

Danube

The Magazine of the Environmental Programme for the Danube River Basin

Watch

1/99



Danube Delta:
Water brings back
Diversity



Romania:
More Information
should help to save
Drinking Water



Danube River Basin:
Pollution does not
stop at National
Borders

DANUBE WATCH

Editorial

New Start for Danube Watch

Interested readers of the quarterly information magazine Danube Watch – having appeared for five years – will have noticed the delayed publication of the new issue. The managers of the Environmental Programme for the Danube River Basin invited tenders for the new production of the magazine and it was assigned to the Bohmann Group in Vienna.

The Austrian Federal Chancellery as coordinator of the Austrian participation in the Environmental Programme for the Danube River Basin was pleased to grant the request of the Vienna International Centre-based Danube PCU (Danube Programme Coordination Unit) to finance the first issue of the new Danube Watch.

After that, ways and means will be found in the framework of the International Danube Protection Convention – supported by the Danube Environmental Programme since its coming into force in October 1998 – to continue to finance the publication of Danube Watch. Its contribution to the development of cross-border cooperation of authorities, scientists, professional enterprises and environmental organisations in the field of water management, environment and the protection of nature in the Danube River Basin is certainly worth the effort!

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Statement on the fundamental orientation under § 25 Mediengesetz of June, 12 1981:

The Danube Watch is intended to be an instrument to support the flow of information on the Danube environment in general and on the EPDRB and the Danube River Protection Convention activities in particular.

Any views expressed in Danube Watch do not necessarily represent those of the members of the Programme Management Task Force or the staff of the Programme Coordination Unit.



CREDIT: BUENOS DIAS

A multilateral fund should finance environmental investments in the Danube River Basin

More money for pollution reduction

The terms of how to develop a fund for high priority projects on pollution reduction have recently been discussed at a workshop in Austria

A proposal prepared by the German "Kreditanstalt für Wiederaufbau" (KfW) was the basis for discussions at the Danube Environmental Financing Facility Workshop, held in Baden (Austria) on February 18 and 19, 1999.

"The report approaches in particular the terms of how to develop a fund or a facility that could facilitate the implementation of priority projects on pollution reduction in the Danube River Basin," explained Jürgen Lottmann, one of the authors of the proposal. The analysis of the report is in part based on data

from the national reviews conducted in the participating Danube countries and prepared by national expert teams analyzing financial mechanisms, social and economic factors, water quality data and defining projects and measures on pollution reduction.

No precedent for such a fund worldwide

"The task was to design a multilateral fund to finance environmental investments in the Danube River Basin as there is no precedent for such a fund worldwide," summarizes the financial expert of

the KfW. The idea to create such a fund is the logical consequence of the donors' financial efforts to assess the water environment of the Danube Basin and of the lists of priority investment objects. Such a fund was conceived to promote project preparation to the status "bankable" and to furnish investment funds for their realization. Background of such a concept is the weakness of the transition countries of the Danube Basin in investment planning and fund raising.

The investment objects are plentiful since in all countries of the Basin many urgent environmental improvements are necessary, including those which aim to improve the quality of the Danube Basin water. The lion's share of the investment cost has to be borne by the countries, their citizens as fee- and tax-payers and by their enterprises. Since the transition countries are more or less all in economic difficulties and their central and local governments have to face severe budgetary restraints, progress in environmental investments will be slow. The investment volumes will not be determined by offers of credit money but by the priorities the countries set in water pollution control and by the funds they allocate for investments and operations.

"Such a big Danube Environmental Facility was conceived by the consultants, but judged not feasible," explains Jürgen Lottmann. "It is impossible to create fresh and additional money. Furthermore, the need for a big fund has been limited by the installation of the Project Management Task Force (PMTF)," says the expert. The reasons for not recommending a big fund can be summarised as follows:

- A compensation mechanism by which the wealthier countries pay in money and the less well-off become recipients does not correspond to the constellation of interest.

- International taxes on pollution charges would not be acceptable in the wealthier and the poor countries; besides pollution charges would prove inequitable. Finally most countries still lack

the administrative structures for such systems.

- Credit money from outside donors is available and cannot be augmented or subsidised by a fund. Since the major donors support the countries also with advice and technical assistance, the application for such a fund cannot be improved.

- Sizeable amounts of concessional money have been given by the EU and this will continue with the new priorities of accession support and infrastructure investment. This money, however, is not available for multilateral institutions.

- The brokerage function and the assistance in project preparation, which such a fund might have provided, has already been given to the PMTF.

What poses a generally accepted, common problem are the nutrient loads of the Danube which contribute decisively to the eutrophication of the Black Sea. The environmental efforts in several countries will be dominated by the need to conform with European standards, less by domestic priorities and not by the agreements within the framework of the DR-PC. There are smaller and complex investments needed, for which donor support is not easily available.

At the DEFF workshop held in Baden, Austria in 17 and 18th, 1999, it was agreed that an alternative to the DEFF concept should be developed. The development of a Project Implementation Facility (PIF) was recommended as a viable alternative. In addition the following recommendations were made:

1. A new expert group for evaluation and appraisal of such projects which donors do not want to take up. This Project Appraisal Group should be elected by the International Commission (IC). Projects with a positive approval could be presented for financing, and
2. the creation of a new article of the Convention which would set the basic rules for a joint implementation mechanism.

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Danube Water Quality Model Simulations

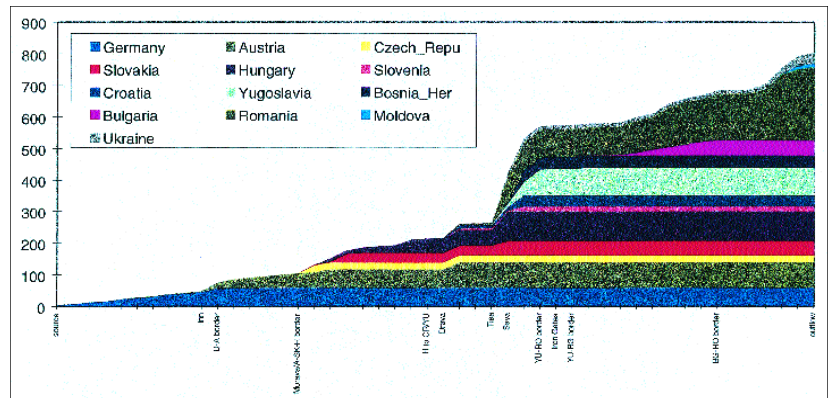
Possible indicators to determine the transport of nutrients can be pointed out by the model

The Danube Water Quality Model (DWQM) Report was prepared in the frame of the Danube Pollution Reduction Programme (PRP) and discussed at the Transboundary Analysis Workshop in Hernstein (Austria) in January 1999.

The simulations have been conducted to support the Transboundary Analysis as well as to support

become available," explains the expert. Considering these constraints, the result of the DWQM can only be seen as one of the possible indicators to determine the transport of nutrients from the different Danubian countries to the Black Sea.

The water balance model forms the necessary basis for the water quality model. Its purpose is to



Longitudinal profile of the catchment area (in 1.000 km²) along the Danube

the definition of priority measures (investment portfolio) of the Pollution Reduction Programme.

The report raises in particular transboundary issues related to the transport of nutrients – phosphorus and nitrogen – from the Danube River Basin to the Black Sea. “The water quality data input from the various Danubian countries and from reports of the ICP-DR (International Commission for the Protection of the Danube River) working groups need further verification,” is UNDP/GEF consultant Jos van Gils convinced. Equally, results taken from the Mass Balance Model (MBM) from the Vienna University of Technology, are based on data collected and processed in 1992. “Further, certain parameters of the DWQM would need to be adjusted when more precise scientific indicators

compute the water balances for all computational segments. Then the set up of the water balance model is done in three steps: 1. the mapping of the catchment of the Danube; 2. the computation of the flows and 3. the computation of the remaining segment characteristics. The composition of the water balances is based on measured flow data for a number of specific stations. In between those stations, the diffuse inflows are back-computed. In this procedure, the unknown diffuse inflows are assumed proportional to the increase of the catchment area along the river. For this purpose, a mapping of the catchment to the river network is made.

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The Transboundary Analysis Workshop was held in Austria from January 25- 30, 1999

Pollution does not stop at borders

The Transboundary Analysis Report is being finalised now. It includes substantial new information but shows also several research gaps

The main objective of the Transboundary Analysis is to provide the technical basis for the development of a Pollution Reduction Programme for the protection of the Danube River Basin. Technical basis refers e.g. to the aspects of the detection, characterization, comparison, and evaluation of pollution sources, water quality and pollution loads throughout the basin; the discovery and characterization of areas and issues that are sensitive to pollutant concentrations or loads; the discovery and evaluation of root causes of water quality problem situations or the preliminary ranking of possible interventions, and the determination of stakeholders and the evaluation of

constraints to interventions. 13 countries had been defined to participate in the work for the Transboundary Analysis: Austria, Germany, the Czech Republic, the Slovak Republic, Hungary, Slovenia, Croatia, Bosnia and Herzegovina, the Federal Republic of Yugoslavia, Romania, Bulgaria, Moldavia and the Ukraine. Four countries with very small areas in the Danube River Basin did not participate.

The general project-design

Target oriented planning was adopted as the methodology for conducting workshops. Programme activities and milestones were planned at an Inception

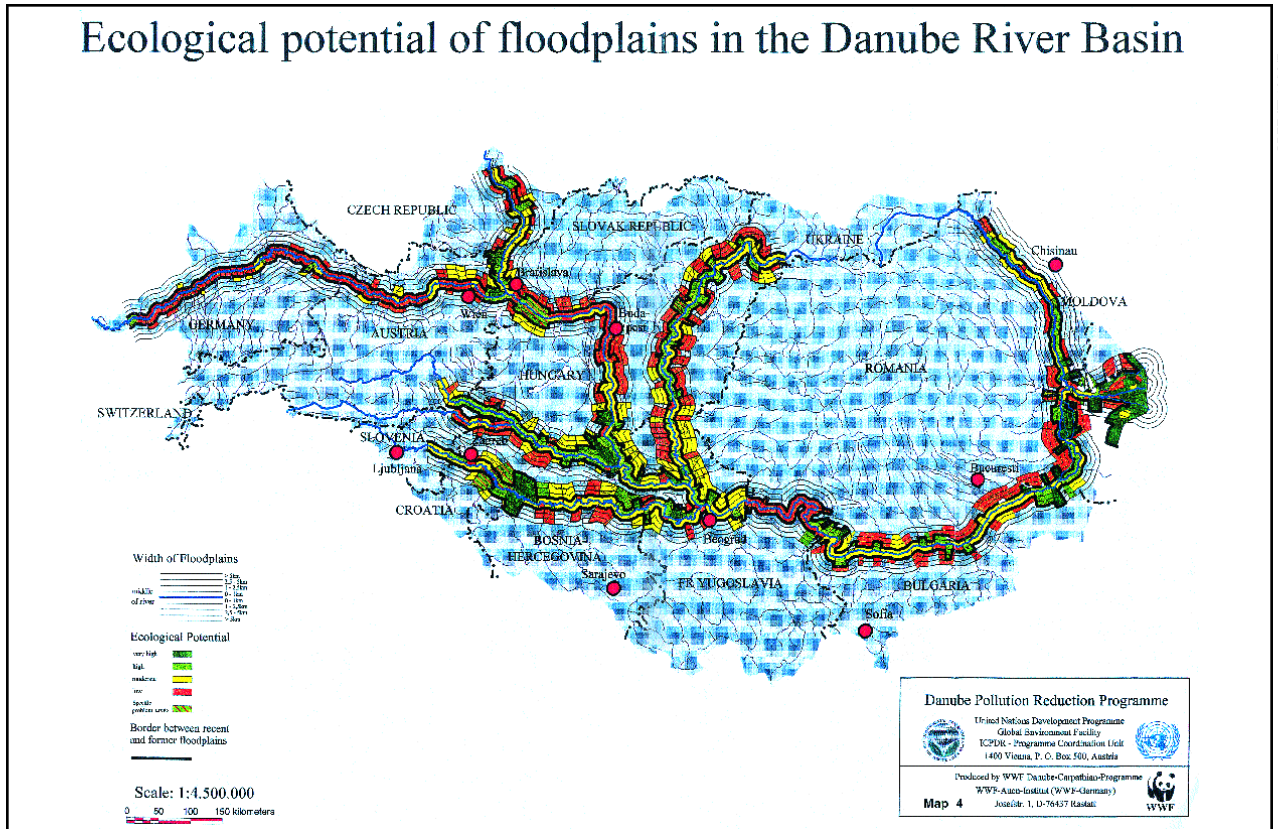
Workshop in November 1997. Groups of national experts, each with a national coordinator, were engaged within each country to update National Review Reports. Four international consultants with specialities in river basin modelling, water quality data, socio-economics and engineering were engaged to assist in the development of National Review Reports, the development of the DWQM and the preparation of the Transboundary Analysis.

Focus on Hot Spots

Special attention was focused on transboundary pollution problems, including problems involving the Black Sea. Pollution sources that were emphasized were high priority hot spots and diffuse sources that presumably were good targets for future inventions. Priority was determined by each country on the basis of multidisciplinary evaluations and comparisons that examined emissions, conditions of receiving waters, sensitive areas or issues downstream or national and transboundary effects.

Each country prepared National Review Reports which have been reviewed by the international con-

Over 450 sections of the Danube and its tributaries were identified and investigated



Restoration of Danube Floodplains

One hundred years ago the Danube River and its tributaries were very much different in their structure and form from what they are like today

Hundreds of tiny sidearms and branches of the main channel existed and floodwaters spilled out in periods of high water over extensive floodplains. Straightening and channelization of the river and the building of dikes along the banks to prevent flooding, however, resulted in a dramatic loss of the natural floodplains and wetlands that are naturally part of a river system. Of the 41,605 km² of floodplains (including the river area) that historically existed along the main channel of the Danube (excluding Germany) and 5 main tributaries, only 7,845 km² of the floodplains

area still remain – a loss of over 80%.

A recently completed study of a possible restoration of the Danube floodplains carried out as a part of the Danube Pollution Reduction Programme UNDP/GEF by the World Wide Fund for Nature (WWF) has analysed in detail the historical loss of floodplains and more importantly the potential for restoration. The reason for doing so are simple: the loss of the important functions performed by natural floodplains (cleansing of water, flood protection, and maintaining reproduction areas for fish, birds and other organisms) has led

to a decline of the Danube and the Black Sea water quality and a loss of biodiversity. Restoring the wetlands would return the valuable functions.

Data from old maps

In order to carry out an analysis of floodplains in the Danube, it was essential to get an accurate picture of the extent of the floodplain area before regulation. Fortunately, there exists a series of maps of the Danube as it was at the end of the last century. This legacy of the Austro-Hungarian Empire provided a basis for comparing information from recent satellite photos and the CORINE data on land-use provided by the EU PHARE programme.

Although it is important to understand what has been lost, the purpose of the project was to identify those areas where restoration of the former floodplains is possible. This measure required an appropriate evaluation technique. A methodology to determine areas of greatest potential was developed by experts from the WWF Floodplains Institute in Rastatt, ▽

Germany and applied to the data available from the maps. Over 450 sections of the Danube and its tributaries (Prut, Tisza, Sava, Drava, and Morava) were identified, investigated and compared based on factors such as the presence of settlements, the width of the floodplain, and the potential to provide nutrient reduction. At the conclusion of the evaluation two separate



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Floodplains and wetlands are part of a natural river system

maps were generated: a map identifying the existing areas of intact and healthy floodplains which require protection and a list of 17 sites with a high or very high potential for wetland restoration.

Large-scale efforts are necessary for restoration

The areas identified as having a high or very high potential for restoration are all areas with a floodplain width of more than 1 km - many other small areas exist, however they were excluded from the list. It is hoped that throughout the Danube Basin large-scale efforts at the local national and international level can restore wetlands and the important functions they play. UNDP/GEF and national governments have committed themselves to further detailed investigation of some of the key areas identified in this study - in order to make a contribution to the overall efforts needed to achieve the recreation of a healthy Danube River system.

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Book Review WWF: Black Sea in Crisis

The Black Sea in Crisis is a record of the proceedings of a symposium held in September 1997. More than 400 scientists, environmentalists, religious leaders of all faiths, journalists and policy-makers from 35 countries voyaged around the Black Sea, visiting all six shoreline countries and engaging in intensive debates with local leaders and activists about the decline of the Sea's ecosystem and the role of religions, science and politics in reversing it.

The symposium emphasised the interconnectedness of the spiritual and natural worlds through plenaries, workshops and the chance to visit environmental sites and projects where local initiatives were addressing the problems. The response led to a series of initiatives including the establishment of environmental education and training projects in the region.

The unique mixture of participants is reflected in the book. Its chapters cover: The Challenge of the Black Sea; Searching for Common Ground; Living Resources;

Degradation and Conflict; The Human Perspective; The Beauty of Coastal Landscapes; Industrial Impact; The Implications of the Global Economy.

The symposium is part of an ongoing endeavour to raise collective and individual environmental awareness and initiate practical projects. With the unique approach of taking the debate into the field series of symposia takes place on boats travelling through the study area bringing the reality of the situation to life. Each has concentrated on a different area using these as case studies of a problem and possible solutions that can be transfere elsewhere. The first symposium "Revelation & the Environment A.D. 95-1995", took place on the Aegean Sea in September 1995. The next symposium "A River of Life" will focus on the environmental problems of the Danube.

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European Nations Join Forces

Representatives from several central and eastern European nations will be gathering in Bratislava on 9 June to launch a wide-reaching project seeking to monitor and enhance water quality in the entire Danube River region. The project - the Danube Water Quality Transnational Monitoring Network (TNMN) - will be officially launched by the president of the International Commission for the Protection of the Danube River (ICPDR), Wolfgang Stalzer, at a ceremony hosted by the Slovak government and attended by government officials from the 12 ICPDR countries as well as representatives of the European Union.

Set up by the ICPDR, the monitoring network is funded by the European Union (EU) Phare and Tacis Programmes as well as the

UNDP/GEF under the auspices of the Environmental Programme for the Danube River Basin, and also by ICPDR member countries.

Based on work carried out over the past six years by national monitoring and information experts, the network should greatly help the ICPDR and national authorities to manage and enhance water quality. Water will be sampled and measured at a total of 61 locations in participating countries.

Countries taking part in the project include Austria, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Moldova, Romania, Slovakia, Slovenia and Ukraine.

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Banks want their money back whatever happens

This is one of the main lessons learnt at a workshop on small investments. A lot of training in the preparation of feasibility studies is still needed



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Solid economic feasibility studies are important

In 1994 a Strategic Action Plan 1995-2000 for the Danube River Basin was produced under the framework of the Environmental Programme for the Danube River Basin (EPDRB). As one of the elements of this Strategic Action Plan a list of small environmental investments was assembled, mainly directed at solving water quality problems in the Danube countries.

It was proposed to facilitate a workshop to bring together European banks and funds and the project owners of these small environmental projects. The maxi-

mum investment amount was estimated at approximately ECU 10 million. The preparation for and the implementation of a workshop on that topic was supported by the Phare Multi-Country Environment Programme. The activity was carried out under the so-called Phare Environmental Framework Contract implemented by the Phare Environmental Consortium (PEC).

Well-developed projects had been identified

The initial preparation phase included discussion of the aim, scope and content of the workshop with the Country Programme Coordinators (CPC's) and the Danube Programme Coordination Unit (PCU). Project information received from project owners had been evaluated and around 65 European banks and other financial institutions had been contacted on their interest to participate in the Workshop. The CPC's had to identify at least two "well-developed" projects in their respective country. A pre-workshop supported in screening and improvement of existing feasibility studies.

With regard to the type of financial institution expressing interest in environmental investments in Central and Eastern Europe, it became apparent that a number of large commercial banks showed interest as well as a limited number of idealistically oriented "green banks". Green investment funds, which have started operations in a number of European countries in recent years, did

not express interest in participation. These funds were found to mainly have a national orientation or were targeting traditional developing countries.

Presentations focused on technical facilities

During the final preparation phase it became obvious that the quality of project documentation had to be improved substantially. If economic data did arrive, they usually only included a cost overview of the equipment to be purchased. Even those projects which were among the most promising did not yet have serious feasibility studies ready to be presented to financial institutions.

By mid September 1998 five feasibility studies were ready for presentation at the workshop, two from the Czech Republic, two from Croatia and one from Slovenia. The Workshop started on November 11, 1998 and was hosted by the Slovenian Ministry of the Environment and Physical Planning, on the premises of the Nature Protection Authority in Ljubjana. Three project owners presented their suggestions:

- a Czech waste water treatment plant to be located in Breclav;
- a slurry treatment facility for the hog-farm Gigant Dubnany, also located in Czech Republic;
- a water cooling and heat exchange installation for the yeast production of the Croatian pharmaceutical multinational company Pliva.

The presentations by the project owners were still largely focused on the technical facilities needed. Therefore, a lot of questions were raised on required finance, on financial and economic feasibility, on availability of guarantees and on project risks. During the workshop it became obvious that project owners only had a vague notion of the need for finance of their investments. The specifics of maturity, interest and repayment conditions of the required loan were not clear to them.

In many CEE Danube countries municipal finances and payment ▽

capacity of the local population limited the amount of finance which could be raised for water treatment investments. Environmental investments were implicitly not of top priority at the local level.

Conclusions and recommendations

The workshop was very useful in presenting the various issues and techniques important in discussions with commercial banks. Important lessons were learned about the limitations of private finance for environmental projects in the CEE Danube states. Commercial bank finance from abroad was not really an option, nor was financing via idealistically oriented green banks. The possibilities for these projects would have to be found on the domestic capital market.

Many of these environmental projects were economically viable in the more developed Danube countries and did not really require grant money. The problem was the underdevelopment of local capital markets. This made government involvement or that of international financing institutions and donors, such as Phare, inevitable. However, in many cases guarantee schemes would suffice to enable commercial banks to provide loans to these projects. In the poorer Danube countries subsidies are still needed due to the complete lack of existing facilities and the high EU-standards pursued in water treatment. In principle, governments should strive for a maximum involvement of the domestic capital markets.

Project owners have great difficulties to think of investment projects in a way that is common in market economies. Feasibility studies were not available or not up to common standards. A lot of training and support in the preparation of feasibility studies is still needed in the field of environmental investment projects.

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A sustainable agriculture in a model region shall be set forth as a scenario

Development of a Policy to protect Groundwater

Project: International Cooperation in Danube River Basin Management

A model of advanced groundwater protection policy is presently being elaborated in a groundwater basin of the Drava River South of Maribor and implemented in the framework of EP-DRB (Environmental Programme for the Danube River Basin). This component is implemented by the Vienna environment consulting company ALLPLAN, who works in cooperation with the Irish company ESB International. The project is financed by the Phare Multi Country Environment Programme.

Together with experts from Slovenia, who carry out the field studies, a groundwater policy will be elaborated within the study period of 18 months that aims at a sustainable relief of the agricultural regions along the Drava.

Focal points of the study are the analysis of available data, the examination of possible groundwater modelling and the development of procedural guidelines and recommendations both for farmers and the administration. Another important issue, especially for Slovenia as a candidate for the EU membership, is the harmonisation of national legislation with EU-rules and regulations.

Another detail will be the issue of reducing the present contamination of groundwater by agriculture. The establishment of sustain-

able agriculture in a model region shall be set forth as a scenario. This could subsequently be a support for other agricultural regions of Slovenia. Results will also be available for other Central and Eastern-European Regions. A mathematical model will be applied to evaluate the effect of the measures taken.

A further focal point will be the elaboration of tutorial material and directives for agricultural application. Even more important are the relative considerations, on how the framework of environmental development for the agricultural development in the coming years shall be designed. Measures to be taken are the strengthening of the Slovenian administration and education and accompanying monitoring that shall ensure the success and effect of measures taken and that will obviously have to be adjusted to these measures. Both national and international workshops, where results will be presented for discussion to professionals, members of the administration and scientists, are planned to prevent that the activities described shall remain secluded in an ivory tower.

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Information Campaign on Water Savings

Leaking pipes and inappropriate utilisation are the reasons for Bucharest's high water consumption

Commissioned by the World Bank, the Austrian consulting companies Allplan GesmbH and Göller & Leitner, are carrying out an information campaign, which shall improve the consumer awareness among the people of Bucharest.

Top-ranking in water consumption per person

Similar to many other CEE-cities, Bucharest, too, urgently needs remediation of its water supply and wastewater treatment systems. However, according to an analysis by the Polish company PROEKO Ltd., not only the technical infrastructure has to be improved, but also the organisational sector. It also showed that public consumer behaviour, too, is responsible for Bucharest having a maximum per capita consumption.

In the framework of a USD 50 million project - half of the amount is financed by the World Bank, the rest by the city of Bucharest - technical remediation measures in the water pipe system of the city are currently being planned and carried out. The Public Awareness Project is a supplement to these measures. This contract, too, was awarded by the World Bank, but is financed by the Austrian Ministry of Finance. The wide-ranging approach of the project is remarkable. In contrast to many other purely theoretical studies the project encompasses both plant design and a basic finance plan for the most important measures.

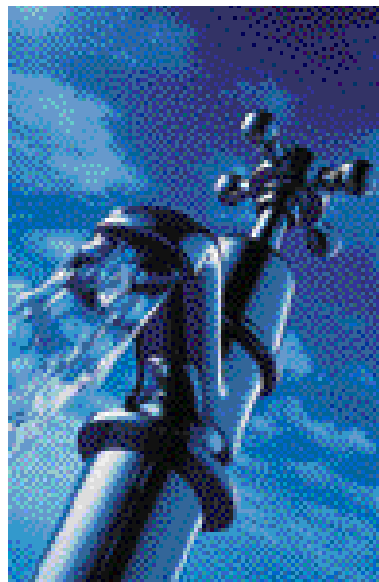
Among other factors responsible for the excessive consumption of water by the population of Bucharest is also the water price

which is government controlled. Water was a common property and therefore very cheap, and it was available for everybody almost for free. This has changed in the past few years, however, the above basic attitude is still prevailing.

In addition, the nature of the distribution network also plays an important role in water consumption. The apartments in the large condominiums in the city are not equipped with meters and there is only one meter per house or block. Therefore, nobody feels directly responsible for water consumption.

Defective fittings without spare parts being available aggravate the problem. Especially the upper floors have occasional water shortage due to leaking pipes. To have enough water during these periods people fill up their bathtubs. When the water comes back, the bathtub is emptied, which leads to a considerable waste of water. Due to inappropriate sizes of pipelines as well as inefficient hot water cir-

Nobody feels directly responsible for water consumption



CREDIT: BUENOS DIAS

ulation systems people are often forced to leave the tap open for 10 to 20 minutes until warm water is coming.

Mass media and schools are included

The core of the project encompasses a combination of

- direct advertising in the printed media to transfer the necessary know-how,
- the creation of occasions and events to attract the attention of the media,
- the involvement of sponsors from the private and the public sector and
- the setting up of a list of reasons to ensure further work after the end of the project.

In a first step 10,000 households are being interviewed as to their consumer behaviour. To get as many answers as possible the interview is combined with a quiz with attractive prizes for the participants. Furthermore, the Bucharest Water Association will set up an information centre. Active public relations work with press conferences and permanent press information shall motivate the media to cover the campaign.

A cooperation with 100 schools is planned to ensure a promoted participation in the framework of a drawing contest. These activities will be accompanied by a press and media campaign (including radio and TV). Several sponsors from the private and the public sector and NGOs have announced their cooperation. Planning and realisation of the total project are carried out in close cooperation with the Bucharest Water Association and a local PR-partner. After a preparatory period of 6 months implementation has started in April 1999 and shall be completed by the end of the year. The project is financed with funds of the Austrian Trust Fund of the World Bank and amounts to a total of USD 160,000.

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Romania has the largest part of the Tisza River catchment area, the major part of it is mountainous, and many tributaries and sub-tributaries rise in the Romanian Carpathians

Sweeping changes are not expected

There is an urgent need for cooperation in the management of the Tisza River basin within the framework of the Danube River Protection Convention

The EU Phare and Tacis Programmes currently assist in developing this cooperation. The sub-catchment of the Tisza is the largest of all the Danube tributaries and the river drains an area of 157,220 km² with a total population of 14.4 million. The length of the river is 1,365 km and the mean discharge at the confluence with the Danube is 750 m³/sec, which is only exceeded by that of the Sava.

Romania has 46.2 per cent of the catchment area, Hungary 29.4 per cent, Slovakia 9.7 per cent, the

Ukraine 8.1 per cent and Yugoslavia 6.5 per cent. The Tisza rises in the Zakarpathian Mountains in the northwest of the Ukraine and is formed from the confluence of the Belaya Tisza and the Chior-naya Tisza.

Several branches of the Tisza headwaters rise in the mountains of eastern Slovakia, two of them in the Nardony (National) Park. The Ung (Uh) and Latorca (Latorica) tributaries pass from the Ukraine into Slovakia where they join the Bodrog before it enters Hungary.

One tributary rises in the Ukraine, enters Romania where it joins a larger stream which then re-enters the Ukraine before entering Hungary, where it joins the Tisza. The Somes, the Cris/Körös and the Mures all rise in the Romanian Carpathians and drain west into Hungary before they join the Tisza. The river then enters Yugoslavia where it joins the Danube.

In the Ukraine the river is used for hydropower, water supply, irrigation, fisheries and recreation. The area also houses timber, engineering and metal industries as well as agricultural developments. This part of the catchment includes road and rail networks as well as oil pipelines and power transmission lines. The river receives inadequately treated waste water from Uzgorod. Deforestation of timber increases erosion and thus the sediment load of the river. Towns, industry and agriculture all contribute to pollution. Accidental spills of oil from pipelines cause pollution incidents which affect Slovakia.

The Slovak part of the catchment includes a number of medium sized towns but only a limited amount of industrial activity. Seven significant sub-tributaries rise in Slovakia. Romania has the largest part of the catchment, the major part of it is mountainous, and many tributaries and sub-tributaries rise in the Romanian Carpathians, some of them, notably the Cris-Koros net, draining industrialised areas. Several major towns in the Romanian sector release polluting loads to the Tisza.

The Cris Negru and Cris Alb Rivers receive mining waste, the Cris Repede receives waste from the chemical industry and the Barcau waste from the oil extraction and refining industry. The Mures also carries a significant polluting load of organic matter, suspended solids and some heavy metals. The Hungarian part of the catchment is, by contrast, relatively flat and low-lying and includes the towns of Miskolc, Nyiregyháza, Debrecen, Szolnok and Szeged. This region is predominantly agricultural and the Tisza represents an important resource. Transboundary

problems are complicated by the complex hydrogeography of the upper basin. The issues include flood protection and flood warning systems, polluting loads, pollution incidents from accidental spills and resource allocation.

Local consultants prepared a list of candidate topics

There is an urgent need for cooperation between the riparian countries if these problems are to be addressed effectively. Three proposals relating to the management of the River Tisza were submitted to the Danube Programme Coordination Unit in 1996 as a part of the programme for the Implementation of the Strategic Action Plan. It was decided that these proposals should be integrated into a single project for international cooperation in the management of the Tisza River Basin in which the Ukraine, Slovak Republic, Romania and Hungary would all participate.

A preliminary Phare contract was therefore implemented for an identification phase. The objective was to reconcile the three proposals and to define and prepare the project. Information collected by local consultants in the Ukraine, Slovakia, Romania and Hungary was used to prepare a list of candidate topics for their inclusion in the project. All these identified topics were discussed in 1997 at a workshop in Szolnok, Hungary. The workshop discussions led to some general recommendations for a possible conduct of the project and to a revised and modified list of topics for inclusion. They address nearly all of the discussion points described in the articles of the proposed draft "Framework Directive for Community Action in the Field of Water Policy".

The purpose of the project is to obtain a consensus between the four participating countries on the technical and scientific issues. These agreements will provide a foundation for a political accord between the participating countries for the management of the Tisza River by the riparian states acting together in harmony. A Phare contract for the new project "International Cooperation in

Danube River Basin Management" was given to an Irish company, ES-BI, in December 1998. One component of the project is "International Cooperation for the Management of the Tisza River Basin", based on the conclusions of the preparation project. A parallel Tacis contract with the company Arcadis ensures the participation of Ukraine in this international cooperation project.

The topics are water quality relating to uses, including ecological requirements, water resources and resource allocation, flood control, river engineering and navigation, river basin management, socio-economic factors and local planning. The project will pay attention to international cooperation not only at a national level but also at regional and municipal levels.

The aim is to find common interests

Local consultants in each country will collect data, information about policy and opinions from each country. This information will be discussed at workshops with a view to reaching agreement between the four countries on each topic covered by the project. The project will have to take account of existing formal and informal agreements between riparian states and its findings must be consistent with the Danube River Protection Convention and also with the latest draft of the proposed EU Framework Directive.

Agreement on a harmonised common approach concerning a particular topic between riparian countries is more likely to be successful if it does not require radical changes in national procedures and standards. The aim is therefore not to produce sweeping changes in river basin management but to find common interest between the riparian countries that will provide a basis for cooperation within existing national and international laws and within the framework of the newly ratified Danube River Protection Convention.

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CALENDAR

Meetings

JUNE

Slovak Republic

June 7-8, 1999

MLIM Joint Expert Sub

Groups Meeting

Contact: ICPDR

Slovak Republic

June 9, 1999

Inauguration of TNMN

Contact: ICPDR

Austria

June 10-11, 1999

Steering Group Meeting of the ICPDR

Contact: ICPDR

Austria

June 12, 1999

3rd PMTF meeting

Contact: Danube PCU

Germany

June 14-15, 1999

EMIS Expert Group Meeting

Contact: ICPDR

JULY

Germany

July 8-9, 1999

MLIM Expert Group Meeting

Contact: ICPDR

SEPTEMBER

Czech Republic

Sept. 6-10, 1999

Integrated Global Water Management

Contact: EPRI

Czech Republic

Sept. 20-21, 1999

EMIS Expert Group Meeting

Contact: ICPDR

OCTOBER

Bosnia and Herzegovina

Oct. 4-5, 1999

MLIM Joint Expert Sub

Group Meeting

Contact: ICPDR

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NEWS & VIEWS

Comment

Recovery plan for Balkans

The conservation organization WWF warns in a press release that an environmental crisis is looming in war-torn Yugoslavia and surrounding areas, particularly in the lower Danube River and the Black Sea region, and immediate international action is needed.

WWF called for an international environmental recovery plan to be implemented by the countries in the region under the framework of the Danube River Protection Convention and the Danube Environment Programme. The plan would also need to support existing civil defence preparations for spill detection and clean-up capacities in Bulgaria and Romania. Equipment to capture oil slicks and more monitoring equipment is needed immediately.

"The scale of the human tragedy in Yugoslavia is already enormous," stated WWF's Danube-Carpathian Programme Director Philip Weller. "WWF is concerned that long-term damage to the environment in both Yugoslavia and surrounding Balkan countries will only increase problems in the region."

A range of unidentified pollutants has been discharged into the Danube River as a result of the war, and as yet the spread and damage to downstream areas is unclear. Nevertheless, the release of any toxic materials could have significant consequences for people and a variety of sensitive aquatic organisms.

"The humanitarian issues are first and foremost in our minds, as they are for everyone else," Philip Weller added. "However, only immediate measures to stop the downstream flow of pollution will prevent an ecological catastrophe from following the humanitarian one."

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1000 Litres of Water for One Bread

About 1000 litres of water are necessary to produce 1 kilogram of bread, the production of 1 kilogram of meat even 5 to 10 times the amount. Many parts of the world do not have enough water to produce enough food for their inhabitants. In what way should food production be reorganised in correspondence with water reserves?

Human diet is largely depending on the availability of fresh water. Two thirds of available water resources are used for food production. However, many countries do not have enough water to be self-sufficient, and, in these cases, water shortage is often compensated by food imports. The number of countries afflicted by water short-



CREDIT: BUENOS DIAS

Enough food for the world population has to be secured

age will increase as the world population grows in the 25 years to come. The United States, Canada, Australia, France, Argentine and Brazil range among the most important food-producing countries.

About 45 per cent of nitrogen used in agriculture per year is not utilised and ends up as pollutant in the atmosphere, groundwater and lakes. The efficiency of fertilisers must therefore be improved considerably. Human diet, too, has to change in order to secure enough food for the world population and to reduce environmental stress. It would therefore be advantageous to reduce meat consumption.

Agriculture is discharging nutrients into the environment, on the other hand, the daily waste water of millions of people – containing nitrogen and phosphorus – is discharged via the sewer system into purification plants where it has to be treated in a very expensive way. It would be much more economical to pre-separate the originally sterile and concentrated nutrient urine, to treat it and to use it as a fertiliser.

SOURCE: EAWAG SWITZERLAND,

PHONE: +41/1/823 55 11

WWW. EAWAG.CH

World Atlas for the Use of Water

Water shortage is going to be the most serious threat to food production and human health in the 25 years to come. This was the result of a study financed by the USA and Japan and carried out by the Consultation Group for Agricultural Research, which was presented by the vice-president of the World Bank Ismail Serageldin in Washington. He declared that disputes between countries about water are also to be expected.

The study found that even if an average amount of rain fell in the first quarter of the 21st century, a quarter of the world population (1.3 billion) would suffer from severe water shortage. "We have to find new ways of using this van-

ishing resource," says Serageldin. The research group created a world and climate atlas for the purpose of optimising water consumption. Data on expected stormwater amounts, the number of sunny hours, temperature and soils can be downloaded (www.iwmi.org). Government planners and farmers shall be able to use cultivated areas in a better way. "The map shall help to find surfaces which are not used for food production, but which could be without destroying forests," says Serageldin. For example, an area in Bangladesh has already been discovered which has not been cultivated in the dry period, but where chick-peas could be cultivated as a second crop in the year.

World-Environment Day: June 5, 1999

June 5 was World-Environment Day. It has been celebrated since 1972 on the initiative of the Environmental Programme of the United Nations, UNEP. In Austria, the World-Environment Day is alive. For six years now it has been supported by the imagination of the Austrians in hundreds of actions throughout the country. Thus, June 5 has become a day of celebration, in the true sense of the word.

The subject of this year's World-Environment Day in Austria is "Sustainable Consumption". The central issue is the question of the

quality of life and mass consumption. Initiator is the 17&4 Organisationsberatung G.m.b.H. and "die umweltberatung". SPAR "Naturpur" is also supporting the World-Environment Day 1999.

Every year, the World-Environment Day has a different motto in Austria. Designed as a "participation day", the event has led to an active participation of 300.000 Austrians annually.

Supported by the European Union, the Austrian design of the World-Environment Day has been carried to the Central and East European countries.

● Information on the World-Environment Day is available from the Environment Day Hotline +43/660/8313.

Water Brings Back Diversity

Since 1990, the WWF-Lowland Institute has been active in supporting the Danube Delta, the second largest wetland area in Europe. Its main target is to reconnect lowlands to the river and thus to renaturalise them. Meanwhile, results are obvious: About 20 species of fish have been observed in renaturalised areas, where there was only one left and WWF members have especially observed an astonishing diversity in small animals.

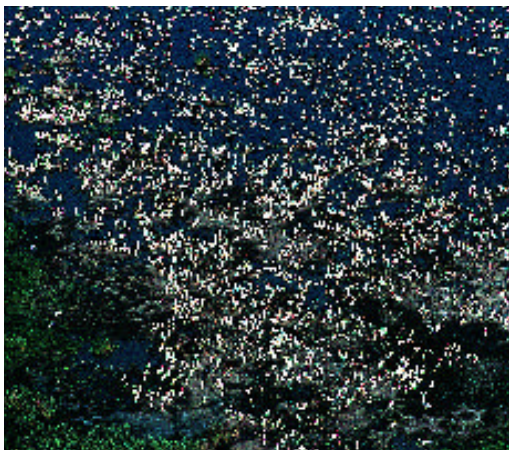
The estuary of the Danube into the Black Sea is known for its great diversity. Tourists enjoy observing herons, pelicans, and eagles. A total of 300 bird species have been registered there. On the Bulgarian side, almost 40,000 ha of these unique lowlands were diked for

agricultural purposes in the 60ies. Drainage transformed them into steppe, numerous aquatic plants and animals disappeared. Especially fish were affected dramatically. At the beginning of the renaturalising measures the former abundance of fish had shrunk to a single species.

For six years now, the WWF has had these areas flooded by purposive opening of dikes. Biologists of the WWF and the Rumanian Danube Delta Institute regularly control the results of the measures taken. This examination has now confirmed the high ecological value of the renaturalised areas. "Animals formerly deprived of their habitat have come back amazingly fast," says the zoologist of the WWF Lowland Institute, Dr. Eckbert Schneider, and confirms that more than 20 species of fish are found there again.

The diversity of small animals in the Danube Delta, however, is especially conspicuous. Experts registered almost 3,400 species of insects, more than 200 kinds of spiders, among them very rare ones. These figures reflect the extraordinary diversity of habitats in the delta.

The desired development has set in and renaturalisation has reached its aim



CREDIT: WWF

NEWS & VIEWS

Management

Can the Black Sea Still Be Saved?

"It is jellyfish, and not coastal crude oil, that is a clear indicator for the ecological imbalance of the Black Sea. Conventional ideas of correct management are responsible for this problem. Agriculture and water management are called upon to look for joint solutions," stated a recent press release from the Technical University of Vienna. Destabilisation of the ecological balance of the Black Sea already set in during the sixties, and at the beginning of the nineties the catastrophe was perfect. 1 billion (!) tons of jellyfish populated the Black Sea and caused fish life to collapse. The main reason for jellyfish proliferation are excessive nutrient concentrations of nitrogen and phosphorus.

The enormously increasing amounts of fertilisers used in agriculture in the past few years (due to the increasing pressure on food production, international competition and the policy of subsidies), the urbanisation of settlement areas with rising sanitary needs, and constantly increasing traffic leading to higher air emission, are the main reasons for the collapse. Both agriculture and water management could find ways to save what there is left to save.

However, the Black Sea can only be saved if all the riparian states of the catchment pull together. Austria has already passed laws for the elimination of nitrogen and phosphates in wastewater treatment for the benefit of the Black Sea. By implementing these laws Austria has succeeded in reducing the emission of phosphorus by 40 per cent since 1985. This positive trend is going to continue in the years to come.

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Water Webs

On our own behalf



[www.rec.org/
DanubePCU](http://www.rec.org/DanubePCU)

News about Phare



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