporting, in Albania for instance.
- A clear trend is emerging for establishing agencies or information/thematic centres to coordinate reporting (Bulgaria, Bosnia and Herzegovina, Croatia, Kosovo [territory

under interim UN administration], FYR Macedonia, Romania, Serbia and Montenegro) and/or integrated monitoring systems development (Croatia, Romania).

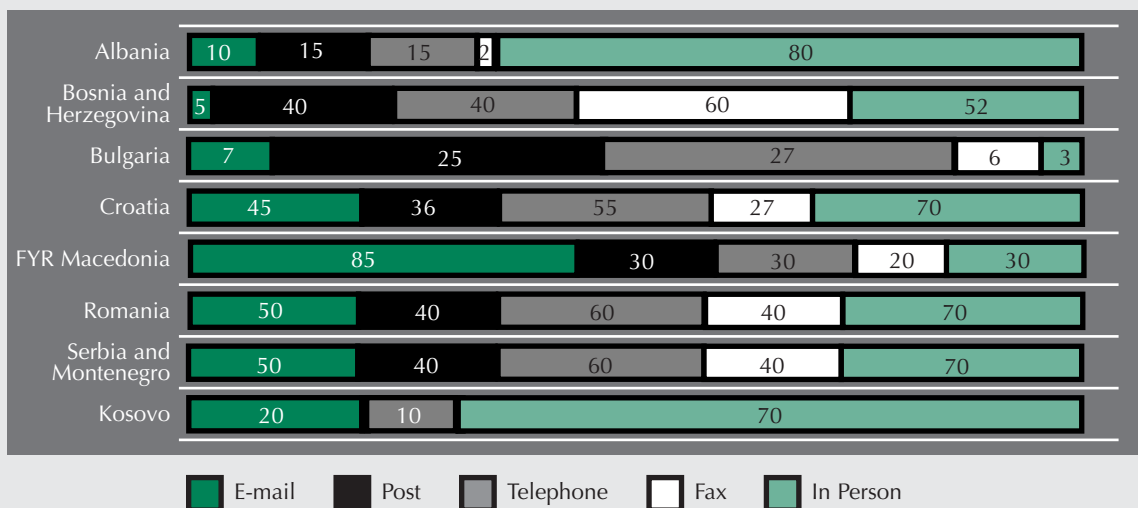
- Inter-sectoral cooperation and information exchange remains the exception, although interest is increasing from non-environment ministries in state-of-the-environment reports.

Efforts to ensure environmental information distribution are still largely left to those institutions collecting and storing data. For instance:

- Some countries' institutions (Croatia, Macedonia, Bulgaria) offer a range of documentation through different channels: state-of-the-environment reports, monthly bulletins, Internet portals, information service centres and monthly meetings.
- New laws in Bosnia and Herzegovina, Romania and Kosovo bind the provision of environmental information upon request, at little or no cost, but in both republics of Serbia and Montenegro no legal basis yet exists to ensure citizens' rights to access environmental information.
- In some places, electronic mechanisms (e.g. websites) are not yet utilised (but are planned) to disseminate official information (Albania, Bosnia and Herzegovina, Kosovo, Republic of Serbia).

A clear trend is emerging for the establishment of agencies or information/thematic centres to coordinate reporting and/or integrated monitoring systems development

Popularity of various mechanisms used by NGOs to request environmental information in 2001



Numbers indicate percentages of NGO's using each mechanism

NGOs on Information Access, Quality and Reliability

From the figure on page 9, it is clear that NGOs request information using a variety of mechanisms. Requests tend to be submitted in person in Albania, Croatia, Kosovo, Romania, and Serbia and Montenegro. In FYR Macedonia, most requests are submitted via e-mail or over the Internet. In Bosnia and Herzegovina, faxes were most popular, and in Bulgaria the telephone was most frequently used.

In all countries, NGOs (ranging from 60 to 90 percent) felt inadequate responses to information requests were received from authorities and that these needed improvement (specifically regarding content). In Bulgaria, Romania, and Serbia and Montenegro, NGOs also commented on the unfriendly nature of staff, and in another country that “staff are not specifically interested or motivated to provide information.” In all countries, procedures were considered to be too complex. In FYR Macedonia, one NGO noted the importance of personal contact in order to acquire information, while only in Kosovo did NGOs state they had paid for information, specifically to cover the costs of processing.

In the future, NGOs wish to be able to acquire information via simpler procedures and via the web (for example, via search tools, in PDF formats, and via the websites of regional environmental inspectorates, i.e. in Bulgaria). NGOs also called for the more proactive dissemination of information by authorities, via e-mail/fax updates (in Bosnia and Herzegovina, Croatia, Kosovo, FYR Macedonia, Romania, Serbia and Montenegro), and in hard copy format as part of a regular mailing list (Bulgaria, Croatia, Serbia and Montenegro).

A common trend regarding the quality of information was poor presentation, noted in Albania, Croatia, Romania, and Serbia and Montenegro. In Bosnia and Herzegovina, one NGO asked for official information to “be written in a common language,” while in Albania and Serbia and Montenegro clear explanations of facts and figures, and consideration of the end-user were requested. In Albania, Croatia, and Bosnia and Herzegovina, NGOs and experts would like to be consulted on draft reports (a form of “participatory assessment”) in order to assist in improving their reliability, and offset situations whereby “reports on the status of the environment and related problems do not reflect the realistic situation,” as was mentioned in Croatia. Calls for regularly updated information were common to all NGOs, not only because of its importance for NGO actions, but also for ensuring synergy between government initiatives.

In Bosnia and Herzegovina, one NGO asked for official information to ‘be written in a common language,’ a sentiment echoed elsewhere in the region

Future Priorities

The needs assessment showed priorities for environmental information system development correspond across the South Eastern European region and can be broadly grouped into five key categories (summarised in the table on page 11).

Investment in technological infrastructure was the most commonly cited priority. Needs included:

- monitoring equipment (fixed, mobile, automated stations) and networking technologies such as fibre-optic cabling for local area networks, and transmission equipment for wide area networks, routers, switches, etc;

- tools to manage, store and manipulate data including geographic information systems, relational database management systems, publishing apparatus and software; and
- database software and upgrades, e.g. Oracle, and high-speed Internet access.

Demands for new products and services was also popular and included:

- establishing entirely new institutions to assist the management and provision of information (environmental agencies, clearing houses and local information centres); and
- developing tools such as catalogues of data sources, web-portals, and useful environmental reports with clear explanations of facts and figures for the end-user.

Developing legal frameworks was also frequently cited and requires:

- standardisation of data collection practices to ensure compatibility, reliability and exchangeability;
- clearly defining roles and responsibilities of contributing institutions in order to avoid the duplication of efforts; and
- subsequently complying with international reporting and legal obligations.

Many needs have been highlighted with regard to capacity building. Countries called for:

- resources to strengthen the human resource base and to retain staff;

Investment in technological infrastructure was the most commonly cited priority

Overview of priorities for environmental information system development in SEE countries and territories

	Legal Frameworks	Capacity Building	Technological Infrastructure	Demo Projects & International Cooperation	Services & Products	Local Consultations
Albania	•	•	•	•		
Bosnia and Herzegovina	•	•	•		•	•
Bulgaria		•	•		•	
Croatia	•	•	•	•	•	
FYR Macedonia	•		•	•	•	
Romania	•		•	•	•	
Serbia and Montenegro	•	•	•	•	•	•
Kosovo	•	•	•	•	•	

National action plans provide a strong foundation and roadmap for addressing future key challenges in each country

- training in data processing, interpretation and manipulation to comply with international reporting and users' requirements;
- guidance with respect to information dissemination, and in communicating with citizens and hosting public hearings (e.g. during the environmental impact assessment process, as a result of efforts to comply with the Aarhus Convention; and
- assistance to overcome limited technical know-how in installing and maintaining IT hardware and software, managing computer networks, weak personal computer (PC) literacy among ministry and agency staff, and limited Internet programming knowledge.

Demonstration projects, international cooperation, and opportunities to access expertise and share know-how and best practices have been welcomed, particularly where these factors contribute to regional integration. Hosting local consultations and establishing working groups to identify local user-needs were also listed as important steps to ensuring the delivery of the right information to the right user.

Specific priorities have been detailed within "national action plans," which were drafted by country representatives together with international experts and representatives of the NGO sector following completion of the needs assessments. These plans (published as part of the country reports) define concrete steps and activities for environmental information system development in five key areas until 2006, and have begun to be realised through the assistance provided by this project (detailed in the case studies in the respective country chapters). "Priority actions" have been highlighted along with those elements funded by this project in the ready reference table on pages 14-15.

Recommendations

During a Wrap-up workshop held in June 2003 in Sofia, attended by some 50 experts involved in environmental information system development across the region, participants welcomed the assistance provided to date through the project and indicated their desire to continue building on the foundations it has established. They confirmed that the national action plans provide a strong foundation and roadmap for addressing future key challenges in each country. Experts also agreed that the following activities should be implemented within a second phase or follow-up project furthering systems' development between 2004 and 2006:

- National action plans should be reviewed, updated and expanded to include local action plans, in view of the countries' internal restructuring and shifting priorities driven, among other things, by EU integration and *acquis* approximation, EEA accession and implementation of the Aarhus Convention.
- Training assistance should be given to national, regional and local bodies to ensure: compliance with international obligations such as the new EC Directive on Public Access to Environmental Information (2003/4/EC) and integration into Reportnet/EIONET, the European Environment Agency's European Environmental Information System; introduce and build capacity in line with the requirements of the Aarhus convention at the local level; demonstrate the use of geographic infor-

mation systems; and showcase available tools and software for storing and exchanging data and information (e.g. web portals, intranet systems, Catalogue of Data Sources, relational database systems).

- Further investments in technological infrastructure, hardware and software development should be made, according to the priorities identified in the national action plans, as well as exploring the availability and usability of (free or cheaply available) open source software.
- Support must be given toward the development (and/or establishment) of national environmental agencies through capacity building, twinning arrangements with agencies in other countries (e.g. the England and Wales Environment Agency), staff exchanges, study tours, and the hosting of regional working groups focused on specific issues, e.g. passive and proactive information dissemination, web portal development, networks of information centres/libraries etc., supported by international expertise.

The assistance of the Regional Environmental Center for Central and Eastern Europe (REC) was welcomed in elaborating the terms of reference and overseeing a follow-up project, as was the involvement of neighbouring countries Greece and Turkey (funded separately). FYR Macedonia was invited to lead the project in its second phase, and to share its expertise in developing its own internationally recognised environmental information system.

However, workshop participants noted their concern regarding the uncertain future of REReP, donor fatigue and domestic financial uncertainties which could endanger reaping the full benefits of the project to date. They urged the donor community to continue its support for the region and this project, especially in view of the priorities highlighted above and the concrete progress made to date. Countries emphasised the fact that a dedicated network of experts has been established that includes all participating countries and a wide range of stakeholder groups including NGOs, which has helped to ensure transparency and solid progress based on common interests.

The foundation for future system development has therefore been laid and should be further built upon, so as to continue and improve the accessibility of environmental information. Funds of EUR 750,000 are required to further progress in the South Eastern European countries.

**Phase Two
of the project
requires funds of
EUR 750,000 to
further implement
national action plans,
realise training
assistance, develop
technological
infrastructure
and help establish
environmental agencies**

Priority actions for environmental information system development in SEE countries/territories

	Institutional Structure	Legal Frameworks
Albania	<ul style="list-style-type: none"> Design/install an electronic exchange system, including a front-end portal based on user needs 	<ul style="list-style-type: none"> Legislate environmental monitoring Adopt EU/EEA reporting standards Enforce laws pertaining to EIS
Bosnia and Herzegovina	<ul style="list-style-type: none"> EIONET and IT training Install a Wide Area Network linking both entities Found an environmental agency 	<ul style="list-style-type: none"> Assign jurisdictions in the field of monitoring, collection, information processing and dissemination, harmonised with EU legislation Ratify the Aarhus Convention
Bulgaria	<ul style="list-style-type: none"> Strengthen communication links Integrate databases Host expert/NGO training at the regional level based on information available at the Executive Agency 	<ul style="list-style-type: none"> Ratify the Aarhus Convention Train municipalities and NGOs on environmental information sources and their accessibility
Croatia	<ul style="list-style-type: none"> Map environmental data flows Establish an environmental protection agency to synthesise data and coordinate providers 	<ul style="list-style-type: none"> Identify and transpose relevant EU legislation for monitoring and reporting
FYR Macedonia	<ul style="list-style-type: none"> Establish intersectoral working group to define reporting standards and methodologies Eliminate manual state-of-environment data reporting Launch data processing system 	<ul style="list-style-type: none"> Harmonise legislation with EU directives and EEA reporting standards Adopt regulations regarding data collection and management processes Implement the Aarhus Convention
Romania	<ul style="list-style-type: none"> Agree on monitoring system parameters for authorities Involve NGOs to ensure public information demands are met 	<ul style="list-style-type: none"> Enact a law/regulation to provide a legal basis for monitoring practices and responsibilities
Serbia and Montenegro	<ul style="list-style-type: none"> Complete a feasibility study for system development Establish a modus operandi Establish environment agencies in each republic and train staff 	<ul style="list-style-type: none"> Draft EU-compliant laws on information systems and access in both republics Introduce draft laws to the public and adopt and implement them Promote the Aarhus Convention
Kosovo	<ul style="list-style-type: none"> Law enforcement training Strengthen monitoring networks Build capacity to interpret and report data 	<ul style="list-style-type: none"> Extend legal frameworks to include data collection standards

NB: Text in green highlights those components partially funded by this REReP project.

Data Collection & Management	Information Dissemination	Ensuring Usage in Decision Making
<ul style="list-style-type: none"> Review and improve national monitoring practices Standardise laboratory sampling, data storage and reporting 	<ul style="list-style-type: none"> Establish a system for timely delivery of key information to NGOs, media and public 	<ul style="list-style-type: none"> Ensure preparation of EIA and SEA statements Provide useful information to all levels of administration
<ul style="list-style-type: none"> Extend monitoring practices Training on data management Integrate databases and establish data collection centres 	<ul style="list-style-type: none"> Launch user-driven web portals Host training in both entities for web design/maintenance 	<ul style="list-style-type: none"> Fully adopt indicator-based approaches to ensure targeted and useful information for decision makers
<ul style="list-style-type: none"> Upgrade software and networks to improve data processing and access Full electronic data storage Host training on international reporting requirements 	<ul style="list-style-type: none"> Establish regional information centres Enhance a national web portal Develop a catalogue of data sources 	<ul style="list-style-type: none"> Develop indicator-based reporting systems for environmental assessment Train staff on statistical analyses, reporting and GIS application
<ul style="list-style-type: none"> Conduct gap analysis against EEA reporting requirements Establish an office for information management and accurate reporting 	<ul style="list-style-type: none"> Produce a meta-database of information sources and producers Train civil servants on environmental reporting Develop coastal waters GIS 	<ul style="list-style-type: none"> Identify information users' needs and expectations Develop "user friendly" reporting formats
<ul style="list-style-type: none"> Install new monitoring stations (enhance geo/thematic coverage) Harmonise data collection formats and processing standards Purchase relational database management system 	<ul style="list-style-type: none"> Produce targeted, relevant and useful reports for users Maintain an open library and improve request responses Buy publishing equipment and improve online accessibility 	<ul style="list-style-type: none"> Adopt policy-indexed, indicator-based reporting Raise authorities' environmental awareness through useful reporting Host public hearings to ensure a participatory assessment
<ul style="list-style-type: none"> Buy PCs for data acquisition by local inspectorates Train monitoring officers in the use of the automated system Purchase network and IT apparatus for data exchange 	<ul style="list-style-type: none"> Data synthesis and repackaging in useful formats for the public, including Web interface Publish stakeholder-driven hard-copy reports and materials 	<ul style="list-style-type: none"> Present environmental trends in easy-to-understand formats (e.g. GIS)
<ul style="list-style-type: none"> Develop comprehensive, integrated monitoring networks Purchase five or six automated measurement stations Develop a catalogue of data sources 	<ul style="list-style-type: none"> Technical trainings on tools for user-driven information dissemination Establish a state web portal Training for staff and NGOs on information access 	<ul style="list-style-type: none"> Identify and respond to decision makers' information needs Adopt EEA reporting standards
<ul style="list-style-type: none"> Design monitoring network and define objectives Report on hotspots and gather health-related data Define data exchange procedures 	<ul style="list-style-type: none"> Incorporate existing data into useful publications Prepare regular state-of-the-environment reports Complete the web portal 	<ul style="list-style-type: none"> Ensure use of environment reports in policy planning Host multi-stakeholder forums to discuss environmental concerns in decision-making processes

