



# NEWSLETTER

## European Centre for River Restoration



Participants of the tour



River Dinkel

## Report on the 1<sup>st</sup> ECRR Study tour 2002

### River Restoration - different scales and aspects -

By Ute Menke and Marita Cals, European Centre for River Restoration ([ECRR@ecrr.org](mailto:ECRR@ecrr.org))

During the 3-days programme, the participants have visited the river Dinkel, the river Rhine and the estuary of Haringvliet. The experiences on river restoration in the Netherlands on various aspects have been explained. Of course, the Dutch approach can not be used directly in other countries but the exchange of experiences was very useful.

The **river Dinkel** in the East of the Netherlands, tributary of the river Rhine with a length of 90 km's and a statistic yearly discharge of 20 m<sup>3</sup>/s. Problems faced in this area are the unnatural discharge regimes, water quality (emergency sewage outlets), habitats structure (e.g. weirs) and conflicting interests between nature and agriculture. Recently a rehabilitation vision was made including measures to improve the water quality, re-meandering of brooks and flood protection. In the Dinkel area, the farmers get paid

in advance for possible damage in case of flooding. More info can be derived by e-mail: [wrd@wxs.nl](mailto:wrd@wxs.nl)

The **river Rhine** gets back more space during the last years. Lowering of floodplains and make openings in summer dikes are examples of undertaken measures. The management in floodplains e.g. grazing by cattle plays an important role to keep the vegetation as much open as possible to not increase the roughness. Bottlenecks in the river are the weirs and also the need for expansion of cities. Safety and ecological goals can be combined as much as possible. Near the weir of Driel a fish stairs was built, so that after the fish passages along the other weirs will be ready, migrating fish is able to swim up the river Rhine again. Urban spatial planning near the city of Arnhem is under development. Plans are also made together with the Regional Directorate

for Water Management. In order to be prepared for the higher discharges of the river Rhine some hundreds of meters of the winter dike south of Arnhem were replaced to the hinterland, to create more space for the river and no urban development is allowed in the floodplains anymore. The city park of Meinderswijk is lying in between the ancient and the new city of Arnhem. River processes are allowed and the cattle can survive high waters on higher lying places, as the area of the former brick factory.

In the **Biesbosch and estuary of the Haringvliet**, diverse restoration measures e.g. transformation of agricultural land and reconnection of polders to the river system are implemented. To get back the tidal influence in the estuary, the Haringvliet sluices will be opened partly in the nearby future. From ecological point of view, the typical gradient in salinity will be restored a bit. To guarantee drinking water quality is very important of this region with large cities. Recreation and finding quiet areas is important for the densely populated area. In case of the river island Tiengemeten, a plan is developed to restore natural marshes and to keep some cultural values of the agricultural activities intact. When the last farmer has left the river island, the measures of lowering or even removal of the dikes will be carried out.

## Call for organising the 2<sup>nd</sup> ECRR Study Tour in 2003

The ECRR secretariat wants to encourage countries from the South and from the East of Europe to organise the 2<sup>nd</sup> study tour next year. (Also more than one study tour per year is possible). Through organising a study tour, European experiences can give new impulses or ideas on how to proceed with your river restoration project!

Take your chance and ask the ECRR secretariat for free advice and about our this year's experience in more detail. Get in touch with the secretariat by sending an e-mail to: [ecrr@ecrr.org](mailto:ecrr@ecrr.org) or [u.menke@riza.rws.minvenw.nl](mailto:u.menke@riza.rws.minvenw.nl)



River Rhine near Wageningen (The Netherlands)

## Study tour impressions

### Portugal: Águas de Gaia Participants

By Andrew Donnelly, Joana Almendra, Manuel Santos Ferreira, Águas de Gaia, Vila Nova de Gaia, Portugal, <http://www.IOL.pt>

The Águas de Gaia company, the municipally owned water supply and sanitation provider for the city of Vila Nova de Gaia, has been delegated by the regional environmental authority as the responsible body to maintain and protect the 400kms of mainly urban rivers within the council area. Our situation was therefore unique within the participants of the ECRR tour, being a commercial operation with environmental responsibilities with the companies' environmental co-ordinator, architect and landscape engineer attending.

The scale of problems faced in Holland is drastically different to those dealt with by our company and indeed most other European countries, although the underlying philosophy, ideas and approach are of course transferable.

In Portugal, there is little effective national co-ordination and planning of river management or indeed sufficient legal support when needed. The most apparent aspect of the Dutch approach was the 'Space for the River' policy, an objective which may be easily explained to the public and relevant authorities in order to appreciate the issues and problems associated with river restoration and management. Again, from our local perspective such basic tools are essential for increasing the knowledge base of stakeholders and assisting with the many conflicting requirements. Indeed, our own most serious problem is regaining and retaining sufficient space for the rivers to behave naturally.

It was also reassuring from our participants perspective, that whilst our own projects

completed so far had not been without problems, the underlying goals, approach and implementation was compatible with the Dutch approach, if on a slightly different scale! With opportunities for national comparisons and evaluation limited, the potential to see projects elsewhere at first hand and discuss the issues and problems encountered amongst the varied group of participants was a valuable benefit of the study tour. For example, whilst it is difficult sometimes to explain that minimal interventions are the best option, especially in the semi-urban

environment in which we work, proof that the policy works elsewhere was invaluable. Balancing flood control, aesthetic and recreation requirements along with ecological necessities is the underlying objective. Similarly, restoration projects undertaken alongside commercial ventures, buying land adjacent to unrestored sections and including a saleable venture of some description, were also seen to have worked and thus provided funding for further restoration works elsewhere.

### **England: RRC-River Restoration Centre**

By Martin Janes, RRC, United Kingdom, <http://www.the RRC.co.uk>

The 2002 tour was successful in creating an informative programme, attracted a good mix of countries and disciplines and was an ideal forum for the exchange of information and contacts. The tour was based around the enormous need in the Netherlands to protect lives from risks of flood and the development of this need into the various practical solutions both past, and planned for the future.

Three full days saw the progression from small scale semi-natural river management and restoration, to floodplain restoration and dyke retreat/breaching for storage, habitat and urban development on the Rhine, finishing with estuarine examples of established large scale natural areas and a 20 year plan to restore nature to the last island of the Rhine basin with the sensitivity of integrating into the current landscape. The three days were a time to learn and listen, to ask questions, offer opinions, discuss current projects and highlight national difference and perspectives. In a relaxed atmosphere of exploring by buses, boats and bikes it provided time to reflect on how even very

different systems can offer new approaches and ideas.

From a UK perspective many of the systems are instantly alien with discharges of 2300m<sup>3</sup> and rivers with more sand than water. But the philosophy of 'Room for the River' and the brave approach (in a country as vulnerable as the Netherlands) to let them do what they will, is just as relevant to UK flood defence policy and the our preoccupation with unnecessary, over-engineered bank protection on active systems. The idea of integrating 'water management' as a whole is implicit with such cross border systems, and in the Netherlands it can be seen working. City planners, landscape architects, Non-Government Organisations, Water Boards are all working to restore functioning river and floodplain systems. Not always without disagreements, but the concept is there and is understood.

The Study Tour did not seek to teach us what to do and equally did not preach what we should do. It aimed to show 'a way', the Dutch way, and provided inspiration, new ideas and new contacts. If we try, we learn by our mistakes. If we are clever, we learn from others.

## **Development of an Internet Toolkit for River Restoration**

By Mark Diamond, Environmental Agency, United Kingdom; [mark.diamond@environment-agency.gov.uk](mailto:mark.diamond@environment-agency.gov.uk)

Searching for information on River Restoration on the web can be daunting. A recent search on the google.com search-engine yielded 575,000 hits! How do you sift through these sites to find the ones that you want? Refining the search certainly reduces the number of hits (e.g. the phrase "river restoration" *only* produced 15,200 hits!) but it still leaves you with an enormous task exploring site after site in the (often vain) hope that you will find

something useful. Anyone who has done this knows that it is a hit-and-miss approach and is often quite frustrating. However, the discovery of just one excellent site (e.g. [www.epa.gov/owow/](http://www.epa.gov/owow/)) can make the search seem worthwhile.

Improving the availability of web-based information will greatly improve the effectiveness of restoration work allowing us to learn from each

other and share great ideas; but how do we make sense of all this information and get quick access to the sites that are the most relevant to us? How can we make it more accessible?

The answer can be found with the "Internet Toolkit". Improving the accessibility of web-based information and tools is at the heart of the ECRR strategy. The "Internet Toolkit" project has started as a scoping study commissioned by the Environment Agency of England and Wales. The report is posted at [www.environment-agency.gov.uk/commondata/105385/w5a\\_060\\_tr.pdf](http://www.environment-agency.gov.uk/commondata/105385/w5a_060_tr.pdf) ). The main purpose of this study was to estimate how many of the river restoration sites listed by the search engine were likely to be of real use to practitioners. By assessing the content of a sub-sample of sites, the report concludes that there are between 4,500 and 7,500 useful sites available. Although this is a coarse and somewhat subjective estimate (largely due to limitations associated with the search engines) it is very encouraging.

The next stages in the development of the Internet Toolkit are as follows:

- Populating a web-directory of river restoration sites reviewed by the project
- Development of a simple but graphically pleasing "front end" that allows a user to explore the internet toolkit using a variety of search criteria
- Development of a planning tool for river restoration that has intelligent links to web-based support tools

We are now in the process of costing these phases and the future maintenance of the site and will then explore the best way to fund the work.

If you want to get an impression of some of the sites available, many good links are given in the scoping study, above.

## Developments in Spain

By Javier Cachón de Mesa, CEDEX, Spain; [Javier.Cachon@cedex.es](mailto:Javier.Cachon@cedex.es)

Nature Recuperation and conservation have really become an interest in Spain in the last years, and this interest also affects to the aquatic environment, and specially, to the Spanish rivers and wetlands. This interest is a result of the change arisen in the Spanish society during the last 50 years, where it used to be principally a rural society, while nowadays is a society clearly developed and metropolitan. Of course, the incorporation of Spain to the European Union in 1986 has been determined.

Due to this change, social awareness with biological diversity conservation and preservation of sites with natural interest are beginning to play an important role on the decision making process of the different public administrations. In this way, in the last years a great number of rivers and wetlands restoration projects are being developed in all the territory, and not only as the development of correction and compensatory measures of the impacts caused by public policies, transport, agriculture, tourism and industry, but also because of the pressure from different social statements agree with nature recuperation.

Among the different activities related to river restoration, the celebration of three academic acts

organized in October 2002 could be highlighted, each of them with quite a high participation.

### ***Rivers and Wetlands Restoration National Conference***

This Conference took place at the "Centro de Estudios de Técnicas Aplicadas" (CEDEX, Ministry of Public Works) on October the 8, 9 and 10, and was really the first one organized in Spain in relation to this topic. More than a 150 persons from the Spanish administration, private enterprises and Spanish university attended. It was developed with the presentation of 11 different lectures, related to specific projects as the Doñana 2005 actions and the Guadiamar River Green Corridor but also to general aspects as the Rivers Scenarios. Six different working groups were developed as well: Restoration legal framework, Ecosystems and biological integrity and instream flows, Restoration techniques and management, Recreation and Public Participation, and Urban reaches and fluvial landscape. In total, 33 papers with a great scientific and technical quality were presented at the Working Groups, referred to different actions developed and being developed all around Spain.

During this Conference, almost all the aspects related to aquatic ecosystems restoration have been discussed, with the knowledge given by the participants. During the first semester of 2003, the different projects presented at the Conference as well as the general conclusions of the event will be published.

The celebration of this event has been very useful to bring together all the professionals that in different ways are involved with river restoration, and it has been definitely the impulse for future conferences. It has also demonstrated the high interest raised by rivers and wetlands restorations, and has disclosed not only the great number of activities already finished and in performance, but more important the conservation and rehabilitation actions that are going to be carried out in Spain, as a consequence of the Water Framework Directive implementation but also according to the social demand for rivers and wetlands conservation, use and enjoyment.

### ***International Conference Life Guadajoz: "Rivers Restoration: a Social Commitment with the Environment"***

The persons in charge of the Guadajoz Project have organized this Conference in Baena (Córdoba) on October the 16, 17 and 18. More than a 100 persons coming from different regions of the country have attended this meeting. This conference, which is actually the fourth one that has taken place since the beginning of the project in 1999, has discussed, as the principle topic, two different aspects. On one hand, the integrated basin management and the different river restoration techniques, presenting the results and the experiences carried out in relation to bioengineering techniques or natural engineering in different European countries, and on the other hand, and as a result of the Water Framework Directive, the public participation and the protection and management of water resources, as they seem to be conditions that in a strategic way are meant to meet. In this way, the aims of the conference were: To divulge the knowledge and the results of the experiences developed in the field of river restoration, as well as the public participation process, to promote training through the exchange of experiences, to present the actions developed in the Life Guadajoz Project and to favour the meeting of professionals, citizens, students and other people interested on river restorations. Different workshops have been developed focused on: 'integrated basin management, hydrological planning and river restoration', 'public participation, water resources protection and management' and 'restoration projects design and management'.

The Life Guadajoz Project, which started in 1999 and that will finish next year, is a demonstration project of the effectiveness suggestions developed in relation to the integrated basin management and the river restorations. In this way, and from the exploitation starting of the Valmojorón dam in the Guadajoz river (tributary on the left bank of the Guadalquivir River), different restoration projects and water management technical proposals have been elaborated under Life Guadajoz, from the Guadajoz Community (Mancomunidad del Guadajoz y Campiña Este de Córdoba) and in cooperation with the Guadalquivir Basin Organism and the Andalusia Autonomous Community, trying to improve the Guadajoz river and riverside biological diversity and other tributaries, and taking into account in its development the riverside lands owners and involving the neighbours of the different towns in the area on the river and riverside conservation and improvement.

### ***River Restoration in Urban Environments Course***

The Menéndez Pelayo International University arranged in Cuenca city, between the 21<sup>st</sup> and 24<sup>th</sup> of October, a course for the public administration technical staff (local and general) as well as the university teachers and students of science and engineering schools. In this course, general and local matters related to rivers restoration in urban environments have been faced. Traditionally, cities have grown in Spain back to its rivers, establishing a fear-hate relationship among the citizens and the river. This relationship is intensified in Mediterranean environments, accordingly to the violence of the overflows and the intense harm caused on persons and goods, although this damage is basically due to the occupation of floodplains by manmade constructions. This is the main reason why the traditional solution to solve this problem in Spain, as well as in the rest of Europe, has been the construction of channels, with the clear target to increase the speed of water and decrease the water retention time in the riverbed at the city. Nowadays, this way of thinking is changing and it is time to recognise the river as an ecosystem and integrate this reality at the urban environments getting again the relation between the river and the citizen, so it seems necessary to develop new basis to improve the socializing between the river and the city. These have been the aims of the course, guided by Mr. José Anastasio Fernández Yuste, Hydraulic and Hydrology professor at the Polytechnic University in Madrid.

# News from projects

If you like to introduce *your* restoration or conservation project, please contact the secretariat.

## Large scale river Isar conservation project in Munich, Germany

By Hans-Dietrich Uhl



A) before flood event, before anchoring structures

In the project Isar Plan, positive experiences of the impact of restoration measures on channel bed structure after a first moderate flood event

Considering the devastating impact of the recent flood events in Europe the city of Munich faced only moderate water levels in the stream Isar. However, water levels are considerably influenced by a major retention construction some 60 km upstream - the Sylvenstein reservoir.

Since a major river conservation project is carried out upstream to Munich all effects of the restoration measures are closely monitored. The August 2002 run off, representing an one in three years event, set off a positive natural progress of the initial restoration measures.

While upstream sediments are retained by the Sylvenstein dam channel-bed deepening is a critical problem. Now the new extent of the floodplain - broadened by re-positioning of dykes - offers the stream a new source for material. Hence high water levels in August came along with extensive sediment and woody debris transport. With water levels back to normal the re-shaped channel bed reveals diverse and rich structures. Within the restoration stretches a natural braided river system has successfully been reinstated.

Nonetheless, a major drawback of the new debris pools becomes obvious. Over the time where a regularly shaped channel-bed was embanked by dykes and additional bank-reinforcements fixed the stream the former floodplain was taken over by extensive woodlands. After breaking up reinforcements and repositioning the dyke line the old grown hardwood is prone to the unleashed forces of the shifting stream. Tree trunks as long as 30 metres were washed into the city with its numerous structures within the stream bed vulnerable to log jam. Precautionary measures will have to be considered to prevent future damage from woody debris. Cutting high trees might be the option.

Part of the restoration measures anchored shingles and dead wood initiate local sedimentation, offer shade and

cover for organisms and create habitat diversity. All of the natural structures fixed in the channel in due course of the restoration measures were not affected from the flood event but rather introduced the development of a highly heterogenic channel morphology. But to which extent the ongoing natural channel advancement will be able to persist seems to depend on local debris pools since the upstream reservoir hampers natural sediment transport.



B) stranded log after flood event, riparian woodland -> log pool

Finally, the diverse, dynamic and active river aimed at by the Isar Plan appears to be achieved. New floodplains and hence retention areas improve the flood protection for the city Munich and offer new recreation possibilities. The re-gained connectivity of riparian areas and river already shows a growing mosaic of communities. Still, further measures to control the stream force in respect of woody debris are required. Water quality in the densely populated area upstream of Munich is a well addressed issue and WFD good status requirements will be met. Moreover, the notion of achieving bathing water standards currently is assessed.

### Isar Plan in brief

time scale :

- planning since 1995
- restoration work 2000 - 2005

regional scale: total length of 8 km

volume : estimated total costs about 27 million €

measures :

- breaking up bank reinforcements and flow barriers
- partly new dyke line with broadened floodplain
- installation of initial bed structures such as dead wood and small shingles

contact :

[www.wasserwirtschaftsamt-muenchen.de/app/isar\\_plan](http://www.wasserwirtschaftsamt-muenchen.de/app/isar_plan)

e-mail: [poststelle@wwa-m.bayern.de](mailto:poststelle@wwa-m.bayern.de)

# Notes from the web

## **WWF: SPANISH GOVERNMENT'S FIGURES AND DATA ON NATIONAL HYDROLOGICAL PLAN'S EBRO TRANSFER BENEFITS ARE WRONG AND MISLEADING**

3.5 billion Euros could be lost if the Spanish National Hydrological Plan's (SNHP) Ebro river transfer is allowed to go ahead, according to a report released by WWF.. The WWF study - Analysis and Economic Valuation of the Ebro river transfer in the Spanish National Hydrological Plan - shows data and figures used by the Spanish government to justify the SNHP to be inaccurate, and concludes that the actual costs of the Plan far outweigh the estimated profits.

[http://panda.org/news\\_facts/newsroom/press\\_releases/](http://panda.org/news_facts/newsroom/press_releases/)

## **NEW NATIONAL WETLAND CENTRE IN SPAIN**

The Council of Ministers of Spain, at its meeting on 4 October 2002, agreed to authorize the establishment of a State Foundation for a "National Wetland Centre" to be located in the city of Valencia (venue of Ramsar COP8), although the Centre may have branches in other places in the country.

According to the Council's announcement, the objectives of the Centre are "to increase, spread and divulge the scientific and technical knowledge on wetlands, to promote their sustainable use, and to encourage collaboration among government authorities, academia, and public and private entities for the conservation of these ecosystems".

Source: Ramsar

## **CONSTITUTIVE MEETING OF THE NETWORK OF TRANSBOUNDARY BASIN ORGANIZATIONS, 25-26 NOVEMBER 2002, THONON LES BAINS - FRANCE**

Following the last General Assembly of the International Network of Basin Organizations (INBO), held in May 2002 in Quebec, the International Commission for the Protection of Geneva Lake ("CIPEL") and the French Rhone-Mediterranean-Corsica Water Agency proposed to

organize the first constitutive meeting of a new Network of Transboundary Basin Organizations. The objective of this Network would be to enable the executives and

technicians of existing organizations to better know each other and exchange their experiences, to compare their approaches and methods and thus to facilitate the creation and strengthening of new organizations adapted to transboundary basins throughout the world and to develop cooperation between the countries concerned.

For more information, go to <http://www.riob.org>

## **EUROPE WATER - DIRECTIVES AND EU ENLARGEMENT CONFERENCE OF THE EUROPEAN WATER ASSOCIATION**

Negotiations for the accession of additional EU members from Central and Eastern Europe have been going on for a couple of years now. With the possible entrance date of 2004 coming closer and the number of hopeful aspirants for this date growing there is an increasing need for discussion and exchange on the environmental and the water sector in particular for experts from both Western and Eastern Europe.

The European Water Association (EWA) thus organises a conference dealing with the topic of EU enlargement and water legislation, the "Europe Water - Directives and EU Enlargement". The conference will take place on Thursday, 13 February 2003 in Warsaw, Poland, in combination with the exhibition Energy, Water and Waste Expo 2003, and in co-operation with the Polish Association Polish Association of Sanitary Engineers and Technicians (PZITS). Topics of the conference are among others the directive on urban wastewater, drinking water and nitrate. The question of funding for environmental projects will be treated as well.

The EWA homepage contains regularly updated information about the conference (<http://www.EWAonline.de>). Information about the trade fair EWW Expo 2003 can be obtained at <http://www.ewwexpo.com>.

## International Symposium on Renaturalization of River Basins; reported by Masato Toyama

The symposium was held in Tokyo on September 17 and 18. Objectives were to promote discussion on eco-compatible and adaptive management in river systems, and to determine the direction of river renaturalization from the perspective of the conservation and sustainable management of the diversity of living things in river ecosystems. This is one of the domestic activities leading towards the 3rd World Water Forum; the Executive Committee of this symposium consists of Japanese Ministries including the Ministry of Land, Infrastructure and Transport, the Ministry of the Environment, and the Ministry of Agriculture, Forestry and Fisheries, and other organizations such as the Japan Society of Civil Engineers, the Ecology and Civil Engineering Society, the Ecosystem Conservation Society-Japan, the Foundation of River and Watershed Environment Management, and the Foundation for Riverfront Improvement and Restoration.

On the first day of the symposium, a number of presentations dealt with recent projects such as

the restoration of a river course to its original form from the straight line which had been created corresponding to the development projects, securing a flood plain, and the restoration of flow volume which has decreased for a number of reasons including the construction of dams. The second day featured a roundtable talk to discuss topics such as the importance of and issues concerning river renaturalization and the content which should be addressed at the 3rd World Water Forum based upon the various cases presented on the previous day.

In the last session of the symposium, issues were identified in a draft of "Guideline for Renaturalization of River Systems." In the future, through discussions in the VWF and elsewhere, the guideline will be announced at the 3rd World Water Forum.

More information:

Secretariat of the 3rd World Water Forum  
Tel: +81 3 5212 1645, Fax: +81 3 5212 1649  
E-mail: [office@water-forum3.com](mailto:office@water-forum3.com)  
URL: <http://www.worldwaterforum.org/>

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## Joint Danube Survey (Aug.- Sept. 2001)



[http://www.icpdr.org/pls/danubis/docs/FOLDER/ICPDR/ICPDR/MLIMEG/JDS/JDSPHOTOS/WEB\\_P9190362\\_RO-CORE\\_TEAM.JPG](http://www.icpdr.org/pls/danubis/docs/FOLDER/ICPDR/ICPDR/MLIMEG/JDS/JDSPHOTOS/WEB_P9190362_RO-CORE_TEAM.JPG)

JDS is the most comprehensive survey carried out so far on the water quality and the ecological status of the Danube River. Over 140 different chemical determinands and biological parameters have been analysed and more than 40.000 laboratory results have been generated. The results of the Survey will bring us another step closer to a cleaner Danube.

For the first time, comparable data about the entire course of the river have been provided on over 140 different parameters: biological parameters and chemical pollutants, aquatic flora and fauna and bacteriological indicators. The International Commission for the Protection of the Danube River (ICPDR) initiated JDS to improve the validity and comparability of water

quality data received from its regular monitoring programme (Trans-National Monitoring Network, TNMN).

JDS has produced a reliable and consolidated picture of the water quality of the Danube and its major tributaries in terms of chemical, biological and microbiological parameters. Issues of concern are the stretches with identified hot spots of pollutants listed in the EC Water Framework Directive as priority substances, the nutrient concentrations in the whole Danube with special attention to the middle part, and overall pollution by bacteria and heavy metals.

The results of the Survey will represent a major contribution towards the implementation of the EC Water Framework Directive in the Danube River Basin. The Directive aims at the development of an integrated and coordinated river basin management plan for the entire River Basin and the achievement of a good status of surface water and groundwater by 2015.

Lessons learned from the Joint Danube Survey should serve as a basis for future activities aimed at the protection of the Danube River. In general, JDS confirmed the priorities set by the Joint Action Programme (JAP) of the ICPDR. In preparation of the forthcoming meeting of the ICPDR at the end of November 2002 the Danube Countries will evaluate the results of JDS with a view to identifying follow up activities at the national level and priorities for coordinated measures to be taken by the ICPDR.



The Danube experts involved in the Survey have agreed that a set of specific publications with more detailed evaluation of data should follow the JDS Report. This should support the general focus of the ICPDR on the implementation of the EU Water Framework Directive.

Further information:

ICPDR-International Commission for the Protection of the Danube / Permanent secretariat; Vienna International Centre, D0412, P.O. Box 500; 1400 Vienna, Austria  
Tel: \*43-1-260 60-5738, Fax: \*43-1-260 60-5895  
e-mail: [icpdr@unvienna.org](mailto:icpdr@unvienna.org), web: [www.icpdr.org](http://www.icpdr.org)

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## HOW THE NETHERLANDS FINANCE PUBLIC WATER MANAGEMENT

By Pieter Huisman

Recently published on European Water Management Online (EWMO): This contribution explains the essentials of finance to fund the costs of the public water management activities in The Netherlands. Insight in costs and financing possibilities are important aspects to realise water management on national, provincial, regional and local level. Justification of the spending of public money for measures serving water related interests provides insight in the relative weight of each interest in water management issues.

To give an impression of costs and financing, the most recent data are presented. In 1998, the costs of public water management by the three governing levels in The Netherlands amounted to EUR 3,173,000,000 in total.

This is 1% of the national income. Fifteen percent of the costs are spent on flood protection, 20% on quantitative water management and 65% on water quality issues. Three sources finance these issues: the general budget for 30%, the profit principle for 18% and the polluter-pays rule for 52%.

Full article to be downloaded at:

[http://www.ewaonline.de/journal/2002\\_03.pdf](http://www.ewaonline.de/journal/2002_03.pdf)

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## Wetland Functional Analysis Research Programme



*European Union initiated and co-funded research is probably one of the best kept secrets - or were you aware of the FAEWE, PROTOWET and EVALUWET research programmes?*

At the eve of launching the Sixth EU Framework Programme for Research and Technology Development, the partners of long-standing research consortia across Europe with exotic names like those mentioned above gathered for a European User Forum in Brussels on 25 September 2002 to confer with users of their research results, such as the UK Environment Agency, the German Federal Institute of Hydrology, the Romanian national company Apele Romane, the European Topic Centre for Inland Waters (of the European Environment Agency), the European Environmental Bureau, WWF, the Environment Directorate General of the European

Commission and the Ramsar Bureau, about their needs.

The Wetland Functional Analysis research programme is coordinated by Edward Malt by at Royal Holloway Institute for Environmental Research in London with research partners in France, Germany, Greece, Ireland, the Netherlands, Romania, Spain, Sweden, and the UK. It first focused on the functional analysis of European wetland ecosystems (FAEWA), then on the procedural operationalisation of techniques for the functional analysis (PROTOWET), and currently on valuation and assessment tools supporting wetland ecosystem legislation (EVALUWET). Find out more about this fascinating world through the entry gate provided at Evaluwet's home page:

<http://www1.rhbnc.ac.uk/rhier/evaluweb/index.shtml>

Source: [www.ramsar.org](http://www.ramsar.org)

## European Ecological Network of East and Central Europe Identified



2 October, 2002, Riga, Tilburg, Budapest

For the first time ever, the location of the European Ecological Network for Central and Eastern Europe has been identified on one map. The project has taken two years to complete and has included the participation of many different countries and organizations. The end result of this project was presented today by ECNC's Executive Director Rob Wolters in a meeting of the Committee of Experts on the Pan-European Ecological Network, which meets in Riga, Latvia on 2 and 3 October 2002.

The Pan-European Ecological Network identifies areas with nature values of European importance and provides ecological coherence between relevant areas. European countries and organisations have joined forces to establish the European Network. E.U.'s Natura 2000 and the Bern Convention's Emerald Network are the two most important European instruments to realise the European Ecological Network. The mapping project is a vital part of the efforts to establish the network and the activities were carried out by ECNC and Alterra, together with the Council of Europe, and many other organisations and countries.

Rob Wolters views the map as more than a technical means to indicate the location of areas, he also sees it as a powerful communication instrument to promote nature conservation towards economic, land use and financial sectors. The map could guide these sectors in their decisions on the location of infrastructure,

agricultural development areas, and on allocating public and private investments. "There is certainly a willingness of these sectors to take nature into account in their policies and decisions, but there has been a long-standing request to the nature and biodiversity sector to be more concrete".

The process of preparing the map was complicated, because for the first time combined information of ecosystems, habitats, and species had to be brought together within one coherent European methodological approach. It appeared that for a number of ecosystems and species, information was very poor or even lacking, and that data in some countries was more abundant than in others.

Rob Wolters said: "The map should be used in a wise way. It is not a blue print. It indicates the location of nature values of European importance, but does not show the ecological networks of national and sub-national importance. It is the complete picture of ecological networks on all geographical scales that ensures a sustainable future for Europe's nature and biodiversity". The indicative map for Central and Eastern Europe will also be presented to the 5th Ministerial "Environment for Europe" Conference, which will take place in May 2003 in Kyiv, Ukraine. Ambitions for the future include the preparation of similar maps for other parts of Europe.

**Publication:** [Indicative map of the Pan-European Ecological Network for Central and Eastern Europe](#). Bouwma, I.M., Jongman, R.H.G. & R.O. Butovsky (2002)

Source: [www.ecnc.nl](http://www.ecnc.nl)

## Conferences

The Centre has received information about the following international conferences with relevance to river restoration. Further information can be obtained from the Internet homepages given and by writing to the e-mail addresses provided.

The following site gives a good overview on conferences

- on natural resources:  
[www.agnic.org/mtg/2003p.html](http://www.agnic.org/mtg/2003p.html)
- on marine and freshwater events:  
[www.asfb.org.au/events/events0207a.htm](http://www.asfb.org.au/events/events0207a.htm)



**2<sup>ND</sup> International Symposium on the Management of large rivers for fisheries : Sustaining livelihoods and biodiversity in the new millennium**

**Phnom Penh 11<sup>th</sup>-14<sup>th</sup> February, 2003**

Rivers and their social, cultural, economic and ecological importance, remain grossly neglected or under valued. Production from inland fisheries is thought to be 2 to 5 times the officially reported value. River fish and fisheries only came under serious scrutiny in the 1970s and the knowledge then available was summarised and synthesised at the International Large River Symposium (LARS) held in Canada in 1985. Since that date, and partly as an output from that initiative, the study of large rivers has escalated. Attention has especially been given to finding ways of mitigating impacts of other users, restoring damaged systems and managing the fisheries in the face of external constraints.

The information accrued since the 1980s is still dispersed and there has been no major attempt to update the 1985 synthesis. In view of the importance of large rivers for food production and the current emphasis on the protection of biological diversity world-wide, it is timely that a second international symposium focussing specifically on large rivers be organised.

Further information at: [www.lars2.org/](http://www.lars2.org/)



## «Environmental Future of Aquatic Ecosystems»

**5th International Conference on Environmental Future (5th ICEF)**

**23-27 March 2003  
ETH Zurich, Switzerland**

The 5th ICEF will last for 5 days from Sunday 23 March until Thursday 27 March, and will open and end with Main Plenaries, the first of these offering the opportunity to consider overarching issues of human population, water, climate and fishery exploitation.

The 21 aquatic systems will be accommodated within the main part of the meeting, grouped in sessions. Each session will consist of a Plenary followed by a working group restricted to 12 participants. The task of this group will be to assemble the main findings from the Plenary. The results from these Group meetings, as well as from the Plenary discussions, will be gathered by Rapporteurs and presented in form of a synthesis at the closing Main Plenary.

Further information: [www.icef.eawag.ch](http://www.icef.eawag.ch).



## **BRAIDED RIVERS 2003**

**University of Birmingham, UK  
7<sup>th</sup> - 9<sup>th</sup> April 2003**

The aim of **Braided Rivers 2003** is to build on the highly successful original **Braided Rivers** conference that took place a decade ago in 1992. The result of that conference, focussing primarily on geomorphology and sedimentology, was the hugely influential and much-cited book *Braided Rivers* (Ed. By J. L. Best and C. S. Bristow, Geological Society of London Special Publication 75). Ten years on, it is now appropriate to review progress in the area of braided rivers and develop the multi-disciplinary approach initiated at the original conference. To this end the scope of the proposed conference will be broadened to include management and ecological aspects of braided rivers as well sedimentology and geomorphology. The conference will thus have a strong link to the original, while taking the subject forward.

A central feature of the conference will be to provide a forum for the presentation and discussion of new developments within the areas of sedimentology, geomorphology, ecology, engineering and management as well as between them. The conference thus aims to appeal to a broad range of delegates from geology, geography, biology and engineering departments and so foster wide ranging and profitable discussions across the disciplines.

Further information:

[www.cwr.bham.ac.uk/braid/index.htm#talks](http://www.cwr.bham.ac.uk/braid/index.htm#talks)



## Second International Conference on River Basin Management –

all aspects of Hydrology, Ecology, Environmental Management of Rivers, Flood Plains and Wetlands

28 - 30 April 2003

Las Palmas, Gran Canaria

Organised by **Wessex Institute of Technology, UK**

River Basin Management 2003 is the second conference in this new series, which marks the growing international interest in the planning, design and management of river basin systems. The conference will aim to communicate recent advances in the overall management of riverine systems, including advances in hydraulic and hydrologic modelling, environmental protection and flood forecasting.

In recent years, significant advances have been made in the development and application of hydroinformatics software tools for predicting flow, water quality, sediment transport and ecological processes in riverine systems. River Basin Management 2003 will provide the ideal forum for practitioners and academia to highlight the latest developments in this field and to discuss the experience of applying such software tools to practical riverine problems.

Currently topics such as, river ecology, geomorphology, flood forecasting and field and laboratory data for riverine basins, are of great interest. This is likely to increase even further in the future, as the effects of climate change on flooding, etc., become more intense and more frequent.

Further information:

[www.wessex.ac.uk/conferences/2003/riverbasin03/index.html](http://www.wessex.ac.uk/conferences/2003/riverbasin03/index.html)

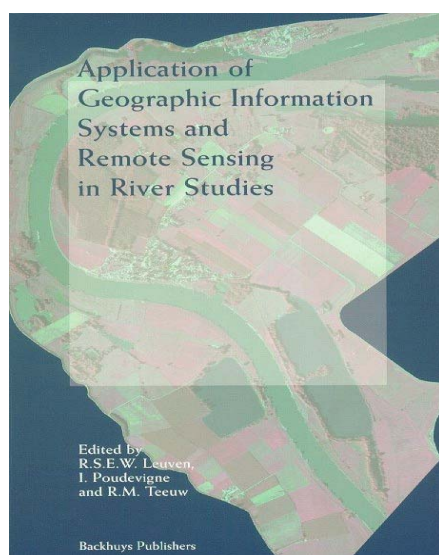


### 3<sup>rd</sup> ECRR Conference on River Restoration

The next conference is planned to be organised in May, 17<sup>th</sup>-21<sup>st</sup>, 2004 in Zagreb, Croatia. Our ambition is to offer you again a high quality programme with a lively mixture of presentations, workshops and discussions in hospitable atmosphere. Of course, an excursion (e.g. to Lonjsko Polje) will be part of the programme. We will keep you informed!

## Publications and videos

The ECRR has received information about the following publications with relevance for river restoration.



**Leuven, R.S.E.W., I. Poudevigne and R.M. Teeuw (eds.), 2002, *Application of Geographic Information Systems and Remote Sensing in River Studies*.**

288 pages with numerous figures, colour plates and tables. Hardbound. ISBN 90-5782-073-0. Backhuys Publishers. Leiden, The Netherlands.

Price: € 76,00 // US \$ 72,50

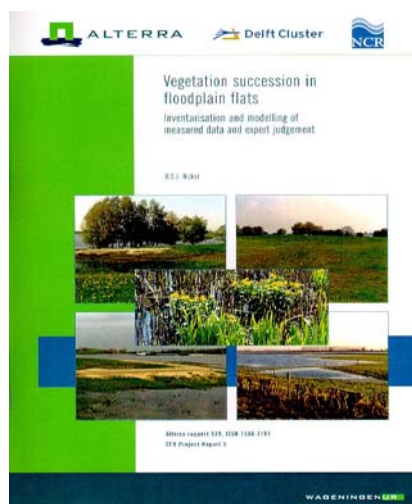
Mail: [backhuys@backhuys.com](mailto:backhuys@backhuys.com)

Website: [www.backhuys.com](http://www.backhuys.com)

#### Abstract

Geographic information systems (GIS) and remote sensing are emerging tools for river research and management (e.g. assessments of flooding and sedimentation processes, vegetation dynamics, landscape changes and ecological risks, as well as the integrated multi-disciplinary studies required for river management). The book describes the background, goals and results of an international workshop on the application of geographic information systems and remote sensing in river studies, organised by the universities of Nijmegen, Rouen and Hertfordshire. It is not designed to be a textbook on the technical aspects of GIS and remote sensing, but it fills a niche in novel applications of these tools in river science.

By their nature, riverine ecosystems are very dynamic and relatively inaccessible to humans: remote sensing as proved to be an invaluable tool for measuring and mapping riverine ecosystem and landscape features. The combination of remotely sensed data with GIS may provide synoptic information on the structure and functioning of riverine landscapes (fragmentation, connectivity); offering new opportunities to study and manage their dynamic character and multiple scale of organisation. The book is structured in four sections, (1) introduction and ecological framework, (2) applications of remote sensing, (3) applications of geographic information systems and (4) discussion and state of the art. An author index and a detailed subject index are included. Target group: People interested in research and management of lowland river basins, e.g. scientists, students, policy makers and water managers.



**Nijhof B.S.J, 2001. Vegetation succession in floodplain flats. Inventarisation and modelling of measured data and expert judgement.**

Alterra, Wageningen, Alterra. Report 529. 52 pp.

**Abstract:** Literature study and expert judgement are used to develop succession schemes per vegetation structure type of the Dutch floodplain flats. The occurrence of a vegetation type is said to be mainly related to flooding duration and frequency. The third factor taken into account is the management, for example mowing or grazing. Per vegetation structure type the relation between vegetation types and time span needed for developing from one into another is given.

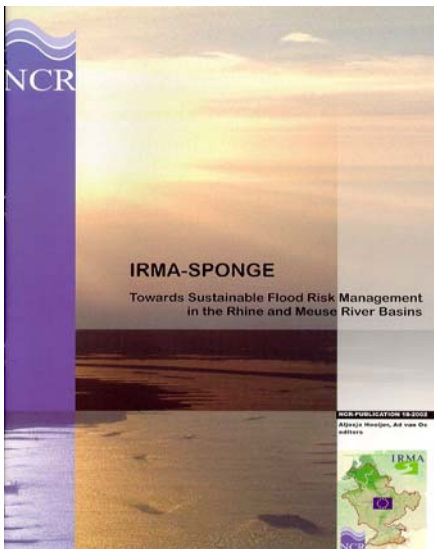
**Catchwords:** Vegetation succession, floodplain flats, flooding, sedimentation, modelling

**Extensive abstract**

As part of two larger projects, being the 'Cyclic rejuvenation of floodplains: a new strategy based on floodplain measures for both risk management and enhancement of the biodiversity of the river Rhine' within the IRMA-SPONGE Umbrella Program and the Biogeomorphological Developments of Floodplains

program with Delft Cluster, a literature study combined with expert judgement was conducted to enhance the knowledge on the different vegetation types present in the floodplain flats along the Dutch rivers and their succession in relation to disturbances, in this case being flooding. It could be concluded that most research done resulted in qualitative statements. Many assumptions are made when these data are used in for example models predicting vegetation development. Furthermore different descriptions of vegetation communities are used. Within this study the classification defined in the most recent work on the vegetation of the Netherlands is taken ('De vegetatie van Nederland') and resulted in a selection of communities. These were ordered according to vegetation structure type, e.g. water vegetation, pioneer vegetation, swamp vegetation, grassland, ruderal vegetation, forest & shrub land. Specific vegetation is growing on a certain place because of a combination of abiotic conditions present. Within this first trial to develop a scheme for vegetation succession the factors duration of flooding (inundation time), morpho-dynamics (erosion, transportation and sedimentation) and management are considered. In a fictional floodplain flat an overview is given of on what physiotope which vegetation structure type might be found. Per vegetation structure type a scheme shows in what way and due to what abiotic and/or anthropogenic factors a vegetation community in the relevant physiotope changes/develops into another. The source of the data, measured data or expert judgement, is indicated. A limited amount of quantitative data was available for pioneer vegetation whereas a slightly larger data set exists for swamp vegetation, grassland and forest & shrub land. For water vegetation quantitative data probably will become available when a study performed by Van Geest *et al.* (Wageningen University) is published. The standardised definition of the vegetation communities should enable the use of this scheme in the whole Dutch river system. In combination with the defined physiotopes this can be useful in projects concerning classifications and decision support systems within the Dutch river system.

Very apparent after the literature study, consulting experts and developing the succession scheme is the fact that accurate, measured abiotic data (especially flooding duration and frequency) in relation to vegetation communities is lacking. The same counts for the time needed for vegetation to develop from one community into another. Research for the coming years should focus on filling in these gaps. At the moment Alterra is, within the Biogeomorphological developments of Floodplains program of Delft Cluster, studying the effects of sedimentation on the development of grasslands along Dutch rivers (Project 'Verstoring & Successie'). See also: <http://www.alterra.nl>



## **IRMA-SPONGE: Towards Sustainable Flood Risk Management in the Rhine and Meuse River Basins**

**Alosja Hooijer, Frans Klijn, Jaap Kwadijk & Bas Pedroli, 2002.**

Main messages are:

### *A. The future brings increasing flood risk*

Flood risk (defined as a result of flood probability and potential damage) along the Rhine and Meuse rivers is expected to increase in two ways: a) climate change will cause a significant increase in the probability of extreme floods; b) the potential damage of floods is doubling every three decades. Available room along the rivers to improve flood risk management in the future is decreasing due to urbanisation along the rivers.

### *B. Upstream flood prevention measures can reduce extreme floods only at local scale*

Water retention through land use change may be useful in lowering the frequency of extreme floods in small basins. No significant effect on extreme floods occurred downstream in times of heavy rainfall over large areas. Water retention areas along channels are only marginally more effective. Detention areas (for 'controlled retention') can have a more significant impact.

### *C. The most effective flood risk management strategy is damage prevention by spatial planning*

Along rivers, there will always remain a flooding risk. Focussing on flood control is not sustainable on the long term. Damage prevention by spatial planning is needed. Flood risk management along Rhine and Meuse is a matter of optimisation of costs and benefits of measures and not just 'fighting against the floods'.

### *D. Flood Risk Management strategies should be part of integrated development of the river corridor*

Flood risk management can help achieve a combination of economic development and other policy targets, such as creating an 'ecological infrastructure' and improving the quality of the landscape. A comprehensive strategy

for the desirable development of the river corridor is required. Of course, such a strategy must be supported by stakeholders – resistance from the local population to measures may be reduced by good information supply, fair compensatory measures and proper use of regulations.

More information is available at:

[www.ncr-web.org](http://www.ncr-web.org) and/or <http://irma-sponge.org/>

## **Riverine flood plains: present state and future trends**

**Tockner, Klement & Jack A. Stanford, 2002. in: Environmental Conservation 29 (3): 308-330.**

### **Abstract**

Natural flood plains are among the most biologically productive and diverse ecosystems on earth. Globally, riverine flood plains cover  $>2 \times 10^6 \text{ km}^2$ , however, they are among the most threatened ecosystems. Floodplain degradation is closely linked to the rapid decline in freshwater biodiversity; the main reasons for the latter being habitat alteration, flow and flood control, species invasion and pollution.

In Europe and North America, up to 90% of flood plains are already 'cultivated' and therefore functionally extinct. In the developing world, the remaining natural flood plains are disappearing at an accelerating rate, primarily as a result of changing hydrology. Up to the 2025 time horizon, the future increase of human population will lead to further degradation of riparian areas, intensification of the hydrological cycle, increase in the discharge of pollutants, and further proliferation of species invasions.

In the near future, the most threatened flood plains will be those in south-east Asia, Sahelian Africa and North America. There is an urgent need to preserve existing, intact flood plain rivers as strategic global resources and to begin to restore hydrologic dynamics, sediment transport and riparian vegetation to those rivers that retain some level of ecological integrity. Otherwise, dramatic extinctions of aquatic and riparian species and of ecosystem services are faced within the next few decades.