International conference

Risks and Leisure
Along major european rivers

Conference center of Orléans
22 & 23 september 2005

organised by the Etablissement Public Loire
as part of the european project « Freude am Fluss,
enjoying life along the river » and as part of the Loire
festival of Orléans 2005.
By the time Europe of the peoples still largely remains to be built, what a more beautiful symbol than to share experiences between major european rivers.

In the past, rivers were places for battles; today they link cities and men of our "old" countries.

Our modern society is crossed by contradictory aspirations: requirement of safety and comfort, desire of preserved nature and leisure.

This conference organized by the Etablissement Public Loire, under the double sponsorship of the European project “Freude am Fluss”, whose general manager is the University of Nijmegen in the Netherlands, and the “Festival de Loire” in Orleans, fits perfectly in this context.

The interest, the diversity and the quality of the contributions gathered in this file, obviously show that a new model of development is borned in Europe, which aims for better living along our rivers, balancing risks and leisure.

Wishing you profitable exchanges, but also much "Freude", at the edge of the Loire river, registered in the UNESCO world heritage!

Jean GERMAIN
Chairman of Etablissement Public Loire
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| 9h - 9h45  | Opening                                    | Serge GROUARD  
Member of the Parlement and Mayor of Orleans  
Jean GERMAIN  
Chairman of Etablissement Public Loire  
Toine SMITS  
Director of Centre for water and society University de Nimègue pilote du projet Freude am Fluss - PAYS-BAS |
| 9h45 - 10h30 | Flood risk prevention and management policies in France | Jean-Claude VIAL  
Deputy Director Water management Direction  
Ministe of Ecology and Sustainable Development  
Eric DOLIGE  
Chairman of the Loiret General Council |
| 10h30 - 11h | Break                                      |                                                                          |
| 11h - 11h15 | Presentation of Plan Loire Grandeur Nature | Olivier CLERICY  
Secretariat for the Plan Loire project Regional Direction for the Environment for the Loire basin |
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| Le GR3 along the Loire, first rambler’s pathway in France | Alain NEVIERE  
Vice-Chairman at Fédération Française de la Randonnée Pédestre |
| Example of Venlo long the Meuse in the Netherlands | Peter FREIJ  
Deputy mayor of Venlo  
NETHERLANDS |
| What development perspectives for canoë kayak tourism | Annick GOMBERT  
Vice-Chairman of Comité régional du Centre de canoë-kayak |

| 16h30 - 17h | Report on the 2 workshops | Workshop 1 : Didier RIME  
Orleans’ urban planning agency |
|            |                           | Workshop 2 : Pascale RICHARD  
Direction Régionale et Départementale de la Jeunesse et des Sports du Centre |

| 17h - 17h30 | General conclusion of the Orleans Conference « Freude am Fluss » | André VIAU  
Prefect of the Loiret department, Préfet de la Région Centre, coordination Prefect for the Loire Bretagne Basin |
Risques et loisirs
au bord des grands fleuves d’Europe
CONFERENCE TOPICS
AND OBJECTIVES

Is there a common approach in Europe for planning and developing territories along major rivers?

Is this approach compatible with the flood risks they might represent?

What are the respective roles and expectations of the public authorities and actors in the field?

The objective of these two days is to answer these questions by presenting concrete examples and projects, selected along the Loire, the Rhine and other major European rivers, and through exchange between the public and the speakers. The aim in particular is to exchange experiences and points of view of the public authorities and Dutch, German, and French municipalities living along major rivers.

THE SPIRIT OF THE TWO DAYS

The first day of the conference is mainly dedicated to presenting the approaches and projects initiated by the European public authorities. The subjects dealt with will more specifically be aimed at a public of elected representatives and technicians from territorial authorities, State services and their public bodies, associations, specialists in land planning and river management and partners in the European project “Freude am Fluss”.

The second day will focus on the requirements of actors in the field and on the role they can or should play to support or assist the public authorities. The events during this day are aimed at and open to the public.
THE « FREUDE AM FLUSS » PROJECT

Within the Freude am Fluss project organisations from the Netherlands, Germany and France will work together on a joint planning method. Room-for-river measures will be part of wider packages that are designed to also enhance the many cultural and economic advantages and opportunities (‘Freude’) of living with the river.

On that basis, communities and other local stakeholders will be involved in a policy planning method that ensures a true listening to the local voice.

The identification of economic opportunities goes naturally with the Freude am Fluss approach. Special attention will be given to the question of how to turn these opportunities into economic drivers for public/private partnerships that may give economic leverage to the room-for-river policies and greatly reduce public expenditure.

River management authorities all over Europe are working towards sustainable flood risk management. Because of changing views (‘more room for rivers’) but also in anticipation of climate change and socio-economic developments, extensive measures are being planned. As the planning and implementation of such measures requires many years, flood risk management asks for long term planning. This should be done on a basin-wide scale, because the entire river must be regarded as one system.

The room-for-river measures often meet with massive opposition from the local stakeholders (NIMBY: ‘not in my backyard’). For local stakeholders, the flood risks are no immediate concern, but the planned measures are! Most local stakeholders have short-term and local scale concerns. This opposition against the content of the room-for-river policies is getting worse by issues of policy style. Although the some form of public participation is usually included in the policy process, local communities continue to feel that their voice is not truly heard.

The opposition against room-for-river measures and risk-based spatial planning is one of the most important obstacles to the implementation of sustainable flood risk management. Lengthy legal procedures, higher costs, sub-optimal solutions and declining confidence in the government authorities are the result.

The Freude am Fluss project addresses both the issues of policy content and policy style. More creative solutions are combined with more genuine involvement of local stakeholders.
**Freude am Fluss approach**

The first component of the ‘Freude am Fluss’ approach is to enhance these advantages in one package together with room-for-river measures. Freude am Fluss packages give more room to the river and are beneficial simultaneously for the local communities in terms of economic development, quality of life, cultural heritage and/or ecology. That way, the ‘Freude am Fluss’ approach lays the basis to turn the NIMBY (‘not in my backyard’) reaction into a positive attitude towards taking measures (‘please in my backyard’: PIMBY).

The second component of the ‘Freude am Fluss’ approach is to adopt a policy style of shared problem definition and shared design of measures.

The local communities should be prepared to listen and understand the problem of the authorities but the reverse too, the authorities should be prepared to listen and understand the feelings and wishes of the local people. This understanding should not be superficial (‘do not think for the other’). The Freude am Fluss approach aims to bring forth the positive communicative capacities of all parties, in a process of joint planning and design of measures.

Besides having sufficient public support, room-for-river measures must suit the location, be technically sound and economically feasible, and they must be **sustainable** from the social, economic, ecological and cultural points of view. To ensure this, experts will be involved in the joint design of the measures and will provide insight in the consequences, including off-site and prolonged impacts and the related maintenance (assessment on sustainability criteria).

A ‘Freude am Fluss’ planning process has the economic advantage of potentially saving substantial amounts of money that would otherwise be lost in lengthy procedures, buy-offs of resistance and other unnecessary transaction costs. Even more importantly, the identification of economic opportunities connected to the dynamic river landscape may constitute a basis for the involvement of market capital in the room-for-river packages, thus greatly relieving public expenditures on the river policies. This, in turn, will enable a much faster and wider realisation of room-for-river policies. The Freude am Fluss project pays special attention to these ‘economic drivers’.

Because the Freude am Fluss approach to planning is not yet applied in practice, and because the problem is recognized by river managers throughout North Western-Europe, the project is has the following general aim:

- to develop expertise for the assistance of North Western-European decision-makers, engineers and local communities in the joint planning and design of room-for-river packages that enhance local benefits, thus potentially changing NIMBY into PIMBY and reducing public expenditure.
This aim will be reached through the following concrete objectives:

- to develop a truly joint planning method that (1) integrates room-for-river measures with the enhancement of local benefits and (2) fosters mutual understanding between authorities and communities of each other’s problems;

- to apply the joint planning method in the design of regional room-for-river plans; and to apply the joint planning method in the implementation of local measures or regulations, jointly designed by professionals and local stakeholders, e.g. a dike relocation, a floodproof urban development or a nature rehabilitation project, to support the first users of the new approach.

The exchange of knowledge and experience is crucial in this project in order to ensure that the approach will be generally applied elsewhere and in future. This is realised by:

- transnational intervision teams and other teams where river managers, experts and local people exchange experiences on the design and implementation of room-for-river measures, among others in design workshops (‘ateliers’);

- communication with society at large, e.g. by user-friendly presentations of research results, interactive website; newsletters; floating exhibition(s); closing conference

For more informations and download all the conference briefs: www.freudeamfluss.fr
Towards a European policy to reduce flood risks

Flood risk prevention and management policies in France

European Flood Risk Prevention Center

Presentation of the « Plan Loire Grandeur Nature » project

Round table : How to develop the existing and build territories along major rivers ?

The charter of resident communes of the Loire in the Indre-et-Loire Department

The flood plain of the Loire in the Pays de la Loire Region : evolving landscapes

Reinforcing the measures to combat flooding in the SWeine basin : the Bassée engineering project

Planned new quarter in Nijmegen in the Netherlands

The Integrated Rhine Programm in Germany
Flood risk prevention and management policies in France

Jean-Claude VIAL
Deputy Director - Water Direction
French Minister of Ecology and sustainable development

Flooding is the biggest natural risk in France, both in terms of the damage caused (accounting for more than 50% of compensation paid out of the natural disaster fund established in 1982) and by the number of communes affected (more than 8,000 communes), the extent of the flood risk areas (more than 33,000 km²) and the populations living in these areas (more than 4.5 million inhabitants, including 900,000 in the Paris area alone, 300,000 in the valleys of the Loire and 900,000 in the South-East of France, affected by what are known as the “Cévenol” phenomena). The extent of the damage has increased considerably over the last fifty years due to significant urban development in flood risk areas.

From the 80s onwards, government action in this area has increased and got better organised. A natural disaster compensation mechanism via an insurance scheme and funded by specific contribution at a fixed national rate was established by the Act of 1982. This fixed rate has risen from 5% of insurance premiums in 1982 to 12% in 1999. The citizen’s right to information on major risks was formally stated in the Act dated 22nd July 1987 on civil defence, protection against forest fires and prevention and management of major risks.

In times gone by, investment in protective systems was a cornerstone of public policy, but during the 80s, it became clear that such policies were not totally effective and that a much wider-ranging policy was needed. Raising awareness, reducing vulnerability in flood risk areas, improving crisis management via flood forecasting and real-time information and flood management in...
order to encourage large flows of water to spread and loose their energy were all identified as important policy areas.

In January 1994, the government adopted a ten-year flood prevention and management plan, to be applied via agreements made between national Government and the Regions for 2000 to 2006.

Major work was undertaken on updating the atlas of flood risk areas to provide better information on the risks, with the aim of covering the entire national territory by the end of 2005.

In parallel, risk prevention and management plans were put in place via the act dated 2nd February 1995 on enhanced environmental protection. These plans are an important instrument for the Government in preventing and managing natural risks.

This procedure aims to better manage urban development in flood risk areas.

These plans are set by the département prefects and put into action by decentralised Government departments and can include various measures, such as work on existing buildings, planning permission restrictions and prohibition of certain agricultural practices.

Once they have been approved, these risk prevention and management plans (PPRs) have the legal status of a public easement and are appended to the local plan, which must then comply with these easements. Any developments in the commune must now take these documents into account. In the most at-risk areas, building is prohibited in some areas or subject to restrictions aimed at reducing the risks.

Under the act dated 13th December 2000 on solidarity and urban redevelopment, local planning authorities now have to take natural risks into account in drawing up local plans and "schémas de cohérence territoriale" (abbreviation SCOT - co-ordinated land-use plans), whether or not a PPR exists.
In 2002, a new lease of life was given to flood prevention and management policies, in terms of raising awareness and providing information but also using development projects to implement preventative measures or improve protective structures. In this context, four types of action were taken.

**Legislative framework toughened up**

The resources to go along with this new philosophy were put in place by the act of 30th July 2003, particularly as regards information to local residents (information at the time of property transactions, flood warning markers, conferences of communes on the risks), flood management with respect to land use (flood prevention easements, anti-erosion action plans in some catchment areas, etc.) or measures to reduce vulnerability in flood risk areas (raising electric circuit boards and fuse boxes, refuge points, etc.).

In addition, this act gave local authorities and consortiums of authorities the power to form public territorial domains, particularly when the management of such areas was transferred from central Government. This reform should make it easier for local authorities to take actions on water courses in the area and put them back in touch with their river heritage.

**Reorganisation of flood forecasting services**

It was decided to carry out major restructuring across all 52 flood forecasting services (140 Full-Time Equivalent Staff across 70 sites) in order to improve forecasting. The reorganisation created 22 flood forecasting services (*French abbreviation* SPC), each with 5 to 10 full-time officers.

At the same time, a central technical service, known as the "service central d’hydrométéorologie et d’appui à la prévision des inondations" (*abbreviation* SCHAPI – Central hydrometeorology and flood forecast support service) was set up in autumn 2003, with around thirty staff working under a "water director". This body has the role of coordinating the services and developing methodologies, producing a "flood vigilance map" and supporting the SPCs in crisis situation. It is made up of hydrologists and meteorologists and is situated in the immediate vicinity of the "Météo-France" national meteorological and forecasting centre.
The national “flood vigilance” procedure, mainly inspired by the weather forecasting vigilance system, should help inform citizens better at the time of flood risks. In addition, when unfortunately, emergency services have to be involved, they can be provided with better information and mobilised more quickly.

**Action plans put in place by catchment area**

In addition to these tools, it was important to encourage the authorities in river basin areas to form plans that match the needs and expectations. Thus, in autumn 2002, a call for projects was made, with an initial fund of €130 M over 4 years (later increased to €190 M). In June 2003, 34 projects were initially chosen to receive subsidised finance packages, rising to 42 by the end of 2003. These projects cover 25% of the national territory and 39 agreements have now been signed by the national Governments and project leaders. These projects are mostly underway on the ground.

The projects selected cover both what is known as slow flooding (in flood plains or via ground water flooding) and the torrential flooding that causes major damage and sometimes even death. The river basins selected include almost all basins on which major flooding has been recorded over the last fifteen years (Somme, Odet, Saône, Meuse, Maine, Gardons basin, Ouvèze basin, Siagne basin, Vidourle basin, …).

In addition, with the relaunch of the Loire plan in 2002, the programme of work on the bed and banks of Loire that was approved in 1999 at the “Comité Interministériel d'Aménagement du Territoire” (CIADT – Cross-ministerial land use committee) got back on the rails. Likewise, after the major flooding in December 2003, a Rhône plan was initiated, including a first phase of urgent work, which has mostly been undertaken (€20 M), and a study into strategic overall land use and flood prevention. Similar plans will be put in place for the Seine and Garonne basins.

**Reinforcing protective structures**

Finally, it is vital that local protective structures are improved. The breaches in the Camargue councillors in October 1993 had highlighted the importance of strengthening existing resources and this was also an important part of the Loire plan of 4th January 1994. However, major progress still remains to be made, as shown by the breaches that occurred in the Gard département in September 2002. Councillors must be monitored...
and maintained by their owners to a greater extent and the police and water services must enforce this. To this end, an instruction was issued in August 2003, to ensure that owners are made aware of the need to monitor, maintain and, when necessary, strengthen these protective structures.

The relaunch of systematic mapping projects in flood risk areas enabled the size of populations living in flood risk areas to be reassessed. This reassessment, along with a succession of major natural disasters over the last ten years (particularly Camargue in 1994 and 2003, Aude in 1999, Gard in 2002) have led the French authorities to give a new push in the area of flood prevention and management policy. Although it will never be possible to totally eliminate all effects of flooding, by the end of this plan’s application period in 2015, this policy, jointly driven by national government and local authorities, should have helped to reduce the catastrophic consequences of flood. Particular efforts are required to ensure that the populations living in river valleys and their local authorities are made aware of the risks and encouraged to take individual risk reduction measures. Local authorities also need to promote development strategies that do not increase vulnerability and draw up local emergency plans in order that crisis situations can be well managed.

In 2003, the French Ministry of Ecology and Sustainable Development joined forces with the LOIRET Departement Council to carry out the pre-launch study into a possible European flood risk prevention centre (CEPRI).

The pre-launch study started on July 2003 and ended in December 2004 and carried out several pieces of work:

- national information day on risk management law,
- framework study prior to centre establishment,
- 1st "European Forum on Communication of Major Risk" on 15th and 16th December 2004,
- participation in implementing a national observatory of flood risk issues and vulnerability.

The decision by the Loiret Departement to carry out a pre-launch study for CEPRI is in keeping with the Departement's long standing commitment to flood risk management, which has been strengthened over the last few years by additional support provided to the departement’s communes. The Loire Departement Council's overall anti-flooding policy has a budget of more than € 1.3 million per year split into 3 major areas: the "Loire Grandeur Nature" Plan, support to local authorities and the "Bachelot" plan.

Experience to date shows the need for continuing efforts to mobilise local authorities and help them develop good practice in flood risk management.

CEPRI: Role and work

CEPRI is a tool at the disposal of local authorities’ councillors and technicians to support them in developing good practice in flood risk management.

Support will be provided to local authorities and other local associations in reducing the vulnerability of people and property at risk of flooding. CEPRI will provide strategic consultancy, making knowledge, technical and methodological tools available and will...
CEPRI will provide complementary services to those already run by the Central Hydrometeorology and Flood Forecast Support Department, part of the Ministry of Ecology and Sustainable Development. This service is based in Toulouse and particularly focuses on understanding and forecasting flooding phenomena.

Three major, well-identified roles.

1) **Provide support in local public sector infrastructure project management**
   The center will provide:
   - upfront consultancy services on request to help organise the local authorities' working methods in issues of compliance with latest regulations or voluntary assistance.
   - direct operational support for local authorities on specific emerging issues.

2) **Promote information sharing on flood risk management**
   - centralising and making available technical and legal knowledge,
   - sharing local authorities' good practice,
   - developing a Website as an information reference point.

The issue at stake is to provide local authorities with as many data, tools and useful information as possible: good practice catalogue, working methodology, feedback from experience (specific actions, management of a specific flood incident, etc.), inventory of equipment and technology used by local parties, documents, existing resource sharing networks, names and addresses of design offices and technical experts, copies of legislative and regulatory instruments, training courses offered, results of research programmes, etc.

3) **Provide a link between local authorities and national and European bodies**
   CEPRI will be able to be an effective player on a national and European scale to ensure the concerns and needs of local authorities and associations are heard when regulations and standards are discussed. It will draw on its on-the-ground experience and support roles.

On European level, CEPRI will aim to be part of the growing network of flood risk management centers.
The Ministry of Ecology and Sustainable Development is currently establishing a national observatory of flood risk issues and vulnerability: from the outset CEPRI will be a partner. Thanks to tests that will be carried out in flood-prone areas of the Loire in the Loiret departement, CEPRI will ensure that the information circulated is useful to local authorities.

Establishment of CEPRI

The center should be established in the last quarter 2005.

- The LOIRET Departement Council is currently proposing to establish a support structure (association loi 1901) with its partners and is trying to ascertain their position on contributing to funding for the first 2 years of operation. The Departement Council has already put up € 100,000 in loans for 2005.

- The LOIRET Departement Council has put aside quality premises for CEPRI in the center of Orleans close to the station.

- A director and one another member staff are being recruited.

- Their initial work will be to:
  - Seek funding and contracts for years to come.
  - Build on local, national and European partnerships identified during the pre-launch study and manage the network formed thereby.
  - Organise and prepare the center’s work.
  - Recruit a team, to eventually comprise 8 bilingual members of staff.
The Loire: last wild river of Europe?

The Loire, measuring over 1,000 kilometres, is the longest river in mainland France. Its catchment area of 115,000 square kilometres represents a fifth of the country’s territory.

Being subject to Atlantic and Mediterranean influences, the Loire is known to experience devastating spates. Its low-lying relief, the absence of snow pack and its geology may result in extremely low water levels.

The Loire and its main tributaries have been altered throughout time.

Navigated for many years by vessels, from dugouts to barges, the river was redesigned up until the end of the 19th century, with groynes and breakwaters following its course.

“Turcies”, light mounds of earth, joining together areas less prone to flooding, evidence of which dates back to the 12th century, preceded the levees (a local word for the dykes which serve to protect from flooding) built one after another until the end of the 19th century.

Due to its proximity to Paris, its fertile valleys, or “vals fertiles” (the local name for the floodplains protected by the levees) became known as “The Garden of France”.

Its climate and its central location led Kings to build many properties and castles.

Its sand and gravel were quarried for improving the soil, for public works or for construction.

Its transversal location and its capricious supply of water... strongly limited the possibility of developments such as those experienced by the Seine, the Rhone and other European rivers, such as the Rhine.

During the last third of the 19th century, vast development projects came up against the growth of actions aiming to ensure better recognition and environmental protection.
Faced with these conflicts, on the 4th January 1994, the government decided upon a global development plan for the Loire which aimed to reconcile the safety of people, environmental protection and economic development: the “Plan Loire Grandeur Nature” project.

This project, part of a sustainable development approach, comprised four complementary lines:
- the security of populations faced with the risk of flooding;
- the satisfaction of qualitative and quantitative water requirements;
- the restoration of the area’s ecological diversity;
- the protection of natural areas and landscapes.

From 1994 to 1999, a first phase of work led to a great number of accomplishments: maintaining control over urbanisation of areas prone to flooding, conducting innovative projects to protect the population from flooding, undertaking studies into the reduction of the risk of flooding by the large spates of the Middle Loire, or the Maine Basin, but also completion works to support low water levels, the reintroduction of the circulation of migrating fish and new means of managing natural areas.

Initially limited to the Loire-Allier axis, this first phase laid foundations for the generalisation of this new method of development for the catchment area of a major river and was extended to cover the whole of the Loire Basin.

On the basis of this success and the experience gained, on the 23rd July 1999, the Government offered participating local authorities the opportunity to extend the “Plan Loire Grandeur Nature” project by means of an inter-regional programme supported by State-Region Plan contracts.

The objectives retained for the 2000-2006 period are the following:

- The security of the population faced with the risk of flooding: Operations for reducing vulnerability, controlling urbanisation in areas prone to flooding and
preventive information, improvement of systems for forecasting spates, as well as restoration operations for the bed of the Loire, the reinforcement of the Loire’s levees and the implementation of localised protective measures in urbanised areas.

- **The improvement of the management of water resources:** Actions favouring the emergence and implementation of Development and Water Management Plans (SAGE), for the integrated management of the catchment areas feeding into the Loire.

- **The restoration of the aquatic environments and rural areas of the valleys:** Actions for the management and restoration of outstanding natural species, the reacquisition of the river’s mobile areas through the control of land, restoration and preservation of waterside constructions offering reproduction sites, as well as various actions to support populations of outstanding migrating fish, such as eels or the Great Salmon of the Loire.

- **The promotion of the natural, and cultural heritage and the landscapes of the Loire valleys:** Development of new forms of tourism with the creation of cycling routes and greenways, as well as the restoration, the modernisation and the promotion of navigable routes; rich and varied heritage promotion operations for the Val de Loire, as well as awareness campaigns, training and information.

This programme is one of the Plan Contracts signed between the French State and the seven Regions (**Auvergne, Bourgogne, Centre, Limousin, Poitou-Charentes, Pays de la Loire** and **Rhone-Alpes**), completed by a framework agreement between the State – the Loire Public Authority – the Loire Brittany Water Agency for global actions throughout the Basin.

With the State’s planned participation of 119 million euros, over 350 millions euros of work should be devoted to the Loire Basin from 2000-2006, more than half of which is for “safety actions against the risk of flooding from large spates”.

The implementation of actions associates the State, local authorities (Regions, Departments, Municipalities and their syndicates), associations and riverside residents.

The development of combined actions for preventing– forecasting – protecting against the risk of flooding for large catchment areas such as the Maine or the Upper Basin of the Loire and for areas with high numbers of residents, such as the Middle Loire or the “Furan”; the success of new forms of management of natural environments and emblematic migrating species; and the taking into account of the preservation of the natural, historic and cultural heritage and landscapes have shown that it is possible to reconcile the reduction of the risk of flooding with the preservation and the promotion of the environment.
The charter of resident communes of the Loire in the Indre-et-Loire Department

Marie-France BEAUFILS
Senator-Mayor of Saint-Pierre-des-Corps
President of the Association of communes along the Loire in the Indre-et-Loire

What does the Association represent and why is it attending this conference organised as part of the European project “Freude am Fluss – enjoying life along the river”? 

18 communes all along the Loire from Amboise to Chinon, with their wealth of history and river identity came together, convinced of the benefits of living on this alluvial plain. This plain between the Departments of the Cher, the Indre, the Vienne and the Loire is now recognised by UNESCO as a world heritage site.

This particularly rich site is vulnerable to flooding. Living on the banks requires that man’s occupation in this environment is rethought. New concepts of development must be invented, complementarities between territories found, and solidarity between the plain and the banks, between land subject to flooding and land which is not.

This also requires new development ideas in agriculture and industry, but also in landscape, environmental and tourism management. Working on prevention with residents, limiting the vulnerability of existing and future buildings must go hand in hand with the implementation of a culture of risk by populations.

The goal of the mayors in the Association is therefore to work together with residents on the choices to be made. The Association has decided to work with partners in their field of intervention to advance this new type of development, so that issues on the scale of the Val and land which may or may not be subject to flooding, but which will be affected by it, are taken into consideration. The Association would like to participate in exchanging knowledge and experience on major European rivers and share this experience.

To this effect, with the support of the State, the Etablissement Public Loire and the Centre Region, the Association has engaged in drawing up a sustainable development charter.
On the one hand, this is to understand the notion of vulnerability - what it covers and which means reducing the vulnerability of communes faced with the risks of major flooding.

On the other hand, it was necessary to identify the conditions for sustainable social and economic development, in view of flood risks in the Loire Valley, and set up directions shared by the various communes and all institutional partners.

**The main lessons of the charter**

- A more accurate definition of vulnerability helps in defining the conditions in which people can continue to live and develop along the river. “Reducing vulnerability means strengthening the ability of a business, person or territory to anticipate, bear and absorb all the disturbances which may occur due to flooding, in order to recover potentialities.”
- The absolute necessity for solidarity, by preparing for random flooding, coping with it, anticipating post-flooding and better identifying the dependencies of the commune on all levels: economic, travel, agriculture, infrastructures, housing. Further than the communal level, intercommunal structures must be mobilised to guarantee the conditions for collective and united taking into account of this integration. In this context, issues of solidarity are fundamental, whether it be in the issue of the vulnerability of networks (road, drinkable water, electricity, etc.) or the distribution of types of activity or even housing of evacuated people in the event of major incidents.

**Developing a culture "living with the Loire"**

Ensuring coherent development consists of adapting the activities of the Valley but also of affirming the identity of this territory, in its culture and landscape.

A lot remains to be done to ensure that residents of the Valley take account of flooding constraints, and beyond that, embrace a project that fully includes the Loire and its tributaries (this was not done after the great floods of 1866).

A specific Val de Loire quality approach should be engaged, based on the symbolic history of the valley, in relation with the classification of the river and its banks in the UNESCO world heritage.

Finally, several possibilities for action on various themes studied and debated (housing, agriculture, tourism, economy, landscape, risk communication) are proposed.
Action plans: five directions for 33 identified actions

- Awareness of and support for crisis management with the aim of coordinating the action of professionals, informing authorities and coordinating the actions, and organisation and awareness of residents.

- Prolonging the life of activities in the Valley, by reducing their vulnerability, adapting policies in favour of housing in particular, improving the knowledge of existing activities and their vulnerability, and designing specific policy to reduce this vulnerability at the level of the activity and the person (industrial or tourist activity for example).

- Supporting development compatible with the risk of flooding by preparing and organising the development. Making available elements of a new culture of methods of housing and construction to professionals for example.

- Directing the development of activities, adopting agro-environmental measures, developing sectors which meet the specific issues of the Valley (breeding, hemp crops) and in certified agricultural sectors.

- Promoting the specific identity of the Loire Valley by implementing preservation of the landscape identity, by consolidating its identity. This brings us to assist the authorities and the private sector by setting up help and advice structures working with
architecture and river landscapes such as CAUE (Advice for architecture, town-planning and environment).

The actions of the Association’s sustainable development charter are part of a number of policies on the European level. The flood risk management plan, from the framework directive on water, issued by the Commission of European communities in July 2004 encourages increased awareness of the risks of flooding through wider participation of stakeholders and better communication.

In terms of communication, one of the first actions undertaken by the Association is to create an event celebrating 150 years of Loire flooding as part of the Jours de Loire organised by the general councils in June 2006.
Redesigning what already exists in order to ensure the development of territories requires an approach which combines analysis, synthesis and consultation to define common objectives. The implementation of these objectives is, then, a question of the ability of each partner.

This is the work which has been conducted by the Conservatory over the past ten years. The mission of this association, created by the Regional Council of the Pays de la Loire and its tributaries, is to contribute to the preservation and promotion of landscapes, as well as to inform and to raise public awareness. The Loire, from Montsoreau to the Ocean, and its main tributaries, form the territory under consideration.

We have developed two main lines of work:

- To understand and to share knowledge
- To create an active partnership based on common goals.

Meeting Days, publications, exhibitions and an Internet site, all contribute to sharing information and raising awareness.

**Understand territories in order to give meaning to our everyday landscapes**

Thematic descriptions, operational analysis, archive research and surveys among riverside residents, help give meaning to our everyday landscapes, which are not, and which have never been, unchanging.

On a regional level, a series of complementary studies have considered land occupation, the bocage, prairies (surface area, distribution, management systems, data about farmers, the relationship between fodder-flooding-agricultural practices-botanical value, types of villages, types of riverbanks, backwaters, biological environments, islands, the notion of risk and its impact on the landscape). These supply data for a geographical information system which offers the opportunity to recreate and share a global vision of the valley today, and to eliminate some of the received ideas which can be a hindrance to discussion. It also offers an opportunity for observing the evolution and evaluating the impact of the measures which have been adopted.
But, how was the landscape we know today created and for what reasons?

Archives offer some clues, with maps and texts showing the extent to which the major features of this valley are related to flooding, whether it is in the buildings, the activities, the fauna or the flora.

Summaries of these studies have allowed us to define three main types of territorial organisation and to propose three “reference landscapes”:

- The Loire of meetings: a meeting between the Ocean and the River, the overlapping of earth and water in a landscape which is very flat, very colourful and which is marked by the rhythm of the tides. The vertical appearance of the industrial buildings stands out against the vast expanses of wetland which still dominate this area.

- The Loire of promontories: the Loire, surrounded by largely forested promontories offering outstanding views, contains some large islands. A great many groynes, mainly built at the start of the 20th century, attempt to channel the river. The villages are often built on hilltops.

- The Loire of levees: between the forested hillsides of the left bank and the undulating and mineral line of the levees which lie opposite, the islands lend transparency to the scene.

Today, the first inventory, conducted in 1996, can supply information about the territory’s evolution. These references are proposed, debated and analysed by a group of partners, all of whom have a special skill, which we hope to employ in order to achieve common goals. This has meant that various themes have been considered within a reference context, without losing coherence.
The interventions

These are situated within a statutory and financial framework: Loire Interregional Programme, agri-environmental measures, risk prevention plan, Natura 2000, local authority policies, State-controlled protection measures…

Thus, different features of the landscape have benefited from intervention programmes, among which are:

The riverbanks

The water sculpts the sandy riverbanks which offer shelter to riverside swallows. Sometimes, it is necessary to reinforce an eroded riverbank. About sixty work projects demonstrate that bio-engineering can successfully replace riprap. The renewal of vegetation of the riverbanks favours the establishment of beavers and is greatly appreciated by kingfishers.

Invasive plants

Water Primrose provides a beautiful cover of yellow flowers almost everywhere along the Loire and its tributaries. A regional Committee was formed, a practical guidebook for its removal has been distributed and many work projects have been carried out. Cartography makes it possible to follow the progress of this plant. It appreciates calm waters and the large number of unconnected backwaters makes it possible for the plant to colonise them rapidly.

The quays

This historic proof of the activity of commercial navigation which no longer exists, the quays form major mineral breaks in the long stretch of vegetation. Essentially built in the 19th century, they have often provided an opportunity to remodel the riverside front of the village. Despite appearances, they are fragile and the abandonment of their upkeep has resulted in more or less serious structural problems. Restoration work receives co-funding of up to 80% and is carried out after an obligatory preliminary study, funded up to 50% by the Regional Council. Today, the role of these quays is a festive one and they offer the opportunity to discover the Loire from close quarters. About thirty towns have undertaken to develop this heritage. These operations have encouraged local Mayors to consider their town’s non-built riverbanks.
The bocage

In the floodplain, the status of the bocage is statutorily controlled. Its total length, although much higher than in 1850, is far lower than in 1950. It continues to be eroded as a result of a lack of interest in its upkeep. Initial research has shown the feasibility of maintaining the bocage by including it in the wood-energy sector. Ash burr is much sought after and many recent tree-cutting projects have been of concern to Mayors: some of them have taken necessary measures to protect the most outstanding examples of bocage.

The meadows

Meadow activities have always had a dominant role in the valley. Some produce has disappeared (hemp, linen) to be replaced by others (corn, poplar, vegetables). The activities mainly occupy the lowest-lying areas. Present-day and ancient cartography show very clearly the invariability of this choice of location. Meadows play an important role in the valley, forming vast expansion fields for spates, thus decreasing the height and the speed of flow. Also, the ever-changing presence of water here provides these territories with a very high level of biodiversity. This means that there are some major challenges. Various measures have been set up to preserve these areas, especially specific agri-environmental measures. On the basis of studies which have been conducted, the PPRI has modified its regulations in order to maintain the seats of farming activity in the valley. Dwellings have been adapted to the water which surrounds them on a regular basis. They reveal the knowledge of the local population, which has learnt to live with these spates and who take care to mark on the stones the levels of past floods.

Natura 2000

The diversity of environments and the valley's potential to flood, offers 18 habitats and 17 species from the European Directive, for the sector between Nantes and Montsoreau alone, without counting the species protected on a national level. Objective documents (with the exception of the estuary) have been approved and actions are being set up progressively, as a complement to the agri-environmental measures. Activities, particularly tourism activities, must now take into account their impact on the different environments, which does not necessarily mean that they are forbidden.
It is also possible to mention the work carried out on the levees and the groynes, the cycling route, the reduction of circulation on the Authion levee in order to return certain parts of it to its potential as a viewpoint over the Loire, the ZPPAUP and Listed Sites protection procedures in progress, the “Bird Breeder” operation managed by the agricultural profession of Maine et Loire…

There is still much to learn and to do, but there are many operations, managed by a variety of players, from the State to local authorities, Regional Nature Parks, associations and professional bodies. The Regional Nature Park and the Conservatory offer an impetus to these programmes and organise the necessary consultative processes.

The Interregional programme, Natura 2000, and a variety of regulations form a strong framework for the implementation of work. The inclusion of the river on UNESCO’s World Heritage list of sites of cultural landscapes is a reward for these efforts of preservation and promotion.

“The Landscape is like a coat of humanity which has been thrown over the ground”. It has a history which is also our history and we are continuing to write it.
Reinforcing the measures to combat flooding in the Seine basin: the Bassée engineering project

Jean-Louis RIZZOLI
Deputy General Manager of the Grands lacs de Seine

Background to the Bassée project

The Interdépartement Institution of Seine Basin Storage Dams represents the départements of Paris, Hauts-de-Seine, Seine-Saint-Denis, and Val-de-Marne. It manages four dam reservoirs for the waters of the Marne, the Aube, the Seine and the Yonne with a total storage capacity of some 830 millions cubic metres. The main purpose of this reservoir management is twofold: maintain minimum water levels in and prevent flooding of the Seine and its tributaries.

The positive impact of the dam reservoirs with respect to normal flooding has been proved, and there is general agreement as to their effectiveness. However, the degree of protection that is provided is still partial and selective, notably because of an absence of control on the inflows from the Yonne — the Pannecière Dam controls only 2% of this tributary's catchment.
The Seine Basin is thus vulnerable to very large floods, and the region is not immune from catastrophic events such as those of 1910 and 1924.

Consequently the Institution, in close collaboration with its partners (the Ile-de-France region, Diren Ile-de-France [Regional Department for the Environment], and the Seine-Normandie Water Agency), has instigated the necessary studies to determine the outstanding risks, assess the potential damage from flooding in the Ile-de-France Region, and study the feasibility of different projects for reinforcing the defence against flooding.

The partnership studies have confirmed the major role played by the Yonne and the extent of the possible damage should it flood, which is why it is advisable to act urgently to reduce the flood impact of this river. The Bassée engineering scheme falls within this objective.

The Institution's approach

The engineering scheme should fall within a "downstream protection – upstream development" process – a solidarity that should strengthen the basin's coherence. Thus the Institution's approach is that:

- The hydraulic project should be integrated within a regional planning project desired by the local actors concerned. It has been due to very elaborate discussions taking place as early as possible in the process that the overall project has been able to develop, in complete transparency, with the emergence of everyone's projects and a clear expression of the expectations. The discussions for this project lasted for some 3–4 years within a context of working groups chaired by local councillors, and of exhibitions reaching out to all the region's inhabitants and working population.

- The upstream communities should be shown that an active effort is also being made downstream within the floodable territory. In this context, consideration is being given to broadening the Institution's mission beyond its direct responses to the hydraulic hazard; it should possibly coordinate a programme of actions aimed at reducing the vulnerability of property and activities exposed to the flood risk in the Ile-de-France region.

The Bassée project

The Bassée area has always played a buffer role where flooding of the Seine concerned. Whereas the upstream sector has pretty well maintained its role in respect the river's floods, this is not so for the downstream sector of the Bassée where the low-flow channel has been re-graded and the Seine widened. The overbank channel in this sector is now
only floodable at discharge rates in excess of about 400 m$^3$/s, which is to say only for relatively rare floods in view of the control by the Seine and Aube reservoir lakes.

Under these conditions, deliberations concerning the downstream section have been targeted towards re-establishing the area's role as a natural space for flood expansion and to developing this.

The principle is to retain the Seine water in the overbank channel of the Bassée area between Bray and Montereau at the moment of the Yonne flood crest. The resultant slack in the Seine discharge as a result of this retention would have the effect of reducing the peak flow below the Seine-Yonne confluence.

Moreover, engineering and managing the downstream Bassée area to reduce the Seine's flood impact would enable this former wetland to be enhanced ecologically, whilst preserving existing activities and inhabited sites, and favouring local development. The conception of this scheme was inspired by projects carried out along the Rhine and has been defined within the framework of a global development for the Bassée area that has been the subject of discussion from 2001 to the end of 2004.

The engineering would consist of storage polders to be filled by pumping only during extreme flooding on the Yonne. The project includes 58 km of low embankments delimiting 2.300 ha for over-stocking. The potential volume for storage during peak flooding of the Yonne is estimated at 55 million cubic metres with an average water depth of 2.5 m.

In terms of the 1910 flood, the high watermark in Paris would be lowered by 30 cm, to which one should add another 70 cm as a result of the existing dams. Similar flood conditions would thus remain below the thresholds corresponding to the first major disruptions of the networks and the critical overflow points for many communes.

The compatibility of this project with existing uses required studies into aspects of land use, "land-use control", environmental issues, water resources and aggregate extraction, as well as the urban-
landscape-environment feasibility of the engineered structures and the overall Bassée flood management scheme which notably concerns the agricultural community.

Over and above the compatibility aspects, local development surveys were launched within the framework of an agreement signed between the Institution and the Seine-et-Marne Département for the purpose of helping local authorities – or their organizations – within the region concerned by the overall study of the Bassée engineering scheme in identifying, studying and formalizing the measures and projects that they would like to see implemented.
Planned new quarter in Nijmegen in the Netherlands

Han BERG
Officer in charge of the project of Nijmegen

Thank you very much for your invitation to come and say a few words here in Orleans regarding our experiences resolving problems about how to give the river more room in an urban environment. For the Municipality of Nijmegen, the experiences were initially above all rather a shock. The intentions of our national government were to eliminate the narrow stretch of the river Waal at Nijmegen; this originally seemed to be a body blow for our urban development plans.

That first shocking experience is now a number of years behind us. During that period, the municipality and the national government have made joint efforts to find the best solutions for the problem. We have been in negotiations about damages and compensatory measures, and agreements have been reached on a joint approach.

Prior to that, we – the municipality – also had to become more expert in a field that had originally only been the territory of the national authorities. That was the only way that we were able to work together and negotiate as equals. Expanding our expertise was also needed so that we could inform our residents about the measures that would have to be taken. That is one important lesson that we have learned: a lesson that will apply to all municipalities that face comparable problems.

The municipal authorities in Nijmegen are now able to look forward with confidence to our urban development once again. More than that, it has made our plans better. Nijmegen now dares to embrace the river, much more so than we originally intended. We will do this by developing urban waterfronts along both the northern and southern river banks. Parts of it may even be implemented as a floating city. In short: room for urban development, and more room for the river. I would like to show you what we are doing in
Nijmegen to turn what started out as a threat into an opportunity. I am going to do that by taking you through a number of stages in the development of our city.

Nijmegen is the oldest city in the Netherlands. Our urban history goes back to Roman times. For nearly two thousand years, Nijmegen’s development was exclusively on the southern bank of the river. This happened particularly quickly during the last hundred years, and the city spread outwards, basically to the south and southwest. One result of this was that the distances from the new districts to the city centre on the river bank became greater. Extra investments in the city centre were required if it was to remain attractive for the city and the region.

Around 1990, the city authorities decided to extend Nijmegen outwards further on the northern side of the river. The fact that this could produce short communication links with the existing city was an important consideration here. This meant that the functions of the old city centre would also be available for the new districts on the northern side of the Waal. We now know the new part of the city as “De Waalsprong”, which literally signifies the jump across the river.

The Waalsprong extension of the city also meant that we had to take a fresh look at the river itself. We saw it initially above all as a barrier, something that had to be conquered, rather than as a challenge for the urban design of the new part of the city. Water did have a part to play in those plans, but primarily as recreational facilities such as ponds and canals. A result of this was that De Waalsprong seemed basically to be a new and modern suburb, hidden behind the high dykes of the busiest river in Europe.

In 1993 and 1995, a period of just a few years, we were faced with exceptionally high water levels in the river. Now, we’re well used to high water levels in Nijmegen. But the situation in 1993 and 1995 really was extreme. The trusty high dykes threatened to give way, and more than 250,000 people in our region had to be evacuated. Special measures were required, and so the national government did indeed announce them. We couldn’t just keep on raising the dykes – there are limits. So more space had to be created for the river. Bottlenecks and narrow stretches in the river had to be disposed of once and for all.

Near Nijmegen-Lent there is one of the narrowest bends in the Dutch river system. Calculations showed that the much larger volumes of water from the Alpine regions and
Germany that have to be dealt with would get backed up enormously. The consequences of this effect would be virtually uncontrollable for the areas along the river. The conclusion drawn by the national government was that the river would have to be widened at Nijmegen in any event, and that this would have to be done by making room in the Waalsprong area. The city of Nijmegen had just started building the first houses there. The national government asked the municipality to stop construction in this new part of the city.

This message from our national authorities came as a huge shock in Nijmegen. At first, the impression given was that the construction plans for the area to the north of the Waal (15,000 houses) would not be happening at all. The municipal authorities in Nijmegen seriously considered ignoring the request to stop construction and to take up the cudgels for a legal battle with the national government. However, given the national and international interest, it was decided not to do so. With hindsight, that was an important and sensible decision. That energy can now be poured into working together with the national authorities to look for solutions for the problem.

In the end, two variants were brought forward for the problem of the constriction in the river at Nijmegen. Both variants concentrate on the southernmost part of the Waalsprong area.

The first variant is the solution that was thought up by a think-tank that was set up by the Minister of Transport, Public Works and Water Management. It involves a parallel channel 2 metres deep and 200 metres wide that can lower the water levels by 45 centimetres. The original dyke and the houses on it can be retained by creating a sort of peninsula in the river. When water levels are high, this peninsula will become an island that can only be reached by a bridge. Effectively, this plan shifts the original dyke a few hundred metres inland. The challenge that this plan produced for our city designers was to develop construction plans for this part of the Waalsprong that were more oriented toward the river. By designing the dyke as a quay that could be built on, it was possible to have houses built next to the parallel channel, right up to the water’s edge. However, this plan also required about 50 houses in one of the former villages on the northern side of the Waal to be demolished. That meant that there was strenuous opposition from the local residents. The residents themselves came up with an alternative plan.
This involves placing a barrier in the river in front of the existing dyke, and digging out the river forelands behind. To achieve the required ultimate drop in water levels, the area behind the dyke has to be kept clear so that it can act as a parallel channel at a later stage and thereby contribute to dealing with the high water levels. At any rate, this temporarily avoids having to demolish the houses. Because the national government has still not made a definitive decision about the variant to be selected, our city designers have worked out both variants in more detail.

The measures needed to give the river more room in the southernmost part of the Waalsprong were also the trigger for the city authorities in Nijmegen to have a look at whether the urban development of Nijmegen in general could be oriented more towards the river than it previously had been.

The problem of high water levels was the catalyst that has led to the creation of really new and innovative plans for both the northern and southern banks of the river. Have a look at these plans with me, and I’ll take you through them. We are working on a new bridge for the city. We hope that this will provide a link from 2012 onwards between the new city on the northern side and the renovated western part of the city on the southern bank. At the moment, Nijmegen still just has a single road bridge over the Waal.

It was built in 1936 and is currently badly in need of renovation. The other link is older: the 1879 railway bridge. Two years ago, we added a bridge to that for cyclists and pedestrians. That improved the connections with De Waalsprong significantly for slower traffic.

On the southern bank of the Waal, there is a large industrial site (750 ha) that is being thoroughly renovated and also partially transformed into a new living and working area by the water.

Directly opposite it there will be the new town centre area for De Waalsprong. As well as 4,000 houses, there will also be shops, recreational facilities and offices. Compared with our earlier plans for the area, this ‘Citadel’ has been moved a lot further towards the river.

The old Waalkade – the Waal quayside – on the southern bank has already been developed over recent years into a tourist area. Plans are being developed as we speak.
to give the river more room here, permanently, while still protecting the city better by means of a modern and partially adjustable surge barrier.

This way, a new heart for the city will be created between the old bridge over the Waal and the new one, so that the city will embrace the Waal much more than it used to. We are trying to reduce the extent to which the river is seen as a barrier. This can be done by emphasising the lines of sight between the old and new cities, and by reducing the distances where possible.

At the moment, we are looking at the possibilities for creating an island or a floating city between the Citadel in De Waalsprong and the new housing area on the southern bank. In that event, parts of the river forelands that border on the Citadel could be dug out even further.

The last link in the chain in our series of management conferences is “Freude am Fluss”. In Nijmegen at the moment, we are fully aware of what it means to be able to transform the threat posed by the river into new opportunities for urban development in the city. An important lesson that we have learned in this regard is that we have to ensure that we can talk to the national authorities on an equal footing. Without that equality, it is highly likely that the interests of the municipalities and our residents will not be taken into account sufficiently. To do that, we require not only expertise but also developmental muscle and regional cooperation. Know-how and strength, above all so that we can think up innovative solutions together with our residents that can unite the interests that are currently all too often opposed.

This means that the parties involved have to look at more than just their own little bit of the river. They also have to look at the whole picture and see the joint opportunities and possibilities that “room-for-the-river” projects provide. The municipalities along the Waal in the Netherlands have started up a cooperative process on these lines, after the province of Gelderland and the Radboud University in Nijmegen took the initiative. We are going to convince our national government that it is possible to do more in the areas just beyond the dykes in our part of the Netherlands, without there being any danger to our citizens. I am convinced that international cooperation – which is why we are here, after all – can significantly improve the returns on our efforts.
The Integrated Rhine Programm (IRP) in Germany

Volker SPATH
Institute for Landscape Ecology and Nature Conservation (ILN)

The IRP incorporates the master plan for flood control and the restoration of the floodplains in the Upper Rhine between Basel and Mannheim in Baden-Württemberg. It is based upon the German-French-Agreement concluded in 1982. Apart from the maneuver of the French hydropower stations this agreement included several weirs and retention areas (“polders”).

The actual situation in Baden-Württemberg is characterized by the following data:

- The danger:
  - 95 communities
  - 700,000 inhabitants
  - 350,000 jobs
  - Estimated damages > 6 billions EUR
  - Flooded area up to 1,000 km²
  - Critical discharge at Karlsruhe: 5,000 m³/s
  - Actual protection against a 60 years flood

- The solution:
  - 13 Retention Areas with a surface of 7,000 ha
  - Construction costs about 520 M Euros
  - Retention volume 167 M m³
  - Protection against a 200 years flood

- The actual state:
  - 2 Retention Areas are in operation
  - 1 Retention Area is in construction
  - 3 Retention areas are in the state of the project approval procedure

The actual land use inside the planned retention areas is dominated by forests (68%) and agriculture (12%). There were no settlements in these locations. To minimize the impacts of retentions, which occur every 7-10 years with a retention height up to 4 m, “ecological flooding” is necessary. Corresponding to the actual discharge in the Rhine, a part of the water is passing the retention area. This so called “ecological flooding” enables the
natural development of an adapted flora and fauna. Especially the restoration of alluvial forest requires “ecological flooding”.

Till 1998 the planning was rather simple. But during the detailed planning on several locations, the reactions were less positive. North of Kehl/Strasbourg the general plan of the Land Baden-Württemberg is realised without resistance or dissense, because these “downstream communities” have benefits resulting from the construction of the retention areas. As an example the city of Karlsruhe is developing a concept for a Landscape Park Rhine which is harmonized with the polder plans of the Land.

In the southern locations near Breisach most of the citizens were against ecological flooding, because they are already protected against floods. Meanwhile the discussion with the interest groups was given up and the procedure resulted in 7,000 objections.

The planning of a special retention area in the “Rest Rhine” between Basel and Breisach is in good progress. The current plan of lowering the floodplain by gravel extraction combines flood protection with nature rehabilitation and recreation. With support of the “Freude am Fluss project” one of the most important communities along the Rest Rhine, the city of Neuenburg is going to develop new recreation areas in the broadened sites by adopting their municipality plan.
MAJOR EUROPEAN RIVERS: LEISURE ZONES TO INVENT AND REDISCOVER

A project on a European scale

The European Rivers Cyclingroute: Loire, Rhine and Danube, from Nantes to Budapest

Round table discussion: Exemplary projects to reclaim rivers initiated by the public authorities

The green background Loire project in the agglomeration of Orleans

The leisure navigation master plan for the Loire

Change of use of the Belle Poule levee

Example in the Netherlands: The Venlo corridor along the Meuse

Landsschaftspark Rhein: The Rhine park in Karlsruhe(Germany) turns to the Rhine
Preserve outstanding areas to enjoy on foot, by bike, or on roller blades and enjoy the everyday environment whilst getting around on a daily basis or whilst visiting Europe, its riches and its inhabitants. A few years ago it was only a dream, but today it is very much a real-life project which is under way: EUROVELO.

The major EuroVelo route

From Nantes to Budapest, over 2,400 km, the “Eurovéloroute des Fleuves” follows the Loire, along the “Loire by bike” route, currently in preparation, crosses Burgundy via its canals, follows the Rhine-Rhone canal and then the Rhine in Switzerland upriver to Lake Constance via one of the Swiss cycling routes, joins the Danube, which it follows downriver to Budapest... until finally reaching the Black Sea.
**Major assets**

Within this already favourable context, the Nantes-Budapest cycling route offers a number of assets:

- It serves large population centres, has **considerable local impact** and is a real-life project, which is visible and accessible to European citizens.
- **A major role in the development of territories**, revitalisation and the structuring of a rural tourism offering.
- At the **heart of the European cycling tourism market** (Germany, Switzerland), it has a very high potential economic impact.
- **An exceptional natural and cultural heritage**, with a wealth of European diversity to be promoted.
- The three major rivers, the Danube, the Rhine and the Loire, constitute a **powerful theme**: veritable melting-pots of European civilisation, which carry the memory of Europe and its creation.
- **Quality of the very highest order** among the range of European cycling routes: a majority of greenways, very little difference in altitude, accessible to all, good quality road surfacing

**A sustainable development approach**

The project is fully integrated within a dynamic of sustainable development:

**An economic project:**
A potential tourism impact of hundreds of millions of euros per year for accommodation, restaurants, local produce, rentals, rail transport...
For the territories lying slightly removed from the main tourism areas, it is a major tool for territorial development, job creation, the revitalisation of rural areas and the improvement of services, businesses and accommodation.

**A social project:**
Favour exchanges between European countries, the town and the countryside, be a privileged area of learning for young people, a contributing factor to public health for all... a place where it is possible to learn how to meet others.

**An environmental project:**
Promote non-polluting modes of travel, which respect the environment, favour clean urban transport practices, promote the natural and cultural riches of the areas crossed and protect fragile areas.
The “Eurovéloroute des Fleuves”: an exemplary cooperation project

Within the framework of the INTERREG IIIb North-Western Europe programme, “Eurovéloroute des Fleuves” is a major international cooperation project. Co-funded up to 6M€ by the FEDER, it is the fruit of collaboration around a common project between 3 directly involved countries, France, Germany and Switzerland, and 3 associated countries, Austria, Slovakia and Hungary, and 18 partners, Regions, Länder, Cantons, Departments, Public Bodies, Foundations, Associative Federations. Apart from the richness in the exchange of know-how which it gives rise to, this project also highlights the interest of an inter-regional approach, with local operators working on their territory around a common idea.

**The objective:**
Build a product on a European level, based on a concept combining mobility and sustainable tourism.

**Two missions:**
- Tourism development of a homogenous product
- Organisation of the missing links

**Project organisation:**
The project is organised around a structure made up of:
- An International Committee of 18 direct partners who manage the project,
- 7 networks of technical correspondents based on the different work themes, one on technical developments and the six others on tourism development,
- a support cell ensuring assistance to the project manager and the networks of technical correspondents
- associated partners: Austria, Slovakia, Hungary, representing User Federations,
- Project Management and financial management by the Centre Region.

**The themes:**
7 work groups have been identified during the preparation of the project based on the questions asked by the partners:
- Design and test analysis tools,
- Improve access and inter-relations with public transport systems,
- Develop a specialist accommodation network,
- Communicate and promote the route,
- Promote the natural and cultural heritage,
- Develop a consistent form of signposting,
- Organise the missing links to ensure the continuity of the route as quickly as possible.
With the river Loire and Sologne and its forests, the area around Orleans offers a daily array of natural scenery and countryside that cannot be found elsewhere. The Loire deserves more attention and it is particularly beautiful at Orleans. The cities have too often turned their back on it, forgetting that in the past, it was a major communication and transport route between centres of civilisation. Yet on a daily basis, the river Loire in its urban and wild settings shows us that the city was formed around its relationship with the river.

The Val de Loire area is a UNESCO world heritage site, which highlights the extraordinary quality of the environment. The Agglomeration of Orleans Val de Loire wants to take this opportunity to encourage the people of Orleans to use the river and its environments on a daily basis and to promote its geographical location as a gateway for tourists to the Châteaux de la Loire.

The Agglomeration is therefore undertaking to set up a major project: "Loire –Trame verte", to draw together the 22 communes in the region around the shared identity they have around the river. The goal is to create a structured countryside environment, in particular by establishing an "eco-space" to reinforce quality of life. This is a response to the desire expressed by various communes to provide a network of pathways and routes to enable people to enjoy the whole agglomeration, in particular its relationship with the river Loire, in a sensitive and harmonious manner. Another major issue for the "Loire - Trame verte" project is awareness of flooding risks, and the Agglomeration is working closely with Government departments on this issue.
The “Loire / Trame verte” project is made up of a total of 26 infrastructure projects based on local and shared initiatives. These initiatives focus on three priority areas:

- Developing tourism and leisure-focused cycle routes

At the heart of the “Loire - Trame verte” is a projected network of cycle routes and paths as part of a vast programme of "ecoroutes". These will aim to cater for as many users as possible (no motor vehicles).

The Agglomeration is therefore planning a forest trail to benefit from the rich natural heritage of the Forest of Orleans, whilst protecting the biodiversity of the habitat and catering for a variety of users. It is also launching a Loire – Loiret "Green Trail" and the "La Loire à vélo" (Loire by bike) project, a 13.5 mile route on both north and south banks of the river.

On an agglomeration-wide level, this project focuses on three concerns:

- Raising awareness of the urban and natural banks of the Loire and its natural heritage,
- Developing bike riding in the agglomeration,
- Promoting environmentally friendly "ecotourism", linking sporting activity with the natural environment.

This is part of a commitment to sustainable development.

- Developing walking trails around the Loire, Loiret and Canal

Footpaths have been developed to take full advantage of the countryside and to connect the Loire, Loiret and the Canal. These routes will focus on a dozen spots with a particular heritage or natural feature, where the Agglomeration is making a major investment. Designs focusing on the layouts of these routes have already highlighted priority actions to be carried out in the future before launching other projects. It should be mentioned that these projects highlight the Agglomeration's desire to coordinate management and upkeep of these locations in the future using the skills and resources in the communes. Legal structures will be offered to ensure that the ramblers and cyclists are treated the same in all of these areas.
The renovation of the river quays between George V Bridge and Cabinet vert is a major focus of the “Loire Trame verte” project, aiming to bring the quays of Orleans back to life. The goal is to promote the city and the river in synergy, making the most of the exceptional setting provided by the historic centre of Orleans, and to give new life to uses of the Loire in the agglomeration.

Following in the footsteps of historic activities on the Loire in Orleans, new quay uses linked to city life are being promoted, such as walks and leisure activities. After major projects such as the Place de la Loire in Orleans, the agglomeration has continued to focus on its river and renovate the landscape and architecture of the quays and waterside infrastructure. These projects include reopening the Orleans Canal between rue Jousselin and the lock on Fort Alleaume quay. In conjunction with the Loiret department council, the Agglomeration is heading up a project to open the canal to boat traffic between Orleans and Montargis, with a potential link between the Loire and the Seine in the future. A barge mooring area, with fixed and floating jetties on the Loire is also planned. Accessibility and community spirit are the bywords of this project, which particularly emphasises shared use: walkers, pushchairs, roller skaters and cyclists coexisting in harmony on the quays and their dedicated areas. Finally, two traditional Loire riverboats will be permanently moored opposite Place de la Loire, with onboard cafes, restaurants and exhibitions.

The “Loire - Trame verte” project also aims to provide a leisure facility at Bois de l’Ile - Ile Charlemagne. This “Loire River Park” on the outskirts of the agglomeration, close to Orleans town centre will cover a vast area (300 hectares in the case of Bois de l’Ile), specially created for leisure and activities, to discover the diversity and beauty of the Loire valley’s natural environment.

The agglomeration and its commune are thus aiming to kick off a lifelong project for residence, not only bringing the city to life, but also aiming to attract tourists to the region and boost the economy.

The big idea of the “Loire - Trame Verte” Project is to open up each town, village to the river and its natural environment. Its ambitious scope reflects a genuine passion for the river and the desire to share with the residents of the Orleans agglomeration and beyond.
The leisure navigation master plan for the Loire

Philippe DUCHENE
Expert attached to the “Mission Val de Loire”
Director of ACT-ouest

Reasons for the plan

- River Loire: difficult watercourse, not navigable upstream of Angers - Bouchelmaigne, but boating is possible in localised basins even at low water.
- Diverse demand: rediscovery of Loire valley cultural heritage, leisure activities (angling, rambling, etc.), sporting activities.
- Risks and need to protect habitats, requiring precaution, appropriate solutions and decision-making.
- Tenuous economic viability of certain activities (seasonal nature, limited capacities, etc.).

The initiative and working methods

- Plan launched by the Prefecture of the "Centre" region. Work led by “Mission Val de Loire” with technical support from the consultancy firm ACT-OUEST and technical partners (IMACOF, Ph. AUCLERC, P. AUCANTE) in establishing an inventory of the current situation.
- Seminars and consultation with a wide working group (2 Regions – 4 Departments – many public sector, voluntary sector and private bodies involved).
- Report presented to Territorial Conference of the Val de Loire – World Heritage Site area for validation.

Suggested principles

ACTIVITIES TO DEVELOP: WELL THOUGHT-OUT CHOICES.

The following choices can be made:

- ecotourism and river heritage initiation trips (traditional and modern boats),
- passenger boats,
- river trips in small craft,
- riverside events,
- individual boating initiatives on low-risk basins and sites ("les ports de Loire") where boating activity would bring welcome life.

**Reasonable, Measurable Goals**

- **Fifty traditional or ecotourism boats** for the public (associations, businesses), that is 20,000 to 40,000 trips per year for ecotourism ("Marine de Loire" – Loire fleet).
- **Tenfold increase in the passenger boat offering**, i.e. 50 -100,000 trips per year depending on service type.
- **Creating a network of around 500 canoes-kayaks for river trips** for 50,000 days per year plus initiations, local trips and individual private usage.
- **Promote around thirty "ports de Loire"** where individual private boats, traditional craft (flat bottomed barges) and others can access useful services (information, safety, mooring, access) and enjoy organised activities.

**Local Navigation Basins**

Navigation basins are stretches of the river where even in low-water (summer), boating can take place. These areas, which are therefore defined in terms of obstacles and rough points, have been identified and mapped for “Marine de Loire” type boats and light craft (canoes-kayaks).

**Ports de Loire**

As such, the old ports cannot be used in low water because the river level has dropped. The idea is to refit these ports with seasonal, reversible light equipment to give access to the river and organise activities where possible. The ports de Loire will also be sites in towns and villages where activity clusters can spring up involving local partnerships, for example with the “Loire à Vélo” (Loire by bike) project.

**Principles**

- **Increase the viability of business** or voluntary sector bodies, by organising new partnerships between boating operators, local authorities and tour operators to organise more activities and manage and maintain sites and local activity clusters.
- **Roll out a shared strategy**, in partnership with the Government and regional and departement Councils (e.g. dealing with rough points, port planning, information, events, training).
- **Enable local initiatives** to get involved with projects (local plans), with contracts put in place after the requisite process.
Pilot scheme: navigation basins

A pilot development project was started in April 2005 to create a local navigation basin on the "Levées d'Anjou" basin between Savennières and Montsoreau, with technical support from "Mission Val de Loire", at request of the Riverside Communities and SITVAL.

This project includes:

- an inventory of current riverbank and boating development projects (University of Tours – doctoral thesis),
- development project being planned with support from ACT-OUEST (passenger boats, boat trips, ports de Loire, events),
- goals being drawn up and work monitored by a technical working group (local authorities - CDT),
- local council plenary meeting schedule for September 2005 to discuss the development project.

Another pilot project has been launched by the Agglomeration of Orleans which will be part of the Master Plan experiment.

Current on-going work.

Goals: Format and circulate the draft Plan and initial experience by the end of 2005.

The work will then be continued as follows:

CONCRETE OUTWORKING OF MASTER PLAN.

- Specify navigation basin proposals and associated activities, possible port sites and map each basin (currently underway).
- Specify terms of reference for the strategy and priority actions for facilitating new initiatives and ensure they are viable.
- Specify solutions and procedures for recommended actions.
- Plan procedures for piloting and assessing projects.

MAKING A FORMAL "RESOURCE PACK" AVAILABLE TO LOCAL AUTHORITIES AND OPERATORS.

- Drawing up a "Loire boating Charter" laying down general terms for boating on the Loire, restrictions, good practice and approved organisations. This chart will draw on work already carried out in the "Centre" Region, putting it into practice by enforcing its adoption and application by partner projects which will receive financial support as part of the plan.
- Creation of mapping tools for developing local navigation basin projects.
• **Navigation basin project and structure templates**: drawing up and presenting typical dossiers.
• **Sustainable partnership models**: promotion of local activity clusters (châteaux, vineyards, Loire by bike, events, culture, gastronomy); management of activities at ports de Loire: presentation sheets and implementation procedures.

**Mobilising institutions (shareholdings and funding).**

• "Loire Grandeur Nature" plan. Current questions: how can river life promotion projects piloted by local authorities be supported (e.g. ports de Loire...)?
• Local authorities: mobilising Regional and Departement authorities, EPCI, communes, running local meetings (discussion of projects, strategic interests) and by final communication as regards the plan.

**Circulation document.**

Drawing up a "Val de Loire" dossier with information from the study and items for validation.

**Schedule.**

• **September / December 2005**:
  - 4 Local meetings – to promote navigation basin projects and initiatives and specifying actions.
  - Inter-region working group.
  - Final version of the plan drawn up for presentation to a territorial Conference at the end of the year.

• **2006**: Conclusions to be published as a "Val de Loire" Dossier.

**Documents to date.**

• **IMACOF** – geographical, physical, environmental and regulatory inventory (January 2005).
• **Ph. AUCLERC** – inventory of current pleasure boating practices.
• **P. AUCANTE** – photographic record of Loire valley landscapes (Mission Val de Loire).
• **ACT-OUEST** – draft master plan for pleasure boat navigation on the Loire – study report (January 2005).
• **ACT-OUEST / Ph. JUGE** – mapping of navigation basins (2 maps) - Marine de Loire - canoe-kayak.
"La Loire à vélo" (Loire by bike) is a tourist bicycle route running along the river Loire for nearly 600 km, using both the right and left banks, from the edge of the Burgundy region right to the Atlantic Ocean.

Since 1994, the "Pays de la Loire" region has undertaken to develop bicycle riding for leisure and supporting local authorities in cycle-route initiatives both for tourism and leisure.

In 1995, the "Centre" and "Pays de la Loire" Regions took the decision to cooperate in their shared interest to promote the river Loire and develop tourist and leisure-focused cycling activities by setting up the "La Loire à Vélo" route.

In the "Maine et Loire" Department, the bicycle route contracting authorities are the "Maine et Loire" Department Council and the agglomerations of Angers and Saumur.

The route uses various types of safe pathways, accessible to road bikes, mountain bikes and hybrids, with very few ups and downs:

- quiet back roads,
- specific cycle paths put in place alongside back roads and existing town streets,
- existing urban developments, countryside and forest tracks and towpaths,
- new purpose-developed paths.

The 6 km "Belle Poule" levee, with a small 4 to 5-m tarmacked path is an integral part of this route.
It enjoys a remarkable position in the Angers agglomeration, in a beautiful natural environment, alongside the river Loire, the flood plain and enclosed fields protected by the levee.

Despite not really being appropriate for this purpose, it has been used as an access route between the southern communes of the agglomeration for many years.

During the operation phase of the "Loire à vélo" project, this levee was converted to give cyclists priority use, making it a tourism and leisure promotion asset for the Angers agglomeration and increasing the level of safety.

This goal has been pushed for a number of years and in 2004, a foretaste was given, when the levee was partially closed, open to bicycles only at the weekend in partnership with the communes affected, "Les Ponts de Cé" and "La Daguenière".

The Angers to Tours section of the "Loire à vélo" route has now been opened since July 2005 and so the safety level of the levee needed to be raised. It is now open exclusively to cyclists, with the authorised access for residents.

Two chicane-type features have been built at either end of the levee to ensure its new status becomes obvious and an automatic barrier has been put in place in the middle of the route, with turning areas on either side.

The Town of "Ponts de Cé" has invested in re-qualifying and redeveloping the natural wildlife areas either side of the levee.
Example in the Netherlands:
The Venlo corridor along the Meuse

Peter FREIJ
Deputy-Mayor of Venlo

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Short project description

In 1993 and 1995 the Dutch was confronted with floods. The Meuse brought in the northern part of the province of Limburg such a big water discharge since 1926. After the floods the government started with the preparation to improve the safety of the Sand Meuse. These activities are being conducted by a central project organisation, called Maaswerken.

At the same time four municipalities and three nature organisations in North Limburg initiated a contribution to this plan. Their goal was to achieve not only flood safety, but also restoration of the original river landscape, improvement of the tourist infrastructure and urban and country development. From 2000 onwards they are preparing and implementing this plan.

Vision of the region on the region

The working method of this consortium led to an innovative approach of flood defence: together with safety achieving an ecological valuable, tourist and attractive river landscape in which the city Venlo and villages are related with the river. A 25 km riverine zone of the Meuse has been designed with all the stakeholders.

The project started with a programme with a richly illustrated perspective of the future Meuse banks. This programme includes 46 separate projects. The proposed (partly prepared and partly executed) measures vary from adaptation of the river (escavation of floodplains and making side channels) till small scale interventions like realising bike routes. The final result is a safe and beautiful river. Not a river hided behind quays, but a river that meanders and at the same time plays a central role in an attractive landscape with hectares of river nature in which people can walk and bike freely.
On one's own power

A lot of work has been done. All the involved local councils decided on the project Meuse Corridor. The river designs are prepared, the hydraulic effects are determined, the relevant budgets are decided on and sponsors are found. Research has provided a lot of experience, skills and facts. Land has been bought or reserved. The main important fact is that with funds of municipalities, province of Limburg and nature organisations the project already started the execution of striking projects. As a consequence, the Meuse Corridor has since its start in 2002 great success. By communicating these successes extensively, and making a party of each realised step forward, the project achieved new funds continually. The project which realises a modification of the landscape on a large scale, starts with a minimal budget of 40.000 euro, and only a few employees (1 full-time equivalent (fte) totally).

In the meantime land has been bought and enfranchised the leasehold. Nature areas are open for the public and walk routes are realised. Important is that the local communities are informed through many excursions, year after year of organised field education, publications, website, media events, lectures etc. As a result, they have a positive attitude towards the proposed interventions. With this approach and on one’s own power some 329 hectares of nature along the river are realised and available for sustainable room-for-river measures.

Thanks to these developments the city of Venlo received in 2003 the title of ‘Greenest city of Europe’.

Fig. 1 Overview of a part of the Meuse Corridor with separate projects and the state-of-the-art
**Striking projects**

Within the project programme there are a few crucial interventions in the river bearing the other projects. These key projects form the backbone of the plan and lay a basis for nature development and recreational developments.

These projects comprises: room-for-the-river Raaijweiden, room-for-the-river Venlo-Velden, room-for-the-river Grubbenvorst, relocation of the quay in Arcen, and restoration of an old Meuse branch. These projects form a cluster that achieves:

- 61-80 cm water decrease in the region of Venlo, effectuated some 44 km upstreams (till the city of Roermond);
- Fit smoothly in the country development and urban innovation in the city-centre of Venlo (Meuse Boulevard and Meuse waard) and Blerick (Meuse park) that made a connection between city and village with the river;
- Provide for national walk and bike routes between the city and the surrounded nature areas (e.g. national park Meuse dunes);
- Offer unique opportunities for the restoration of original river nature in the city and villages with recreational and educational functions, and a considerable improvement of the environment. In Venlo arose 10,5 km freely accessible and united river nature;
- By Dutch standards the unique green infrastructure offers ten thousands of hectare (cross-border) nature areas on the East bank of the Meuse through connecting the river with the hinterland.

![The project Venlo-Velden](image-url)
# Information

Background information on the Meuse Corridor you will find on the website [www.maascorridor.nl](http://www.maascorridor.nl), with among others PDF-files of the project programme and the designs for room-for-the-river.

<table>
<thead>
<tr>
<th>Location of the plan area</th>
<th>Along the Sand Meuse in North Limburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of the plan area</td>
<td>25 kilometer, on both banks</td>
</tr>
<tr>
<td>Number of projects</td>
<td>46</td>
</tr>
</tbody>
</table>

**Important results**

- 12 projects realised
- Striking projects far-reaching prepared and favourably
- Considerable land purchase in the plan area
- Realisation of 10.5 km united river nature in Venlo

<table>
<thead>
<tr>
<th>Start en end of the project</th>
<th>2000-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intended number of hectares</td>
<td>More than 800</td>
</tr>
<tr>
<td>Realised number of hectares</td>
<td>329</td>
</tr>
</tbody>
</table>

**Sponsors**

- Flood defence
- Regular funds for nature development
- Subsidy of the province of Limburg
- Own funds of nature organisations and municipalities
- Private individuals and enterprises
- Postcodeloterij (national postal code lottery)
- GIOS
- Mineral extraction
- Housing

**Cooperating parties**

- Municipality of Venlo
- Municipality of Horst aan de Maas
- Municipality of Arcen en Velden
- Municipality of Maasbree
- Foundation Limburgs Landschap
- Staatsbosbeheer
- World Wide Fund for Nature
- Province of Limburg
- Rijkswaterstaat
- Water board Peel and Maasvallei
- Project organisation Maaswerken (Rijkswaterstaat / Ministry of Nature (LNV)/ Province of Limburg)

**Project organisation**

- Central: Steering Committee, official consultation and project leader (no more than 1 fte totally)
- Local: every separate project has its own project leader + project group

**Public support**

- To work on continuously through lectures, excursions, field education for schools, walk routes, website and brochures.
Landschaftspark Rhein
The Rhine park in Karlsruhe, Germany
Karlsruhe turns to the Rhine

Thomas HENZ
Directeur des espaces verts à la Ville de Karlsruhe - Allemagne

Forming part of the trans-national “Pamina Rheinpark”, “Landschaftspark Rhein” involves the development of an extensive recreational area within Karlsruhe’s administrative boundary.

A continuous path with attractive links to the Karlsruhe districts of Knielingen and Mühlburg are a major element of the plan. An alteration to the Rhine Valley land-use plan is proposed in this area. A connection between Lake Knielingen and the Rhine is being considered as part of the flood protection scheme.

The Landschaftspark will be centred to the south of the Rhine Bridge. Other focal points will include proposals for the flood plain at Rappenwört and the area around the NATO harbour (the “Rheinbastion”) south of the oil refinery.

At present, various options are being discussed, ranging from allowing flooding as the Rhine’s level rises to more controlled flooding.

The IRP proposals (the Integrated...
Rhine Programme), the organisation which manages the river - create new opportunities for flood protection, nature conservation and recreational activities within Karlsruhe's city boundaries.

A discovery trail to explore the floodplain is planned on Rappenwört, an island formed by the old course of the river. It will be near to the Nature Conservation Centre and will describe the ecology of the Rhine valley.

Explanatory material on flood protection, navigation and landscape development will also be provided at another location to the south of the lido. Controlling where the public can go to watch the river, allows more of the Rappenwört island to be flooded and makes flood-watching safer.

Planning the landscape and ecological development of the Rhine floodplain lying within Karlsruhe's administrative boundary is the main project in Karlsruhe's land use plan.

The Maxau farmhouse, yet another attraction, is situated between the Rhine and Lake Knielingen. The Knielingen Museum has already been established but further developments are being considered, including there creational use of the Rhine terraces, children's play areas with water-features and the sale of regional food and crafts.

The bank of the Rhine within the lido will be permanently reopened to the public.
WHAT ROLE CAN THE PUBLIC PLAY TO REDUCE FLOOD RISK ALONG MAJOR RIVERS?

Private initiatives to reduce vulnerability of existing homes

The 1997 Odra river flood (Poland): Inhabitants’ behavior during the catastrophe

Flood risk information for councillors and residents: follow-up to European project OSIRIS

Public information on the flooding risks due to ground water

The evacuation of 250,000 people in February 1995 between Nijmegen and Gorinchem (Rhine and Meuse in the Netherlands)

Round table discussion: European projects symbolising a new approach

Pilot project to share responsibility in the Starkenburg region in Germany

Loire: the deferred development zone project in La Boullie in Blois

Raising awareness on sustainable flood defence: the Tagliamento case in the southern Alps in Italy
Private initiatives to reduce vulnerability of existing homes

Jean-Pierre VALETTE
Officer in charge of flood prevention – Regional Management for Environment in the Region Centre

In 2002, the “Plan Loire” multidisciplinary team had surveys carried out of around hundred families whose homes had been flooded at least twice over the last 10 years. It came to light that after these disasters, very few people took any measures to prepare for a repeat. Moreover, the majority of measures taken only had limited effects. Two factors may explain this behaviour: the belief that flooding is unlikely to recur and the feeling that individuals may have of not playing a direct role in reducing their vulnerability. These results also show that several years after flooding, economic losses are not the most salient effect but that the psychological impact has marked people in a big way.

In comparison with the other issues, one of the characteristics of the existing habitat is that each home or household needs to be taken as an individual case with appropriate tailor-made solutions needing to be found. A purely regulatory approach is likely to be fairly ineffective, whether involving instructions, advice or compulsory work orders. Generalised rules imposed in this way only provide partial, poorly understood responses, failing to take into account individual circumstances.

Even though this may seem like a wager in valleys that have not flooded for 140 years, we feel it is essential to turn to private initiatives to lead the way in vulnerability reduction policies for the human environment.

These policies require a chain of decision-making and information-sharing, in which the individual is simply one link. It involves asking him/her to reduce his/her vulnerability, to find out about the dangers, assess the impacts of flooding on his/her life and property and to decide upon and put in place the required measures and work.

This also requires that local authorities be able to provide information on the risk involved, counter-measures that will be taken and advice and resources for assessing and reducing risk.
Knowledge : learning about the dangers

The historical list of the Highest Water Levels Measured is the only piece of systematic information currently available for all communes of the Mid Loire (available from town hall or on a website). However these communes can be affected by several types of flooding (direct gradual or flash river flooding, rise in water table, weir malfunction, banks breaking, etc). Each of these phenomena has a corresponding water level, speed and duration and these differences can affect the extent of the damage. Property damage can vary between € 10,000 for flooding to a level of 0.5 m. lasting less than a day and € 50,000 for flooding to a level of 1.5 m. lasting 10 days.

There is a lack of human means and networks for circulating information on flood types and effects, meaning the data is not easily accessible.

Even using the Highest Water Levels Measured data is difficult as very few individuals know the official altitude (NGF measurement) of the floor of their home. Without this data, it is impossible to calculate the potential water level in their home, an essential piece of information in deciding what steps to take.

Tests currently underway in the Orleans agglomeration show that in most cases this information can be gathered via digital modelling. However the problem of making this information available to the individual remains. As an extension of the "Bachelot Act"¹, more high water flood markers could be put in place in the smaller communes.

Risk assessment and awareness

Personal risks : Vulnerability is mainly related to physical health. The family needs to be sheltered and protected during the flooding and on return special precautions need to be taken against illness, electrocution, accidents related to the stability or otherwise of buildings and infrastructure. There are also risks related to mental health: interviews with flooding victims one year after the event show that the loss of irreplaceable items and the fact that victims cannot go back home for months cause psychological scarring; no long term support has been provided for victims.

Most solutions require that each inhabitant be aware of the risk and the appropriate organisational measures to take. These need to be consistent and systematic in order to be effective, but for the inhabitant, this does not come naturally.

Housing risks : In general, building projects do not often take into account the flood risk inherent in their location: inaccessible underfloor space, electrics completely unprotected from flooding, systematic use of plasterboard, fuel oil boiler in the basement, etc.

¹ Act introduced in 2003 providing regulations concerning technological and major natural environmental risks.
Post-incident surveys of people living in flood-risk areas confirm that very few inhabitants have the required knowledge to self-assess their own homes. More than a methodology, they need a diagnostic service they can access.

**Property risks** : Loss of property can increase psychological (family keepsakes), practical (means of transport) or economic vulnerability. Damage or loss makes returning to the property more difficult, especially with things that cannot be replaced. This also requires awareness of the risks and appropriate measures.

**Risk culture : reducing vulnerability**

It may be that, once aware of the risk, the desire to reduce vulnerability follows on; however, a current study on disbelief shows that this cause and effect relationship is not altogether systematic in this area. Measures can be taken as to the response during and after the flood event and/or work to be carried out or equipment be installed to deal with the effects of flooding. In any case, the priorities are always :

- **Protecting members of the household (physically and emotionally).**
- **Helping them get back to normal after the flood.**
- Reducing the amount of irreplaceable losses or damage that prevents getting back to normal.

**Preparing for the crisis :**

There are at least three goals in this area :

- Protecting property, especially irreplaceable items and things required on return (or ensure these can be replaced quickly and easily).
- Protecting people when the water comes, getting away from danger as quickly and easily as possible and planning temporary accommodation during the crisis period.
- A quick, risk-free return to clean, dry, fix and to get back into the home as soon as possible, even if it is only partially inhabitable.

**Improving accommodation :**

Work can be carried either to improve protection of the home or to reduce damage, enabling a quick return. These two issues are not necessarily identical. For instance, the electrical circuit board and fuse box is extremely sensitive, but, if damaged, is relatively cheap to repair.

The individual thus has choices to make and, as with diagnostics, should be able to access professional technical and financial advice. This advice is rarely on offer and most local professionals are not aware of flood risk and have no solutions to offer in terms of risk reduction.
Resources

The Multidisciplinary Team of "Plan Loire" is currently working on two documents which aim to reduce the vulnerability of the human environment.

**FAMILY PROTECTION PLAN**

This document aims to help individuals take steps to organise themselves without requiring professional help. It comprises a guide to help people understand the levels of flood warning, with appropriate responses and kits to be prepared for each stage in the incident ("evacuation kit", "return to home kit"). Advice is also provided as to temporary accommodation and insurance policies.

The guide is currently being trialled and this phase seems to be confirming the idea that discussion is required with local authorities, covering information on flood occurrence, commune-wide evacuation procedures and temporary accommodation locations.

Circulating this document requires coordination with local risk management policies.

**HABITAT DIAGNOSTICS**

Initial studies carried out with building specialists have lead to an itemised list for assessing potential damage for each building lot on the basis of water level and flood duration, which means that high-risk lots can be identified. As an extension of this work, a methodological guide is being drawn up for professionals (builders, construction project managers) to help in carrying out risk assessments and putting forward measures to reduce vulnerability. These diagnostics services could be made available to individuals or used in the context of incentive-based schemes such as the General Interest Habitat / Flood risk Programme run by the Orleans Agglomeration.

This study will also give us a basis to work with local authorities in coming alongside construction professionals to ensure flood risk is taken into account in their work and advice they give.

**DISTRIBUTION**

It would be pointless to distribute these resources as brochures or via the web if the capacity to provide local responses to local questions does not also exist. This will be hard for medium-sized communes where sometimes the whole population lives in flood-risk areas. Private initiatives will only develop if the resources currently being put in place are linked locally via the network of flood contacts. This already happens in several Loire valley communes either as part of incentive-based programmes such as the habitat diagnostics support programme being developed by the Orleans Agglomeration.
Floods during the ten last years in Poland

The flood in 1997 was one of the most large-scale in the past hundred years in Poland. In it, 54 people lost their lives, 162,500 people were evacuated, about 500,000 ha of agricultural lands found themselves under water; 47,500 homes were directly inundated, of which about 7,000 were no longer fit for further use after the flood. Losses were incurred by over 9,000 businesses, 71 hospitals were destroyed or damaged, along with 252 cultural structures, 300 historical structures, 937 schools and preschools. Total losses were estimated at $2.5–3.5 billion dollars, according to 1997 prices. Subsequent floods, of which there have been several since 1997, were no longer so catastrophic; but, for example, the flood in the Vistula basin in 2001 caused losses on the order of $0.8 billion, and 18 people died.

These experiences provided much interesting material concerning the effectiveness of flood damage mitigation strategies used in Poland, as well as the activity of crisis intervention forces and inhabitants both before and during the catastrophe. Particularly interesting are the latter experiences—concerning the activity of inhabitants, to which up until now no great attention has been paid. Their particular value lies in the fact that through the prism of individual experience, it is easier to see deficiencies of the existing flood damage mitigation system which, at the level of the state or from the perspective of institutions required to take certain actions, are not visible. In this article, we present the results of research by the Institute of Meteorology and Water Management in this area.

Response to warnings of inhabitants at risk

In Poland, evacuation was and still is of organized character. The crisis response plans being prepared by municipalities² contain analyses of how many persons within a given town are potentially at risk, establish how many vehicles are necessary to evacuate them, and designate places to which inhabitants are to be evacuated, i.e. so-called

² Municipality (gmina)—smallest administrative unit, normally encompassing several, sometimes over a dozen towns.
evacuation points. During a flood, information about the necessity of evacuation reaches persons at risk really at the last minute (when the flood is inevitable), at the same time as the arrival of vehicles for evacuation. There is also no custom of notifying people beforehand, for fear that forecasts will prove false. Crisis response plans also do not encompass support for individual actions, e.g. individual evacuation; thus, neither the evacuation point nor the evacuation route are known to inhabitants in advance—before the flood.

In many interviews and conversations, representatives of crisis intervention forces complain of inhabitants’ unwillingness to leave their homes after receiving warning of an impending flood. They treat this as one of the important problems of their work, because sometimes it makes it necessary to evacuate people after the flood has already arrived and structures have been inundated, which requires a great deal of effort and, in many cases, represents a threat to the life of the rescuers.

In this situation, it is worthwhile to think about what elements might contribute to inhabitants’ unwillingness to make the decision to leave their homes and fields, as well as what prevents them from maximally securing their property.

Surveys conducted by IMGW in several towns show that the number of people who left their homes during a flood is actually relatively low: from 9% of the population at risk, up to nearly 40%. No one has conducted special analyses concerning the causes of people’s unwillingness to evacuate, but on the basis of existing research and interviews conducted in the field, it is possible to surmise that the following causes contributed to this unwillingness:

**Lack of knowledge on the part of inhabitants that their homes are located in flood risk areas**

Surveys show that in 1997, many people did not know that they lived in flood plains (from 22% to 62% knew). This is the effect of a lack of educational and informational activities on the part of services and forces—a large percentage of those who did know, obtained that knowledge from older relatives or neighbors, and not from representatives of local administration.

**Lack of flood warnings or too-late arrival of warnings to inhabitants**

In many towns, warnings only reached a small number of persons at risk (in some places, no more than 5% percent of inhabitants received them), or they arrived too late for inhabitants to be able to do anything.
Lack of certainty that the property left behind will be protected

The majority of people, asked during meetings and discussions about the causes of unwillingness to evacuate, spoke of fear for property left behind. And though plundering of property during a flood is in small towns rather a myth than a reality, nonetheless, a lack of reliable information about means of protection caused people to remain in their homes or evacuate only a portion of the family.

Lack of evacuation points in every town

Often, only one evacuation point for the entire municipality is designated, so sometimes it happens that it is over ten kilometers from the home left behind. People were unwilling to go so far away from their homes and property.

Lack of inhabitant knowledge about the local flood protection system the local flood hazard—the existing flood warning system, evacuation routes and evacuation points

To sum up, it is worth emphasizing that one of the more important causes of inhabitants’ unwillingness to evacuate is that they are treated as objects and no support is provided by crisis intervention forces for individual activity in the area of property protection and evacuation. This produces a lack of any informational or educational activities before a flood which would cause an improvement in the knowledge and awareness of inhabitants about how to cope before and during a flood.

Impact of individual experiences on inhabitants’ behavior

For one study, a small town lying in southern Poland was chosen, which in recent years had been affected by floods several times. The homeowners surveyed were asked about their behavior during the flood in 1997 and subsequent floods, as well as the actions they would take in the future, if a similar situation occurred.

The results of the study show that the majority of them, taught by the experience of the first floods, made corrections in their behavior. Below, a few examples:

Evacuation of family

In 1997, half (50 %) of those surveyed evacuated from their home together with their entire family; in 1998, 39 %; in 2000, 42 %. It is difficult to say why it happened this way; perhaps some homeowners considered that the hazard is not so great and that they can stay where they are to watch over their home and property. At the same time, 64 % of those surveyed stated that during future floods, they will evacuate with their entire family.
Survey results show a growing worry on the part of inhabitants concerning their own property. Home furnishings in 1997 were evacuated by 27% of inhabitants; in 1998, 35%. A similar trend can be observed in the case of machines and automobiles: in 1997, 36% evacuated; in 1998, 43%; in 2000, 52%. An even greater number of those surveyed plan to do so in the future: in the case of automobiles, 62%; in the case of home furnishings, as much as 67%.

Survey results also show that the number of inhabitants who did nothing after being warned decreased with successive floods: 1997, 16%; 1998, 5%; 2000, 3%. No one declared that they would take no action in the future.

It should also be added that not only inhabitants, but also local governments showed clear improvement in their manner of preparing for future floods. In consequence, in plans presently being prepared, there are now elements of support for individual actions of inhabitants. Among them are also: better organization of the warning system, as well as designation of evacuation routes and points, and provision of that information to the public.
Conclusions

Studies carried out after the flood in 1997 and subsequent floods in Poland show many deficiencies in the existing system of flood warning, response and preparedness.

Experience contributes in an essential manner to correction in inhabitants' behavior during subsequent flood waves, and in the plans of those at risk, both during evacuation and in preparing their home and property.

Correction of the way of thinking about flood preparedness in municipalities, however, concerns only a small number of local governments.

It seems that one of the important routes to correction in the behavior of inhabitants and local governments is reinforcement of educational and informational activities. It is necessary to publish good examples and materials which would aid local crisis intervention forces in obtaining greater knowledge about the best courses of action, as well as the about the experiences of other municipalities.
Flood risk information for councillors and residents: follow-up to European OSIRIS project

Hélène Xhaard, Établissement Public Loire  
Gilles Morel, Centre for technical maritime and fluvial studies

The aim of the European OSIRIS\(^3\) research project was to improve the quality and widen the circulation of flood information, make it available to everybody affected. Information is held to be a vital parameter in preparing residents and crisis managers to take effective protection and emergency measures. The project focused on designing and developing services based on innovative uses of Internet and mobile phone technologies.

The project started in 2000 and was completed in March 2003. Several prototype software packages using the new technologies were designed and tested by local authorities and residents who volunteered in the pilot areas of the mid-Loire and the Oder.

Since end of the project, in March 2003, the “Établissement Public Loire” has undertaken to adapt and develop the prototype in the light of the results.

**Defining solutions to be implemented: parties involved and their expectations**

In-depth research was carried out involving potential users of the services, aiming to gauge their understanding and experience (or otherwise) of flooding and flood risk management policies, as well as to find out about their expectations.

In the Loire river basin, these surveys focused on two sectors: the confluence of the Vienne and the Loire, affected by frequent flooding on the Loire, Vienne, Indre and Cher; Orleans and several urban or suburban communes downstream in left bank\(^4\).

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\(^3\) Osiris stands for Operational Solutions for the management of Inundation Risks in the Information Society:

\(^4\) This area is projected by dykes, but remains extremely vulnerable in the events of major flooding. Although the riverside population has increased significantly, very few people are aware of the risk.
Nearly 200 people were interviewed individually or collectively, including politicians and local authority staff, engineers and flooding emergency workers, farmers and business people, teachers and community associations, journalists and Loire valley residents (5).

Those interviewed expressed the need for more regular and fuller information on public policy and its aims and on the overall coherence of actions carried out. Many questions were raised as regards infrastructure developments and their effects. Councillors and technical services expressed the need for greater consultation with central government bodies and in particular for risk prevention and warning systems. They would like support in developing suitable crisis management and preventive information tools.

Most residents interviewed were aware of the flood risk, but their knowledge was rather sketchy and many admitted they found it difficult to distinguish between reliable information and rumours. Even more than risk-focused information, there appears to be a lack of preparation for flooding.

**Operational solutions: action taken by the “Etablissement Public Loire” after the research project.**

**Developing an Internet portal**

Inspired by experience shared by our Polish partners during the research project, the Etablissement has decided to develop a Website to offer a platform for local authorities within Loire valley to share technical knowledge. Unlike classic Websites with a single webmaster responsible for content, numerous parties will be able to post material (by suggesting new documents).

This site has been up and running online since January 2005, at the following address: [www.inondation-loire.fr](http://www.inondation-loire.fr).

Two levels of information are available: public access and a restricted area. Access can be easily granted after an on-line registration form has been filled in.

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5 The surveys were carried out by "Economie et Humanisme" (Bastien Affeltranger, Philippe Blancher and Mireille Lapoire) and by Guy Taliercio
Developing and releasing the OSIRIS-Inondation crisis management support software

One of the prototypes used comprised a piece of software for drawing up a community-wide disaster recovery plan, with various flooding scenarios, areas affected and the facility for planning emergency and recovery measures.

It was tested by councillors and departments in two communes (Cléry Saint André and Saint Pryvé Saint Mesmin in the Loiret Department), which used it widely “The problem of flooding has been worrying local councillors for a long time, but OSIRIS gave us a concrete response,” they said. Local councillors have fed back the indirect positive effects the OSIRIS-Inondation software has had on planning methods and organisation. Moreover, the IT package offered enables information to be shared simply and in a user-friendly way and the plan can be consulted and updated.

Since the end of the research project, the Etablissement has undertaken to adapt the prototype software and produce a consolidated, user-friendly version in partnership with the “Centre d'Etude Technique Maritime et Fluvial” (CETMEF – marine and river technology study center). The OSIRIS-inondation software is now ready for circulation to any individual or body that requests it with no licence fees to pay. A dedicated software support website is currently being finalised. The software can now be downloaded at the following address: www.osiris-inondation.fr

The “Etablissement Public Loire” can also offer Loire basin local authorities software training and support under a distribution contract that is currently being finalised. Information is available on the site or from to Etablissement Public Loire.
At the end of January – start of February 1995, water in the great rivers of the Netherlands had risen to such an extent that two hundred thousand people fled their homes or were evacuated.

More than one hundred thousand cows, two hundred thousand pigs, more than two million chickens and nearly one hundred thousand sheep had to be transported to higher land.

The water rose to 16.68 metres above the Normal Amsterdam Water Level (Dutch abbreviation NAP), only fifteen centimetres lower than the worst flooding of the century, recorded in 1926. The water had already reached an extreme level the previous year. What is more, in 1995, flooding on the Rhine and the Waal had preceded the overflow of the river Meuse. Flooding is not unusual on the Meuse as it is fed by rain water and, if enough rain comes down, it rises to fill its flood plain. However, flooding on the Meuse has recently caused press furore, and this is all because the river valley is becoming more and more developed. Towns and villages are expanding around the high water level, which is, in fact, the river's natural domain. Land use development and river management are not coordinated in the Netherlands.

The news focused on the flooding of the Meuse to such an extent that in 1995, the whole of the Netherlands was caught up in fascination with the flood for days. Pictures were broadcast showing flooded houses, people sheltering in churches, whole villages cut off in the Meuse valley – and the nervous tension grew. When the water started to rise in the great rivers, part of the population lost heart. By the time the authorities gave the evacuation order, thousands of people had already fled. One of those who gave the order later defended the decision, saying: "If everyone runs, you feel that you have to do something otherwise, as an authority, you have lost control".

Indeed, the evacuation order would never had come in the area around the great rivers if a natural disaster management plan had not been drawn up ten days previously in the Nimègue region – roughly where the Rhine enters the country. The plan states that
should the water reach 16.5 metres, the region must be evacuated. Very few people knew the details of the plan, which just led to confusion and discord amongst the councillors and civil servants in the region. Some of them trusted the dykes to hold, others did not. Hydraulic engineers questioned the rigid way in which the 16.5-metre threshold was applied. Some dyke managers saw it as an opportunity to put into action dyke reinforcement projects at last. The Royal commissioner did not have enough geographical knowledge and as a result, towns like Tiel and Zaltbommel were evacuated, even though they would have only received twenty to thirty centimetres of water in the event of flooding. Villages on hills, well above the critical threshold of the normal Amsterdam Water Level (NAP) had to be evacuated.

The police got the names of villages wrong and ordered people to leave. Errors were made by the public services in giving prognoses as to water levels. No one agreed with the plan, not the water unions, not the communes, neither the regions nor the ministry for public works and water management. It was embarrassing the way that everyone involved tried to outdo each other, the way that the different authorities tried to use the situation to air their quarrels and jockey for power in front of the media. At the key moment, when one mayor gave the unilateral evacuation order, the electronic highway became completely overloaded. Telephones and faxes shut down, the whole mobile phone network was blocked, the emergency network went dead, and even walkie-talkies could not be heard properly. All incoming and outgoing lines from the regional coordination centre went dead for an hour and a half.

And outside, the newspaper "The Weekend" showed pictures of miles of traffic jams, with people who had piled their sofas and televisions on the roofs of their cars to get out of the area, stuck on overloaded roads, in the darkness and the mud of the polder. Families spent hours in their vehicles because the infrastructure was not able to deal with a mass movement like this. As the authorities realised later, if a dyke had burst at that moment, the situation would have been truly dangerous.

As the water rose, the great rivers region was flooded – by hundreds of journalists from around the world. The local authorities were suddenly faced with a new phenomenon: reality TV and the info-tainment industry looking for a scoop. In living rooms around the world, people were going to be able watch this low-lying land on the North Sea as it disappeared. There was no subtlety in the reporting and the lasting image is that of the authorities hounded by journalists and the journalists hounded by the rumour of a fleeting, non-existent story.

After four nerve-wracking days, calm was restored.
A flood is an integrated phenomenon that, briefly, involves (i) runoff, giving rise to rapid flow, (ii) slower flow through the more permeable parts of the shallow subsurface, and (iii) still slower groundwater flow with temporary water storage before outflow into a river. The relative weight of each of these three flow components can vary within a same catchment from one rainfall event to another. Two factors control this variability: the state of the soil surface—even when frozen in winter—and that of the vegetation cover. These two factors can favour immediate runoff or, alternatively, infiltration and delayed flow. The three flow components juxtapose with one another to provide a discharge at the outflow for which the regime depends on the “internal clock” of each mechanism. The downstream flows can be spread out over time or, conversely, combine and become concentrated within a short period, the modulation being inversely proportional to the discharges. Flows from spaced rainfall events can arrive simultaneously at an outflow, such as when the slow flows from a first rainfall event are joined by the rapid flows from a second rainfall event. This was one of the factors that contributed to the intensity of the 1910 Seine flood.

Because of this intricate interplay, the effects of two identical rainfall events can sometimes be very different. A fortiori, the effects of different combinations of the flow components are even more dissimilar from one catchment to another, and here it becomes apparent that a causal analytical approach will yield infinitely more relevant results than an analogical approach, which obviously can only predict identical effects when similar rainfall events are observed.

Two well-known flood types illustrate the contrasts of this variability:

1) Intense and violent rainfall in a catchment with a rugged topography will provoke a strong runoff and possible surge floods in the valleys. If the soil is dry, the negligible infiltration will reinforce the intensity and suddenness of the event. The time unit here is from a few hours to a few days: this is the case of the flash floods commonly observed in the south of France (Gard, Vidourle, and also Maurienne, Dordogne, etc.). The forecast lead time is but a few hours.
2) Excessive rainfall over a period of several consecutive years in an aquiferous sedimentary catchment will result in a greater groundwater flow than during an average year. The increase in the drainage rate is slow. The time constant here is a month, if not several months, which gives a longer forecast lead time, or at least an advance on the anticipation of a possible "risk period".

Although it is impossible, in the first case, to improve the lead time of the weather forecast (a few hours), one can nevertheless distinguish periods of high risk where intense rainfall on dry soil may have devastating effects, from periods of low risk where moderate hydration of the soil renders it absorbent, thus limiting the upstream discharge.

In the second case, the hydrodynamic laws of subsurface flows are virtually the same for flood and low-water regimes. This allows one to resort immediately to available groundwater-management modeling techniques to explain the behaviour of a sedimentary catchment prior to a slow flood. The available lead time is one of months for anticipating an event and declaring that one is entering a risk period wherein a moderately intense rainfall could trigger a groundwater flood. These models are equally applicable for the recession stage and it is possible to indicate with a certain amount of certainty whether the flood will last for two weeks (like the Seine flood) or two months (like the Somme flood in 2001).

Now that the mechanisms are better understood and that modeling tools are available, three types of information can be delivered during, or in anticipation of, a crisis period.

- For catchments with a known slow-flood risk it is possible, should the authorities request it, to monitor the state of the hydrosystem, forecast the likely evolution of the river discharges, as well as the risks for the coming month, and anticipate the recession pattern. A prediction tool of this type was installed in the Somme catchment at the end of 2001: readings are taken every fortnight in the winter and spring, and the results are published in a bulletin by the Diren (Regional Department of the Environment). In the event of a recognized risk, the General Council and the Prefecture take over from the Diren.

- For catchments prone to flash floods, recent research has demonstrated that a link exists between the surface state of the ground, the measured permeability of a soil and the signature of this soil on a satellite image. It is now possible, on a few test catchments, to read the satellite image and determine the risk level of a rainfall of given intensity triggering a flood.

- For areas where the risk of slow floods from groundwater sources has yet to be analysed, risk-level mapping has been carried out at a scale of 1:100,000. An atlas has almost been completed that summarizes the work carried out by BRGM (French Geological Survey) at the request of the MEDD-DPPR (the Department of Risk Prediction and Prevention of the Ministry of Ecology and Sustainable Development).
This work consisted in examining all the sedimentary catchments and indicating for each one, under normal weather conditions (referenced over the last 30 years), the probability, or sensitivity, of a rise in the water table (or phreatic rise) being likely to trigger a slow lasting flood. This sensitivity is based on a typology resulting from the interpretation of weighted criteria that enter into a hierarchical cluster analysis. Schematically, the phreatic-rise sensitivity index is determined from the ratio between the thickness of the unsaturated zone and the water-table fluctuation value (see map), weighted by morphological factors such as ground slope.

Occasional considered as risk-prone areas are valleys that incise large, highly aquiferous, sedimentary plateaux where the water table is at a shallow or medium depth. Such are the chalk plateaux, and also some Jurassic limestone plateaux (red zones on the map).

Permanent risk-prone areas are where the water table lies at a very shallow depth and fluctuates. Such areas are very sensitive to rapid overflows of the aquifer. Property and population exposure is generally low due to the frequency of the hazard. In France, such areas account for 140,000 km². They correspond to alluvial plains, coastal plains and humid zones. Wetlands, where the groundwater contribution is permanent, should also be included even though the effects are generally, and mistakenly, assigned to flooding from surface runoff.

Floods, for a long time considered as the result of a univocal rainfall–runoff–discharge relationship, actually integrate a varied number of components. It has always been difficult to intuitively discern the link between the flow energy of a river in flood and the characteristic slowness of groundwater flow, and yet.... One could qualify as paradoxical those floods for which the determining factors are the soil and subsurface conditions. A good knowledge of both the surface and subsurface environments, and the development of modeling tools are assets that should help (i) to predict, if not floods themselves then at least high-risk periods during which a flood could be triggered, and this sometimes well in advance, and (ii) to take appropriate protection measures. Local authorities and government departments increasingly seek and follow-up on the scientific approach in order to produce rapid and well-supported information to concerned parties.
Round table discussion

European projects symbolising a new approach

Pilot project to share responsibility in the Starkenburg region in Germany

Loire: the deferred development zone project in La Bouillie in Blois

Raising awareness on sustainable flood defence: the Tagliamento case in the southern Alps in Italy
Shared Responsibility for Flood Prevention in Region Starkenburg

Pilot project in Interreg IIIB NWE Project “Freude am Fluss”

Dr. Andreas SCHENKEL, Region Starkenburg, Germany
D. Cohrs, Darmstadt University of Technology, Environmental and Spatial Planning, Germany

Background

The Region Starkenburg, Germany, is situated in the southern part of State of Hesse between the Rhine-Main agglomeration (Frankfurt) and the Rhine-Neckar metropolitan area. The Region Starkenburg is organized as voluntary association since 1999 and comprises four districts and the City of Darmstadt which co-operate in different fields. It has a population of approximately one million people.
The rivers Rhine with a length of 60 km, Main (17 km) and Neckar (7 km) and several smaller streams located in the region implicate a specific flood risk. Because of the dense population the damage potential especially in the dike protected areas is considerable. To cope with this risk, Region Starkenburg and the research group Environmental and Spatial Planning of Darmstadt University of Technology initiated a project on “Shared Responsibility for Flood Prevention”. It is a pilot project of the Interreg IIIB NWE project “Freude am Fluss”.

Joint Planning Approach “Shared Responsibility”

The overall aim of the pilot project is initiating and promoting the involvement of all relevant local and regional actors and stakeholders in the development and implementation of an effective flood prevention strategy, and coming to an agreement in acting for flood prevention by supporting a shared responsibility in Region Starkenburg. All contributing or concerned actors shall have the opportunity to clarify their conflicts and demands on flood protection and to work on a common concept. For implementing the pilot project and installing a “shared responsibility for flood prevention” a co-operative planning process moderated by the research group environmental and spatial planning is organized. The project procedure is designed in four phases (preparation, structuring, establishment and continuation) with duration from 2003 to 2006. As the project is a dynamic bottom-up process it is assumed that the phases will not only run one after another but also overlap.

Implementation of Shared Responsibility

The pilot project started in October 2003 with a start-up event which attended about 70 local and regional actors. In the preparation phase of the project the identification of relevant actors in the region and an analysis in the different actor groups was carried out. Several meetings were held. The result of the preparation phase was a synthesis on focal demands, focuses of conflicts, chances for actors and needs for working structures. In the second, the structuring phase, the initiation of collaboration structures was implemented. The involved actors agreed on project proceedings, defined focus themes and an organizational structure for the “shared responsibility” was installed. In a regional working group all involved actors are represented. Corresponding to the identified focus themes three thematic working groups were installed.
In the establishment phase the implementation of co-operation is translated into action by working on focus themes. Since March 2004 the involved actors work intensively in the thematic working groups. Objectives and aims to improve flood prevention in the region were defined and ideas and measures to realise them were developed. First results of the collaboration in the “shared responsibility” are achieved e.g. regional information leaflet on flood prevention, a checklist for urban land use planning, an inventory about local retention measures or an regional event for information and experience exchange.

Installing a long term working network of regional actors for exchange of experiences and information presupposes a strong co-operation of regional and local actors in Region Starkenburg in the continuation phase.

Depending on the results of the phases it is possible that other phases will follow up as a continuation of the cooperation process.

The following short overview shows the milestones and the main results in the different phases of the pilot project:

**Preparation Phase**
- One day start up event with 70 participants
- Identification of relevant local and regional actors / actor groups to be involved in the project
- Inventory taking in the different actor groups by interviews
- Identification of need for action in flood prevention in the region of Starkenburg
- Identification of main interests of involved actors
Structuring Phase

- Installation of an organizational structure of a “Shared Responsibility”
- Definition of focus themes for collaboration and specific work in thematic working groups
- Publicity making for the participation of further actors
- First network for information and experience exchange installed
- Communication: reporting, webpage, project information sheet, press releases

Establishment Phase:

- First results in the thematic working groups
- Preparation of the implementation of in the focus themes developed ideas and measures
- Strengthening the network by implementing the developed ideas and measures

Conclusions

The described approach and first results of the pilot project show that the objective to initiate a “Shared Responsibility for Flood Prevention” in Region Starkenburg largely is achieved.

The implementation of a network was started and has to be established and strengthened. A platform for communication between different working levels and different disciplines (actor groups) has been installed. This supports the understanding of each others problems, the different points of view on various themes and enhances the informal exchange of information. With the involvement of the local actors such as municipalities, water authorities, civil protection and water associations a basis has been created. The further expansion of the group of participants with other (local) actor groups is needed to deepen the cooperation structures in this field and to reach the aim of a regional partnership.

Different measures to improve flood prevention in Region Starkenburg have been developed. The enhancement and implementation of these measures and the development of other opportunities is the main focus in 2005. The work on further themes will help to deepen the cooperation and allow involvement of further participants.
The risk of flooding in Blois

In Blois and its suburbs, some zones, mostly on the left bank, are classified in the Risk Prevention Plan as high or very high risk, in other words, dangerous zones, which in the event of flooding, would represent a considerable civil security risk.

However, even beyond the possible flooding of the Loire at the Blois Valley, it is mainly the means implemented to avoid the disaster which are called into question. The major problem today is at the Bouillie spillway. This spillway is one of the defence systems for the town of Blois as it must enable the flow in the dammed riverbed to be limited.

However, on the communes of Blois, Saint-Gervais-la-Forêt and, to a lesser extent, Vineuil, houses and businesses are located downstream of the spillway. Hence, in the event the spillway were to enter operation, the houses in the zone would form a dam and hinder the free flow of the water. The risk of the flood entering the Vienne quarter and the right bank would hence be high as in any case, the water would need an outlet. In addition, taking account of the risk downstream of the la Bouillie spillway, given the presence of human life and economic concerns, is a major civil security issue.

Therefore, given that currently 80% of the useful surface for the passage of water is obstructed by buildings, it is necessary that primary use of the La Bouillie spillway is restored and the residents settled in the la Bouillie spillway be removed from the risk.
The principle of spillways

Since the catastrophic flooding in the 19th century (1846, 1856 and 1866), the principle of spillways has been generalised. The principle is simple, the term overflow dam, to use another expression, immediately evokes the function of the structure: to unload the river, “offload” the excess water and hence reduce the pressure on the levees.

Rather than allow breaks to open under water pressure anywhere at any time, installing spillways by lowering the levees enables the water to be rerouted into channels. It is thus possible to foresee the discharge of the water and reduce the effect of its eruption into the Valley.
Nineteen spillways were planned, seven were built on the middle Loire. Two spillways are much older and avant-garde: that of Saint-Martin-sur-Ocre near Gien and that of la Bouillie.

In fact, the Blois canal which in the 16th century became the la Bouillie spillway was the cornerstone of defence against flooding in the town of Blois and the Vienne suburb. The latter is the result of a whole process of observation, reflection and fight. The Loire last over flowed into the la Bouillie area in 1907.

**Strengthening the levees as a solution to the spillway problem?**

Although at first view, delocalising the houses and business located in the spillway seems necessary, it would seem important for the public authorities to conduct additional studies into various dam scenarios.

At the request of the Prefecture in 2002, a study was carried out. However, in view of the costs of the various scenarios and the unequal protection of the communes concerned, it became necessary to implement the solution of relocating the property and people exposed to the risk of flooding in the la Bouillie spillway.

**Deferred Development Zone**

At the request of the State (July 2002), the Communauté d’Agglomération de Blois set up a deferred development zone in the spillway. This legal instrument, ordered by the Loir-et-Cher Prefect on October 2003 (applicable since February 2004), enables a right of pre-emption to be created, making the Communauté d’Agglomération the priority purchaser in all real estate transactions in the area. Hence in July 2005, Agglopolys is the owner of 32 houses and lands and 12 other properties are in the process of being bought.

Previously, as part of the Security Programming Committee for Flooding Risk in the middle Loire set up by the DIREN, it was decided that setting up the ZAD downstream of the la Bouillie spillway was a pilot operation. Thus, the principle of a grant under the State-Region master Plan of 80% (40% State and 40% Region to reduce vulnerabilities) was retained. The Loir-et-Cher General Council also decided to participate in the funding (10%).

Today, Agglopolys is entitled to funding under the French major natural risks prevention fund (FPRNM).
Raising awareness on sustainable flood defence.  
The Tagliamento case in the southern Alps of north-east Italy.  

Nicoletta TONIUTTI  
WWF Italy  

Complex knowledge deriving from the multidisciplinarity of skills and from the participation of those who live and carry out their activities along the river, actual involvement of the basin communities as needed, preliminary conditions to move from the concept of fighting the floods to the concept of sustainable flood management.

The Tagliamento River is located in the southern Alps of north-east Italy. It originates at 1,195 m above sea level and flows for 178 km to the northern Adriatic Sea, thereby forming a linking corridor between Alpine and Mediterranean zones. Its drainage basin covers 2,871 km². Dykes have constrained the lower 30 km of the river, so that it is now little more than an artificial channel, about 175m wide. However, the upper reaches of the river are more or less intact, so that basic river processes – such as flooding, or the erosion and accumulation of sediment – take place under almost natural conditions.
View of the Tagliamento floodplain along the middle course. In this area, which corresponds to the Site of Community Importance (SCI) “Greto del Tagliamento” (Shingle of the Tagliamento River), the “Abridged plan for the hydraulic safety of the middle and lower reaches of the Tagliamento River” envisaged the construction of three 30-million m$^3$ water retention basins plus other concrete made structures in order to reduce the flood peak from 4600 m$^3$/s to 4000 m$^3$/s. Here, the riverbed is embanked between two steep escarpments of fluvial erosion, spaced 3 km apart, on average (Photo by Arno Mohl WWF Austria).

The basins of the main tributaries of the upper catchment lie in one of the wettest region of Europe where annual precipitation can reach 3,000 mm. The catchment is mainly mountainous and the slopes are very steep, leading to high peak flows and sediment loads in the central and lower part of the basin. The flood peak moves downstream so fast that it can reach the town of Latisana (on the regulated lower part of the river) in just 12 hours. Upstream, where the floodplain still functions naturally, the height of the river rises and falls by only 2 m. Close to Latisana, though, the river is squeezed into such a narrow channel that its level may fluctuate by as much as 7m. The dykes were originally built during the second half of the 19th century to protect the main population centres and farmland. However, their effect has been to increase the risk of severe flooding. On 4-5 November 1966 breaching of the dykes caused the deaths of 14 people, more than 5,000 others lost their homes entirely, while 24,000 suffered serious damage. Latisana was the most seriously affected area.

Following the 1966 disaster, the Regional and national authorities began discussing how to protect people from flooding. However, wetland drainage, dyke construction, urbanization, industrial development and intensive cultivation continued apace in former floodplain areas along the middle and lower Tagliamento, further increasing the threat of catastrophic flooding.

It is only now, after almost 40 years, that a ‘solution’ has been put forward by the local water authority in the form of a flood protection plan for the middle and lower Tagliamento. However, this involves the construction of artificial floodwater retention basins and additional hard engineered regulations of the river’s course on intact floodplains that would destroy one of the ecologically most important areas along the entire river (the Natura 2000 site “Greto del fiume Tagliamento”).

View of the Tagliamento floodplain along the middle course. In this area, which corresponds to the Site of Community Importance (SCI) “Greto del Tagliamento” (Shingle of the Tagliamento River), the “Abridged plan for the hydraulic safety of the middle and lower reaches of the Tagliamento River” envisaged the construction of three 30-million m$^3$ water retention basins plus other concrete made structures in order to reduce the flood peak from 4600 m$^3$/s to 4000 m$^3$/s. Here, the riverbed is embanked between two steep escarpments of fluvial erosion, spaced 3 km apart, on average (Photo by Arno Mohl WWF Austria).
In 2003 WWF Italy presented to the Authorities a preliminary feasibility study, taking into account hydrological, socio-economic and ecological issues.

It highlights that if it is true that, especially with regard to the Tagliamento, there are actions, which may contribute (jointly and/or as an alternative) to achieve the safety and the fluvial ecosystem preservation objectives, international experience demonstrates that it is no longer possible to disregard a deep knowledge of the hydrological, geomorphological and ecological features of the entire watershed. In order to achieve this, it is necessary, urgent and essential to acquire complex knowledge deriving from the multidisciplinarity of skills and from the participation of those who live and carry out their activities along the river by involving actually and actively the basin communities. Shortcomings in the process of developing the plan includes lack of understanding about the underlying causes of flooding in Latisana while so far the involvement of local communities, other stakeholders and scientists has not yet been really implemented by the Authorities.

Indeed at present, the confrontation between the various subjects, communities and administrations is radical and hinders a smooth decision-making process. With a certain degree of approximation one might say that the main coalition force, which considers the hydraulic safety as a top priority and is in favour of constructing water retention basins in the middle reaches of the Tagliamento, includes the administrations, political forces and the majority of civil society living in areas which are not sufficiently protected, sided by a large group of people from the academic and the technical world. The above coalition is opposed by the administrations, political parties, cultural and trade associations of the municipalities of the middle course of the Tagliamento, which are supported by internationally renowned scientists and by all the main environmental organisations. The situation has been in a stalemate for a long time.

Starting from the recognition of the fact that there are many interests at stake and just as many stakeholders, the value of the losses and gains for each category of subjects is not uniform and it is difficult to calculate, however, each interest represents a significant element for the respective stakeholder.

Thus is even more important to strengthen participation and initiate a strong negotiating action, to allow the parties pursuing different objectives to confront each other and converge towards solutions which are in line with the principles established by Directive Water Frame Work and of a clearly high collective interest.

WWF believes that the hydraulic safety and the safeguard of the Tagliamento are absorbing issues, which should be solved with the contribution of all the communities and administrations present on the territory crossed by the river. In this regard, participation and negotiations take up a central role. However these functions should not be considered as instrumental to obtain agreement upon the construction of works but they should be targeted to obtain the best possible results and enhance the value of
contributions as well as of the opportunities existing in the operational context. For this reason, alongside a clear allocation of responsibilities and the strengthening of coordinating structures, it is necessary to establish ways of including all the parties and communities which are directly affected and to promote active participation to solving shared problems.

It must not be forgotten that according to the achievements of the international scientific communities the Tagliamento river “offers the rare opportunity to investigate natural processes at a scale that can be studied almost nowhere else in Europe” (K. Tockner, EAWAG/ETH Switzerland) and that its conservation and sustainable management has to be considered a bed test for the application of the Water Framework Directive in the Alpine region.

WWF Italy together with WWF Austria, France and Switzerland in the WWF European Alpine Programme, is working in this direction promoting, organizing and supporting public meetings, networking with the international scientific community and practitioners, attending official hearings and working for open, transparent confrontation with all the parties involved.
WHAT ARE PUBLIC EXPECTATIONS ON THE DEVELOPMENT OF LEISURE AREAS AND NEW LEISURE ACTIVITIES ALONG MAJOR RIVERS?

The Loire as seen by its residents: Survey results

What access to the river to develop which leisure practices?

The Unesco inscription “Val de Loire world heritage”: expectations, uses and perspectives for promotion.

**Workshop 1: Is it possible to bathe along major rivers?**

Bathing along the Loire river: a golden age too quickly forgotten
Big Jump, (2005 – 2015), a public awareness project for living rivers, an example at an european level
The Beaugency beach project

**Workshop 2: Green and itinerant tourism**

Perspectives for green tourism development along major European rivers – “Loire nature” project
Development of angling tourism in the Loire basin
The GR3 along the Loire, first rambler's pathway in France
Public expectations in the example of Venlo along The Meuse in the Netherlands
What development perspectives for canoë-kayak tourism?
The Loire as seen by its residents:
survey conducted in Pays de la Loire in 2000

Nicole LE NEVEZ
Director of the conservatoire régional des rives de la Loire

Interested to learn about the ideas and the perceptions which residents have of the Loire, in 2000, we conducted a survey among a targeted but large group of people. Do any prevailing trends emerge from these perceptions?

Perception is the first understanding we have of reality through our five senses: hearing, sight, smell, taste and touch. Each individual then accords this information a value and a meaning directly related to his personality, social, cultural and economic environment: he builds an image for himself.

The aim of the survey was to understand

- The relationships which exists with the Loire on a daily basis,
- The knowledge of the Loire,
- The perceptions of the Loire through our five senses,
- The images,
- The remarks generally made about the Loire.

The questionnaire was sent to 1,150 people, local politicians, administrative employees, associations, key people with whom we work on a regular basis, as well as residents chosen randomly from the telephone directory.

From the analysis of the replies received it was possible to define the predominant trends concerning their perceptions, images and expectations.

The replies were massively made by men and were received, essentially, from people working in the sectors of services, territorial development and the environment (no doubt as a result of our database).
A high number of people aged from 31-59 can be observed within the sample population, although people over the age of 60 are also present.

**The relationships which exist with the Loire on a daily basis** are not related to the long-standing or recent establishment of the family on the riverside. The people generally lived near to the Loire, with most of them residing in their area for more than twenty years and not wishing to move.

The large majority of active people, travel along the Loire to get to work, but, in general, they do not cross over it, or use it.

Above all, the Loire is an area for walking, hiking and fishing. Relaxation and sensations are cited first of all and some people evoke contemplation, reverie, rest, observation of the flora and fauna…

People go to the riverside at least once a week and, for some, who live very nearby, once a day.

These leisure activities mainly take place within the town, or within the immediate vicinity of their town of residence.

The joys of boating are a reality, but boating is usually an occasional activity (once a year) and there are not very many serious fans of the sport. It should be noted that some people navigate mainly during spates.

**The questions about knowledge of the Loire** concerned events, the arts, the flora and fauna, the emblematic sites, the monuments.

The events referred to most often are festive events with, in first place, the transport of Guerande salt up the river.

Spates are also referred to as events: "it is the Loire which creates the event".

For the arts, the questionnaire offered a choice of themes, from gastronomy to plastic arts, including voice, music, cinema, poetry, theatre and literature.

Gastronomy and wine occupy a predominant position: white butter, fried eel and the wines of the Loire are favoured the most. Details about preparation methods abound: Pike with White Butter, Grilled Zander with Sorrel, Young Eels with Vinaigrette, or Grilled Eels. The wines of the Loire accompany these answers without one wine necessarily being mentioned above any of the others.

Then, there is literature, with J. Gracq and J. Du Bellay and, finally, painting with Turner. One of the comments: "many use it and every person is an artist on his own level".
The flora and fauna is the object of simplified knowledge. Willow, poplar and ash are the trees most frequently mentioned. Reeds, fritillary and hemp are the three best known plants.

The heron and the pike are the two animals the most commonly associated with the Loire. After this, there is the coypu and the eel, followed by terns, seagulls and ducks.

No emblematic site stands out. The replies mainly make reference to features in the landscape: the shore, the banks of the Loire or the islands. “It is difficult to reduce the Loire to just one place” summarises the very varied replies which refer to castles, especially that of Saumur, and churches, which is probably not something which is specific to the Loire.

The replies are not as wide-ranging as they are in the list of perceptions.

What perceptions, what sounds, views, colours and smells are associated with the Loire?

The sounds of nature are the most important, with, in first place, the songs and calls of birds. Then, comes the words concerning water (the slapping of waves against the shores, or the water cascading over the weirs).

Curiously, quiet and silence are referred to as sounds by some people.

Landscapes are perceived by some in their entirety, with elements of architecture and the built heritage (mainly castles, white villages and bell towers), but also their natural features: always the sand and the islands, which are very present, form these landscapes.

They are also very frequently perceived through the atmospheres which they convey, such as the evening light, or a soothing view, “a large body of water with a few boats, some fishermen and, in the background, an old 16th or 17th century building”, “trees which are so bent over they appear to be trying to hold back the water with their leaves.”

About twenty colours, often of different shades, characterise the river, among which green and blue predominate: grey and yellow are also very present. They are often associated with materials and, in particular, with sand: white sands, golden sands.

The change in colour over time, according to the time of day or the seasons is greatly appreciated.

The smells associated with the Loire are related to natural elements, among which mud and silt predominate, without these smells necessarily being associated with something negative: they are sometimes even appreciated.

The second type of smell associated with the river concerns vegetation in general, the flora of the riverbanks, but also the meadows, the smell of hay or wet grass.
The Loire appears to be a world of sensations.

**What images?**

In order to understand the main trends, three questions were asked:

- Close your eyes, think of the Loire, what do you see?
- Imagine that you have left the banks of the Loire, what features would you miss?
- For you, what are the most important features?

Logically enough, what people see automatically when they close their eyes is also what they would miss the most if they had to leave the Loire.

The replies are shared between physical aspects and a great number of emotional aspects.

Water, its presence and its appearance, followed by the sand, the vegetation and the islands are cited the most often, whilst the built heritage is referred to only very rarely.

But, the atmospheres, the feelings and the sensations felt appear to be very important, mainly the feeling of calm, serenity and equilibrium which the river inspires: "a need to feel the river flowing nearby, its absence will feel like a void", "to be able to recover by taking a break from everyday life thanks to excursions along the river or its shores".

"When calm, it is like oil. When angry, it foams with little waves. It can be green, blue or brown, high or low, whatever it does, it never leaves you feeling indifferent". The words used refer to the Loire as a living being which seduces by its perpetual changes, its contrasts, its spates, the calm, the serenity, the light and the colours: the river is qualified as being majestic, powerful, tranquil, wild, natural, seductive, but dangerous.

**What remarks and what wishes?**

Many comments and wishes refer to the organisation and the balance of the river. These also reflect concerns about the development of tourism.

The lowering of the water level, the state of the riverbanks, their inaccessibility, the riprap, the traffic on the levees and water pollution are all subjects of concern, as well as the discourse which is maintained about the river from the outside. One person regrets that the Loire is spoken about like Disneyland, another is worried about a museographic and exclusively aesthetic image of the river.

The wishes for change concern the rise in the water level, cleanliness and the upkeep of riverbanks, water quality, traffic on the levees and organisation of access.
The comments repeat the solemn tone and evoke the "Loire's agony", a "Loire which is ill", with "man who has been at the root of its misfortune". "I do not want you to continue to massacre it" wrote one person.

"Too many people on or alongside the Loire, who do not respect others or the river."

There is a request for individuals and organisations to be responsible, and the hope to "change the desire to always reorganise it" and a request to "ensure coherence between man and the river".

The people who replied agreed in saying that the Loire is of major interest mainly for its landscapes and for its way of life, which corresponds with the collective images gathered.

Nevertheless, they hope, above all, to see promotional actions for ecological purposes and then, to a lesser extent, for tourism, the landscape and the way of life.

It is interesting that economic and architectural reasons are referred to very rarely.

Conclusion:

The collective image of the Loire which emerges is that of an intimate Loire, of a simplified landscape, composed of very few elements, which are essentially natural (water, sand, islands, vegetation of the banks...), of a wild river characterised by very specific changing atmospheres, which convey strong sensations. This image is clearly visible, even though, in our region, the Loire is a river which has been organised and urbanised.

The residents have an affectionate relationship with “their river” and it is one which probably makes them question any form of outside intrusion.

It seduces and never fails to touch people: "To enjoy the Loire is a privilege, it is something outstanding, lucky, a veritable luxury", “the Loire symbolises the warm and friendly side of the people who live alongside it”, “what I like is living according to the rhythms of the river”.


What access to the river to develop which leisure practices?

Philippe AUCLERC
Editor-in-Chief of the review la Loire et ses terroirs

Access
“…that which makes it possible to access a place, a situation; a means to arrive at, to approach something…”
Petit Larousse

If a survey was conducted using adjectives to qualify access according to use, it is likely that, without having suggested them, we would find: easy, difficult and impossible among the words most frequently used. Nevertheless, each adjective may hide very different realities. Expectation or demand is not the same for a fisherman who fishes from the riverbank and a fisherman who fishes from a boat, or even between a fisherman who is fully mobile and another who suffers from reduced mobility. Since nothing is ideal, or perfect, and with fish rarely being exactly where we would like them to be, it is likely that, at any moment, these fishermen may encounter new problems of accessibility…

He who can do more can do less

Is it possible to go anywhere we want to go on the Loire, or its shores, and partake in any type of leisure activity? As can be expected, depending on where you live, or where you are holidaying, or on the basis of feelings, or experiences, the answer to this question may vary greatly from one person to another. It is clear that with the word “leisure”, it is necessary to add the word “activities" and that these involve practices which are very different from each other, and which, as a result, give rise to just as many needs. Therefore, things are neither fixed in time, nor in space. By its very essence, the river is dynamic, mobile and the leisure practices and activities which are attached to it are changing and evolving. So, does this mean that there is no lasting solution on offer? Of course not and this is what is interesting about the analyses to be conducted on this subject. Although there are many demands and it is not possible to satisfy all of them, fortunately, the installations and equipment for each use are not always contradictory with each other and with the natural environment.
Some sections more favourable than others

Access to the Loire is not the same everywhere and may vary from season to season. It depends especially on natural constraints, such as the accessibility of the riverbed (terrain, vegetation…), or even the height of the waters (flow). But it also results from very different factors, depending, for example, on the occupation of the land, or the proximity of infrastructures. Thus, it is easier to access the Loire at a point where there is a bridge, a quay, or a slipway, where there are embankments and service roads, instead of from areas of grazing ground, or meadows. Therefore, for all of the sections of the river, it is necessary to differentiate between a certain number of criteria and parameters.

It is not possible to go absolutely everywhere!

Access to the river is restricted depending on whether the stretch of water belongs to the DPF (Public River Area) or whether it is private. On this last point, the legislation forbids access, except under special conditions such as fishing rights or boating rights, with access, nevertheless, being subject to obtaining a fishing permit for the first case and a ban on touching the bottom of the river for the second case. Beyond this notion of property, there are many other examples of bans on access, concerning the protection of natural environments (Nature Reserves, Birds Zones, etc.), the presence of water catchment areas, or, as a result of listed buildings, such as for areas around nuclear power stations. It is also possible to refer to a certain number of direct restrictions concerning water release downriver from dams, weirs, quicksand and rapids, circulation on levees and service routes (even if they do not concern all users). Other causes are more indirect, but, are no less negligible, such as water quality, the increase of the tax for pleasure cruising and the temporary presence of non-sedentary populations.

Access to the river and the water

In spite of these criteria, going to the Loire, or travelling on the Loire, is not an impossible challenge or expedition. In rural areas, at least between Nevers and Nantes, there are many paths along the shores, as well as communal roads. The first are a result of regular use, are not maintained and their quality depends, particularly, on the number of people using them. Therefore, unlike the latter, they are random, not localised and are not the subject of specific signposting, except when they are crossed by waymarked footpaths. Above all, they are used by fishermen, hunters and walkers. They give rise to very few conflicts between users, as opposed to the roads which have become the focus of conflicts because of their unsuitability for various activities (moto-cross, quad bikes, cross-country bikes, hiking or horse riding, hunting, fishing, agriculture, market gardening, observation of natural environments, etc.). It is certain that pressure is much higher closer to large towns.

The roads which run alongside the river, such as those which use the levees, are, essentially, good access points. Nevertheless, their potential varies according to traffic,
the signposting available, the opportunities for stopping, parking areas, the dangers of theft, etc.
The bridges which ensure the continuity of the roads also offer good access facilities. They cross over the river (viewpoints and a view along the length of the river) and are often equipped with staircases, or access ramps leading to the water. However, conditions are so varied that it is sometimes impossible to access the river.

Slipways and quays are designed to provide access to the river. However, here, once again, things are not quite as clear as might be expected, with problems arising concerning access, the use made of them, traffic, parking, the lowering of the bed for slipways, which does not facilitate putting boats into the water and access to the waterway.

Facilities and difficulties of use

The qualification of the means of access to the Loire is a subject which requires real development. Although a number of possibilities exist, these need to be analysed globally and by type of activity. Effectively, these are not easy to find and, in many cases, if you wish to access the Loire it is necessary to find information beforehand. This also means having to accept that it may not be possible to carry out a certain type of leisure activity locally because of a lack of access or because of unsuitable installations. The access points which it is possible to use today are much more a result of the superimposition of use over time, which, often, does not extend beyond the town’s boundaries and which is not necessarily designed to be coherent with each other. Today, it is essentially agricultural and industrial access routes which are used, and, especially, the remains of ports, rather than the access routes which have been planned according to leisure practices, or, at least, on the basis of a mixture of work/leisure. Therefore, it is urgent that an ad hoc strategy be defined. The “Loire by bicycle” project tries to do this, but it has a tendency to favour one type of leisure activity, not multiple activities, and does not take sufficient account of various local uses. Thus, in order to say that the project as it is organised today answers the question asked “What access to the river to develop which leisure practices?” it is clear that as a result of not having replied to this question in a more global and suitable manner, it has given rise to a whole range of difficulties and dissatisfactions.

Analyses to be conducted

Within the logic of the Plan Loire Grandeur Nature and the work carried out during the past few years, especially by CORELA (Conservatory of the banks of the Loire and its tributaries), as well as the Loire-Anjou-Touraine Regional Nature Park, it would appear to be essential that, to reply to the question concerning access and leisure, it is necessary for a wider analysis to be undertaken. Today, for example:
• contradictions have to be managed, such as the beaches and the swimming bans which show the Loire as being dangerous whilst, at the same time, the rental of canoes is promoted;
• a need to give the bridges, slipways and quays back their rightful role;
• a need to work on general signposting which is suited to the river environment;
• a need to create equipment (parking, supply points, viewpoints, etc.)

The main issue lies not in knowing which leisure activities need to be developed, but in creating accesses which make it possible to meet the needs of leisure activities, regardless of what they are. As “Vent d’travers” – boater, fisherman, great user of the Loire and local personality of Saumur, - sings with the group Ellebore: “the water flows for all”.
The inclusion of the Val de Loire in the UNESCO world heritage list:
Expectations / uses and perspectives for promotion

Dominique TREMBLAY
Director of the Mission Val de Loire

The Val de Loire was included in UNESCO’s World Heritage List on 30/11/2000. It is the largest site ever listed in France by UNESCO (800 km²). From Sully sur Loire to Chalonnes sur Loire, the Val de Loire has been recognised as a living cultural landscape. This listing, which is inseparable from the Plan Loire Grandeur Nature decided upon in 1993, was the departure point for the preparation of a sustainable project for promoting the territory, based on five main challenges:

- Appropriation of the values of the UNESCO listing;
- Sustainable management of the UNESCO label;
- Sustainable development;
- Diffusion of knowledge and promotion of expertise;
- International cooperation and solidarity.

Public expectations vary according to whether they are expressed by residents or visitors, the general public or representatives of local development. Nevertheless, in Val de Loire, as in other outstanding sites in France and abroad, the same questions exist.

1. How do we live in a World Heritage listed site? The UNESCO label is an exceptional recognition, a promise of quality implying an obligation to practices which maintain and develop a requirement of excellence. This particularly concerns the territorial offering, in terms of quality of urbanism, habitat, landscapes, and upkeep of riverbanks… Would not the appropriation of the built environment by the residents (for example in protected sectors of towns lying on the shores of the river) and public
spaces (for example, the public river area for new uses) be decisive criteria for judging their quality?

2. **What does the label of World Heritage site offer and to whom?** What does each person contribute to it? Not financial treasures, not legal powers, but a prestigious label, a factor of identity (a feeling of belonging to an outstanding site), emulation (growth of activities), innovation (renewal of the tourism offering and cultural practices) and attractiveness (international fame). Listing concerns a large number of people, it conveys values which correspond with contemporary expectations (authenticity, integrity, sustainability) and which concern everyday life.

3. **Which uses to meet new expectations?** The revival of the river (e.g.; leisure navigation, fishing…), its shores (events, cultural activities, nature tourism, discovery trails…), its levees (the Loire by bike…), meets strong expectations, but encourages and will continue to encourage a variety of questions in terms of use, environmental respect and local practices. What room is there for new leisure activities on the river and the renewal of the offering? How is it possible to reconcile economic, environmental and human challenges in the face of paradox: open access to the river and improve protection?

To date, the outlook for the promotion of the Val de Loire remains largely open, but assumes:

- **The mobilisation of civil society representatives** and, more widely, the appropriation of the values presented by the listing by the residents of the Loire (example: establishment of a development programme for managing leisure activities);
- **An innovative approach to projects**, aiming to decompartmentalise territories from men and their activities, enrich international exchanges from river to river (e.g.: Loire-Niger, Loire-Mekong, World Heritage vineyards) and stimulate by means of the development of growth.

The UNESCO label is a powerful lever for mobilising players and sharing expertise in order to innovate and develop the transfer of projects throughout the Val de Loire.
Bathing along the Loire river:
a golden age too quickly forgotten

Jean-Michel ROUDIER
Curator of museums and inheritance of the Nievre Departement

Essential to understand the sociology of the river’s users, the history of bathing along the Loire river was treated like “little” history, too quickly placed under the double improper symbol of plastic bathing shoes and Ricard bob hats... This history however marks the passage of an innocent and quasi paradisiac vision of nature, with a disillusioned glance, obscured by the traces of a powerful industry and a chronic negligence. And it is this passage which opened the Loire at the modern era.

All was ready, at the end of the second French Empire, so that all the models and the codes resulting from the sea leisure were exported along the rivers: the towns of the Loire opened widely their small sand theatre... At least officially, since Police Rules evoked, well before this date, a practice which, for very marginal that it was, already seemed to concentrate around the recurring questions of decency and safety. It is particularly the case of Tours or Saumur cities where, in 1815, a decree evoked covered baths on the quays of the Loire.

Around 1880, the golden age of the Loire river beaches started, which did not wait the paid-holidays 1936 to become small domestic Edens of which remain only today sepia photographs: the boat of the passor, the striped fabric of the cabins, the beach-bar... This local happiness should not let forget two major risks: the bathers’safety and the morality of their behavior, dangers constantly pointed out by local authorities.
The Loire is dangerous and treacherous, with holes, movements and swirls. Moreover, the sand banks in the river bed are always moving, making impossible the definition and the use of a secure location in the long term. Before the appearance of the official beaches, the drownings due to the wild bathes were only counted like dramatic anecdotes. It becomes progressively necessary to provide safety to the bathers by choosing a site free from dangers, near the downtown area, and by setting up informations (buoys and poles delimit the legal perimeter) doubled by an active guarding often exerted by local sailors.

In spite of these precautions, the dramas will never be avoided: a sub-prefect deducts, at the end of the summer, 13 drownings in his district! Elsewhere, press evokes a drowning per week. And those who love freedom, and choose to bathe in wild places, without any control, they are brutally called candidates to commit suicide.

Solutions were however searched for, in particular under the impulse of the nautical clubs and the swimming schools, always looking for protected space for training and practice, and which often acted as pioneers.

Four main reasons, already partially evoked, will precipitate the decline of Loire beaches in the fifties:

- the risk awareness, and the impossibility to make them completely secure,
- the increase of water pollution, coming from industry and cities,
- the construction of new large open air swimming pools in the sixties, and little ones covered, from the seventies,
- new ways of holidays (longer and with the use of the cars).

However, since 1980, it seems that Loire river is more friendly to it’s the riverside residents: the river is less and less polluted – water sewage treatment plants and ecological consciousness did appear - and one can see more and more anglers, canoeists, ornithologists…; tourist offices are speaking of the royal river; “houses of Loire river” open every thirty kilometers; traditional boats convey tourists looking for authenticity. People likes again what is called today the last wild river in Europe.

So in this new context, it is quite natural to speak again of beaches along the Loire river… The mayors who, for many years, had only to change the “prohibited bathing” notice board when they were too rusty, are now confronted to a new demand. The swimming pools are too expensive, too much crowded, and too artificials. On the opposite the Loire river offers all the advantages: clean water, fair sand, it’s free and ecologica…
So ? Nothing has changed… The domestic Eden described by these old postcards is again under our feet. Water holes also. Simply let’s just wish that this image collection, gives an opportunity for a new reflexion on this other Loire, the one of sun bathing, of ice-cream and umbrellas…

This communication is an abstract of studies and researchs maded jointly by the Loire museum of the cities of Cosne-sur Loire and Châteauneuf-sur Loire, for the exhibition in 2002-2003 “beaches on-the Loire river“.
Big Jump, a public awareness project for living rivers, an example at an European level

Roberto EPPLE
Directeur de European Rivers Network

Big Jump : "...is an inspiring project that captures the essence of current EU water protection legislation into one single public act: at one date, at one time, people will jump into rivers all over Europe. In a nutshell, BIG JUMP is a European river swimming day, where people reclaim their environment and demonstrate their wish to have clean and living rivers again.

The Water Framework Directive (WFD; EU's main law for water protection) is the EU's legislative tool to achieve good status for all rivers and lakes in Europe. But a legislative tool alone is not enough to reach this goal. It is essential to gain people's support for it. Without a broad public support all over Europe, the WFD might never work." (European Water Management News, June 22, 2005)

This ambitious project, initiated and coordinated by European Rivers Network, takes place in the association's public awareness program "Relearning the river". To respect and protect the rivers, we need to know them well, and Big Jump aims to be a pleasant mean to discover rivers.

This original campaign to raise public awareness allows everyone to follow the implementation and the progress of the European policy for rivers and wetlands restoration. The word Big Jump has two meanings: we are talking of course of a big collective dive, but it also means a big leap forward in term of water quality. Logically, we bring the Big Jump project into alignment with the Water Framework Directive (WFD).

What is Big Jump ?

An observation

From the oblivion...

The 20th century forgot its rivers: they are polluted and dangerous, used only for energy, industry and agriculture, their access is often forbidden, swimming spots and beaches disappeared. Fortunately, efforts have been made since the 90's for cleaning and restore the rivers. The Rhine and Elbe rivers now offer
numerous spots reaching the bath water quality standards and they became a model for the management of the other European rivers.

To the revival of the way of living with rivers
Responsible citizens understood that: to respect and restore the rivers, to improve the water quality are the new motto. This growing awareness is expressed through many activities in and along the rivers: cycling tracks, canoeing, fishing, even swimming… There are the precursors signs of a new age, that you can also see in visionary urban projects, such as Vienna, Berlin, Munich, Paris, Lyon and others…

A pilote, the International Elbe Bathing Day
2002: a pilote project "Big Jump Elbe", the first International Elbe Bathing gathered 100,000 people who celebrated the friendship with the Elbe, the most polluted river of Europe when the Germany reunified (1989). Hundreds of actions, from the simple event to the revival of old traditions, or reopening of beaches or historic settlements, many expositions and discussions took place during this unique day. From the source of the Elbe in Czech Republic across Eastern Germany to the estuary near Hambourg, 55 swimming spots on thousand kilometers were listed and supervised by more than 200 local organizing groups.

Big Jump, people's return to the rivers
Big Jump aims at reconciling people with their rivers: it induces the citizens to discover and reconquer their rivers and lakes. Reconciliation is an essential element to gain people's support to the big European restoration effort for rivers and wetlands, this huge project being expressed in the European Water Framework Directive. This popular project has a double goal: to follow the implementation of the WFD and to sensibilise citizens to the water management, at collective and personal levels. Encourage people to discover the pleasure of river bath, even in urban rivers, is also to encourage them to ask for high water quality, and to think of their own behaviour! This project will culminate in 2005, 2010 and 2015, with the European River Swimming Day. In all the 50 hydrographic basins of Europe, people are invited to discuss, to inform and to show their will for an improvement of the rivers environment for the year 2015 (imperative deadline to reach the objectives of the WFD).

Big Jump 2005
For its first edition, Big Jump was a great success, since it reached the importance expected for the next edition! Our enthusiastic partners, the surprised but delighted public and the hopes this event aroused, announces a next Big Jump bigger and greater! The popular and mediatic plebiscite this demonstration met shows the great potential of such an action, that makes a giant step to its ambitious aims.
Partners
European Rivers Network, thanks to its office in Europe, initiates and coordinates this project. Many structures bring their help to implement the operations:

- Associations: international, national (European Environmental Bureau, WWF, associations for nature's conservation, Loire Vivante Network...), or local associations (more than 340)
- State partners (European Commission with InterReg Program RhinNet, German Federal Ministry for Environment, 4 german Länder, Cities of Hambourg, Karlsruhe (Ger.), Vienna and Zürich (Aus.), french communities of towns, Conseil Général Val de Marne, Rhone River Centre, and about 110 other regional and local partners
- Private partners (Gruner + Jahr / Bertelsmann (European editor), Deutsche Telekom, Deutsche Bundes Bahn, Unilever – Lever – Fabergé, many local partners (banks, tourism...)
- Non financial supports, such as UNEP (environmental program of UNO), ICPDR (International Commission for the protection of Danube River), International Commission for the protection of the Rhine) and IKSE (International Commission for the protection of the Elbe).

Figures
The following estimates give an idea of the scale of the Big Jump 2005:

- 250,000 to 300,000 visitors,
- 31 rivers, in 22 countries,
- 216 official actions, plenty of exposures and discussions on subject water
- 240 non official spontan jumps in Europe,
- original events in Germany (swimming marathon 10kmswimming crossing of the border between France and Germany in Vogelgrun (FR.) – Breisach (Ger.)), on Jordan River (meeting between Israelian, Palestinian and Jordanian people),
- important meetings in Dresde and Hambourg (Ger.) more than 10 000 people each.

A extraordinary media coverage
Before the event, Big Jump interested media and was the theme of some articles indifferent newspaper or magazines (GEO, New York Times, National Geographic, Terre sauvage, belgian magazine Imagine...).

There was a great coverage by media in all countries in Europe. Newspaper, radio, television and even e-media, international as well as national or regional, proposed to their auditors many articles and commentaries on that subject. There were at least 12 broadcasts on national channels (during the television news, from 19:30 to 21:00) and many programs (1:30 broadcasts on german
channels). At a regional level, we listed 26 regional programmes in 11 countries (known list on 08/31/2005).

This extraordinary coverage was characterised by a high quality of mediatic message. What is the most important to us, is that the message was perfectly transmitted, in a comprehensible and interessant way for most of the citizens.

**Big Jump, what's next ?**

At the present time, we have lots of informations concerning Big Jump and its demonstrations. The size of the project does not allow us to already have the feed-back of all the local organizers.

That is why assessments will be implemented : questionnaires, workshops, exchanges and discussions will take place in the next months, in all geographical areas linked to the project. This part of the work will serv as basis for a detailed report and for a media book. Knowing better what people or local organizers expect, what difficulties they had to face will help us to adapt or develop the campaign strategy and will show us the correct procedure for next operations.

Next big rendez-vous will take place in 2010, before the Big Big Jump in 2015. For this Big Jump 2010, we expect a new record : 600 swimming spots, 35 countries, 70 rivers and 22 lakes ! There is no forecast for 2015, but let us hope it will be quite greater than the figures expected for 2010.

Until 2010, other events will put the pressure : symposium, expositions, commentaries, mediatic actions, but also local Big Jumps (in a area or in a basin). It is a complete program we propose until 2010, in order to continue the popular mobilization in favour of our rivers and wetlands !
The Beaugency beach project

Claude BOURDIN
Former Member of Parliament, Councillor, Loiret Department
Mayor of Beaugency

50 years ago….

During and after the war, there was a beach on the left bank of the Loire at Beaugency, close to the current municipal campsite. Swimming was allowed, and was marked into special areas (children, beginners and experienced swimmers). The bravest souls went as far as Dhuy where diving boards were set up and the water was more than 3 metres deep! The flow of the river was directed towards the right bank for boating navigation using dykes.

Under the "Plan Loire Grandeur Nature" programme, the dykes were dismantled in 1995 and a channel was dug towards the left bank. Since then, the Loire flows the same on both sides and swimming is no longer allowed, due to the strong current. The natural beach at Beaugency was already long gone…

The Local Authority then had the idea of opening an artificial beach on the right bank, at Quai Dunois.

The new Beach at Beaugency: pipe-dream to reality…

As part of the general development plan for the banks of the Loire between Accruaux and Barchelin, including the Accruaux fishing lakes, the motorboat club, the maze, canoe and kayaking, and the Barchelin footpath, the idea of creating an artificial beach on the right bank of the Loire, at Quai Dunois, fitted nicely.

"The Beach at Beaugency" raises the curtain: 14 July 2005 to 15 August 2005

The Local Authority thus decided to create an artificial beach on the banks of the Loire from 14 July to 15 August 2005 to offer residents, tourists and visitors of all ages places to relax and enjoy summer fun together. The local authority’s technical services carried out the necessary work.
The Beach at Beaugency consisted of: a 1,800 m² surface area, requiring 1,800 tons of fine sand, two blocks of toilets, showers and changing rooms, a sheltered bandstand for concerts, a dance floor (also used for gymnastics) and three chalets for organised activities and snacks. In addition, the “Beach” area had 25 deck chairs, 25 loungers, 30 sunshades, 1 misting machine and 2 palm trees. Next to the Beach, there was an area with picnic tables and benches so that holiday-makers could take full advantage of the charming backdrop of the Loire. Finally, a sports area was created close to the picnic spot, including one Beach Volleyball Court, 2 table tennis tables, 1 climbing wall and an archery area under the arch of the bridge.

More than 30,000 people came and enjoyed this popular event for a month – grandparents, parents and children from Beaugency, along with tourists, in larger numbers than in previous years in Beaugency.

It should be added that this event would not have been possible without the involvement and support of many public- and private-sector partners.

Finally, all the installations were temporary and were therefore taken down at the end of August.

"The Beach at Beaugency": watch this space…

The first instalment of the "The Beach at Beaugency" has been so successful that the Local Authority is already starting to plan next year's event. There is no shortage of ideas and already, the idea of using a traditional small boat to provide a ferry service between the two banks, and setting up a paddling pool for children have already been mooted. Soon, "The Beach at Beaugency" will be rivalling the best of the natural beaches on the French coast!
Green tourism development  
along Major European Rivers – Loire Nature project  

Jean-Christophe GIGAULT  
Director of the Ligue pour la Protection des Oiseaux Auvergne  

Foreword:  
For more than 20 years, the “Ligue pour la Protection des Oiseaux” (LPO – bird protection league) has particularly focused on the following areas in engaging with ornithological and nature tourism:

- contributing to local economic, social and cultural development,
- enabling as many people as possible to enjoy nature in an environmentally friendly manner.

In 2001, at the LPO's and French federation of national parks' initiative, the AFIT (Agence Française d'Ingénierie Touristique- French Tourism Engineering Agency) carried out a study into "ornithological tourism: nature tourism" and published a technical guide.
In 2004, the LPO wrote a corporate brochure on behalf of the French Ministry of Ecology and Sustainable Development. This brochure was based on a national study (mainland France and overseas Departements and territories) involving 208 tourism professionals and 286 environmental and nature protection associations, and looked at the role of these associations in ornithological and nature tourism in France; the brochure was circulated at the conference.

The LPO has been the Birdlife International representative for France since 1993, enabling its activities to coordinate with European and worldwide campaigns. It aims to make France a major destination for English and German speaking birdwatchers.
The LPO Auvergne has been running a nature tourism development programme in the Loire Basin since 2002, in partnership with the «Etablissement Public Loire» as part of the Loire nature project, aiming to introduce sustainable management for the river Loire and its tributaries.

Demand and offer for nature tourism in France

Definition of nature tourism:

“A form of tourism where the main motivation is viewing and enjoying nature”. World Tourism Organisation (WTO).
An AFIT study published in 2003 on nature tourism makes this definition more specific and excludes nature sports (e.g. hiking and mountain biking).

**Difference between tourism and leisure:** tourism implies at least one night spent at the destination.

**Demand from main customer sectors:**

- General public: "Spectacular" nature leisure activities as a part of eco-breaks.
- Nature lovers: Holidays or package breaks: 50% nature and 50% sport/culture.
- Specialists: Holidays or packages: 100% nature

Nature tourism is a niche sector in the package breaks market: approximately 400 French people take nature holidays in France. Very few nature-focused French destinations are targeted by Tourist Offices unless very well known (e.g. Camargue). Yet a major potential market exists for nature-based leisure activities: the AFIT study on ornithological tourism identified "more than 4 million visitors interested".

**Main nature tourism / leisure offerings:**

- Public centres such as "maisons de la nature"
- Natural sites laid out for the public with information boards, special footpaths
- Nature walks for the general public and schools/extra-curricular activities
- Nature breaks for adults, children, groups, individuals
- Events

**“Loire nature” project as an example of nature tourism development**

**“Loire nature” project**

The “Loire nature” project started in 1993 with the aim of preserving the natural environment by strengthening the concept of "a freedom area" for the river. The 2nd phase of the project (2002-2006) is now stakeholder in the “Programme Interrégional Loire Grandeur Nature” launched by the French Government, the «Etablissement Public Loire» and the Loire-Bretagne water board.

Its aim is to manage the sites and preserve the various ecological roles of the Loire basin wetlands. It is supported by 7 "Conservatoires d’Espaces Naturels" (national nature parks) and their federation, the WWF-France, the LPO and 6 of its delegations along with the FRAPNA Loire organisation. 50 locations are involved, covering 8 regions of the river’s catchment area, taking the diverse river habitats into account.
Above and beyond these environmental protection activities, Loire nature is also involved in public awareness campaigns and supporting nature tourism development linked to the Loire's natural heritage.

**Activities covered by the nature tourism aspect of the project**

Tourism activities were launched in the 2\textsuperscript{nd} phase of the project as an innovative new approach. Initially, research into the nature tourism market (offer and demand) was carried out, followed by the roll-out of collective development projects across the basin as a whole. These include:

- Setting up holidays targeting specialists and nature-lovers,
- Setting up "les soirées Loire nature" evening events across the whole basin.

The project has also aimed to create networks between figures in the areas of tourism and the environment and to develop this network (with discussion days, information sharing, consultancy, support in local project development, etc). This day-to-day work on the ground is surely the key to the success of such projects and development of this sector. A full-time project head has been recruited for the full length of the programme to manage this development.

**Potential for nature tourism development on our major rivers**

**Clear possibilities for development:**

- Ecological aspects: rivers have an undeniable ecological richness and diversity (fauna, flora, habitats, etc.), comparable with other types of terrain (e.g. mountains). Moreover, it is easy to view nature from the riverside (waterfowl, etc.).

- Tourism aspects: nature tourism is developing strongly and is not limited to high season. Professionals in the tourist industry in France are increasingly interested in developing tourist facilities around rivers and environmental organisations are becoming increasingly professional in this area.

**Development dependent on:**

- Ecological factors: nature tourism must protect the natural environment. The major rivers must be protected and preserved, alongside concerted management and development schemes. The right balance between protection and development must be found.
- Tourist factors: the development of tourism for a whole river or catchment area does not happen overnight and requires networking, cooperation, a structured offer and promotion/public relations. Likewise the work needs to be supported at the local level by work in co-operation between tourist bodies and environmental organisations.

- General factors: nature tourism development for major rivers is a long-term project (e.g. Loire nature after 4 years). It requires partnership between tourism bodies and environmental organisations (both private and public), support from politicians and public funding.
"Development of angling tourism in the Loire valley"

Renaud COLIN
Etablissement Public Loire

Presentation of the "Établissement Publique Loire" and its tourism support role:

The "Établissement Public Loire" is a resource to support solidarity and subsidiarity at the scale of the whole River Loire. It comprises 6 Regions, 16 Departments, 18 towns and cities and 11 local "commune" groupings, and works in the areas of watercourse management, environment and heritage.

The "Établissement Public Loire" is involved with several cross-regional or cross-department projects to promote and develop tourism, often on an itinerant basis. The Établissement's involvement is always based on solidarity and subsidiarity and, depending on the project, may act as a "facilitator", providing leadership and coordination, as a funder or as a commissioning body.
Generally, as a guardian of regional heritage, the Établissement’s actions are situated upstream of so-called “tourist” policies. As one public sector body amongst others, its role is to respond to its members’ requests and implement public policies to support tourism. Its sphere of activity is thus restricted, and it cannot play a role as a specialised tourist board.

In particular, it does not interfere with actions carried out by the Regional Tourist Boards, the Departement Tourist Boards and the Tourist Offices.

Indeed, Établissement’s work aims to involve all these bodies, as far as possible and as means allow.

**Angling tourism in France**

France is a prime location for anglers, due to the quality and variety of its water courses (275,000 km and more than 300,000 ha of lakes), the diversity of its species (almost 75) and its relevant voluntary-sector and regulatory framework (4,200 AAPPMA).

There are approximately four million freshwater anglers in France, including more than two million who fish regularly. Average annual spending per angler ranges from € 300 to € 1,000, depending on the type of fishing, with an overall turnover of more than a billion euros, according to various studies.

Despite these considerable assets, angling tourism has rather marginal economic clout, and remains poorly developed. Each year, more and more French anglers go fishing abroad. At the start of the 20th of century salmon fishing attracted Europe’s great and good to certain valleys in France (especially the river Allier), but now, it struggles to draw custom even from its enthusiasts.

And yet, angling tourism could be a godsend for developing land use.

With falling members over the last 30 years, angling associations are forced to move with the times. Between 1995 and 2004, a reduction of 486,600 anglers was recorded by the "Conseil Supérieur de la Pêche (national angling board), a nearly 30 % drop. Consequently, increasing numbers of voluntary associations and federations want to open up to angling tourism.

At the same time, development plans are being drawn up by some regional or departement-level tourism authorities, showing a particular interest in the field. Some Regions or Departements have made it a particular priority, with some pilot initiatives starting to bear fruit. Already some are offering “fishing breaks”.

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EP Loire's study: angling tourism in the Loire valley

In this field, the River Loire has a leading role to play on a national level. This topic is already being examined by several tourist organisations, including some which are recognised as leaders on a national level (including the Départements of Nièvre, Puy-de-Dôme or Creuse). These bodies have driven a move to set up a working group formed around "ODIT France" (France Tourism, Observation, Development and Engineering, formerly "Agence Française d'Ingénierie Touristique" – French tourism engineering agency) to better organise this field and to get to know customer needs.

The Loire reflects a national trend and on this scale (its catchment area covers about 1/5 of the area of France) there are fairly high expectations in terms of development, maybe even higher than in the rest of the country.

With the exception of certain stretches or well-known sites, the economic contribution of angling-related activities is difficult to assess. Although less eye-catching than the garish canoes that use the river throughout the summer, as an economic tourist, the angler has a lot to offer. In 1998, a study showed that in Burgundy, the average length of stay for anglers was 8.7 nights, as opposed to an average of 1.2 nights for all other tourists.

The "Établissement Public Loire" therefore aims to carry out a strategic study into the angling tourism offer provided by the Loire and in its catchment area. Its initial aim is to have a better overall understanding of the field, to then put forward areas for discussion in developing the structures and encouraging professionalism.

The study is coordinated with the work done by "ODIT France" on a nationwide level.

The idea is to summarise and highlight measures taken by the various public-sector, tourist and voluntary-sector bodies over the last few years on the Loire valley and its tributaries. It is looking to highlight both successes and failures.

The future of angling tourism remains bright, offering rural development and the environment another economic resource.
Introduction: the speaker and the Federation

Alain Nevière is Vice-Chairman of the Indre Departement committee for footpaths and rambling. Since April 2000, he has been chairman of the Centre Region Committee and in June 2003 he was elected to the Board of Directors of the "Fédération Française de Randonnée Pédestre" (French Ramblers’ Federation), where he is Vice-Chairman of the ATEN Tourism-Environment Committee. Alongside, the publishing committee and the social committee, this tourism and environment development committee is responsible for promoting, developing and protecting the rambler's environment, in particular creating, sign-posting and protecting footpaths.

It will soon be the 60th anniversary of the French Ramblers' Federation. The organisation grew up out of the practice of "touring" from the end of the XIXth century with the Touring Club of France. Several ramblers associations came together in August 1947, led by Mr Jean Loiseau, to establish the "Comité National des Sentiers de Grande Randonnée" (national committee of hiking trails), with the grand aim of establishing a network of hiking routes throughout France : the famous GR® (“Grande Randonnée” hiking trails), with accommodation in gîtes along the way.

The CNSGR ran public events throughout France and published walking guides, in partnership with public- and private-sector bodies, winning state recognition in 1971. In 1978, it became the French Ramblers' Federation and in 1995 was accredited by the French Ministry of Youth and Sports as an approved sporting federation. Its following has now increased to 175,000 licensees and 3,000 associations nationally in 2005.

To give an idea of scale, in 2005 the Federation has 180,000 km of signposted footpaths, 150 employees in national, regional and departement-level organisations, 6,000 voluntary sign-posters, sells 350,000 walking guides per year, and operates with a budget of € 8 million.
History: the GR®3 – 1st Hiking Trail in France?

Nowadays, new walking routes are gentle circuits and some national GR®s (often initiated by local authorities). This all started with the establishment of the GR® hiking trails.

These major routes criss-cross France for hundreds of miles (even crossing borders, like the Compostella trail) and each one is given a number. Many French people have heard of the legendary GR® 20 which runs from one end of Corsica to the other, or the GR® 10 which connects the Mediterranean and the Atlantic via the Pyrenees. However, you need to be an enthusiast to know that the GR® 1 forms a circuit right around the Ile de France region, that the GR® 2 follows the course of the Seine and that the GR® 3 runs along the banks of the Loire from its source to the estuary.

The historic accolade of 1st GR® in France does not go to the GR® 3; however it was one of the first trails to be signposted in red and white, the colours registered by the CNSGR.

On 31st August 1947, the first signposted stretch of the GR® 3, running 28 km between Orleans and Beaugency, was symbolically inaugurated in Orleans in the presence of local and national authorities. The Orléans-Jargeau and Nantes- St-Etienne de Montluc sections opened the following year.

In this heroic, pioneering post-war period, when cars were rare and petrol was rationed, the volunteers used their bicycles and needed a ration book to get paint, brushes and tools. A particular mention needs to be made of Mr Roger Gauthier, a primary school teacher, municipal secretary and journalist in the Loiret. He was one of the forces behind this long-term project which moved forward little by little, depending on the departments involved.

Geography: the prestige of "le sentier de la Loire"

Like all GR® hiking trails, the signposting is designed so that the GR®3, also known as "le sentier de la Loire" (the Loire path) can be followed in either direction. However, it seems fitting for us to follow the river downstream from the source.

It crosses 12 departments and 5 regions over its 1,300 km course between its source at Mont Gerbier de Jonc to La Baule, before it opens into the Atlantic Ocean. From the rocks and crags of the Ardèche and Haute Loire Departments, the GR® 3 skirts around Mont Mézenc and joins le Puy en Velay. It then threads between the peaks either side of the Loire and Allier valleys and through the Monts du Forez and the Bourbonnais mountains, before it reaches Nevers and ventures into Burgundy. After passing Morvan, it turns towards the Val de Loire, entering the Centre region a little above Briare.
Next come the famous *Châteaux* of the Loire: Sully, Chambord, Chaumont, Amboise, Villandry, etc..., with the well-known cities of Orleans, Blois and Tours, followed by Saumur and then Angers. Over this stretch, the GR®3 sticks as close as possible to the riverbanks, to allow walkers to be close to the architectural and natural heritage (fauna and flora) which marks out this area, and has led to its recognition by UNESCO as a world heritage site. Finally, between the Anjou and Nantes areas, the GR®3 crosses varied landscapes such as vineyards, vegetable fields, the marches of the Brière Regional Park and the Guérande salt flats close to the seaside resort of La Baule.

**Usage: whose path is it anyway?**

Those who designed the GR®3 route obviously did not simply set it up for their own pleasure, but, in addition to promoting its heritage, wanted it to be well-used and enjoyed as widely as possible. To continue meeting these aims, certain conditions need to be met, and this is the challenge that the Federation’s volunteers are constantly facing:

* checking the trail is not broken: property sales, road or property development work, urban planning. All these can threaten the existence of the P.D.I.P.R. (Plan Départemental des Itinéraires de Promenade et de Randonnée – department-level footpath plan) if applications are accepted by local authorities.

* regularly checking the signposting quality and consistency: the famous and red and white registered trademarks,

* collecting and updating information for descriptions, particularly for the walking guides as they are published or re-issued. No single working guide covers the whole route; instead several exist, covering different stretches of the 1,300 km length. In 2003, for instance, the "Châteaux de la Loire à pied" (Loire Chateau by foot) for the Bonny-sur-Loire to Angers portion was published.

* In general, checking on-going compliance with the criteria for national GR® approval. For instance, a maximum of 30 % tarmac ked paths; accommodation well distributed along the route.

The GR® trademark gives ramblers security; it is a quality standard and, as such, must be merited. We have no way of knowing how many people used the route, but local clubs and information from the Tourism Offices and accommodation providers suggest that it is increasing, particularly in the most well-known tourist areas. These are "strategic" points, where complementary initiatives "pep up" the usage.

Many walking and rambling circuits have since been created, based on this GR® hiking trail, the backbone of walking along the river Loire. Rather than hikers, these routes aim to cater for a wide audience, leisure walkers, often with their families, looking for thematic
Future: what next for the GR®3?

Like all hiking trails, this one faces threats, which even its legendary status does not protect it from. The entire route has been included in the footpath plans for all Departments it crosses, which should ensure that the authorities guarantee its continuity, and create substitute routes if property or road works interrupted (not uncommon in sub-urban or urban areas). However, the GR® can be threatened in other ways.

As it follows a river, at times it may be cut off due to flooding and a temporary diversion may need to be planned. As it crosses urban areas or large agglomerations (Orleans, Tours, Angers etc.), it is often used by motor vehicles: 4x4, quads, motorbikes, etc. Quite obviously, issues of cohabitation with other users such as anglers, boaters and residents will come up. Finally, ramblers are somewhat worried by the scale of the "Loire à vélo" (Loire by bike) project.

Without wishing to question the merit of this project, which has mobilised significant financial, human and technical resources, it is important to ensure that, when it is implemented on the ground, the interests of ramblers who have created and promoted the GR®3 for more than a half century are not neglected. To take the example of the Loiret department, over the intended 144 km of the "Loire à vélo" route, 65 km are shared with the GR®3 and 35 of these are in line for tarmacking. This proportion of tarmac is likely to lead to the GR® being automatically downgraded by the national authorities. Quite apart from the ramblers’ discomfort, cohabitation with speed-loving cyclists and roller-skaters can lead to conflict and even accidents. All the clubs, departments-level and regional committees and the federal organisations have therefore contacted their elected representatives, petitioning for more active consultation so that the interests and aspirations of the different users can be reconciled and so the developers can hear users’ points of view.

There is room for everyone on the banks of the Loire, but we should not forget the famous saying: "one man's freedom is another man's chains."
What development perspectives for canoe-kayak tourism?

Annick GOMBERT
Vice-Chairman of comité regional du Centre de canoë-kayak

Potential development of tourist canoeing/kayaking on the Loire

City dwellers are increasingly trying to get out of the city and into the wild to enjoy outdoor sports – and in this respect, the Loire is no different to any other area. In the "Centre" region, canoeing is enjoyed by tourists accounting for 80,000 outings per year. In the "Pays de Loire" and in Bourgogne day tourist and serious sporting outings number 87,500 per year. In 2003, the canoeing-kayaking turnover in Bourgogne was just over € 1.2 M, taken by professionals (63%), local authorities (23%) and clubs (14%). In order for this activity to continue to develop harmoniously, its advantage and disadvantages need to be assessed.

As a tourist canoeing area, the Loire has some major assets:

- Beautiful, diverse and well-known landscapes, rich wildlife, extraordinary architectural assets, the listing of the stretch between Sully/Loire and Chalonnes/Loire as the "last untamed river in Europe" on the UNESCO world heritage list.

- The variety of boating activities: sports, tourist or nature outings, from the source to the estuary, from wild water to gentle stretches, from a half-day's hire to a month-long adventure holiday.

- Easy links with "la Loire à vélo" (Loire by bike), walking and rambling and the Loire's boating heritage.

- The chance to enjoy a living river, neither a dump nor a nature reserve.
Canoeing and kayaking have particular assets:

- Light craft with shallow draft – can be used at low water.
- Quiet, non-polluting, little disturbance to fauna, can be used for ecotourism. Easy for qualified guides to lead a trip. They may be trained in environmental issues so that tourists can respect, interact with and learn about the river environment.

The drawbacks are linked to:

- safety: rocky outcrops in river (e.g. submerged Wilson bridge rafts at Tours), suckholes, fish-passes unfit for navigation,
- discontinuous navigability (dams with no bypass river or canoe pass),
- lack of tourist infrastructure: access to the river, stop-offs, boating centres, wild-water centres and signposting,
- lack of professionalism in catering for tourists.
- lack of all-round packages offering canoeing, cycling, accommodation and food.

Development plan

In the context of the river, there are numerous plans and bodies involved.

The legislative instruments could be mentioned (Act No. 92-3, SDAGE, SAGE), the "Plan Loire Grandeur Nature", "Natura 2000", river contracts, bank redevelopment contract, departement-level Plans for Boat Trips, Regional Boating Plans, the master plan for boating development on the Loire, future departement-level, planning documents, routes and pathways for outdoors sports etc.

Balanced, coordinated management is required to promote the watercourse as an economic resource to meet the requirements of tourism, leisure and water-sports as defined by Act 92-3 (referred to as "the water act" and the act pertaining to sport as amended in July 2000.

This management requires the boating products on offer to be structured and integrated with the environmental and human context.
The offer needs to be matched with:

- the requirements and demand from water-sports enthusiasts,
- the availability, capacity and adaptability of structures to cater for tourists, whether local voluntary groups or national federations.

**Information, awareness-raising and training is required to encourage environmentally friendly practices.**

**River Infrastructure:**

**Goal:** USER SAFETY, enjoyment of boating and environmentally friendly practices.

- Remove obstacles from the riverbed for safety: remains of old bridges, submerged rafts of Wilson Bridge in Tours, scrap metal, etc.

- The river must be made continuously navigable, by creating bypass rivers for safe boating at the big dams and creating proper canoe passes at the smaller dams or weirs.

- **Access** to the river: Fixed jetties or pontoons, with signs giving information on the natural beauty of the river course, services and regulations.

- Stop-offs, boating centres, suitable accommodation

- Wild-water centres: on the Loire or tributaries close to urban centers. Tourists enjoy the centers as they are a fun way to have a first experience on the river. They can play a very important role within the community and create non-seasonal employment.

**Promotion and training**

1/ Training courses for guides in both nature and kayaking, recruiting high quality tourist hosts.

2/ **River guide sheets:** design and write guide sheets for river outings, and put them together in a guidebook to the Loire (to be published in French, possibly translated into English and German). Three main goals:

- Develop economic activity: encourage new visits, retain current tourism in the Loire valley, and promote the valley to the region’s inhabitants.

- Increase the quality of facilities in terms of safety, comfort and information
• Keep human impacts on the natural environment to a minimum.

3/ **Create a central booking structure** by networking, coordinating and promoting the offer: press releases, photos, promotion with regional tourist boards, promotion abroad with "Maison de la France", Websites, etc.

**Conclusion**: Canoeing activities already exist on the Loire but this could be integrated with the "Loire à vélo" (Loire by bike) offer to provide package products. The nature and water-sports tourism demand is continuing to increase and looks like developing strongly in the future. This needs to be well-managed in order to promote the richness of the Loire valley watercourse and protect both the natural environmental balance and other uses of the river.
This conference was organized by Etablissement Public Loire, thanks to the financial and technical support of:

- European Union/Program Interreg IIIb,
- French State,
- Loire Bretagne water agency,
- BRGM (French geological survey),
- City of Orleans.
- Mission val de Loire,
- Orleans’ urban planning agency,
- Regional Natural Conservation Agency for the Loire River Banks

The material organization was carried out with the support of the City of ORLEANS, ORLEANS Congrès and ORLEANS Conférences.

Particular thanks to all the speakers, organizers, reporters and exhibitors, and to the people involved in the various preliminary meetings to improve this conference and in particular: Philippe AUCLERC, Catherine BERNARD, Willem de BRUYN, Nicolas-Gerard CAMPHUIS, Maryse DUMOULIN, Yves DUPONT, Benoit GAYET, Patrice LAURENT, Nicole LE NEVEZ, Myriam LAIDET, Stéphane MERCERON, Carole OLLIER and Thierry POINTET.

Press relations were carried out by SPR Consultant (www.sprconsultant.com); the translations by DYNACOM agency (www.dynacom.fr); the supports of communication and visuals were created by the agency The Box (www.thebox.fr).

The preparation and the general coordination of the conference were ensured by the direction of the Etablissement Public Loire : Nathalie ALARÇON, Sylvie ASSELIN, Melanie LAFON, Pierre PHILIPPE and Regis THEPOT.