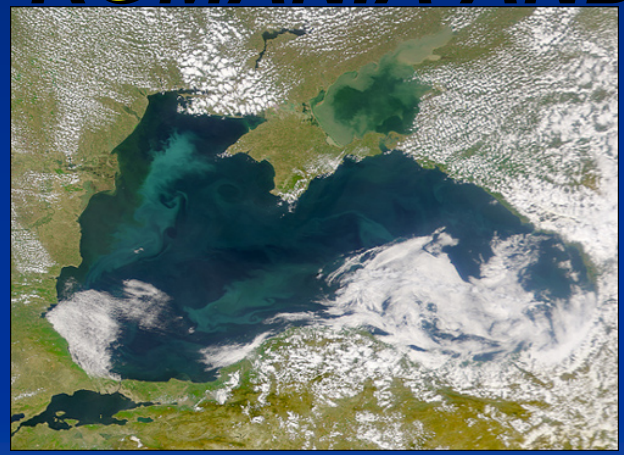
INTEGRATED MANAGEMENT OF THE TRANSBOUNDARY KARST AQUIFERS BETWEEN ROMANIA AND BULGARIA



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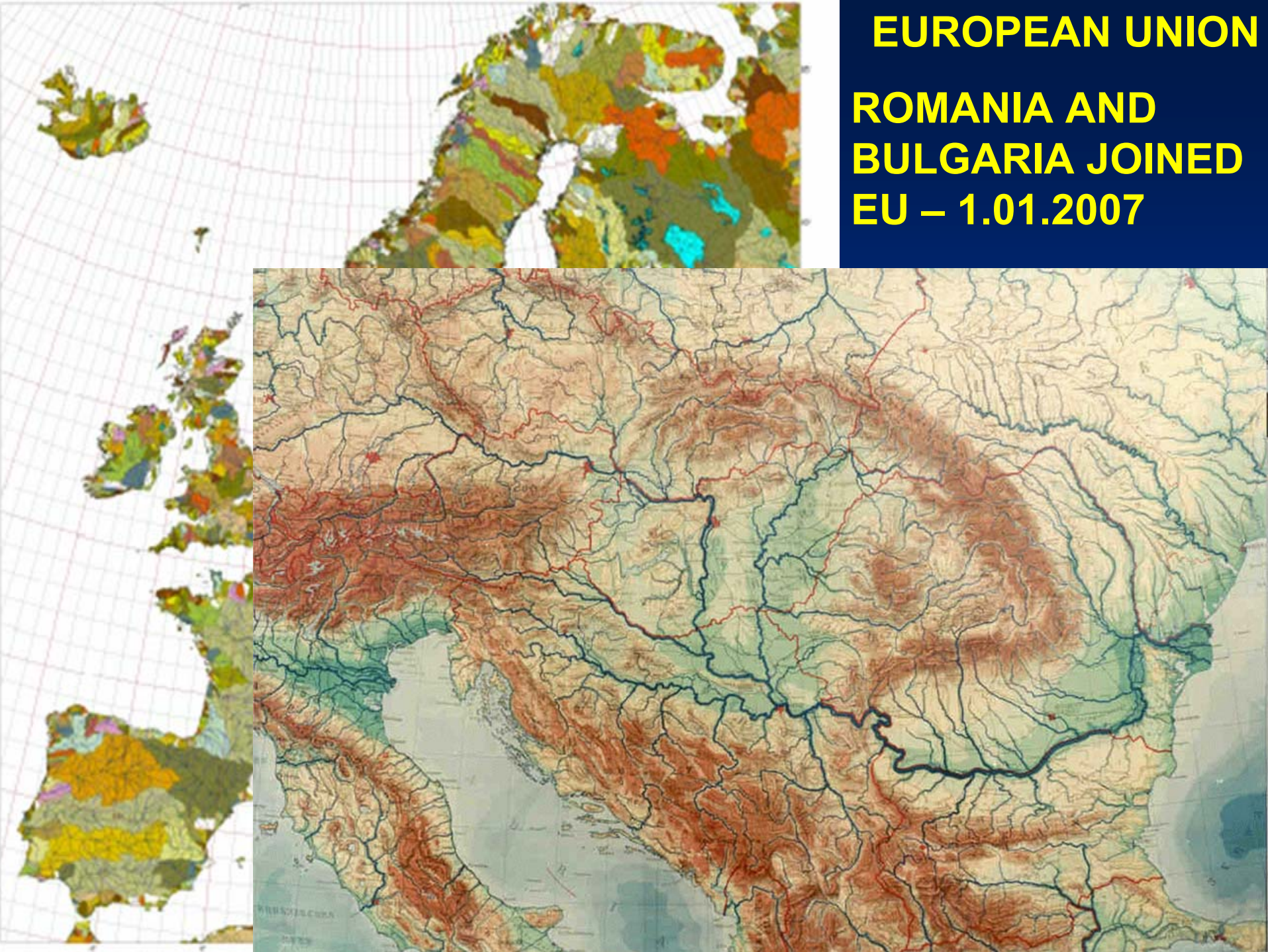

EUROPEAN UNION
ROMANIA AND
BULGARIA JOINED
EU – 1.01.2007

Danube River Basin: 18 countries(13);

81 mil. people; surface area: 817.000 km^2

WFD IMPLEMENTATION FOR DANUBE RIVER BASIN

- Integrated Management Plan for whole International Danube River Basin District -

Partea A
Raport general - activităţi importante cu impact transfrontalier

Partea B Rapoarte naţionale	GERMANIA	AUSTRIA	REPUBLICA CEHĂ	REPUBLICA SLOVACĂ	UNGARIA	SLOVENIA	CROAŢIA	BOSNIA - HERŢEGOVINA	SERBIA-MUNTENEGRU	BULGARIA	ROMÂNIA	MOLDOVA	UCRAINA

COOPERATION OF DANUBIAN COUNTRIES

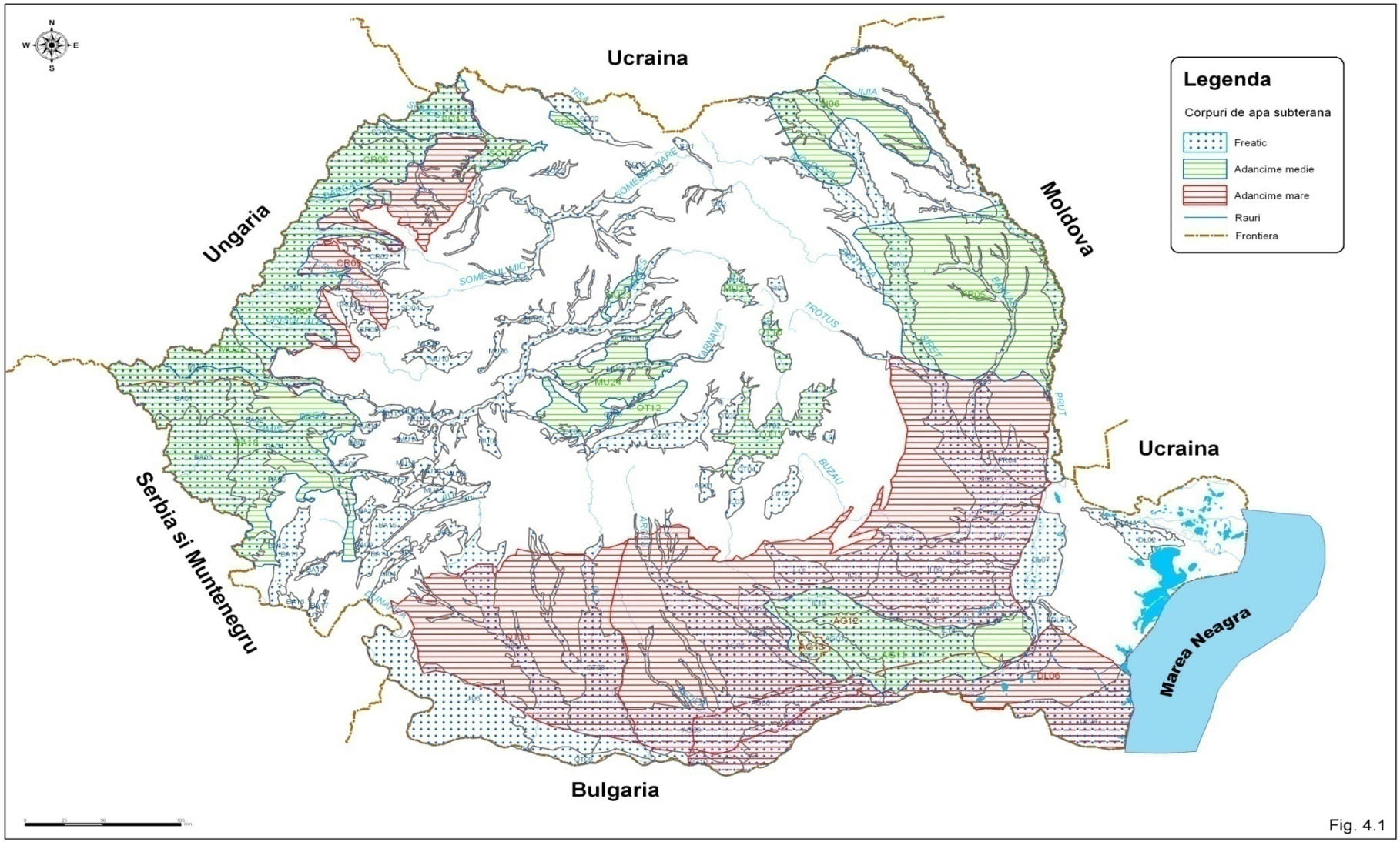
SOFIA CONVENTION 1994

Provisions for transboundary waters

- Convention on the Protection and Use of Transboundary Watercourses and International Lakes – 17 March 1992, Helsinki
- Water Framework Directive 2000/60/EC
- Directive 2006/118/EC on the protection of groundwater against pollution and deterioration
- Draft of the new UN Treaty on Transboundary Aquifers

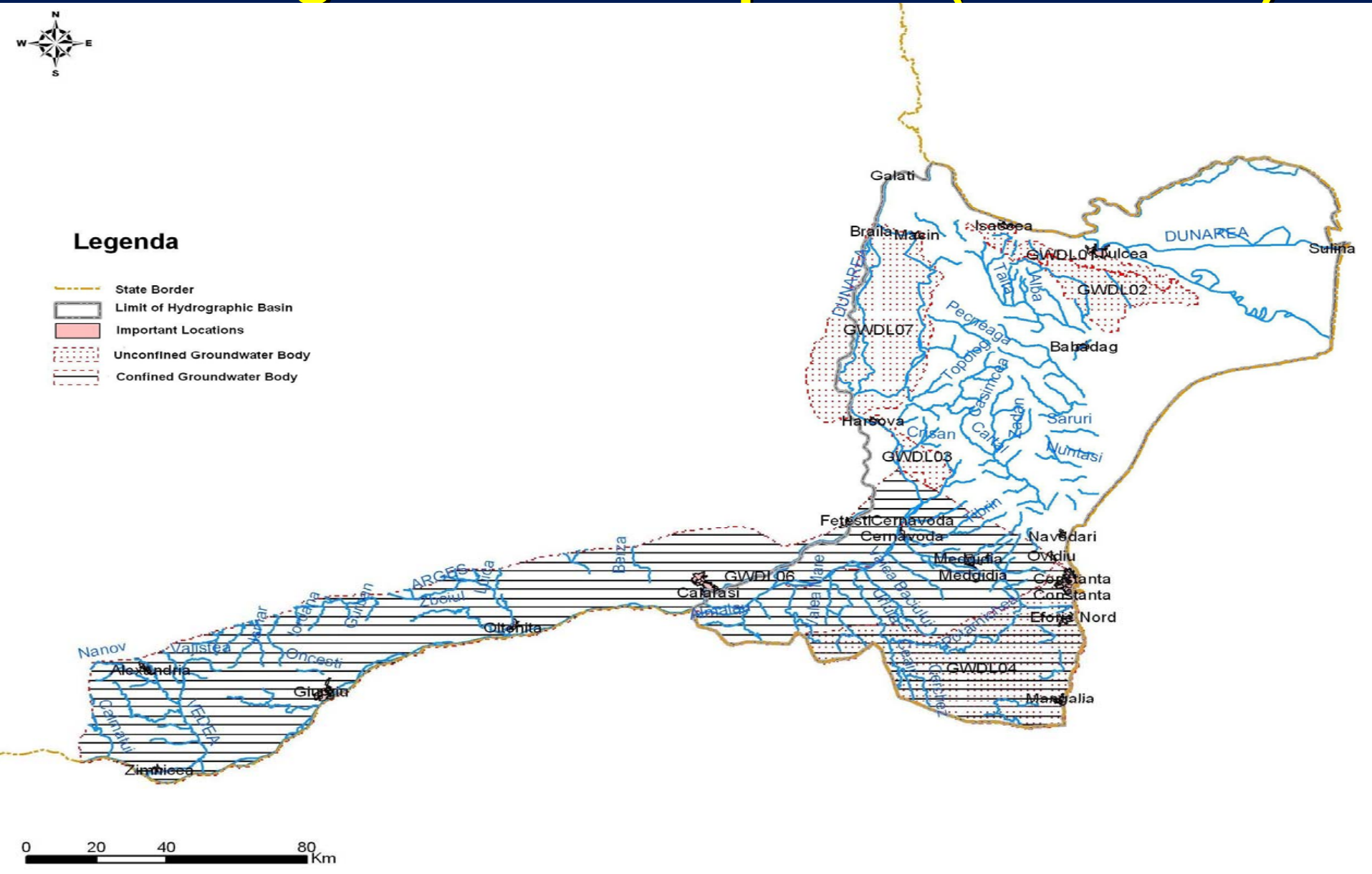
Groundwater bodies in Romania

- **129 corpuri de apa**
- **18 transfrontaliere**

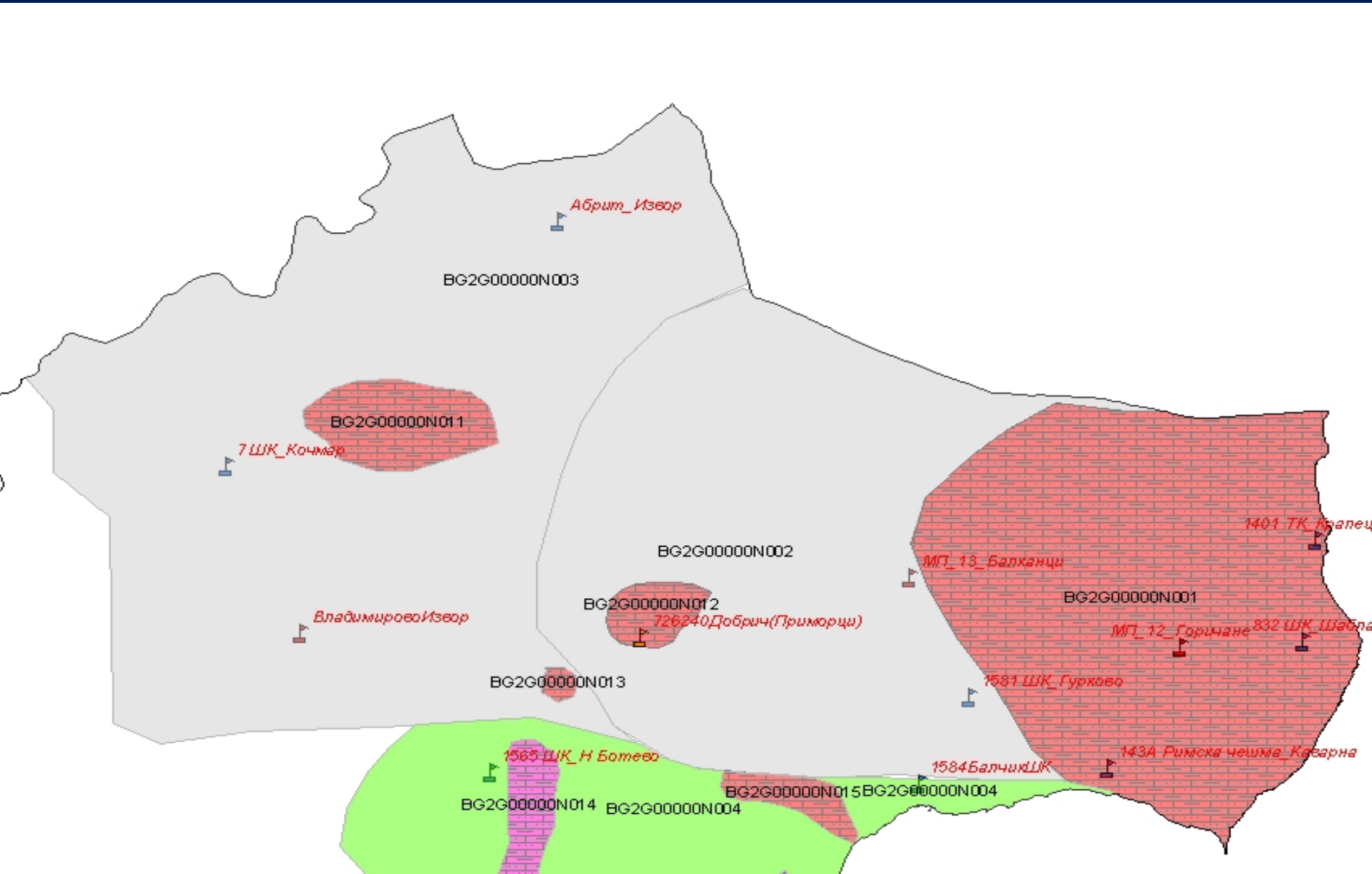


Corpuri de apa subterana

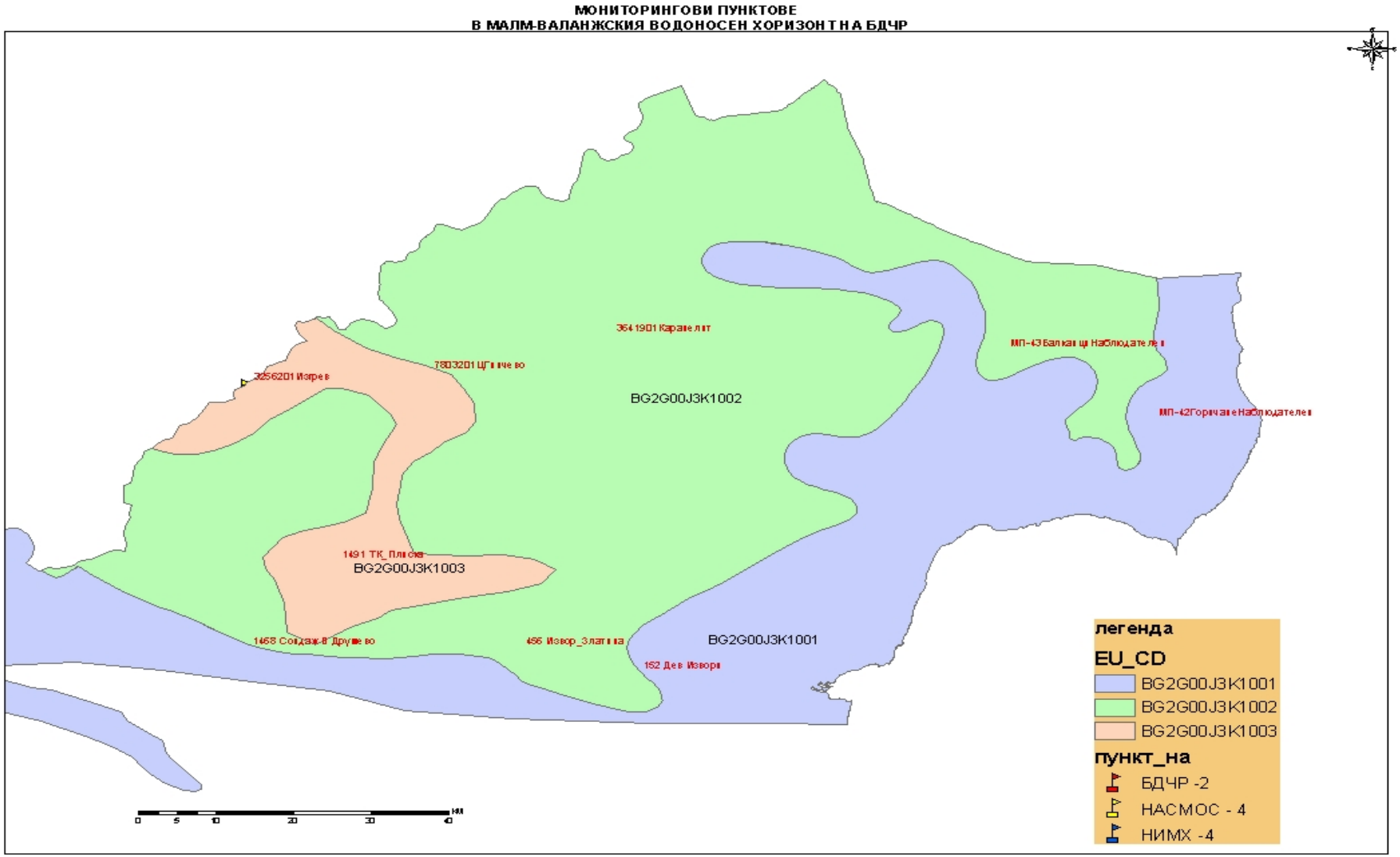
Deliniation and Characterisation of Dobrogea-Litoral Aquifers(GWB-RO)



GW bodies in Neogen aquifer (BG)



Groundwater bodies in Malm - Valanginian aquifer (BG)



Фиг. 6

Implementation of the PHARE CBC 2004 Project RO-BG "Integrated management of transboundary groundwater between Bulgaria and Romania in Dobrogea area"

- **Total surface area**:15,000 sq.km. (10,000 in Bulgaria and 5,000 in Romania).
- **Period**: 2006-2007 (16 months)
- **Budget** : 2.733 mil.Euro (of which 2,2 mil.Euro from PHARE)
- **Components**:

1. Procurement of equipment (1.6 mil. Euro for BG; 0,533 mil. Euro for RO);
2. Technical assistance for implementation of joint monitoring and information systems (0.5 mil Euro for BG; 0.1 mil. Euro for RO)

PROJECT DEVELOPMENT - PARTNERS

Implementing Agencies:

- **BG –** Ministry of Regional Development and Public Works (MRDPW);
- **RO -** Ministry of European Integration (MEI)

Beneficiaries:

- **BG –** Ministry of Environment and Water though National Institute for Meteorology and Hydrology in Sofia and its local branches in Varna and Pleven (NIMH), Varna and Pleven Basin Directorates and Executive Agency for Environment with its local labs.
- **RO -** Ministry of Environment and Sustainable Development though Dobrogea-Litoral Water Directorate(DADL) and National Institute for Hydrology and Water Management(NIMWH)

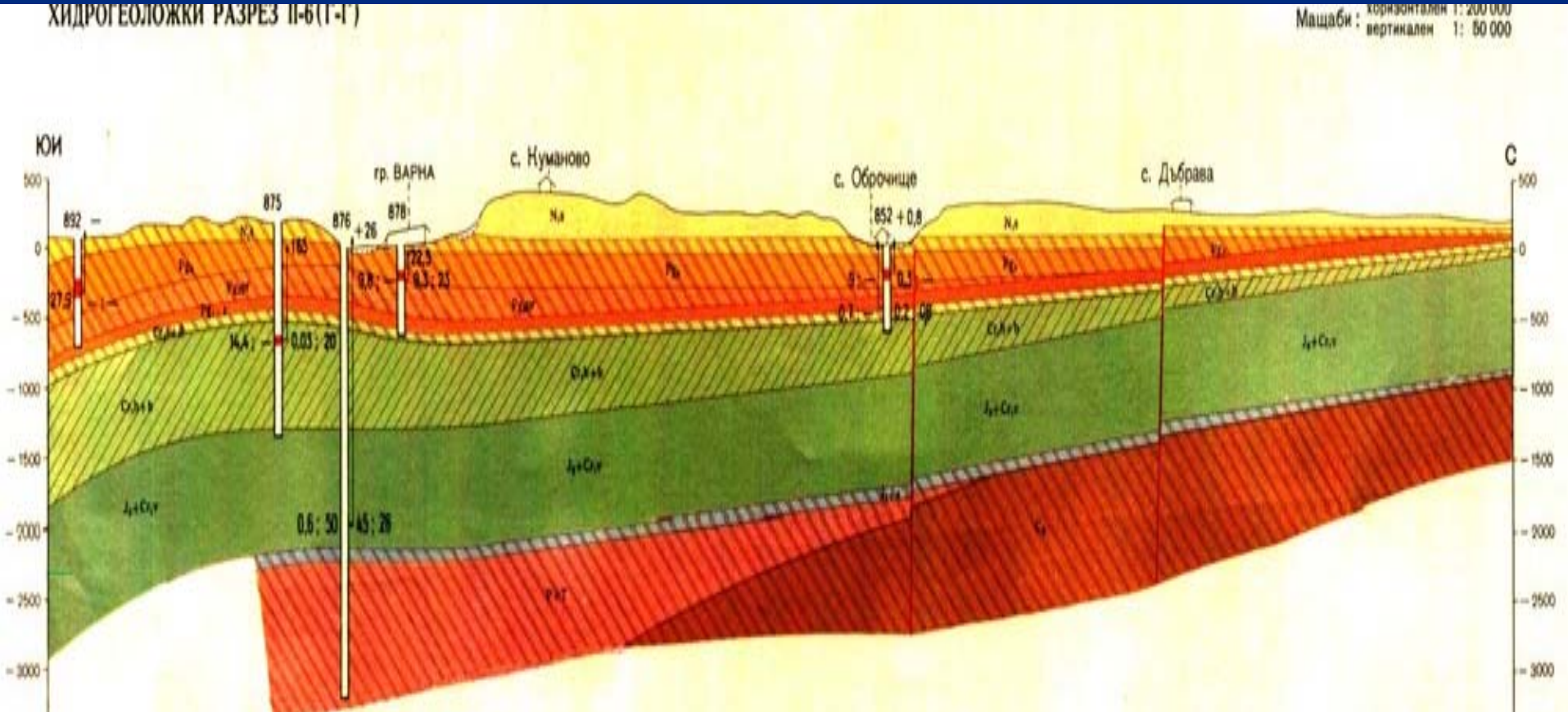
Technical assistance activities

- **Preparation of the project and of the dossiers for equipment supply tenders -2006;**
- **MainTechnical Assistance Project to establish transboundary management using WFD and GWD - 2007,**

  Consortium EPTISA-DHI, Team leader Jasminko Karanjac

  1. Inception Report
  2. 2 x Progress reports
  3. Baseline Analysis Report
  4. Joint Transboundary Groundwater Monitoring System
  5. Operational Groundwater Model
  6. Joint Groundwater Information System
  7. Training programme design and implementation
  8. Border Groundwater Coordination Committee

Geological cross-section from South to North



Joint Network Monitoring GW Quantity in Neogene-Sarmatian

Reteaua comuna de monitorizare cantitativa apelor subterane din acviferul Samatian

Обща мрежа за мониторинг количеството на подземни води в Неоген - Сармат

Moninoring Station

- New groundwater monitoring point (Proposed existing well) \ Punct noi de monitorizare operationala \ Нов пункт за мониторинг на подземни води (предложен съществуващ кладенец)
- Present groundwater monitoring point(Actual Network) \ Punt de monitorizare al apelor subterane (Retea existenta) \ Съществуващ пункт за мониторинг на подземни води (действителна мрежа)
- New well to be drilled or repair existing well \ Put nou ce urmeaza a fi forat sau put de reconditionat \ Нов кладенци или ремонт на съществуващи
- Local observation network \ Retea de observaties locala \ Локална мрежа за наблюдения
- Town \ Localit \ Населено място
- Canal \ Canal \ Канал
- Lake \ Lacuri \ Езеро
- River \ Rauri \ Река
- Study Area \ Изследвана територия
- Study Area \ Изследвана територия
- River Basin Directorate \ DADL \ Басейнова Дирекция
- Ground Water Body \ Подземни водни тела

N

1 : 900 000

0 3.75 7.5 15 22.5 Km

Transboundary monitoring system

Monitoring Network	Subnet	Number of monitoring points		
		BG	RO	Total
Qualitative				
Surveillance	Upper aquifer (N1s)	12 (14)	10	22 (24)
	Lower aquifer (J3-K1)	10 (14)[1]	16	26 (30)
Operational	Upper aquifer (N1s)	10	6	16
	Lower aquifer (J3-K1)	0	8	8
GW Dependent Ecosystems	Upper aquifer (N1s) + coastal lakes	6	3 quantity 1 quality	10
Quantitative	Upper aquifer (N1s)	23	14	37
	Lower aquifer (J3-K1)	27	15	42
Total		88 (94)	73	161 (167)

Strengtening of the institutional capacity in both countries

- Over 60 people working in groundwater field in both countries were trained (GIS, groundwater monitoring, data management, groundwater modelling)
- Endownment with new equipment
- Border Groundwater Coordination Committee was established – 7 specialists from RO, 10 from BG

Project Results – Team efforts

- Excellent project's results were possible only by combining synergies – over 50 people involved:

-Project Working Group

- ❖ 17 Romanian specialists (working on voluntary basis)
- ❖ 20 Bulgarian specialists (working on voluntary basis)

- Consultant teams from EPTISA-DHI, AGRIFOR and AGRECO

- ❖15 international experts

Further Cooperation

- **Joint Chemical Screening** – trace metals, organic micropollutants, radionuclides
- **Derivation of Natural Background Levels and Threshold Values for the transboundary gw bodies**
- **Intercalibration of Water Chemical Analysis Laboratories in Constanta, Varna and Pleven** - common sampling and analysis of all parameters in the Joint Monitoring Programme
- **Improvment of the quantitative model**
- **Transport model for the main pollutants**
- **Joint management plan and programme of measures**


Thank you for your attention!