



Programme Progress Meeting

Remediation of the Grand Backa Canal Vrbas, Serbia

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Podgorica , 11 June 2010



Problem description



- Problem in municipalities Vrbas and Kula:
The Grand Backa canal is filled by heavy polluted sediments
Due to discharge of industrial and communal waste waters (app. 400 000 m³ along 6 km of the canal through populated part of Vrbas town)
- One of 3 National environmental hot spots



How was the problem addressed

- The Clean up of Grand Backa Canal project has been initiated by the Municipality of Vrbas before WB project
- The UNDP project is a part of a major Remediation project :

Construction of new sewerage network, for collection of pretreated industrial waste waters, communal waste waters of Vrbas, Kula and surrounding settlements



Outcomes of physical activities

Construction of the missing part of the main waste water collector of the sewerage network Vrbas – Kula

- **Phase IV.1 Ch. km 5+999 – km 8+061 L=2062m**
Donor

- **Phase IV.2 Ch. Km 8+061 – km 10 +019**
L= 1958m Government

- **Phase V Ch. km 10 +019- km 12+628 L=2609m (17 June 2010 tender opening) Government**



Outcomes of physical activities

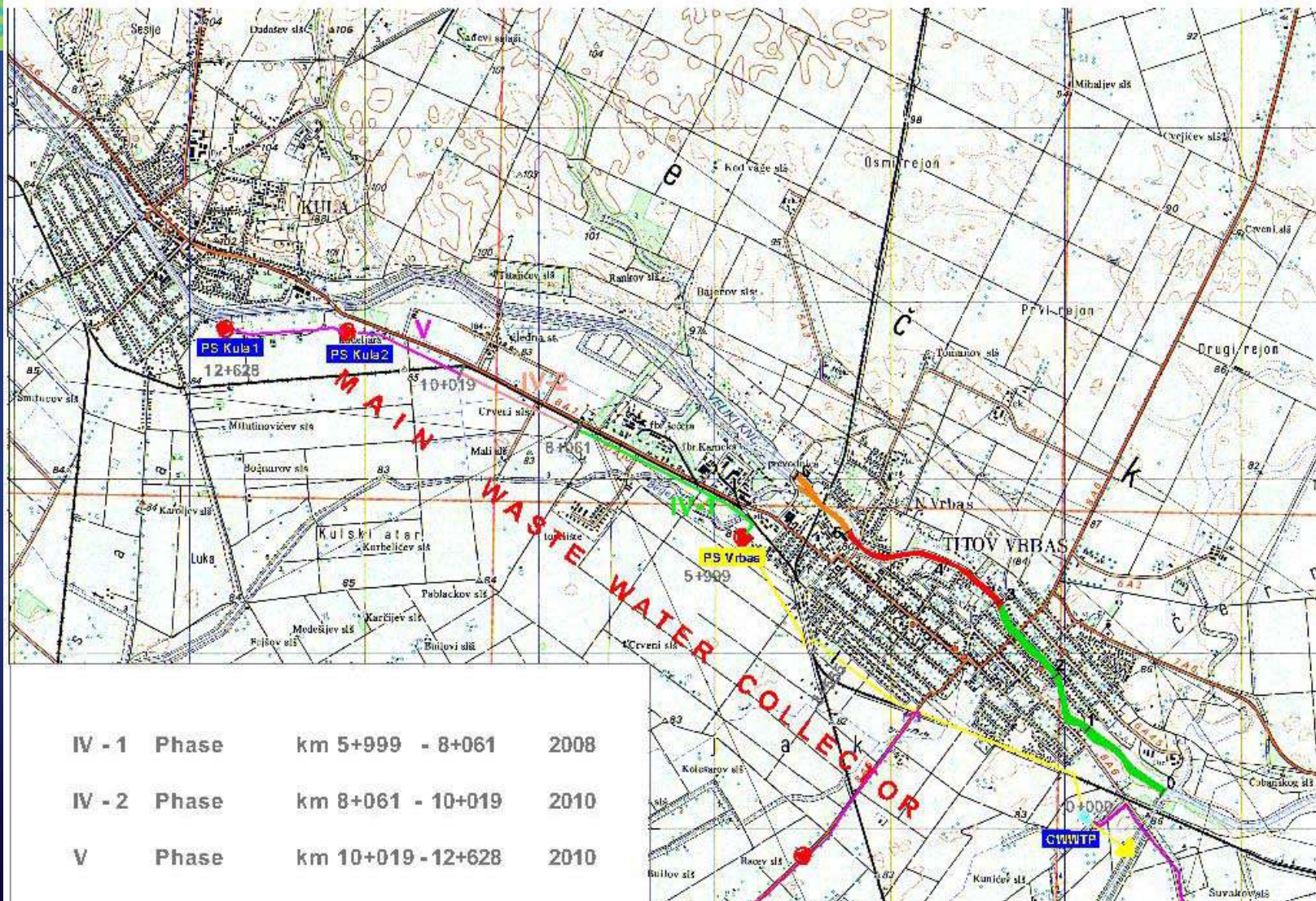


Facts :

- Material PEHD , diameter Phase IV.1, $\Phi 1000/800$, L= 2062 m; Phase IV.2 $\Phi 700$, L=1958m
- Q max/day =350 l /s; Q max/hour=560 l /s
- Total capacity/day = 30,000 m³/day will be taken to CWWTP and not discharged in the canal
- Donor Ph.IV.1 1,684,890 USD, Government IV.2 583,098 USD, plan Phase V > 1,150,000 USD, tender estimate 1,540,000 Euro
- Duration of construction IV.1 90 days, IV.2 39 days

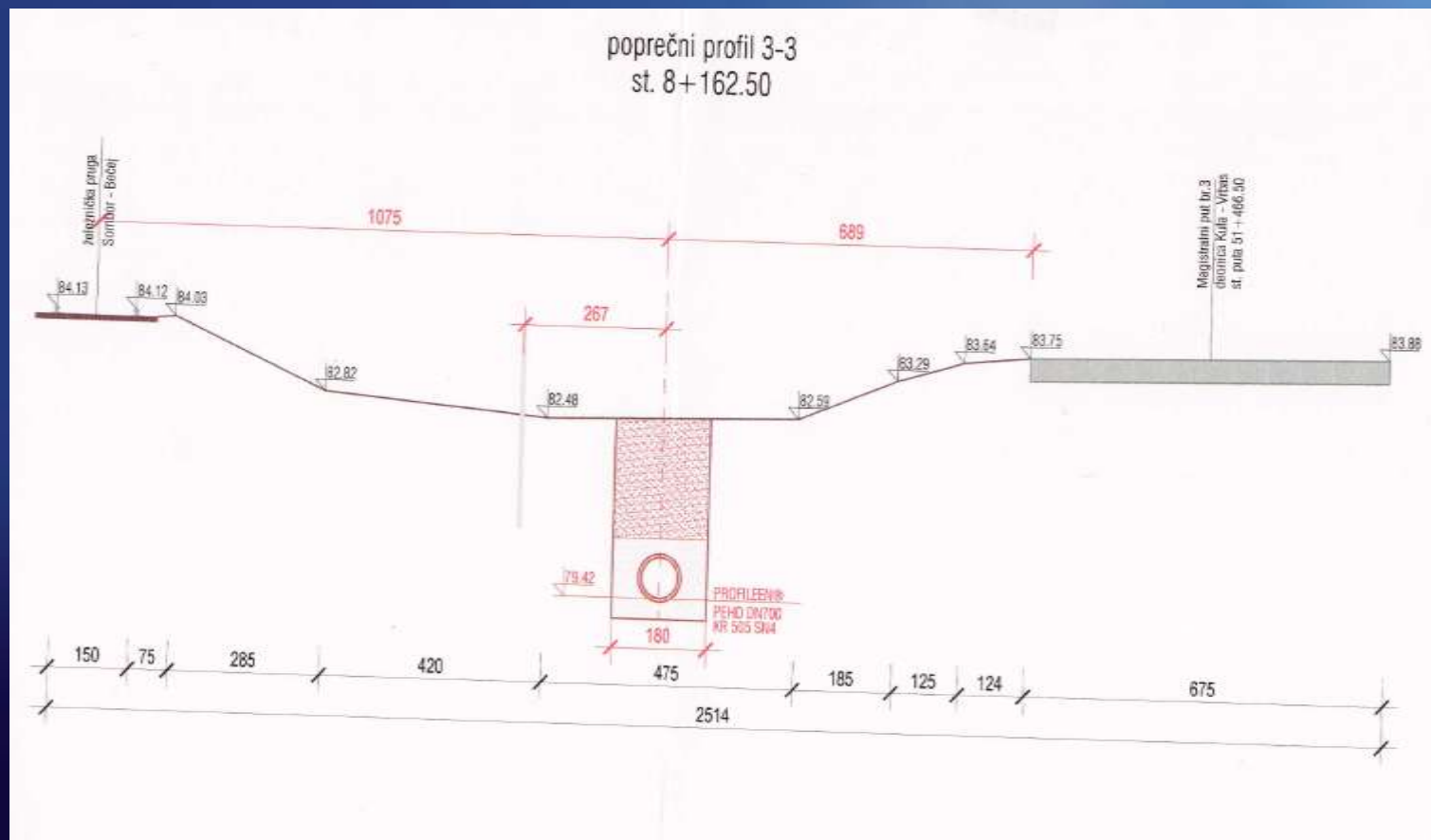


Layout of the collector



Outcomes of physical activities

Typical cross section collector Phase IV.1 and IV.2

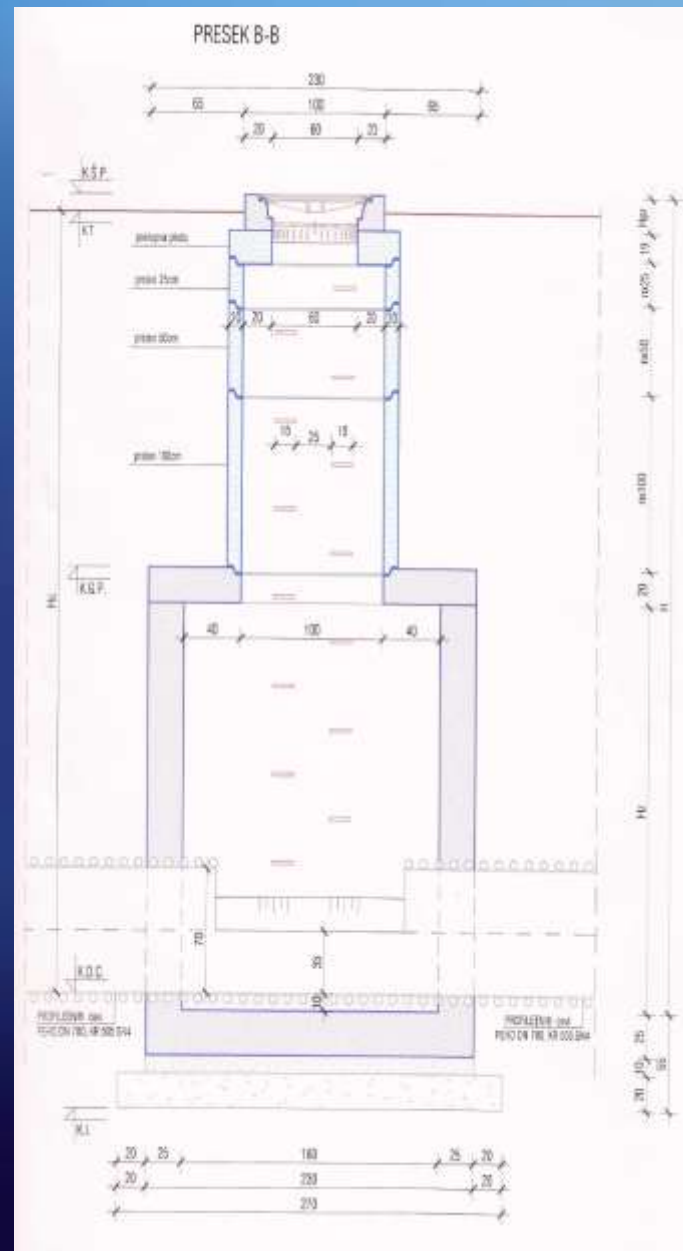




Outcomes of physical activities

Typical cross section of the manshaft

Phase IV.1 and IV.2





UNDP Hot Spot Environmental Monitoring 2008



Objectives to provide:

- Initiation of hot spot (VBC) environmental monitoring for the needs of the MoE&SP and institutions
- Guidance data (baseline) regarding the quality of water for the CWWTP design.
- Data on the canal sediments' quality in the early phase (baseline) of developing technical documentation for the remediation of the GBC in Vrbas.
- Public information on the quality of surface waters and sediment)
- MoE&SP continued monitoring 2009-2012(monitoring results 2009 at www.ekoplan.gov.rs)



Monitoring (08- 09) of water and sediment quality in the GBC



- Waste waters and limited water that flows in the GBC network cause sedimentation of suspended matters, heavy metals, biodegradable organic matters, mineral oils and fecal microorganisms in extremely high concentrations.
- Water Quality: profiles 3, 8 and 9 are extremely polluted as shown by microbiological, physical-chemical and chemical parameters that are equal to sewerage water values (Fig. 1).
- Sediment quality 2008 (Fig. 2) and 2009 (Fig.3).

Water quality 2009

ICPDR criteria

Danube

Monitoring Profiles "Grand Backa Canal"

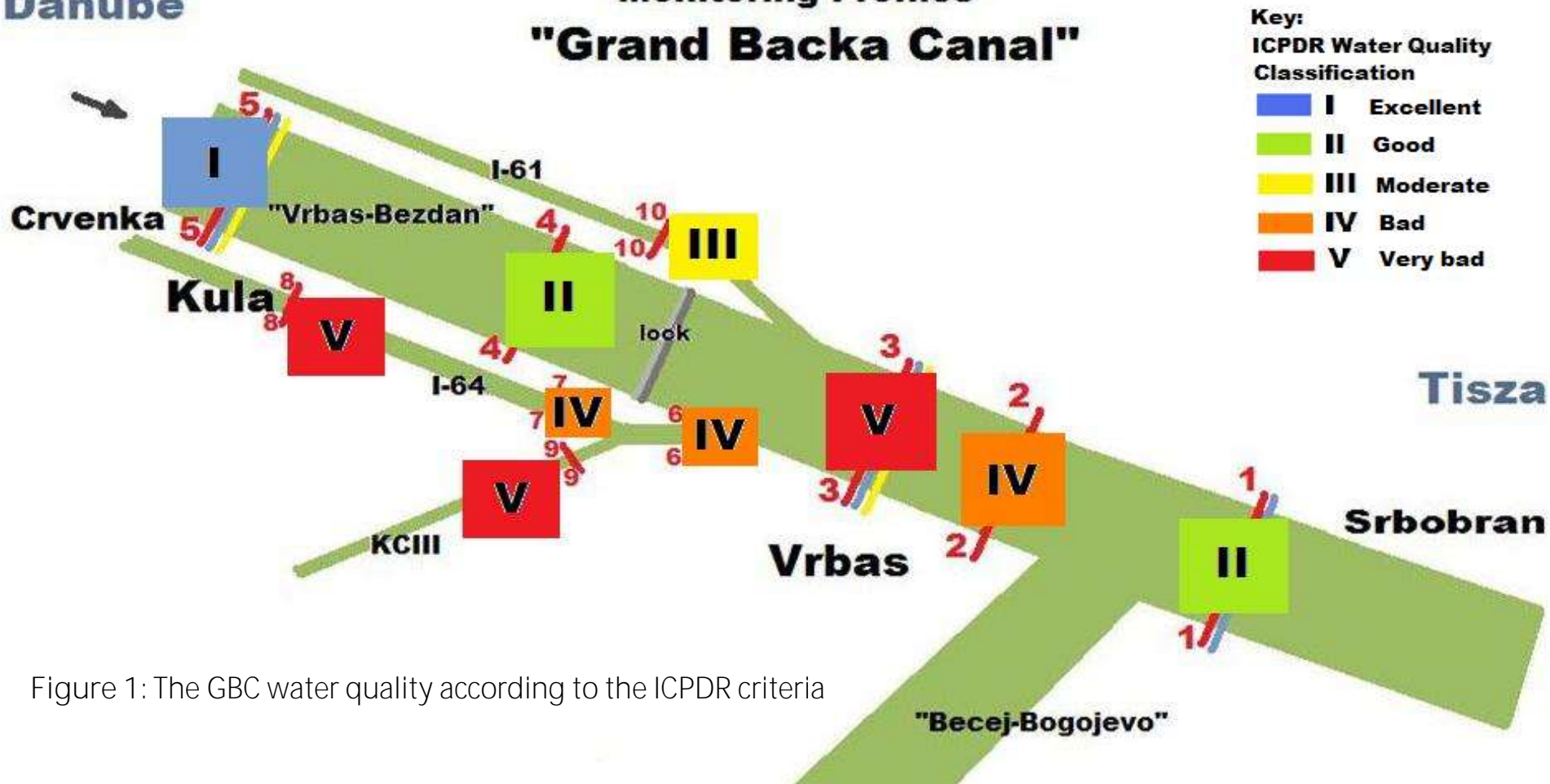
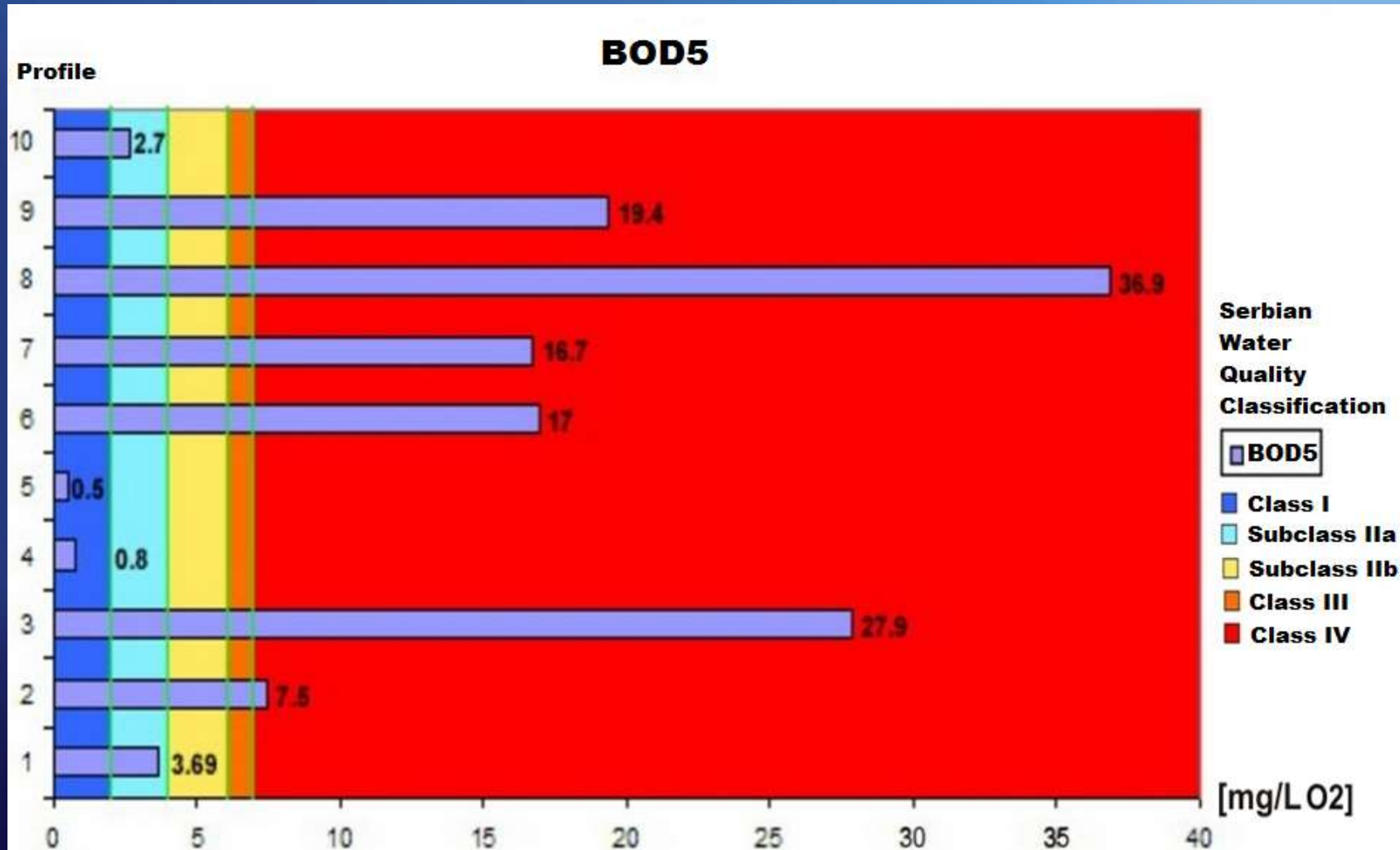
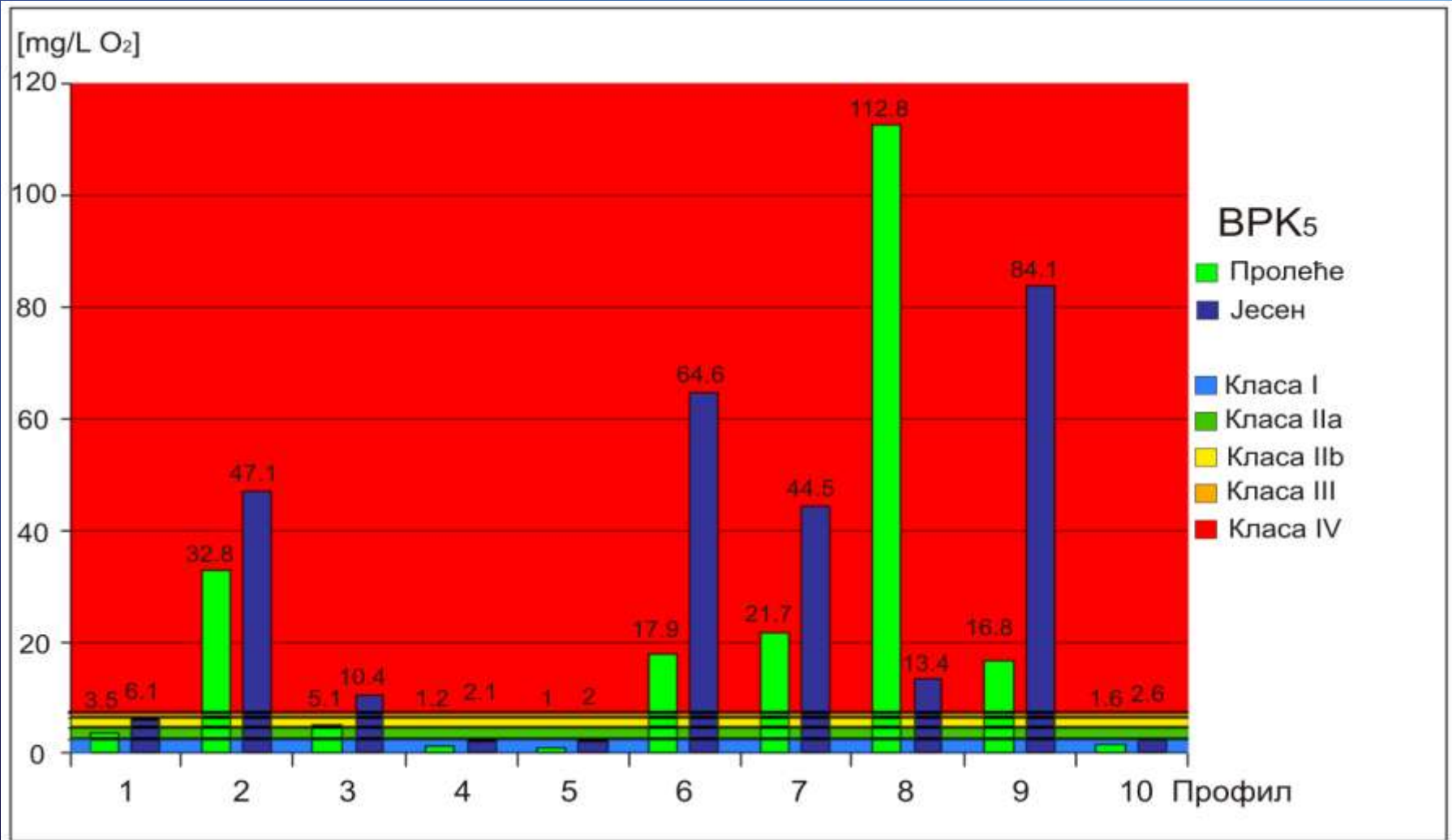


Figure 1: The GBC water quality according to the ICPDR criteria

Water quality- Biological Oxygen Demand 2008



Water quality- Biological Oxygen Demand 2009



Sediment quality 2008

ICPDR criteria

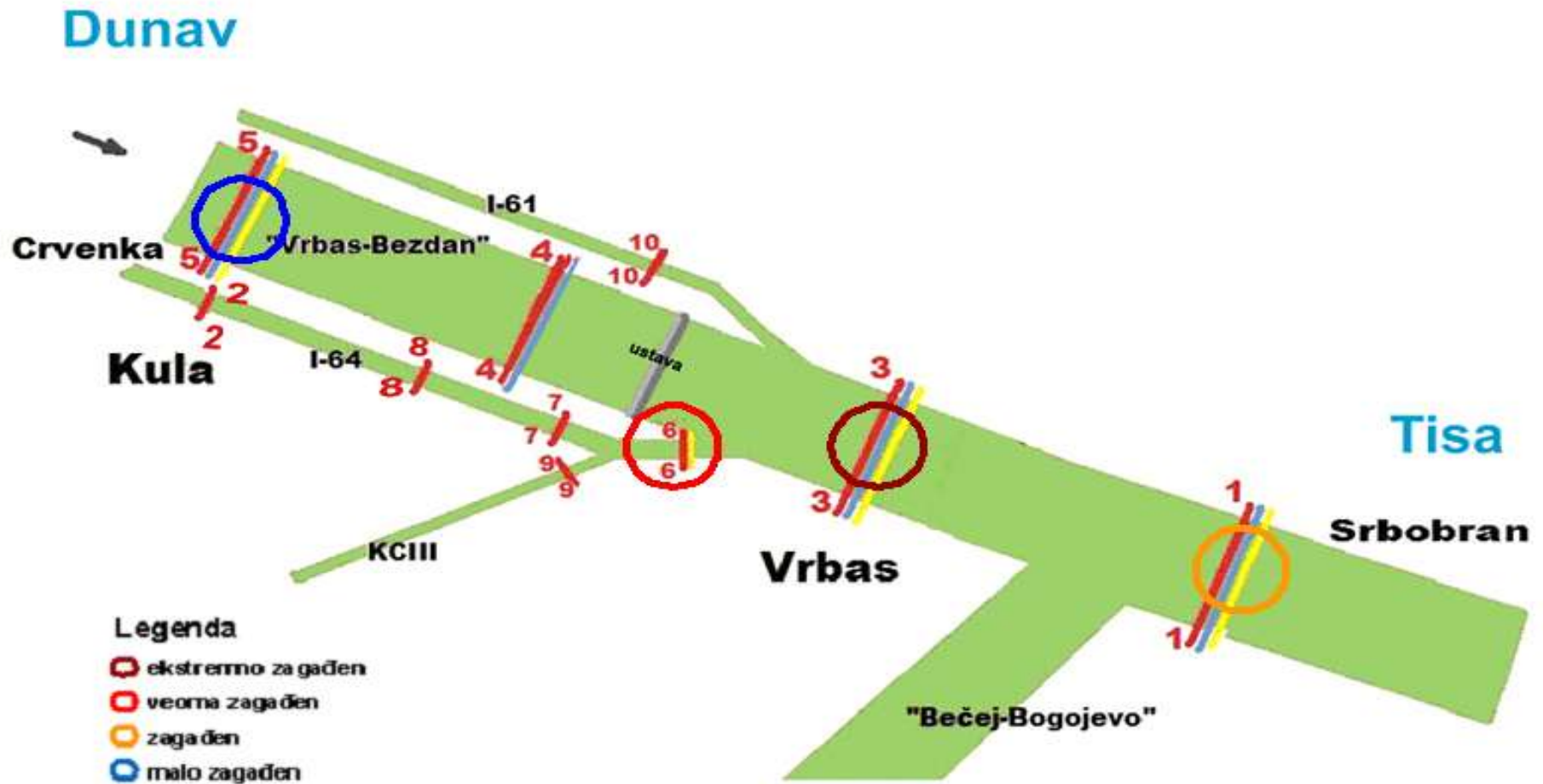
Danube

Monitoring Profiles "Grand Backa Canal"



Sediment quality 2009

ICPDR criteria





Assessment of hydro-biota 2008 & 2009



- Assessed at profiles 1, 3 and 5
- Bioaccumulation: Reeds' (*Typha latifolia*) roots accumulated heavy metals (Al, Cr, Fe, Ni and Zn) especially at profile 3.
- Absence of Water lilies (*Nymphaea alba*) registered at profiles 1 and 3.
- Absence of fish on the canal part downstream of the Vrbas lock to the triangle.
- Concentration of heavy metals in muscles of fish is below MAC.





Baseline environmental quality GBC 2008 & 2009



- Water and sediment quality 2009 (June and October) : not significantly different from water quality registered in 2008, note monitoring conducted during sugar beet processing season September-December (2 sugar beat plants)
- Sediment 2009:Compared with year 2008, the sediment thickness is less on the profile 3, and slightly higher on profile 1. The quality of sediment is similar to 2008 results.
- There is no significant difference in hydro- biota quality 2008 and 2009
- Improvements to human health and environment is expected after construction of the CWWTP and canal remediation .



Improvements to human health and environment



Will be provided by overall project continuation, construction of the CWWWT of Vrbas and Kula , 120,000 PE.

IPA 2008 approved

- 13.00 Mil Euros for works
- 2.1 Mil Euros for Technical assistance
- Tender launch expected in 2010

Remediation of the canal possible only when the CWWTP is in operation



Capacity building activities



The CB projects were selected from thematic areas as per Needs assessment

1. Four projects are completed (**deliverables**)
 - EU Water directive project and **drafting technical part of the decree on limiting values of the dangerous substances in water, harmonized with EU directives**
 - **IPPC –simulation of issuance of two permits, regional landfill and pesticide industry**

Capacity building activities



- Assessment of environmental hot spots- hydrogeological aspect, Pilot project Juzna industrijska zona Pancevo (technical report, geodatabase, trainings)
- Guideline on EIA for wind farms
- Cleaner production, promotion of the UNIDO program to Vrbas industry . Deliverable : Carnex industry (Vrbas) certified to introduce CP

Capacity building activities



- The capacity building activities were focused at increasing capacities of employees of national, regional and municipal institutions dealing with environmental issues
- Participants were predominantly from the MoESP, and AR Vojvodina environmental secretariat , other institutions were :Public health institute, Water directorate, Vodevojvodine, Environmental secretariat Pancevo, municipality of Vrbas, Uzice
- At average 20-25 participants /training



Public Awareness Rising



Activities implemented in Vrbas and Kula :

- Development of the PARC document
- 2 PARC phases (messages) disseminated to the public audience
- Phase I :Save potable water – protect our canal (i.e. reduce waste water -protect the canal), and
- Phase 2 : Connect to new sewerage network – save our canal



YOUR ENVIRONMENT YOUR DECISION



Dissemination in Vrbas and Kula was through :

- Installation of 2 billboards/town/phase
- 1 Radio jingle /phase , Radio Vrbas and Kula
- Leaflets , 3 months together with utility water bills/phase , reached 3x15000x 2 households
- T-shirts , notebooks , postcards to schools, institutions, posters, newspaper advertisement in Vrbas and Kula



Public Awareness Rising



3 initial Communication forums in March 2010

Technical forums

1. Institutions – industries from Vrbas and Kula
2. Institutions- general public

Protected areas

1. Institutions – community members living along protected areas in Vrbas



Public Awareness Rising



The assessment of the project and PARC impact was assessed by baseline and final focus group survey . Main findings :

- Final focus group participants are in 2010 more than previously (2009) aware of the UNDP project activities and other project activities in general
- Final focus group assessed the UNDP intervention as more effective and more significant for improvement of the environmental situation in the community and the wider region compared to the baseline
- Impact of the project or the overall positive effects of the Grand Backa Canal Project intervention were estimated positive without any reserve in the Final focus group discussions while the Baseline focus group were concerned with probable risks



Public Awareness Rising



- The UNDP intervention and overall project assessed by final focus group as highly appropriate and relevant to the need of people living in the region of Backa;
- The final focus group research suggests higher degree of confidence that continuation of the actions after finalization of the UNDP project component will be obtained;
- Efficiency of the project is estimated at the same level according to the both research results. The project is likely to provide greatest return for a proposed investment, is one of the common conclusion;
- Public awareness campaign, communication forums provided and will provide better understanding between institutions and stakeholders during overall project implementation .



Lessons learnt



The national (1) and municipal level elections (2) were assumed by the project team as potential risks .

The risks never realized /happened due to commitment of all stakeholders to project progress and continuation, regardless of their political background

Successful project completion was due to :

- Participation /support of project activities by all stakeholders (national, regional, local level)
- Excellent project preparation by the UNDP



Thank you

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