PERSPECTIVES FOR DEVELOPMENT OF MONITORING OF SEDIMENTS IN BULGARIA
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Who are we?

The Ministry of Environment and Water

The Executive Environment Agency

Regional Laboratories (RL) - 15

Regional Inspectorates of Environment and Water - 15

Four River Basin Directorates

- the Danube RBD
- the Black Sea RBD
- the Eastern Aegean Sea RBD
- the Western Aegean Sea RBD
EXECUTIVE ENVIRONMENT AGENCY

NATIONAL SYSTEM FOR ENVIRONMENTAL MONITORING
National System for environmental monitoring

National monitoring networks
- AIR
- WATER
- SOIL
- RADIATION
- NOISE
- BIODIVERSITY
- PROTECTED AREAS

INFORMATION SYSTEMS
- AIR EMISSIONS
- WASTE WATER
- WASTE
The ExEA administrates the National system for environmental monitoring – *resources, technical maintenance, methodologies*,

The ExEA and the 15 regional laboratories carry out all measurements and monitoring – unified methods for sampling and analyses; procedures for quality assurance of measurements and data;

Maintains information data bases at national, regional and basin levels – only for water;

Assessment and data reporting at a national level - ExEA

Assessment at regional levels - 15 Regional Inspectorates for Environment and water

Assessment of the state of the water resources at a basin level – Basin Directorates
Regional Laboratories /RL/

1. RL- Blagoevgrad
2. RL- Burgas
3. RL- Varna
4. RL- Vratza
5. RL- Veliko Tarnovo
6. RL- Montana
7. RL- Pazardjik
8. RL- Pleven
9. RL- Plovdiv
10. RL- Russe
11. RL- Smolyan
12. RL- Pernik
13. RL- Stara Zagora
14. RL- Haskovo
15. RL- Shumen
The national information system has:
- hierarchic structure of regional and national databases
- automated connection for data exchange between regional and national databases
- the databases on both levels are structured by environmental components, with possibility to integrate information

Monitoring data are provided by the RIEW to the ExEA either via WAN network or via Internet

On-line transmission exists for data on ambient air from automated stations, radiation gamma background and noise from

Local station Sofia
Architecture of the Information system at the ExEA
Structure of the networks:

- 292 rainfall stations
- 253 points for physico-chemical monitoring of the quality of surface and coastal marine water;
- 188 points for hydrometric monitoring of surface water
- 1200 points for hydro biological monitoring of surface water
- 225 points for physico-chemical monitoring of groundwater

Involved institutions:

ExEA, Basin Directorates, NIMH

Legislation:

- Harmonized with respect to the EU requirements for monitoring
- Forthcoming:

Revision and actualization of the monitoring networks in compliance with the new legislation
SOIL MONITORING

Soil pollution
- with heavy metals and metalloids – 390 points
- persistent organic pollutants (PAH, PCB and
- chlorine organic pesticides) – 20 пункта

Soil degradation
- Acidification – 57 plots
- Salinization – 12 plots
- Erosion (водоплощна) – mathematic model – intensity of rains 17 XMC and land cover changes

Sampling and samples’ analyses
- ISO standards
- accredited laboratories

Legislation
- Insufficiently developed specialized legislation with respect to the protection of soil as a recourse
WASTE WATER INFORMATION SYSTEM

**Scope:**
- Around 800 subjects, discharging wastewater into open air water bodies, over 100 cubic meters/24 hours

**Frequency:**
- Annual control and actualization of the subjects

**Involved institutions:**
- ExEA, Basin Directorates, RIEWs
MONITORING AT THE THREE NATIONAL PARKS

Determined regions for complex monitoring
NP “Pirin” - 6 regions
NP “Rila” - 7 regions
NP “Central Balkan” - 4 regions

Monitoring of abiotic parameters

Water monitoring
running water – 37 points, physico-chemical parameters,
lakes – 18 points, physico-chemical parameters,

Soil monitoring - 18 points, physico-chemical parameters,
MONITORING AT THE THREE NATIONAL PARKS

Biodiversity monitoring
Plants
- forests;
- plants with agricultural use;
- protected species.

Animals
- mammals;
- birds;
- fish;
- amphibians and reptiles

Legislation:
Law on biodiversity,
Lack of specialized secondary legislation for monitoring
Necessity for development of monitoring of sediments in Bulgaria

The Executive Environment Agency /ExEA/ is the Bulgarian referent center for the European Environment Agency /EEA/. The Water monitoring department at the ExEA is responsible for carrying out the water monitoring. The Department regularly sends to the EEA data related to the surface and ground water quality and quantity as well as biomonitoring data. There is a lack of information related to the sediments which accumulate chemical and toxicological pollutants. With regard to the accession of Bulgaria to the EU and to be in conformity with the Water Framework Directive 2000/60/EC requirements it is necessary to develop a National Monitoring Program for determination of sediments in water bodies being specific part of the water monitoring.
Necessity for development of monitoring of sediments in Bulgaria

The project aims to build a National Monitoring Program for determination of sediments in water bodies in conformity with the European requirement for surveillance, operational and investigative monitoring of surface water, frequency and standard methods for sampling and physico-chemical, biological and toxicological analysis.
The data from the monitoring of sediments in water bodies will be integrated in the National Environmental Monitoring Network. This information will increase the possibility for:

- integration and complex assessment of chemical, biological and toxicological status of water bodies
- identification of the causes and follow of the trends of accumulation of pollutants in sediments in water bodies resulting from natural conditions or from widespread anthropogenic activity
- realization of more effective control on discharge emissions in water bodies over the defined threshold following the Water Framework Directive 2000/60/EC requirements.
- promotion of sustainable, balanced and equitable water use based on a long-term protection of available water resources
- prevention, control and recovery of the ecological status of aquatic ecosystems
- enhancement of protection and improvement of the aquatic environment through specific measures for progressive reduction of discharges, emissions and losses of priority substances
Necessity for development of monitoring of sediments in Bulgaria

The results from the monitoring of sediments physico-chemical, biological and toxicological analysis shall be integrated in the National Environmental Monitoring System managed by the Executive Environment Agency. The sediments monitoring information shall serve for the control on the following of the Water Act requirements and the related 12 Ordinances on water quality as well as all water Directives of EU which are completely transposed in the Bulgarian legislation.
Necessity for development of National monitoring program of sediments

- Groundwater
- Surface water
- Hydrobiology
- Sediments

**EXECUTIVE ENVIRONMENT AGENCY**

- MEW
- EEAB
- NSEM
- WEST

**NATIONAL PROGRAMME FOR MONITORING OF SEDIMENTS IN WATER BODIES**

- RB-1
- RB-2
- RB-3
- RB-4

**15 REGIONAL LABORATORIES**
Executive Environment Agency

Legal framework for water and sediments in water bodies

- European Directives and Bulgarian Laws and Regulations

WFD – water framework directive
EPL – environment protection law
WATER ACT + Regulations 1,2,3,4,5,6,7,8,9,10,11,12,7-1986
N 5 - National system of monitoring of waters
REGULATION 3 - for soils
Legal framework for water

Conventions

- the UNECE Water Convention of the United Nations Economic Commission for Europe (UNECE) on the Protection and Use of Transboundary Watercourses and International Lakes
- the Danube River Protection Convention
- the Convention on pollution protection of the Black sea
Strategy of monitoring of sediments

- PROGRAM
  METHODS OF ANALYSIS
  IDENTIFICATION for investigative monitoring

- ACTION PLAN
  NET OF 150 SAMPLING POINTS
  FREQUENCY
EXECUTIVE ENVIRONMENT AGENCY

Strategy of monitoring of sediments

PROGRAM

METHODS OF ANALYSIS FROM ACCREDITATIONAL LABORATORIES

Water
Soils
Gas chromatography
Atomic Spectrophotometry
Radiation
Toxicology
Strategy of monitoring of sediments

PROGRAM

IDENTIFICATION OF sampling sites for investigative monitoring

1- approach Data analysis for River Basins Directorates of
   -hydrobiological monitoring
   -monitoring of erosion
   -permits of discharges in water bodies

2 – approach Data analysis for Regional Laboratories of monitoring of
   -superficial water
   -soils
   -radiation
БД с център Благоевград - емитери и хидробиология
Strategy of monitoring of sediments

PROGRAM

ACTION PLAN

NET OF 150 SAMPLING POINTS
FREQUENCY 1 WAY OF YEAR
МРЕЖА ОТ ПУНКТОВЕ ЗА МОНИТОРИНГ НА СЕДИМЕНТИ ВЪВ ВОДНИ ОБЕКТИ
Monitoring information

- DATA BASIS
- ASSESSMENT – chemical and integrate
- MODELING - quality and quantity of sediments
- REPORTING OBLIGATIONS
Perspectives for development of monitoring of sediments in Bulgaria

- ICPDR – MODEL OF INTEGRATE EUROPE
  - Different countries - European, new European, incorporated and others
  - Bulgaria participate in ICPDR with data from 7 monitoring sites

- OTHER INTERNATIONALS PROJECTS
  - THE NETHERLANDS – MATRA Program
  - In particular, the project aims to assist Bulgaria in strengthening the capacity of the Executive Environment Agency to monitor sediments in surface water according to EU requirements.
  - GREAT BRITAIN – Investigation of heavy metals