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Serbian experiences on the approaches to agriculture nutrient reduction and the opportunities and barriers to replication in DREPR Project

Ministry of Agriculture, Trade, Forestry and Water Management of RS
Directorate for Water
Speaker: Miomir Vasiljevic, dipl. Ing.

Final Stakeholder meeting, Sustaining and replicating lessons on land/water management from the UNDP/GEF Tisza Project, Uzghorod 12 - 13 April, 2011

Outline

- Objectives
- Nutrients
- Results
- Recommendations

Objectives



The main objective is reduction of nutrient load discharged into the Danube River and its tributaries from livestock farms, notably pig and cattle farms, and slaughterhouses.


The environmental objective is to reduce nutrient flows into water bodies connected to the Danube River from selected enterprises and promotion Code of Good Agricultural Practice.



Target – STOP bad manure handling practice.

Target- Demonstrate and introduce Good Agriculture Practice.

Project Development Objective:



The project aims to reduce agricultural nutrient pollution in the Danube River .


The global environment objective of the project is to reduce nutrient flows into water bodies connected to the Danube River from selected farms and enterprises.

	GEF	SIDA
Approval date:	05/12/2005	03/07/2006
Signing:	06/22/2005	03/07/2006
Effectiveness:	12/15/2005	03/07/2006
Closing Date:	03/31/2010	31/12/2010
Grant Amount:	\$9 ml GEF	\$5.2 ml SIDA

TOTAL AMOUNT: \$ 14.2ML.

Disbursement of 90% and commitment of 95% till September 2010


Nutrients:



- Nutrients are nitrogen and phosphorous compounds whose surplus run off to watercourses causing algae bloom which in turn suffocate the water flow, resulting in polluted, foul smelling water in such watercourse, unsuitable for bathing and drinking, and massive die off of living organisms such as crayfish, fish or aquatic plants due to oxygen depletion in such water.

Nutrients origin :

- Nutrients originate primarily from cattle, pig and poultry excrete popularly referred to as manure and slurry.



Project Preparation



- Project preparation: 2004-2005., PPU (Leader of Project Preparation Unit: prof.dr Ivan Gržetić) – Ministry of Science and Environment Protection.
- End of 2005. Ministry of Agriculture, Forestry and Water Management started with implementation of the Project




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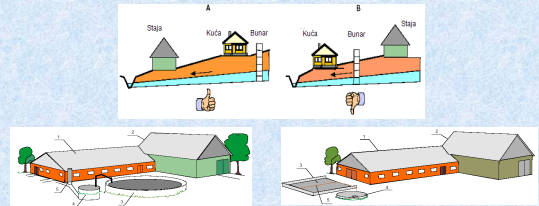
- The section of the Danube that flows through Serbia (SRB) is **588 km** long of which about 138 km constitute the state border with Croatia and about 213 km with Romania.
- The Danube's largest tributaries, Drava, Sava and Tisa-increasing its flow about 2.5 times.
- Other significant tributaries -Velika Morava, Tamis
- The important impact to the water pollution have cattle and pig farms, slaughterhouses, meat processing industry and other food industries.



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Project components:

- **Component 1. Regulatory Reform and Capacity Building**
- **Component 2. Investment in Nutrient Reduction**
- **Component 3. Water and Soil Quality Monitoring, Public Awareness Raising and Replication Strategy**
- **Component 4. Project Management, Implementation and Monitoring**



Key Issues - including main implementation obstacles that resulted in low disbursement in initial phase of the project

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- Low interest of SH and agricultural processing industry
- Readiness of farmers to invest in environment protection
- Undeveloped local market for large and specific manure management equipment - repetition of tenders
- Local permitting procedures in regard to manure and waste water treatment facilities were not foreseen in the preparation phase of the project
- Large portions of funds committed but could only be disbursed upon delivery of equipment or upon completion of construction works and obtaining operating permit
- Construction season- limited period for realization of field project activities



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CONSTRUCTIONS AND EQUIPMENT ON FARMS IN DATA:

Project grant received - 100 farms in Serbia with:

- ✓ More than 46.000 ha of arable land in the farm property,
- ✓ Aprox. 24000 Livestock Units (pigs and cows) on farms,
- ✓ Annual solid manure production is 70000 t,



CONSTRUCTIONS AND EQUIPMENT ON FARMS IN DATA:

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- ✓ Annual slurry production is 150.000 m3,
- ✓ Total financial value of nutrients is about 1,40 mil. USA dollars,
- ✓ Total sum of farmers investment: 4,20 mil. USA dollars,
- ✓ Total sum of project funds (2006-2010): 8,12 USA mil. dollars



Key results:

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- ✓ The Code of Good Agricultural Practice.
- ✓ Study "Preparation of a Nitrate Directive Implementation Plan and Legal Framework for Serbia".
- ✓ 120 nutrient management plans (NMP) prepared.
- ✓ Visited and work with over 200 farms.
- ✓ New procedures and activities developed and introduced.
- ✓ 100 farms- received the grant support (facilities and equipment).
- ✓ 3 Slaughterhouses in program of Project support.
- ✓ 3 Rendering plants received equipment for collecting waste products.



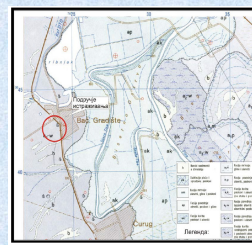
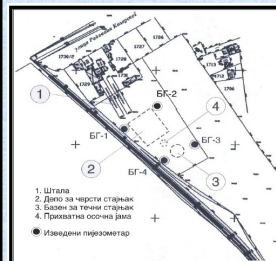
Key results:

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- ✓ 7 Agriculture Schools received the grant support (construction works and equipment).
- ✓ Established Training and Information Centre (TIC).
- ✓ 650 participants trained in TIC about EU legislation on ND and WFD, CGAP, proper manure and slaughterhouse animal waste management.
- ✓ Provided equipment for laboratories and software for the Soil Science Institute (SSI), Hydrometeorological Institute (HMI) and 4 local laboratories.
- ✓ Installed 53 piezometers at 9 demonstration farms.
- ✓ Public awareness raised approx. 21% in general public, 38% among stakeholders (2006-2008).



Geological map and main points at the site



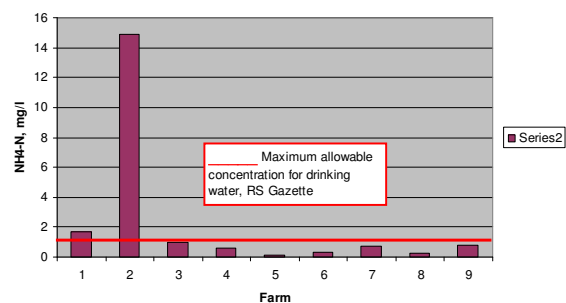
Слика 5. Геолошка карта терена изнад водозачра локације на којој су изведени резултати (по СГК 1:100.000, лист Дреница)

Visiting farm and constructing borehole

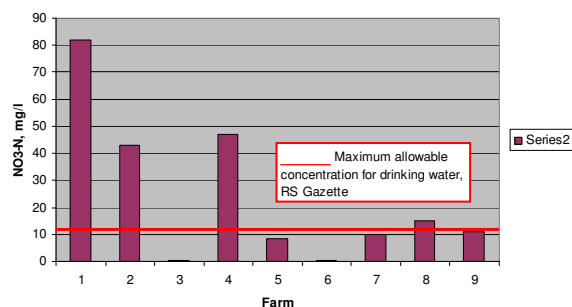


Слика 10. Уградња пиезометарске конструкције у астропузи

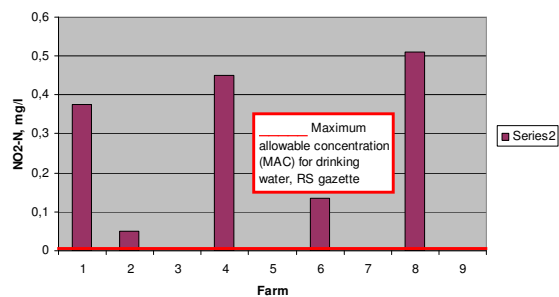
Influence of farming on groundwater quality, NH4-N

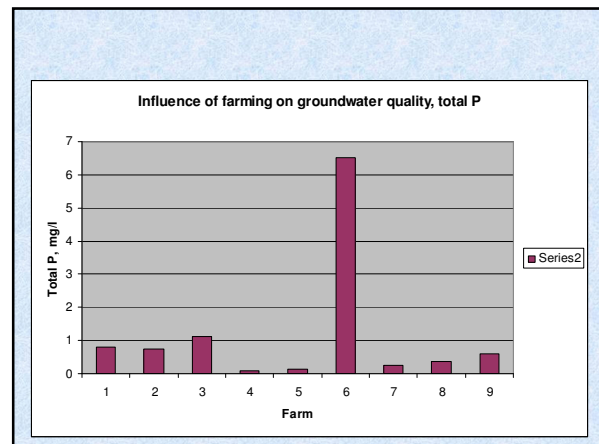
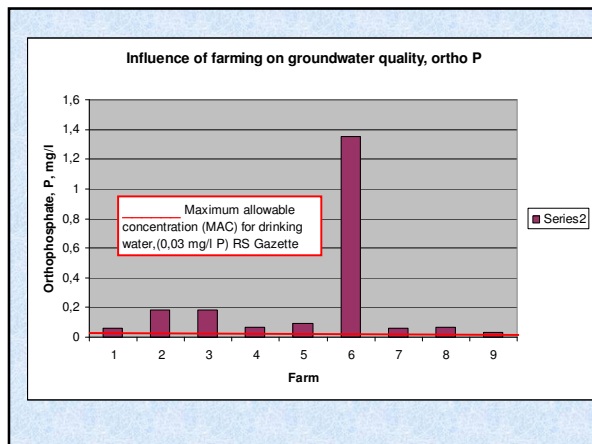


Influence of farming on groundwater quality, NO3-N



Influence of farming on groundwater quality, NO2-N





Measure results comment

- There is no doubt that farming influence groundwater quality, the only question is to what extent improper manure animal waste management influence the groundwater?
- There was no trend in measured value changes
- Measurement should be conducted again in a few years

Key Recommendations:

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- Simplify permitting procedure and provide incentives to industry to invest in WWT facilities;
- More flexible approach in introduction of necessary changes in project document;
- Adjust procedures with situation on the field;
- Project preparation- conduct small scale pilot project;
- Procedures and activities predicted in the Project preparation phase could be changed due to the time difference and legal and social environment changes;
- Secure that Project always has one authorized person for special accounts- project manager/ coordinator
- Training of Ministries coordinators on:
 - Relevant rules and procedures - how, who, help, assistance....;
 - M&E Reporting procedures;

Construction and manure equipment supplying - DREPR Project farm beneficiaries

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Supplying of manure equipment - DREPR Project farm beneficiaries

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Workshops and Field days at the Project demonstration farms

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Construction and equipment supplying at slaughterhouses "KiM - Kraljevačka industrija mesa"

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Equipment for Rendering Plants at Sombor, Čuprija and Belgrade

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Construction at Agricultural High School in Svilajnac

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DREPR Project Next steps....

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Utilisation of agricultural by products as resources for renewable energy production "BIO-GAS / BIO-MASS"



DREPR Project Next steps...."BIOMAS" DREPR

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- Small pilot survey about using biogas technology at Serbian farms.
- The research had been conducted during November/December 2009.
- Questionnaire was made by PIU team and focus group was consisted from 20 most representative farmers which participated in DREPR project as well.
- Second questionnaire, in more details, was made in August/September 2010
- Prefeasibility study for Biogas
- **Project Identification form prepared and submitted**

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Thank you !

