



**EXECUTIVE ENVIRONMENT AGENCY**

**PERSPECTIVES FOR  
DEVELOPMENT OF  
MONITORING OF SEDIMENTS  
IN BULGARIA**



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- Who are we ?
- Necessity for development of monitoring of sediments in Bulgaria
- Legal wramework
- Strategy of monitoring of sediments
- Monitoring information
- Perspectives for development of monitoring of sediments in Bulgaria



# EXECUTIVE ENVIRONMENT AGENCY

## Who are we ?

The Ministry of Environment and Water

*The Executive Environment Agency*

*Regional Laboratories (RL) - 15*

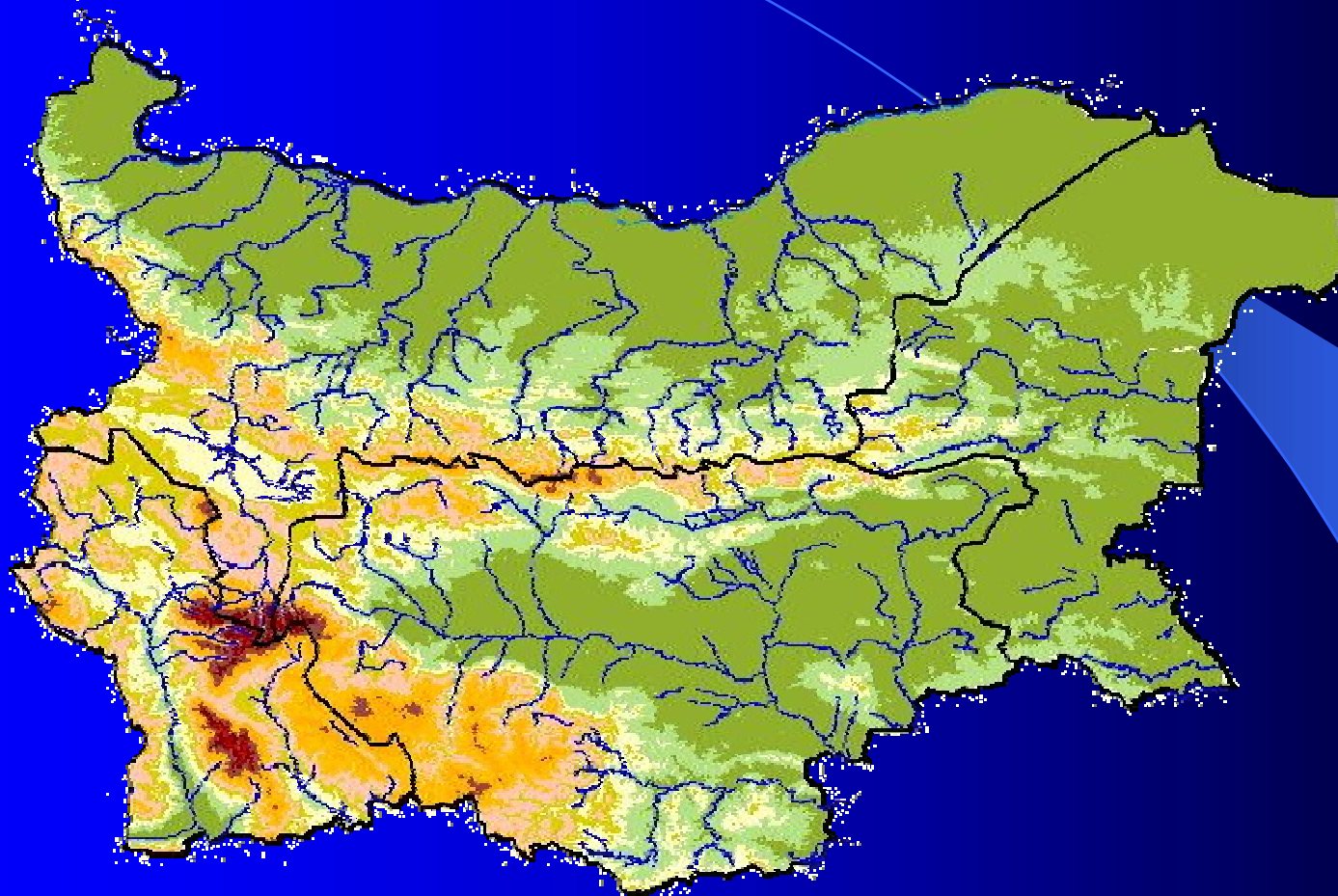
*Regional Inspectorates of Environment and Water-15*

*Four River Basin Directorates*

- *the Danube RBD*
- *the Black Sea RBD*
- *the Eastern Aegean Sea RBD*
- *the Western Aegean Sea RBD*



# EXECUTIVE ENVIRONMENT AGENCY





**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



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## EXECUTIVE ENVIRONMENT AGENCY

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*



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## EXECUTIVE ENVIRONMENT AGENCY

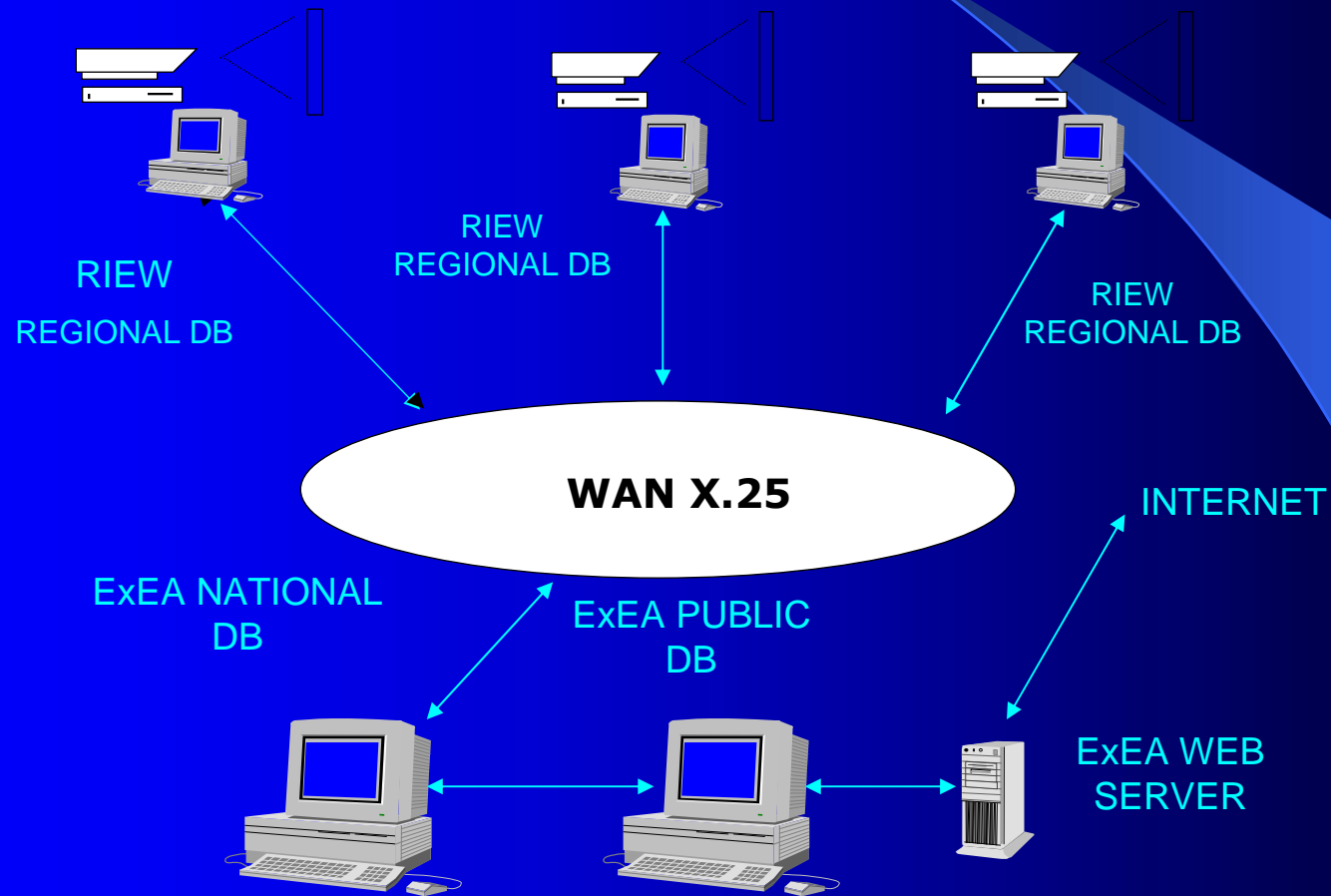
### Architecture of the Information system

- 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



# EXECUTIVE ENVIRONMENT AGENCY

## Architecture of the Information system at the ExEA





## **WATER MONITORING**

### **Structure of the networks:**

- 292 rainfall stations
- 253 points for physico-chemical monitoring of the quality of surface and costal 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**





## EXECUTIVE ENVIRONMENT AGENCY

### 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,*



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## MONITORING AT THE THREE NATIONAL PARKS cond.

Biodiversity monitoring

Plants

- forests;
- plants with agricultural use;
- protected species.

Animals

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



**Legislation:**

Law on biodiversity,

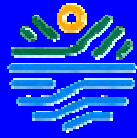
Lack of specialized secondary legislation for monitoring



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## EXECUTIVE ENVIRONMENT AGENCY

### 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.



## EXECUTIVE ENVIRONMENT AGENCY

**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



## EXECUTIVE ENVIRONMENT AGENCY

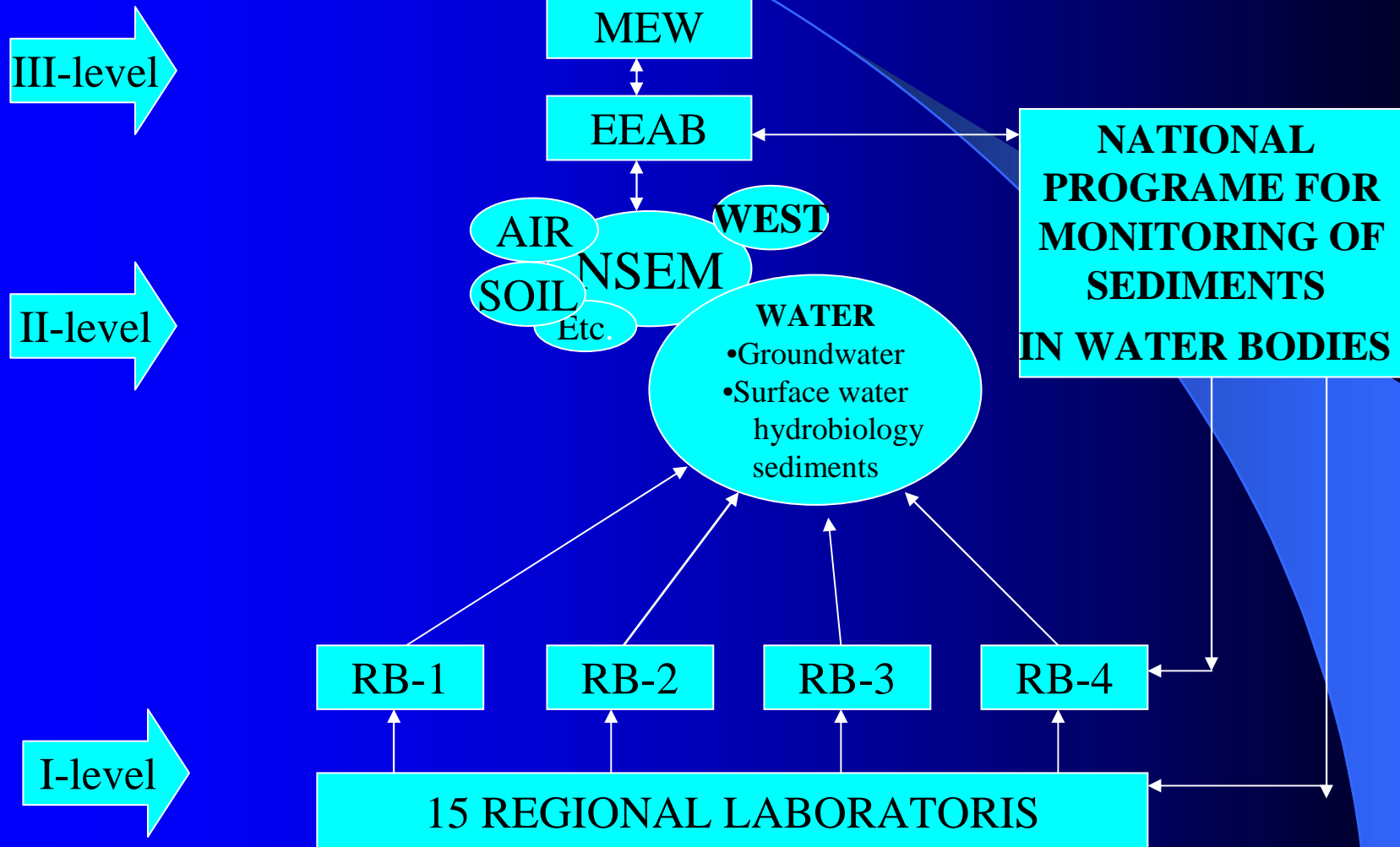
### Necessity for development of monitoring of sediments in Bulgaria

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.



# EXECUTIVE ENVIRONMENT AGENCY

## Necessity for development of National monitoring program of sediments

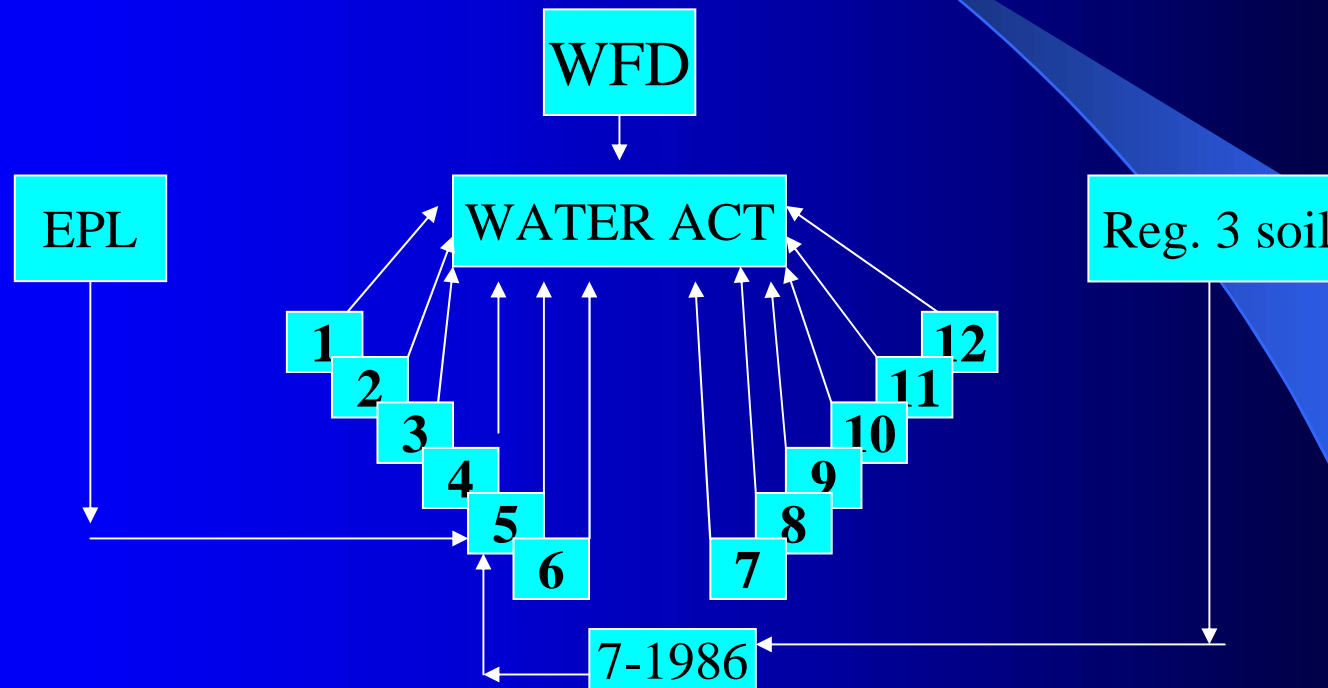




# EXECUTIVE ENVIRONMENT AGENCY

## Legal wramework 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 ANALISYS
  - 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

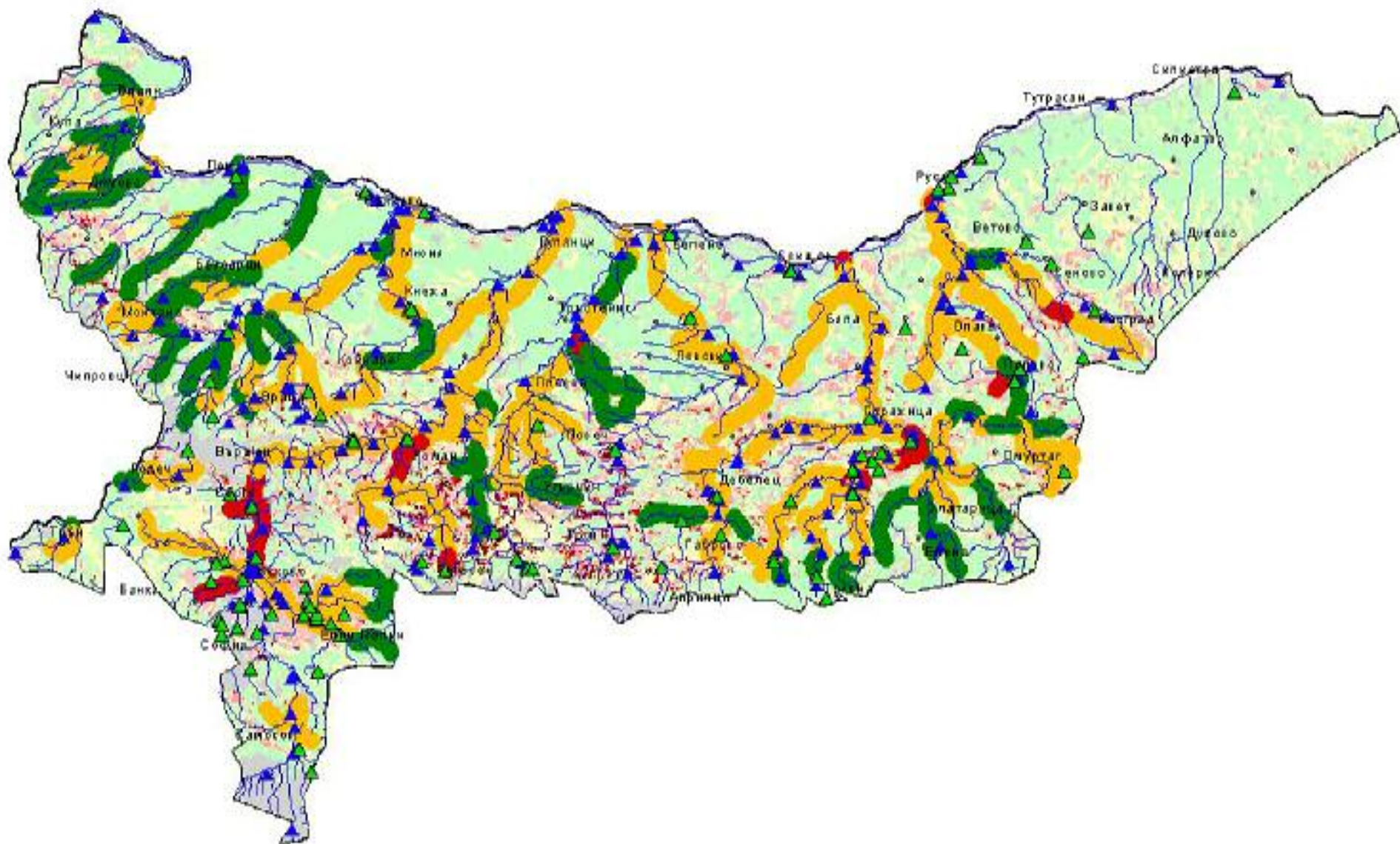


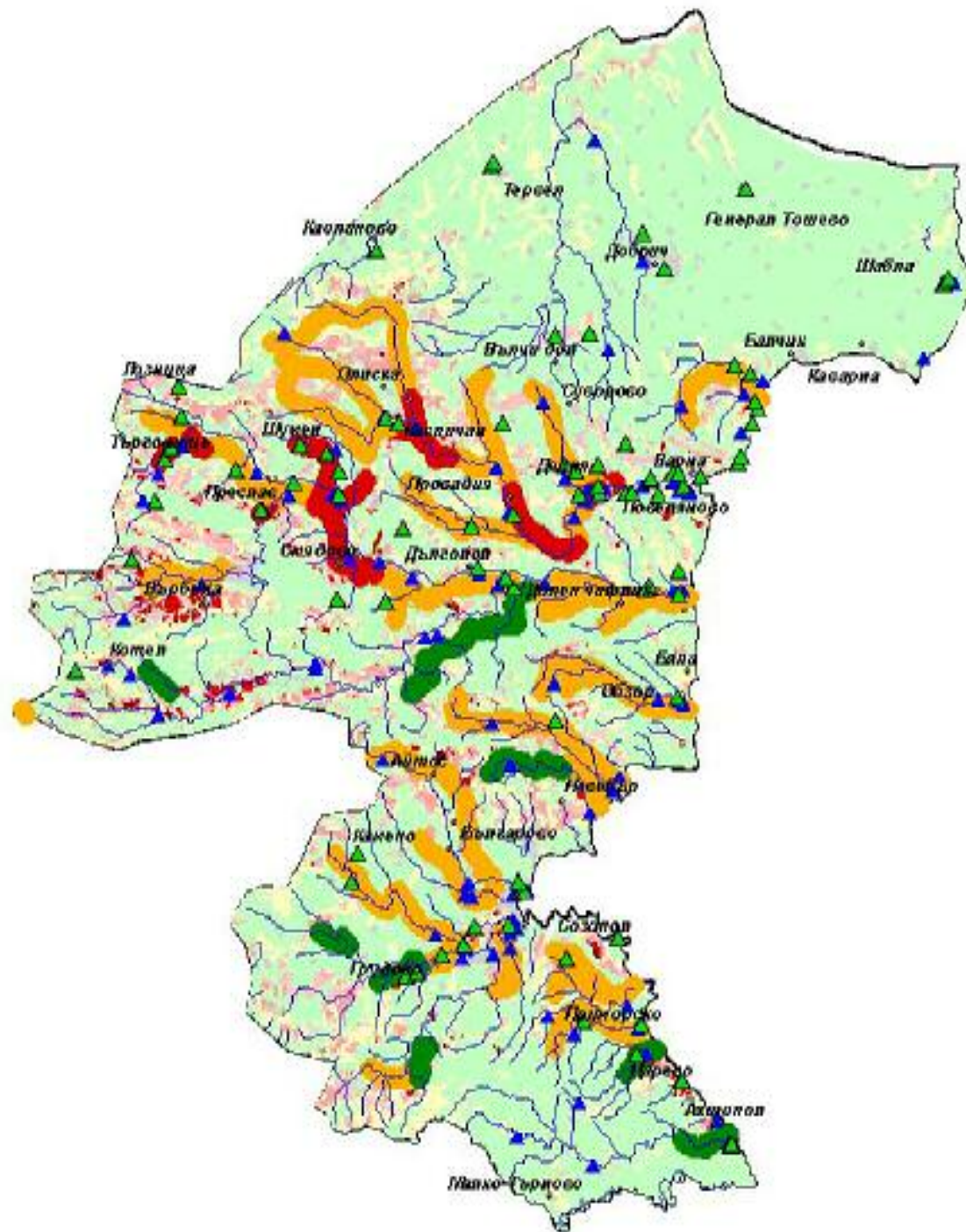
## Strategy of monitoring of sediments

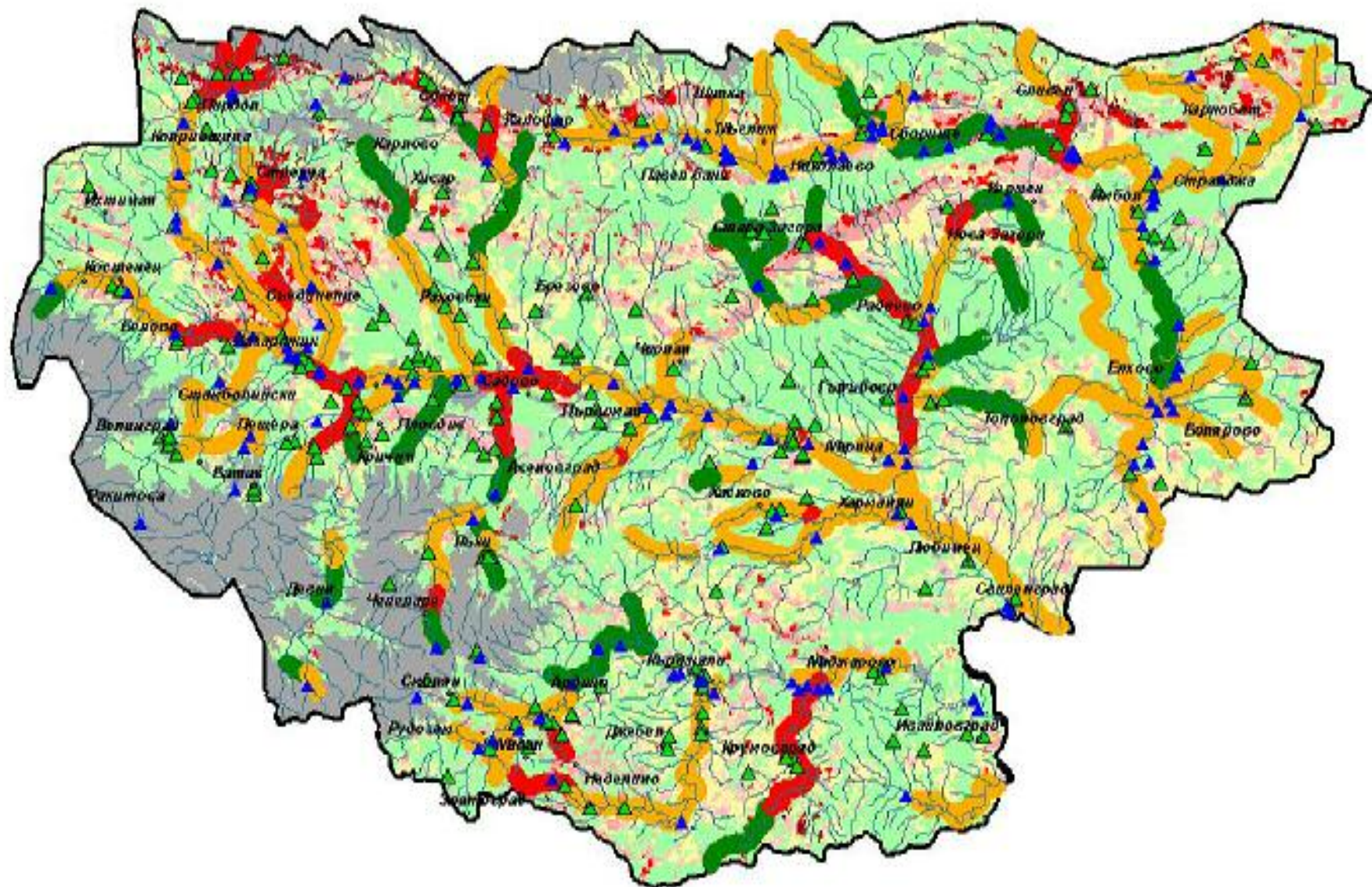
### PROGRAM

*IDENTIFICATION OF* sampling sites for investigative monitoring

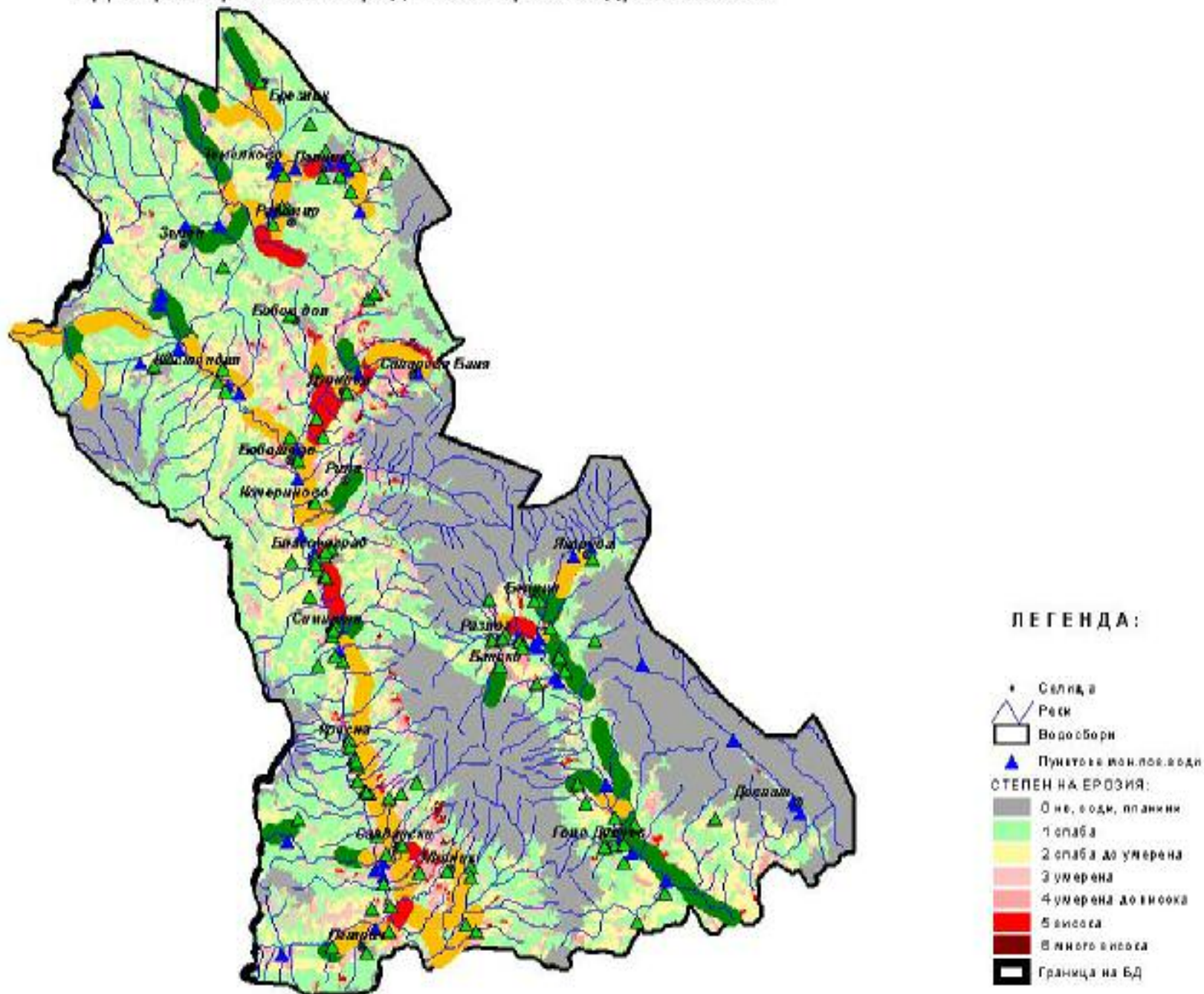
- 1- approach Data analysis for River Basins Directorates of
  - hydrobiological monitoring
  - monitoring of erosion
  - permits of discharges in water bodies
  
- 2 – approach Data analysis for Regional Laboratories of monitoring of
  - superficial water
  - soils
  - radiation



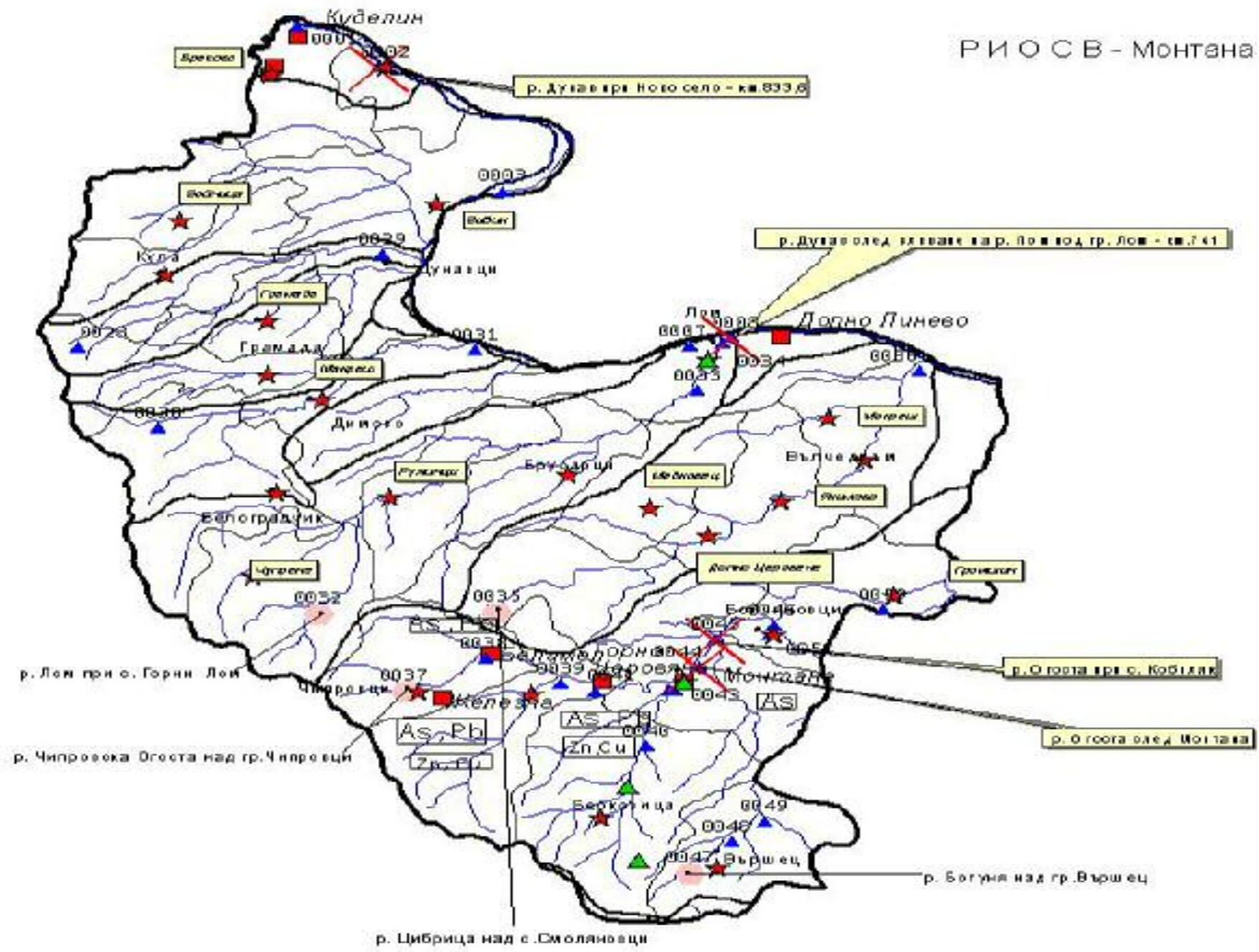




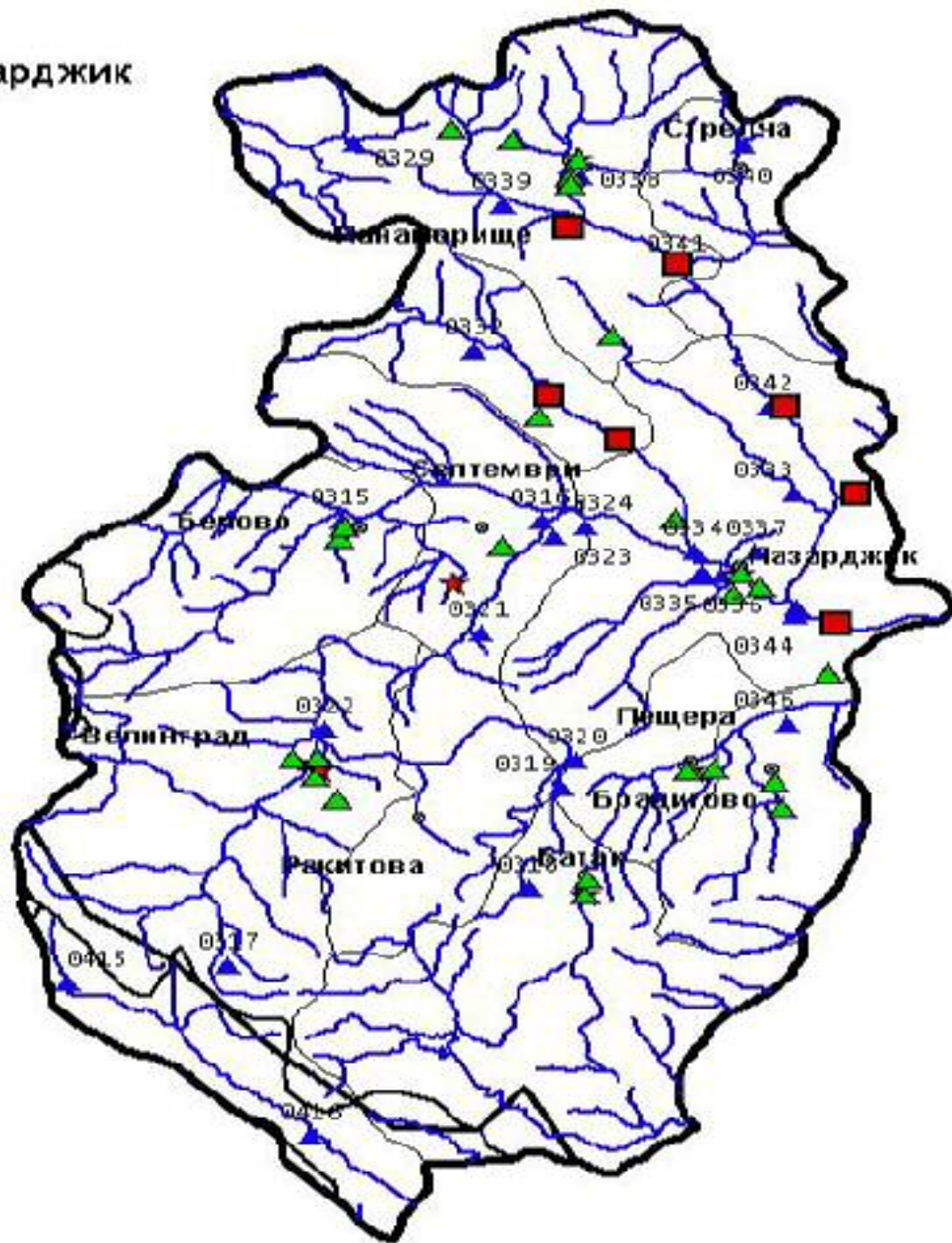
## БД с център Благоевград - емитери и хидробиология



РИОСВ - МОНТАНА

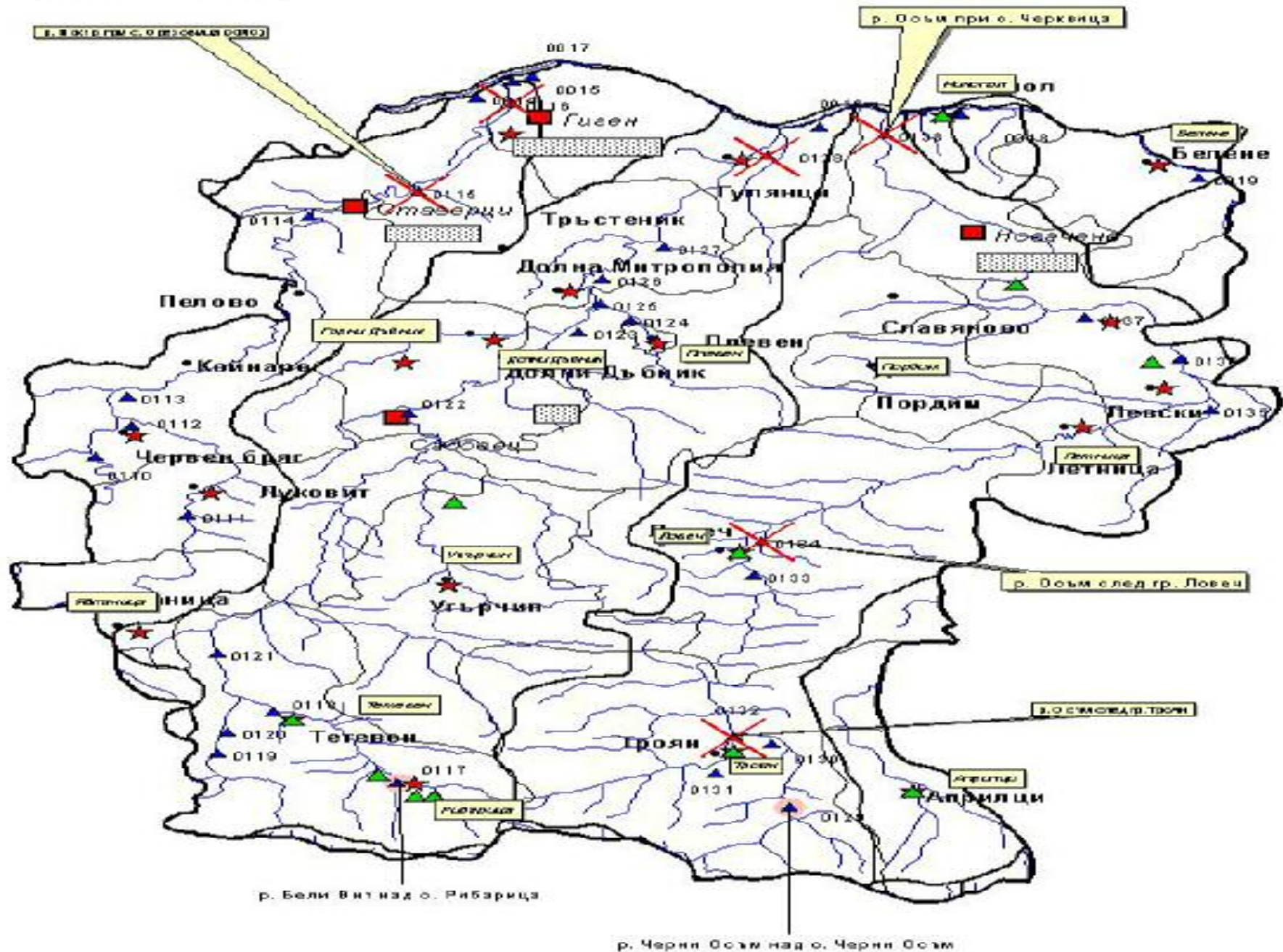


РИОСВ - Пазарджик





# РИОСВ - Плевен





**EXECUTIVE ENVIRONMENT AGENCY**

**Strategy of monitoring of sediments**

**PROGRAM**

**ACTION PLAN**

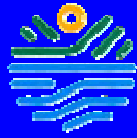
**NET OF 150 SAMPLING POINTS  
FREQUENCY 1 WAY OF YEAR**





**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