INTERIVAL: NEW PARTNERSHIP BETWEEN WATER MANAGEMENT AND AGRICULTURE

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ABSTRACT

INTERIVAL "**INTE**grated **RIV**er Basin and **A**gricultural **L**and Use Management" is an acronym with a double meaning. The basic principle behind INTERIVAL is to get two traditional rival interest groups within rural river basins, agriculture and water management, to cooperate on the foundation of a new partnership. The authors are involved in the development of a river basin management system based upon the integration of the land owners, who are mainly farmers. These should become actively involved in all aspects of water management, such as river restoration, diffuse pollution, flood plain management and agricultural land use practices, e.g. to reduce erosion and run-off. A part of the necessary financing should be provided through the new orientation of the EU Common Agricultural Policy. Pilot projects suitable for conditions in Austria will begin in 2003. In addition to a description and discussion on the principles and tools used within INTERIVAL, a report and analysis of the initial experience with the pilot projects will be given.

Keywords: Agriculture; integrated river basin management; modular approach; land use management; pilot projects; public participation

INTRODUCTION

INTERIVAL1– **INTE**grated **RIV**er Basin and **A**gricultural **L**and Use Management – is an acronym with a double meaning. The basic principle behind INTERIVAL is to get two traditional rival interest groups within rural river basins, agriculture and water management, to cooperate on the foundation of a new partnership.

River basins with intensive agriculture are typical throughout Europe. The watercourses in such basins have often been regulated to provide protection against flooding, to gain area for agricultural use and to secure adequate drainage. Traditionally, watercourses have been seen by agriculture as necessary nuisances. Space needed by a watercourse has been considered a sacrifice of productive areas. The consequences of this attitude may be seen throughout Europe.

During a seminar held by the European Centre for River Restoration in Denmark in 1999 the authors took part in work groups that considered the future of river restoration in Europe. In particular the question of how to achieve river restoration on a large scale, as envisioned in the EU Water Framework Directive, was discussed. Special attention was given to the question of how to finance this ambitious goal. The authors presented a model based upon the integration of the land owners, which are mainly the farmers, in river restoration. Farmers should not only be paid to provide the property necessary for restoration but become actively involved in the restoration work and the maintenance of restored watercourses. A part of the necessary financing should be provided through the new orientation of the EU Common Agricultural Policy. INTERIVAL has expanded this basic idea to river basin management as a whole, dealing not only with river restoration but also with diffuse pollution, flood plain management and agricultural land use practices, e.g. to reduce erosion and run-off.

The extreme floods in Central Europe during 2002 have given integrated river basin management a boost with politicians and other policy makers. Pilot projects to implement INTERIVAL in Austria will begin in 2003. In addition to a description and discussion on the principles and tools used within INTERIVAL, a report and analysis of the initial experience with the pilot projects will be given.

WATER MANAGEMENT IN AUSTRIA

The basic principles of INTERIVAL are valid for most rural river basins, especially in Europe. However, since INTERIVAL will be developed and tested in Austria, a short description of the relevant administrative and legal environment is given.

Water Management in Austria prior to the EU Water Framework Directive

Austria lies in Central Europe, almost entirely within the Danube River Basin. The area is 87,500 km², the population ca. 8 million. Only two relative small regions drain to the Rhine River and the Elbe River respectively. Austria is a federal republic consisting of 9 states ("Länder"). The rights and responsibilities of the federal republic are specifically listed in the federal constitution; all other rights and responsibilities lie with the states and municipalities (Cate, 2001). For administrative purposes the states are also subdivided into administrative districts, consisting of several municipalities.

1 The name INTERIVAL is the intellectual property of the authors.

Table 1 Overview of political, administrative and water management organisation in Austria

Political unit	Administrative unit	Water management
Federal republic	Ministries	Water policy and laws
State (Länder)	State government offices	Implementation of water policy and law
	Administrative districts	Implementation of water policy and law
Municipalities	Municipal departments	Implementation of concrete measures, e.g. water supply, waste water disposal and treatment, flood protection, etc.

In the area of water management the most important law is the "Federal Water Law" with some instruments for river basin management:

- Water management framework plans (guidance)
- Water management framework ordinances (mandatory)
- Water management planning (guidance)

Water management on the national and international level is carried out mainly by the Ministry of Agriculture and Forestry, Environment and Water Management. Headwaters also remain the direct responsibility of the Ministry's Forestry Section, Torrent and Avalanche Protection Unit. This causes a division of responsibility in many river basins. Although the "Water Law" is a federal law, the implementation of this law has to a large degree been transferred to the states through a system called "indirect federal administration" and is carried out by the state governments and the administrative districts. Other legal instruments important for integrated river basin management fall within the state's sole responsibility, such as regional planning, zoning laws, building codes and nature conservation.

The municipalities are responsible for carrying out almost all the concrete measures needed to fulfil the requirements of the water law, such as water supply, waste water disposal and flood control. In order to do this, they have often joined together in associations and co-operatives. Other stake-holders have formed voluntary co-operatives to carry out water management measures, such as farmers involved in irrigation and drainage.

The political and administrative entities are based on historical development and therefore historical boundaries. Therefore it is evident that there can be little congruence between these historical boundaries and the natural borders of river basins, making river basin management inherently difficult to superimpose upon the existing administrative system in Austria.

Implementation of the EU Water Framework Directive (WFD)

The ongoing major revision of the Water Law aims to transpose the WFD into Austrian law. One of the main issues is the establishment of the administrative structures needed to develop river basin management plans including programmes of measures and to facilitate public participation (in accordance with the Environmental Impact Assessment Law). According to this revision the territory of Austria is divided into several river basin districts (see figure 1).

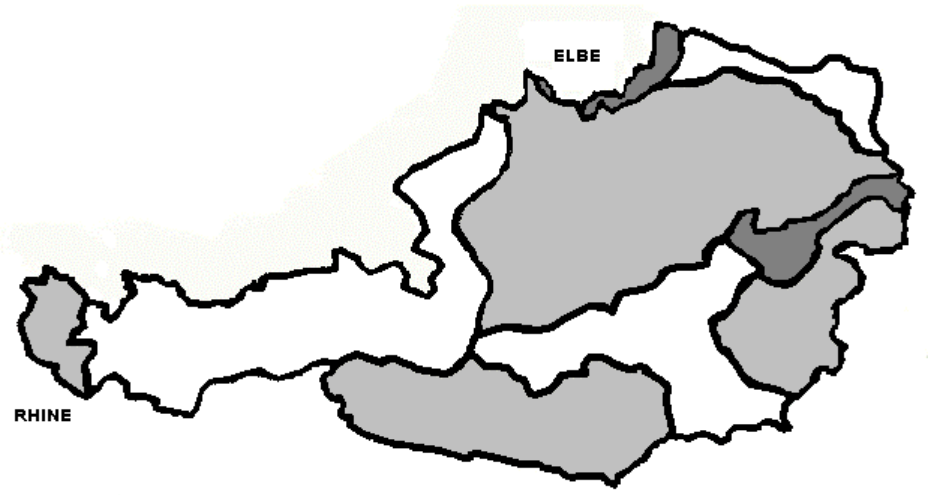

Figure 1 *River Basin Districts in Austria*

River basin management plans will be developed for each of these districts. The plans for the Rhine and Elbe districts will be integrated in respective international river basin management plans. The plans for the remaining districts (all within the Danube River Basin) will be collated into an Austrian National Plan for the Danube River, which will then form a part of the overall, international Danube River Basin Management Plan.

INTERIVAL

INTERIVAL is a project supported by the protec-NET*plus* programme of the Austrian Federal Ministry for Economics for the support of technology transfer to SMEs. The main project objectives are:

- Development of tools for integrated river basin and land use management for rural river basins
- Assessment of these tools in pilot projects
- Development of Project Manual for internal use in river basin management projects
- Formation of a professional network for river basin management
- Strengthening of research and development capacities

Project team

The project will be carried out by an interdisciplinary team of small and medium sized enterprises.

Table 2 INTERIVAL project team

Project partner	Professional field	Responsibility
OEKOREAL	Environmental project development	Project management, Tool development, Financial models and funding
Cate	Water resource consulting	Water management, Public participation and workshop organisation, Mediation
Europrojekt	Agricultural consulting	Liaison with farmers, Communication strategy
Austrian Water	Cluster of water-related companies and professionals	Network development

The members of the project team are of the opinion that in the medium-to-long term the organisational and technical support for integrated river basin management will be carried out by private consulting firms and not by the public administration. Perhaps water management will be undertaken within a PPP model.

The responsibility for the implementation of concrete measures concerning water in rural river basins lies with the local authorities, the municipalities. These local authorities do not usually have the necessary expertise and personnel in order to undertake water management in an integrated manner. At the moment the public administration, mainly those of the state governments, is providing this support on a sectoral, non-integrated basis. This has led to a traditional top-down approach in water management planning. Private consultants are employed for specific projects.

The present trend to leaner government, connected with severe pressure to balance budgets will lead to less capacity for support by the public administration. General social trends in rural areas such as more empowerment on local levels, higher general level of education in rural area and the shift of the rural economy from the primary (agriculture, forestry) and secondary (industry) sectors to the tertiary (service) sector will lead to more capacity for self-determination in rural communities. Self-determination is strengthen by the long rural tradition of cooperation in fields such as farmer cooperatives, water supply, waste water treatment, school districts, district hospitals, tourism associations, etc. The shift of responsibility to the local and regional level will lead to an increase of demand for professional support, which will have to be provided by specialised private enterprises.

Water and land use management challenges in rural river basins

Rural river basins with intensive agricultural land use are typical for much of Europe. Sustainable solutions for such sub-basins are only possible if the strongly interactive system “river basin” is viewed holistic and managed in an integrated way. The river basin is used by the inhabitants (and visitors) in many ways: home - production base - workplace - recreation - traffic - water supply - waste water disposal and treatment. All these uses are in a marked interrelationship of the surface and ground waters with the agricultural areas. The activities of the inhabitants influence the quality and the functionality of the waters while deriving benefits from their use. Therefore everyone should be actively involved in water management.

Without an integrated approach to water management in rural river basins with intensive agricultural land use, problems such as the following can arise:

- deterioration of water quality
- flooding more frequent, higher flood peaks and volumes, shorter time to peak
- riverine and neighbouring ecosystems with high ecological deficits
- “faceless” landscapes with loss of wetlands and other aquatic ecosystems
- intensive agricultural land use with diffuse pollution and erosion
- high and rapid rate of sedimentation in surface waters
- pressure from settlements on riverine areas

European water policy
The European Water Policy has designated "river basin management" as one of the main instruments to achieve its objectives:

- Getting Europe's water cleaner
- Getting the citizens involved
- Interaction of environment and socio-economic dynamics

Therefore INTERIVAL supports the implementation of European water policies, especially certain aspects of the Water Framework Directive. In addition the new direction of the Common Agricultural Policy is supported by the involvement of farmers in the wide area implementation of riverine ecological and anti-erosion measures within INTERIVAL.

PRINCIPLES OF INTERIVAL AND BASIC ORGANISATION

INTERIVAL integrates "agricultural land use management" within river basin management. The following principles will be applied:

- Participation of the interested public and all stakeholders in the decision making process (river basin forum, citizen forum, river basin ombudspersons)
- Participation of farmers in the implementation of the measures, land farmers will become also "water farmers"
- Inclusion of the effects on regional and rural development
- User-friendliness of all management tools, leading "automatically" to an integrated (e.g. water and agriculture) and "holistic" management behaviour
- Modular approach tailored to needs of individual river basins

The basic organisational structure to ensure that these principles will be fulfilled is shown in figure 2.

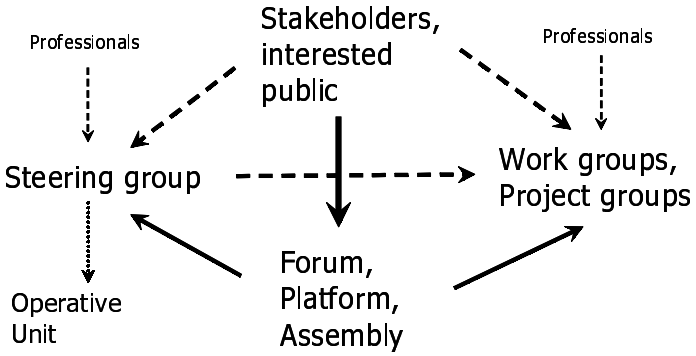

Figure 2 *Basic river basin organisational structure*

The INTERIVAL work programme is shown in Table 3.

Pilot projects
Two rural river basins have been identified as possible pilot project areas for INTERIVAL. Both are in the state of Lower Austria, relatively near to Vienna (see figure 3). Partners of the INTERIVAL team have been involved in various projects within these river basins. The basic data of the basins are given in table 4.

Current project status (May 1st, 2003)
The contract with the funding agency of protectNET-plus will be finalised in May. Negotiations are being carried out with decision makers in both pilot river basins. At the moment it seems that the Triesting basin is more prepared to participate. Talks have been taking place to secure parallel funding from federal and state sources, especially to support the workshops, public relations and initial projects. An update on the progress of INTERIVAL will be given at the Diffuse Pollution Conference at Dublin in August 2003

CONCLUSIONS - CHALLENGES TO RIVER BASIN MANAGEMENT IN AUSTRIA

Convincing politicians.
The principal foundation for river basin management in Austria will be the municipalities. The elected representatives have to be convinced that they have advantages. Here river basin management is competing with an ever growing number of municipal responsibilities.

Outreach to the public and media.
The key to success in river basin management will be the effective and continuing participation of the interested public. The challenge is to catch the public interest and to keep it. This requires integration of the local media.

Involving all stakeholders.
The challenge is to reach and integrate all stakeholders. The relevant decision makers are reserved about involving stakeholders and the top-down mentality is still very much present, especially in the civil service.

Uncertainty in the civil service.
The public administration's monopoly on water management policy is threatened by substantial reduction of budgets combined with cuts in personnel. There will not be enough capacity to deal with new developments such as river basin management. In addition, skills different from those used successfully in the past will be required. Private consultants, who have worked closely with the municipalities in the water sector, are felt to be dangerous competitors because they are more flexible and are not bound by departmental restrictions.

Where is the money coming from?
This question is very important and unfortunately very difficult. The costs should be justified through the benefits accrued. Possible solutions are:
– Review and redistribution of funds currently used for the water-related activities
– Payment for environmental contributions by land-owners within the new EU Common Agricultural Policy
– Development of new financial instruments based on the recovery of costs for water services as foreseen in the EU Water Framework Directive
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Boundaries.
The simple fact that political and administrative boundaries are not the same as watershed boundaries leads to difficulties wherever river basin management is implemented. In Austria an additional problem is the division of responsibilities between state water departments (most rivers), federal Waterways Agency (Danube, some border rivers) and federal Torrent and Avalanche Protection Unit (headwaters, small tributaries).

Problem to process.
A major, if not the greatest challenge, is changing the mindset of the responsible persons from being problem-orientated to becoming process-orientated (Morrison, 2002). When this is achieved, river basin management follows almost automatically as the instrument for integrated water management.

Table 3 INTERIVAL work programme

PHASE 1 PREPARATION	**PHASE 2 PILOT PROJECT**	**PHASE 3 NETWORK DEVELOPMENT**	**PHASE 4 RESULTS AND ANALYSIS**
Research, international examples and experience	**Kick-off workshop** with opinion leaders and relevant professionals	**Contact** with opinion leaders in **other river basins**	**General River Basin and Land Management Tools** for Austria
White Book – River Basin Management in Austria with present situation and future outlook (incl. EU WFD)	**Workshop for the Future** with all stakeholders and interested public	**Contact with river basin professionals** in universities, public administration, professional societies, consultants	**Special River Basin and Land Management Tools** for pilot project basins
Draft manual with procedures, checklists, funding models	**Work groups** for specific questions and measures	**Joint workshop**, exchange of information	**Project Manual** for internal use in river basin management projects
Communication strategy module, outreach to politicians, media, public, stakeholders, water professionals	Development of **organisational and financial modules** with delineation of responsibilities	**Data bank**, problems and experience in Austrian river basins	**Final report** for funding agency protec-NET*plus*
Presentation material e.g. brochures, info-package, media-package, PowerPoint presentations, etc.	**Citizen Forum, River Basin Ombudsperson and/or River Basin Forum**	**Austrian River Basin Management Platform**	
Development of **group dynamics module** and preparation for workshops	**Vision** statement and decision on **initial measures**		
	Development of **environmental and technical modules** (tools)		

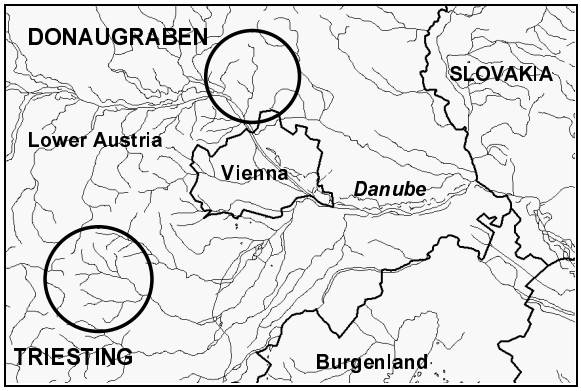

***Figure 3** Pilot river basins*

Table 4 Pilot river basins, overview

General data	**Triesting**	**Donaugraben**
Area	220 km²	90 km²
Main channel length	35 km	19 km
Population	8500	15000
Municipalities	5	5
Administrative districts involved	2	1
Basin	Upper sub-basin	Complete basin
Main land use	Forestry	Agriculture
Water management organisations	Municipal water associations,State Water Dept.,Federal Torrent Control Dept.	Municipal water associations, State Water Dept.,Agricultural drainage co-ops

Water issues	**Triesting**	**Donaugr.**	**Water issues**	**Triesting**	**Donaugr.**
Surface water quality	x	xxx	Runoff retention, agriculture	x	xxx
Surface water quantity	-	x	Runoff retention, forestry	xxx	x
Groundwater quality	x	xxx	Runoff retention, urban areas	x	xxx
Groundwater quantity	-	xxx	Erosion	xxx	xxx
River ecosystem, ecosystem network	xxx	xxx	Diffuse pollution	x	xxx
Wetlands and flood plains	xxx	xxx	Settlement pressure	xxx	xxx
Water supply	x	xxx	Agricultural drainage	-	xxx
Water supply security	xxx	xxx	Highway drainage	x	x
Waste water treatment discharge	x	xxx	Groundwater levels	-	xxx
Sewage sludge disposal	xxx	xxx	Leisure activities, fishing	xxx	x
Flood control	xxx	x	Hydropower	x	-

xxx…important issue, x…relevant issue, - less important issue

SUMMARY

INTERIVAL is an ongoing project to develop the expertise and instruments needed to initiate and implement river basin management in Austria. Out of necessity, INTERIVAL is a private initiative supported by public funds for innovation and know-how transfer. We are of the opinion that the private sector will become more involved in water management since the civil service is faced with budget restrictions and the call to leaner government.

ACKNOWLEDGEMENTS

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