**Case title:**
**The Prut Basin Wide Approach for Nutrient Reduction and Cross Border Co-operation (PBWA) #273**

**Abstract**

**Subtitle:**
Facilitating a watershed regional cross-border approach during the development of the draft Prut River Basin Management Plan for Nutrient Reduction in transboundary river Prut

**Description:**
On the borders of Central European Countries, such as between Romania, Rep. Moldova and Ukraine, problems of cross –border pollution, management of natural resources, (especially affecting rivers and lakes straddling the borders), require a wide range of actions concerned with developing new approaches at different levels including:

- Studies to assess current conditions and resources, environmental education, awareness raising; information in schools, enterprises, community organisations, and amongst community population, in general;
- Pilot actions in conservation, waste management, etc; development of new production techniques and products which are more environmentally –friendly;
- Promoting actions to reduce waste and find new ways to recycle waste; joint planning and co-ordination of services to deal with emergencies, such as spillage, etc.
- Harmonisation of the targets and basic principles based on which the trans-boundary water management is developed.
- Involving the public in the development of water protection policy as water protection is a task of the community and serves public welfare.

In October 2004, the Eco-Counselling Center, Galati Romania, initiated the project to facilitate a regional, trans-boundary approach, enable the multi- stakeholders' involvement; ensure transparency and participation on the Draft Prut River Management Plan to be developed by the governmental experts in line with the EU Water Framework Directive.

The objective of the project was to raise awareness on nutrients, other toxic substances and their negative effects on ecosystems, human health, within the Prut River catchment area, on both banks.
Other objectives included:
- to support nutrient reduction policies by implementing adequate concrete measures within the demonstration sites.
- to establish a forum by bringing together experts from administration, industry, science and NGOs to act as a trans-boundary information network in Romania and Rep. Moldova while the assigned experts' group is developing the Prut River Management Plan.
- to improve and expand communication and co-operation among the Romanian and Moldovian governmental structures so as to integrate the amount of data and information on nutrients and toxic substances in the development plans in the Prut River Basin region.

The results are:

1. Reducing the pollution sources in the Pilot areas (Mastacani village, Ro and Baurci Moldoveni, Rep. Md):
    - In Romania the construction of the buffer area is nearly finished and the monitoring shows already a decrease of the nitrate, nitrite, and phosphate concentrations. According to the measurements done, the preliminary results show that after the buffer area, the stream improved its quality from degraded (category IV) to good (category II).
    - In Moldova Republic, Baurci Moldoveni the construction works are in development and only the first pool is partially working but even in this phase there is already a decrease of nitrate and nitrite concentrations in the river water.
2. Environmental education campaign: a set of materials was developed to support teachers from the pilot areas to address the water pollution issues and not only. During the first 9 months of the project, there were organized several session of training of teachers and environmental education activities with students. In total 170 teachers and 945 students attended the activities.
3. Awareness raising campaign. Over 15.000 people had access to project-related information through:
    - The dedicated section of the ECCG web-page (http://www.cceg.ro/proiect-prut.htm) that was designed to: promote the natural heritage of the Prut River, the main environmental problems existing in the area and possible solutions, to provide access to the Prut River Management Plan that

is currently in development, and of course to inform the public about the project activities and their results. The number of unique visitors of ECCG page is of about 2000 visitors/month.

- The international conference that was organized 21-22 of March, 2005, order to bring together representatives of various institutions and NGOs, experts and other interested persons, from Romania and Moldova Republic and thus to share information, build a common vision, and to contribute to mitigating the separations created by the border and its adjacent problems. Over 90 people attended the conference that was highly appreciated by the participants for the quality of the information exchanged and the opportunity to discuss both biodiversity and pollution issues. The presentations made during the conference are available in Romanian at http://www.cceg.ro/prut-conferinta21-22martie.htm.
- Specific materials, such as poster, info-panels, folders, have been developed and distributed in order to promote the project, the nutrient problems and ways to minimize it. The same issues were presented in a special section of the Moldavian publication Natura that reaches 10.000 people monthly.

**Lesson learnt**

1. When discussing a pollution issue it is very important to promote information regarding practical solutions, that are affordable and verified in practice, because in this way people will be encouraged to do something about it. The experience regarding practical solutions has to be acquired from practice and not only from theoretical or indirect sources.
2. Cross-border partnerships are more complicated than national ones in terms of time, cultural and corporate background and increased difficulties regarding traveling (papers, taxes, infrastructure, etc) and communication. The difficulties are very important when problems appear during the project and there is a need to react fast to different unexpected situations such as floods, important meetings related to the project, etc.

## *Importance of case for IWRM*

*The project:*

- demonstrates a logical approach to improving water policy and management through stakeholder integration and cross-border cooperation;
- includes a replicable and sustainable pilot demonstration for rural communities to improve their usage of water resources across borders;
- increases stakeholders awareness of water value and sustainable usage by treating all levels of stakeholders as users and decision makers.

## *Tools used*

B1 Creating an organisational framework – forms and functions:
B1.4 River basin organisations
B1.9 Civil society institutions and community based organisation
B2 Institutional capacity building – developing human resources:
B2.1 Participatory capacity and empowerment in civil society

C4 Social change instruments – encouraging a water-oriented civil society:
C4.2 Communication with stakeholders
C4.3 Information and transparency for raising awareness

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## 1 Problems

The Prut River, the last major tributary of the Danube before the Danube Delta, joins the Danube just downstream of the town of Galati, about 150 km before the Danube flows into the Black Sea. Its basin area is 28,395 $km^2$, and covers parts of the Ukraine, northeastern Romania, and eastern Moldova.

By 2003, when the Prut Basin Wide Approach (PBWA) project proposal was developed, the Prut River was significantly contributing to the eutrophication of the Black Sea, due to the high nutrient levels in its water and the proximity to the Danube Delta and Black Sea:

- According to the Romanian Environmental Ministry's 2004 Position Paper on Chapter 22, Environmental Protection, the Prut River Basin registers the most unfavourable situations in the nation and has 35% degraded waters.
- The International Commission for Protection of the Danube River published their Joint Danube Survey Report in September 2002 which states that Prut river discharge is highly polluted with nutrients and significantly contributes to the retarding or toxic effects on phytoplankton biomass in the Danube.

Preliminary analysis has shown that the nutrient pollution (primarily excess nitrates and phosphates) in Prut Basin ground and surface waters result from municipal, domestic and animal wastes and agricultural by-products, the sources being agricultural by-products/wastes (76%) and domestic wastes (24%).

In the rural areas, there is little awareness for sustainable agricultural practices. With lack of containment and usage systems for agricultural and animal wastes, excess nutrients are leached into the soil, ground and surface waters infiltrating the river basin. Preliminary visits to the PBWA pilot project areas indicated that wastes are deposited untreated directly into the streams and rivers, nutrient levels are high, and that, potential eutrophication conditions are present.

Between the Romanian and Moldavian Prut River Basin borders, there is also a lack of a joint approach for reducing nutrients and other toxic substances within the economic and legislative frameworks. There is poor governmental enforcement in developing effective mechanisms for trans-border, regional co-operation, as well as poor communication between authorities and civil society.

Within Romania, a process for addressing such problems has already started through the organising of the River Basin Committees. The Eco Counselling Centre Galati (ECCG) represents the NGO community in the area to the works of the Prut –Barlad River Basin Committee. Although the existence of such committees is very positive, the experience has shown that their functioning is not always satisfactory for varied reasons, including:

- There is a very strong majority of representatives from local government who dominate the decision-making process.
- Meeting frequency is often irregular
- Environmental NGOs are poorly (or not always) represented
- Linkage between the representatives in these committees and the 'represented basis' is weak.

A lot of effort and co-ordination is still needed to make these councils fully operational. At this stage, the activity of the Council holds regular meetings (twice per year) during which representatives of different bodies present reports, ideas and projects, but long or even short term common planning is missing.

Unlike Romania, before the project started, in Moldova, there was no similar official basin committee structure. Therefore, it was very important to start the process and create common structures. If effective reductions in the flux of nutrients entering the Danube and the Black Sea are to be achieved, a joint Prut Basin Wide Approach for nutrient reduction and cross–border co-operation needs to be developed in which the objectives of the different tributary river basins management plans are matched, both in Romania and Moldova.

## 2 Decisions and Actions Taken

In response to the above mentioned problems the Eco Counselling Centre Galati (ECCG) and the Ecological Movement of Moldova (MEM) decided to use their experience, skills, resources and contacts to build the 'bottom –up' pressure needed to get things changed. In our view, co-operation is the only way this common approach can be achieved. Without it, there will be two completely separate nutrient-reduction management plans.

The representatives of the project partners met in 2003, in Galati, and developed the PBWA project proposal. The ECCG took the leadership in developing and implementing the project and the representatives of ECCG and MEM worked together in defining the objectives, developing the action plan and the budget. Eco Counselling Centre Cahul was also involved, from the very beginning, especially in matters regarding the pilot area activities in Moldova. The proposal was afterwards submitted to the Regional Environmental Centre (REC) for Central and Eastern Europe (that manages the Small Grants scheme of the UNDP/GEF Danube Regional Project -DRP), and to the European Union ministries of Environment and the Foreign Affairs in Luxembourg. In the autumn of 2003, both REC and the EU approved the project and work was planned to start at the end of 2003 and beginning of 2004.

*Project Overall Goal*:

To facilitate a regional, trans-boundary approach for nutrient reduction and cross-border co-operation and enable multi-stakeholders' involvement; to ensure transparency and participation during the development of the Draft Prut River Basin Management Plan by the governmental experts in line with the EU Water Framework Directive.

*Project Objectives:*

1. Awareness Raising: To raise awareness on nutrients, other toxic substances and their negative effects on ecosystems, human health, within the Prut River catchment area.
2. Information Access: To provide access to knowledge regarding ways to avoid or reduce the nutrients and the toxic substances, for ex. Best Agricultural Practices, composting, manure handling, simple systems for waste water treatment, etc.
3. Experts Forum: To establish a forum by bringing together experts from administration, industry, science and NGOs to act as a trans-boundary information network in Romania and Moldova, while the assigned experts' group is developing the Prut River Management Plan.
4. Fostering Government Partnerships: To improve and expand communication and co-operation among the Romanian and Moldovan governmental structures so as to integrate data and information on nutrients and toxic substances in the development plans in the Prut River Basin region.
5. Pilot Project Measures: To support nutrient reduction policies by implementing adequate concrete measures within the demonstration sites.

In order to address the needs for this area, a wide range of activities were planned and developed such as:

A. Meetings (joint project team meeting, conference, multi-stakeholder meetings)

B. Collection of specific, topic-related data, (locally-held information on nutrients and toxic substances such as polluters and pollutants, the potential dangerous sites, resource persons, etc.)

C. Project Publications and information Dissemination

D. Implementation of the pilot project

E. Fundraising

**A. MEETINGS:** One of the ways we ensured good communications with different partners or stakeholders was to organize, and to participate in, meetings approaching issues of interest for our project. Three main types of meetings were organized since the project's beginning:

**- *Joint Project Team Meetings (JPTM)*** were meant to enable the project partners to discuss details jointly plan events and complement one another's activities.

**- *Inception Conference (IC):*** "Together for the Prut River!" (March 21-22, 2005) in Galati, Romania, brought together 87 participants from both countries to build a common vision, share knowledge and information, and thus contribute to mitigating the separateness of the border concept and its adjacent drama and problems. Special focus was laid on the pertinent priorities such as the enforcement of the Water Framework in Romania; the public participation components of the Water Framework Directive; the national water strategy in Moldova; and finally, how existing cross-border co-operations really work and the challenges the two countries will face in this aspect in the future.

Approached were concrete aspects and practical measures relating to the water quality in the Prut River basin; the stage of drafting the Prut Basin Management Plan in Romania; the state of the national water strategy in Moldova; and nutrients–related 'hot spots' and measures to reduce nutrients and nitrates. Biodiversity issues were mostly highlighted in association with protected areas and wetland restoration projects from the area. Participation was secured on all levels (academic and research; civic; business; and local, national and regional politicians, decision-makers and other governmental bodies' representatives).

- ***Multi-Stakeholders' Meetings (MSM)*** were organised mainly in the communities selected as pilot sites. From the very early stages, it was clear to the project managers that the MSM would be very a useful tool for tackling the real community problems, assessing the local water-related problems hands-on, identifying the possible solutions, the potential partners, and finding the best approach to pair and apply them.

**B. COLLECTION OF SPECIFIC, TOPIC-RELATED DATA:** out of the information gathered from bodies administrating relevant activities in the project area (NGOs, nature protection groups, water-related responsible bodies, research institutes, EPAs, etc) the project team produced a Green Library Catalogue, A List of Projects in preparation or development and a Contact List. The first two materials were made available also on the ECCG Internet dedicated project page (http://www.cceg.ro/prut).

**C. COMMUNICATION AND INFORMATION**: The awareness raising campaign on nutrients and toxic-substance related issues was sustained by:

- ***Producing*** a diverse and wide range of informational materials such as: project sheets, folders, posters, special editions of the newsletters Natura (MEM) and Argument Ecologic (ECCG), exhibition panels and boards. The materials were disseminated either as hard copies, or through the project-related web page.

- ***Involving Mass media***: following our press releases, briefings, and conferences, the Romanian region's two main newspapers "Viata Libera" and "Monitorul de Galati si Braila" published articles about the PBWA project. In Moldova Republic the situation was the same with MEM's "Natura Newspaper" for the months of December, March and April. All of the media articles contributed significantly to the information dissemination campaign, not only by providing descriptions of our co-operative project, but also for assisting us to educate the public.

- ***Creating a dedicated project web-page:*** www.cceg.ro/prut providing easy access to information in Romanian and English, about the project itself, the progress stages, accomplishments, publications realized, and specific Prut River-related information. The most comprehensive homepage, in Romanian, contains the Draft Prut River Management Plan and the March Inception Conference materials, a presentation of the activities and the materials developed within the project, related articles published in "Natura" newspaper, etc. A special entry, the water quality bulletin within the Prut- Barlad area, prepared by the Romanian Water company, Iasi branch, can be accessed on http://www.cceg.ro/proiecte-prut%20buletine.htm . The English page offers basic information about the Prut Basin, a summary of the Management Plan and details regarding the project activities: http://www.cceg.ro/eng/projectPrut.htm .

**D. IMPLEMENTATION OF THE PILOT MODULE:** the module was implemented in two similar villages, one from each country. The pilot module started with selecting the pilot areas and consisted of working with the communities to identify and implement simple measures to reduce the nutrient-pollution sources. During the ***selection of the pilot areas,*** the ECCG team met with people from Secretariat of the Prut Basin Committee in Iasi and the Regional Environmental Protection Agency Galati to discuss the criteria. The project was announced in the mass-media and the villages that subsequently contacted us, together with the pre-screened villages were all included in project team members' scouting activities. These villages were visited and meetings with each of their respective mayors realized. Scouting visits were organized in Romania and Moldova during which the ECCG technical project assistant together with its counterpart from Moldova assessed the nutrient point and non-point sources in each hydrographical area; the existence and proximity of protected areas in the vicinity; the size of the village (physically and population-wise); and of course, the willingness of local authorities to collaborate with the project team to solve the problems. Based on these factors, the pilot areas were finally chosen, one each in Romania (Mastacani village, Galati County) and Moldova (Baurci Moldoveni, Cahul District).

Mastacani Village, Romania

Mastacani village is part of the commune (covering 602 $km^2$) with the same name. The village is 55 km from Galati proper by road, and is home to 6586 people, mostly poor rural farmers. It is also part of the Lower Prut Natural Park, located in the southeastern most area of the park. The selected pilot site within the village is in close proximity with the community's waste dump and two of the village schools. The selected stream at the site runs past the community waste dump, through the Village, to join Chineja Stream, another small Prut tributary. Preliminary analysis showed that the nutrient levels were extremely high. The water from the buffer area was analyzed several times and the results are registered in a specially designed worksheet. Before the start of the works to create the buffer area, there were only two measuring points (one before the future buffer area and one downstream), but once the works started four measuring points were established for a proper assessment.

Baurci Moldovenesc, Republic of Moldova*:* is home to 2600 Moldavians, (many owning small farms and animals), who obtain their drinking water from ground water wells. Baurci is approximately 20km from the larger city of Cahul and the Valea Halmagei Stream runs through Baurci and joins the Prut River directly, just 18 km south of the village. Preliminary analysis of the surface waters proved a significantly increased presence of nitrates within the stream, both at and downstream of the village (90 mg/l nitrates) relative to those in the water before the village (19 mg/l).

After several meetings with people from the pilot villages and discussions with experts the decision was taken to create a reed-bed buffer area in each of the villages. The works started in May 2005 and were completed late November 2005 - despite the flooding that delayed and made the planning and implementation more difficult and expensive than estimated. In both countries the communities contributed with manpower, part of the works being done by local people as in-kind contribution. As a result of the conducted educational and the awareness raising campaign, the students from each village got involved in the tree plantings activities, and reed-bed planting. Furthermore, they are eagerly waiting to continue the works in the pilot area.

In the pilot areas, an Environmental Education programme was developed and consisted of:

- An overall kit for environmental education and teachers training, containing a teachers' notebook, 9 lesson plans and 12 worksheets for students
- 'Training the teachers' sessions organized especially for the teachers from the pilot areas but not only. A total of 50 teachers from the pilot areas (30 from Moldova & 20 from Romania) and 140 from other areas attended the training sessions and received the training kit and other support materials (posters, topic-related brochures).
- Environmental education classes and outdoor activities: that focussed mainly on biodiversity, water and health, human impact on water ecosystems and the theoretical knowledge were combined with practical activities such as: performing water analyses, organising compost facilities in local schools, planting trees, different works for the establishment of the reed-bed buffer area.

**E. FUNDRAISING**

In order to ensure the needed co-finance, both the ECCG and the EMM wrote different project proposals, some of them were successful and some not, such as:

- In 2005, the ECCG requested a grant from Peace Corps entitled “Reed-bed Wastewater Treatment Plant Pilot project” in order to complement the financial means for the construction of the buffer area, and awareness raising activities in the Romanian pilot area. The project started in August and with a US$3,495 donation ensuring the needed co-financing of the activities planned for the Romanian pilot area.
- In July 2005, teachers from a school in Mastacani developed, in partnership with ECCG, a project proposal for starting an environmental club within the school that will be actively involved in the awareness raising campaign in Mastacani village.
- EMM raised co-finance from REC Moldova for the environmental education training of teachers and thus, besides the teachers from the pilot area, 110 teachers from the entire Prut basin benefited of training and educational materials.

## *3 Outcomes*

By the end of the year 2005, most of the project activities had been implemented and, judging by the results obtained, we consider that the objectives "1.Awareness Raising," "2.Information Access," and "5.Pilot Project Measures" were achieved according to the initial planning while the other two objectives "3.Experts Forum” and “4.Fostering Government Partnership” had been accomplished only partially.

The main problems that prevented us to accomplish all the objectives, as envisaged, were:

1. The change of the project starting date: Initially the project was supposed to start in December 2003 and the funds needed were requested from two main sources the GEF Danube Regional Project Small Grants Scheme (US$35,000) and the EU ministries of Environment and Foreign Affairs in Luxembourg (US$17,609). Due to internal changes in the GEF, the funds were delayed and the project started in October 2004. The delay created not only a major change of the financing resources and their structure but it also triggered a lot of other changes such as:

- The beginning of the project coincided with national election in Romania thus the Inception Conference could not be organised in December as many of the governmental institutions’ representatives and decision

makers could not participate in December. Without their participation the dialogue and connections between different sectors and stakeholder would not have been insured. Because of the winter season the conference had to be postponed until March, as in January and February blizzards and heavy-snow are quite frequent, creating too many complications.

- The duration of selecting the pilot sites was also influenced as the December national elections kept all the local administrations very busy and than the winter season made site visits very difficult. An additional factor was also the postponing of the conference as the project team had too many other duties. Thus, instead of three months, as initially planned, it took almost eight months to select the pilot sites and identify, together with community representatives, the proper practical measures to be implemented. The project team had to work very hard in order to build the first dike and to get to the point where the reed-bed could be planted at least in one of the three basins, by end of May.
- By the time the awareness-raising and educational materials have been developed and multiplied, the season for agricultural works started making it very complicated and difficult to reach and involve the majority of the farming community in the early stages of the demonstration project.

2. The 2005 floods were another very major problem the project team was faced with. Despite their openness and willingness to cooperate, it was very difficult to communicate or work on the Prut Management Plan with the authorities (Ministry, Water Company - SGA, Prut Basin Committee secretariat), as they were extremely busy dealing with the floods. Even after the water level decreased they were engaged in investigations and analyses. It was nearly impossible to contact and involve them in the transboundary planning process. The floods also affected the works in the pilot areas. In each of the sites the works were damaged partially and materials were lost. Thus, more time and human resources had to be invested in building the buffer areas than estimated. This diminished the capacity of the project team to work on the planning process. More trips to the pilot areas were needed and this diminished the financial capacity to organise enough meetings with NGOs and experts.
3. Human resources: the project was under resourced in terms of the human resources needed to implement it properly. The main problem was not only the number of staff and volunteers involved, but also their fluctuation. For example, the ECCG project assistants in charge of networking, changed very suddenly, twice during the project-time as they received scholarships for post-university studies or better jobs in the private sector.
4. Financial resources: the depreciation of the foreign currencies and inflation were bigger than initially estimated. Overall, the financial resources attracted were 30% lower than the real costs. Thus, as the project was completely dependent on external financial resources, some of the project activities had to be downsized according to existing resources or delayed until further co-financiation could be insured.

Despite the problems encountered, the main accomplishments of the project, so far, are:

**I. Civil society is better empowered** to influence and campaign. In the long run, individuals will be the main beneficiaries of a cleaner environment and an active civil society to support their needs.

The **Joint Project Team Meetings** contributed to a better mutual understanding of the information exchanged by the project partners; clarification of the scheduling details and specific aspects regarding the project implementation process (future strategies, pilot project implementation, educational activities, media relations, etc.); assisting the project team in sharing ideas, connections and to finalise the content of the supportive documents.

The **Inception Conference** "Together for the Prut River!" brought together 87 participants involving decision-makers, governmental body representatives, experts, and environmental NGOs from both countries. The various presentations contributed to a better knowledge and understanding of both the rivers' biodiversity, richness, and of the potential impacts of existing threats. Conference presentations have been made accessible via the Internet. The number of site visitors increased from 866 in February, to 2103 in March and 2719 in April.

In total, six **Multi – Stakeholders meetings** were held in Moldova and six in Romania. The participants were of all from different professions and ages and included local officials, school staff, the farmers' association members, students and parents. A total of 450 Moldavian and Romanian participants from neighbouring villages such as Negrea, Tochilea-Raducani, and Hancesti (Republic of Moldova), and Mastacani, Suceveni, and Rogojeni (Romania) also attended. Through this meetings increased visibility and consistency of the project team members within the communities was achieved.

As a direct result of the meetings organised in the framework of the project, the NGO community in Moldova established the "Alliance for Prut River Cleaning" in January 2006. This alliance acts as an informal NGO basin-

committee. Future activities will focus on increasing the cross-border cooperation and the development of the Moldavian part of the Prut Basin Integrated Management Plan.

**II.** Greater public awareness on nutrient and toxic substances, mainly in the pilot areas as thousands of people were reached through the **Communication and Information** activities, tools and the materials developed**:**

- Project sheet (four pages, A4 format), containing basic information about the Prut Project.
- Posters: 2000 copies of the project-poster with the motto: "Together for the Prut River" were designed and printed during the first phase.
- Leaflets: 3000 colour copies, providing information regarding the impact of intensive agriculture and pesticides and excess of nitrates on environment and health.
- Conference Panels-six pieces large in size-exhibited during the Inception Conference and the Danube Day events, focused on the general characteristics of the Prut River Basin Management Plans and timeframe: public participation under the WFD; typology; underground water tables; Heavily Modified Water Bodies (HMWBs) and criteria for the preliminary identification of the HMWBs; River basin Committee infrastructure; fertilisers and pesticides' impact on environment; and health and economy in the river basin.
- Thematic Panels: three panels were developed and used for the exhibitions and Multi–stakeholder meetings:
    a) "Water and Nitrates"- special focus was placed on the nitrate cycle, its impact upon human health, and what to do and whom to ask for information.
    b) "How to Preserve the Soil Health", mainly focused on the negative impact of pesticides and fertilizers on: I-Environment; II-Humans' health, and III-Economy
    c) "PWBA's Accomplished Activities", consisting mainly of photographs of meetings, the Inception Conference, the awareness campaign, the tree-planting sessions, water sample tests, compost, etc.
- Two sets were displayed also on metal panels in Mastacani and Baurci, and 2,000 copies, were printed in format A4 and distributed.
- The project dedicated section www.cceg.ro
- Publications
    - MEM's publication: "Natura' Newspaper, special edition for December, March and April 2005, excellent layout, accurate descriptions, addressed to the larger audience on both Prut River banks.
    - ECCG' s publications: The "Argument Ecologic", focused on the project description, explanations about the nitrates and chemical reactions in people's bodies, and the Prut River connection to the Danube Basin.

The Environmental Education focussed on the pilot sites involved about 1080 people out of which: 805 students, 190 teachers and 85 adults in indoors and outdoors activities developed in the pilot areas in Romania and Moldova. Specific training materials were produced, including:

- A teachers notebook that contains in the first part methods for environmental education and a "how – to" guide for starting an environmental training program within the school, and thematic chapters on water and waste in the second part.
- 9 lesson plans: ecosystems, states & cycles of water, and the importance of water for life; water-usage, distribution and causes & effects of pollution; water scarcity & biodiversity and their affects on humans and human health; concepts of water sources (i.e. surface water and drinking water wells), filtration concepts/methods for purifying and drinking water safety; nitrates pollution sources, effects on humans, and prevention
- 12 worksheets for students' handouts including riddles, poems, diagrams, graphs, experiments, etc.

**III.** Improvement of the water quality in the two rural communities selected as pilot project **thanks to the demonstrative systems built in the pilot areas consisting on reed-bed buffer areas (see annex 1).**

The monitoring of the water quality shows that the buffer areas already started to function even if only 60% of the entire surface (4079sqm in Romania) is fully functional. The area is not yet fully functional because most of the reed planted in May 2005 was removed by the floods (and rooted downstream of the buffer area) and the reed planted in November 2005 is still very young. The most visible parameter is the nitrate concentration that decreases considerably after the buffer area. The spikes that were registered occurred either immediately after a severe rain or flood or during the winter season. Even if the pollution of the Prut basin level was not reduced

through the implementation of the pilot demonstrative system, the results registered prove that reed-bed systems are efficient ways of tackling pollution at the source.

**IV. Increased knowledge and practical expertise** with regard to reed-bed filtering systems. The findings of the initial research indicate that, in Romania and Moldova, it is the first time that this kind of system was used for wastewater nutrient removal. Thanks to this project the project team have acquired practical expertise regarding the reed-bed technology and its applicability in rural areas. The feed-back received after presenting the project and its results show that the NGO community is very interested in learning more about the practical/technical aspects that will allow them to duplicate and transfer the technology to other locations.

**V. Positive and unexpected outcomes** included the enthusiasm of the community leaders and citizens for the project and their willingness to be involved in implementing the reed-bed and awareness campaign. The community response to the free-water testing exhibition showed interest and concern and a very real, motivating, connection between environmental protection and health. Finally, the trust and cooperation of the village mayors encouraged the project team and was a very constructive element in the overall project. During one un-announced visit, the project team observed that the mayor had independently organized a group of citizens to attend to the pilot site area for clean up activities.

Another positive, unplanned result is the increased involvement of the Mastacani community in waste-management infrastructure projects. In fact, the Mastacani authorities proved to be the only ones in Galati County currently working on developing a project proposal to request funds from EU PHARE Economic and Social Cohesion Programme –"Small-scale Waste Management Investment Scheme." This financing opportunity was presented to the Galati County mayors by the Galati Environmental Protection Agency at a recent meeting. Unfortunately during the meeting all the other County mayors expressed a very pessimistic view. We feel that Mastacani's enthusiasm can be attributed to their gained experience during our collaboration, and adds value to the sustainability of the PBWA project.

## *4 Lessons learned and replicability*

There were many lessons learned as a result of tackling the problems and challenges encountered during the project-implementation, the most important ones being:

- It is crucial to establish partnerships with the key actors in the area in such a way that partners can complement and support each other, share expertise and resources. Previous co-operation in smaller projects is recommended as it already builds up efficient communication and cooperation procedures and skills.
- Adequate and flexible resources, both financial and human, must be ensured from the very beginning and should include a reserve that can be accessed for dealing with unexpected events, such as floods.
- The tools used in communication and awareness-raising campaigns need to be adapted to the specific needs of the target groups. For each stakeholder group targeted in the campaigns, separate materials might be needed according to the level of understanding and topics of interest. If the campaign addresses both urban and rural areas, a greater impact is achieved with separate materials dedicated for each group. Even if, from the costs perspective, it seems more efficient to print the same material in 5000 copies instead of two or three different materials totalling the same number of copies, this audience specificity is essential. In cross-border projects the cultural differences need to be taken into consideration also, while designing the materials and choosing the dissemination channels.
- The information dissemination strategy needs to be adapted too, and different channels have to be used for reaching different groups.
- When discussing a pollution issue it is very important to promote information regarding practical solutions, that are affordable and verified in practice, because in this way people will be encouraged to do something about it. The experience regarding practical solutions has to be acquired from practice and not only from theoretical or indirect sources.
- Cross-border partnerships are more complicated than national ones in terms of time, cultural and corporate background and increased difficulties regarding travelling (papers, taxes, infrastructure, etc) and communication. The difficulties are very important when problems appear during the project and there is a need to quickly react to unexpected situations.

*Relevance to other projects:*

This project includes awareness-raising activities, information dissemination, an expert forum and pilot projects. It is an integrated approach to improving water policy, management and implementation measures through concerted stakeholder involvement. It is relevant to all nations with a need for improving water basin management and policy implementation. The cross-border cooperation component makes this project relevant to all regions with an interest in the harmonisation/calibration of water management and policy and collaboration within their shared watersheds across borders. The practical component of this project is particularly relevant to rural communities that depend on agriculture for livelihood but are in need of nutrient pollution reduction prospects. Many countries in Eastern Europe could implement similar pilot demonstrations in their rural agriculture watersheds, especially where the reed-plant is available and cheap. The cross-border co-operation and awareness raising components of this study could certainly be duplicated and modified to include locally appropriate pilot projects in other nations with common water policy calibration requirements or initiatives.

The project is important for IWRM as it:

- Demonstrates a logical approach to improving water policy and management through stakeholder integration and cross-border cooperation;
- Includes a replicable and sustainable pilot project for rural communities to improve their usage of water resources across borders;
- Increases stakeholders' awareness of water value and sustainable usage by treating all levels of stakeholders as users and decision-makers.

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## *5 Contacts, references, organisations and people*

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**Organisations and people:**

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Annex 1:

Sketch Map of One of the Pilot Sites