PART III

THE REMP – SUPPORTING PLANS AND IMPLEMENTATION STRATEGY

CHAPTER 6

SUPPORTING PLANS

6.1 INTRODUCTION

For effective implementation of the **REMP's Core Measures**, most of which relate directly to the management of various environmental resources and have been described in Chapter 5, it is considered important that a number of **Supporting Measures** are also adopted as a part of the plan. It is the view of the Study Team that some of the recommended supporting measures are in fact essential for successful implementation – especially those relating to Institutional matters, and also to Community Participation and Environmental Monitoring.

A number of these measures require action at a national level, with changes to legislation coming first, in order to move towards compliance with European Union Directives and environmental management practices. Membership of the European Union is a high priority for the Government of the Slovak Republic and it is becoming increasingly aware of the requirements for membership. Accordingly it has prepared (1999) a comprehensive document 'National Programme for the Adoption of the *Acquis*', which sets out in Chpater3.6 the Ministry of Environment's policy and programme to harmonise national environmental law with community law, particularly in areas such as air protection, waste management, water protection, nature and landscape protection, risk factors, genetically modified organisms and nuclear safety. The Ministry of Environment is already receiving technical assistance, through the UK Know How Fund, on how best to implement the EU Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC).

Therefore recommendations for EU-related legislative changes are not, in general, included among the Supporting Measures.

Nevertheless a good number of other recommendations, which are national in scope, are included amongst the Supporting Measures described in this Chapter.

6.2   INSTITUTIONAL MEASURES

6.2.1   EXISTING ENVIRONMENTAL PLANS AND INSTITUTIONS

(1)   Environmental Action Programmes (EAPs)

At present, action programmes (consisting of many projects related to the improvement of the environment, but often not clearly linked into a programme or with priorities justified) are prepared at different levels of the governments as follows:

1)   NEAP (National Environmental Action Programme), by MZP
2)   REAP (Regional Environmental Action Programme eg for Central Hron), by SAZP
3)   KEAP (Kraj Environmental Action Programme), by Kraj Office
4)   OEAP (Okres Environmental Action Programme), by Okres Office

(2)   Related Plans

Many of the actions/projects in the above EAPs are created or derived from the following plans in various fields:

- Territorial Development Plans for Banska Bystrica and Nitra Kraj and other Territorial Development Plans for Okres, Municipalities and special areas

- Water Management and Hydro-ecological Plans, by MP, MZP and water management bodies (Povodie Hrona, StVak, ZsVak, etc.)

- Forestry Management Plans

- Plans for Nature and Landscape Protection, by SAZP (COPK)

- Plans for Environmental Assessment and Eco-labelling, by SAZP (CEHOVT)

- Plans for Environmental Management and Education, by SAZP (CEEV)

- Plans for the Territorial System of Ecological Stability for the Nation, Okres and Municipalities, including Biocentres, Biocorridors, National Ecological Network of Slovakia and Ecological Landscape Planning, by MZP/SAZP (CUPER)

- National Programmes for Waste Management by the Ministry of Environment and Regional and District Plans by the Kraj and Okres offices respectively.

- Village Improvement Programmes by SAZP (CUPER)

- Regional Development Plans, by Kraj/Okres Offices

- National Park Plans by National Park Administration by SNP (MZP)

- Plans for Caves, by Slovak Cave Administration

Plans with close linkages to the REMP include the Hydro-ecological Plan, which has the Hron River Basin as the unit for planning and management of water environment, various *Kraj* and *Okres* Environmental Action Programmes and the SAZP (CUKOO) Programmes for the Polluted Area of the Central Hron. Some of these plans and their relationship to the REMP are summarised in Figure 6.2-1. There is considerable overlap in the content and recommendations

of these various plans, which could be very confusing to local/regional, national and international funding sources when integrated programmes are to be implemented and priorities set.

Many of these plans are 'statutory', their scope and content are determined by legislation, but this does not prevent overlap or guarantee support from stakeholders or funds for implementation from State. Local government or the private sector. The REMP is a pilot 'non-statutory' plan (and could remain non-statutory, with MZP issuing guidelines for REMP preparation); this provides it with more flexibility, yet still gives scope for obtaining funds for implementation as long as the preparation process remains participatory and the stakeholders/consulatees are ready to support the proposals.

(3)   Institutions with Environmental Responsibilities

The Ministry of Environment (MZP) has the main responsibility for environmental policy and regulation in Slovakia. The MZP is supported in implementing these responsibilities by several institutes, including the State Environmental Fund, Slovak Environmental Inspectorate, Slovak Environment Agency, Slovak Hydro-meteorological Institute, Geological Service, and National Parks Administration. All regional administrations (Kraj and Okres) and municipalities are supported by Departments of Environment, whose reporting responsibilities are ultimately to the Ministry of Interior rather than to the MZP. Further details are given in the Main Report.

6.2.2   MAIN ISSUE - COMPLEX INSTITUTIONAL STRUCTURES AND POOR CO-ORDINATION

The existing arrangements for environmental planning, environmental management and gathering of environmental data are diverse and not always clearly defined. The technical aspects of some activities are the responsibility of State agencies such as SIZP, SAZP (Ministry of Environment), Povodie Hrona and Lesoprojekt (Ministry of Agriculture), while the Kraj and Okres offices of the Ministry of Interior often have overlapping responsibilities, of a more administrative nature, for the same activities. There are similar, related overlaps in the system of regional government, with two tiers of state government (Kraj and Okres) plus an independent system of municipal local self-government (Obec and Mesto).

This very complexity makes both inter- and intra-institutional co-operation difficult - even within Ministries and their agencies the office arrangements and geographic areas of responsibility do not facilitate close-working – the various departments of the SIZP in Banska Bystrica operate out of different offices and cover different areas. This creates a major obstacle for the preparation and implementation of plans (such as the REMP) in a co-ordinated manner, such that they have the support of government and non-government stakeholders. This situation is not unique to Slovakia (see frontispiece) but, as identified in the UK Environmental
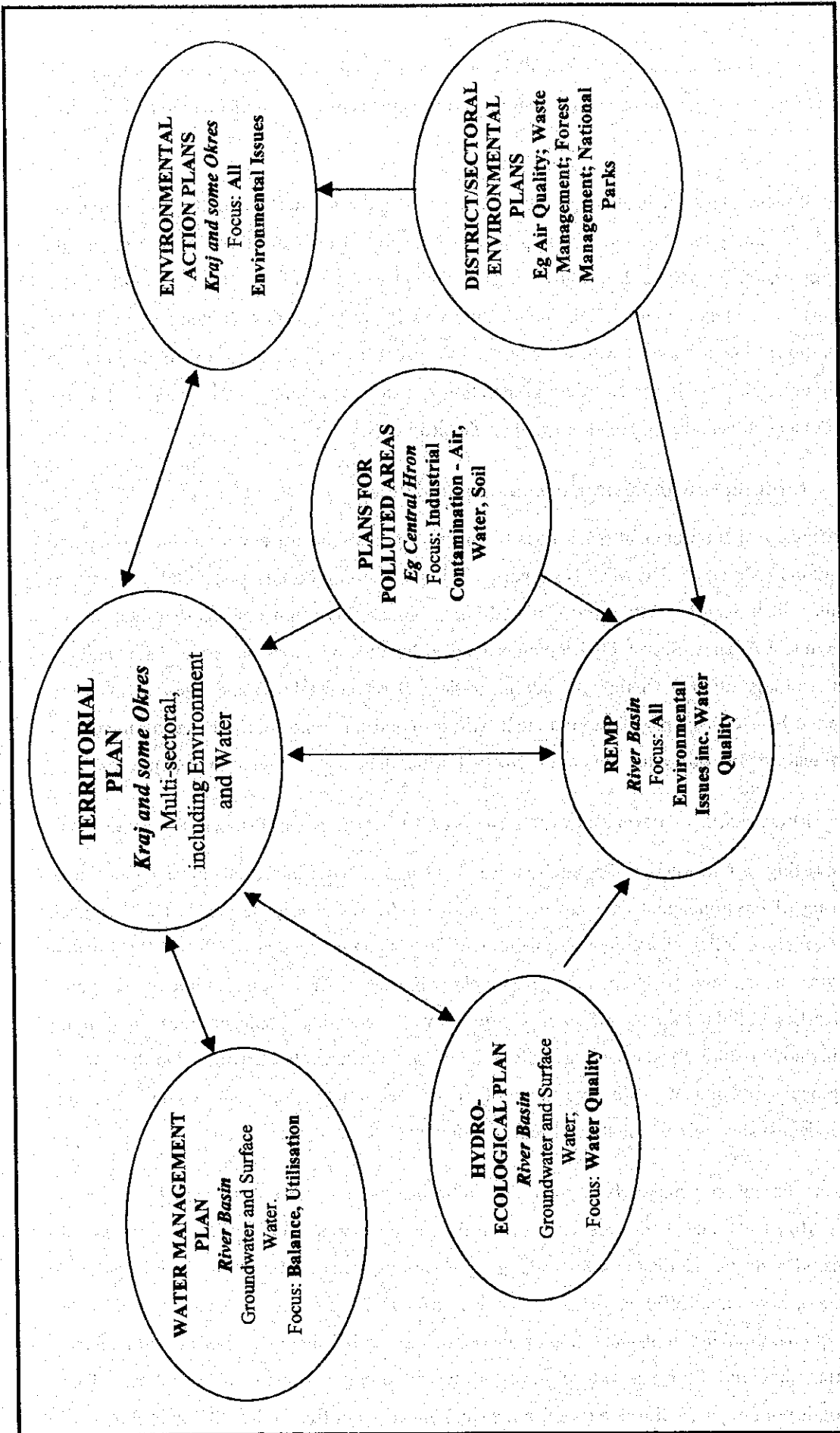
Figure 6.2 - 1   Environmental (and Water) Planning at Regional and District levels in Slovakia and Relationship to Regional Environmental Management Plan (REMP) for Hron River Basin

Assistance Strategy for Slovakia, the need to reform responsibilities for environmental planning, management and enforcement is a priority given the requirements associated with EU accession. There is a need for an environmental management structure that:

- generally facilitates closer co-ordination between stakeholders (state government, local self-government, private sector, NGOs, the public etc;
- is more responsive and accountable to local people;
- is more responsive to the data and other information that is already available;
- is more transparent in its prioritisation and decision-making processes.

6.2.3 RECOMMENDED INSTITUTIONAL MEASURES

To address some of the institutional issues that have been identified the following recommendations are made (IM: Institutional Measures). Most will need to be adopted and applied at a national level, but there may be scope for starting with initiatives in the Hron Basin on a pilot basis. IM2 has already been proposed as SW4.4 in Table 5.1 - 9, but is covered here also because of its key significance.

IM1   It is recommended that the system of regional/local and sectoral 'Environmental Planning' in Slovakia is rationalised.

One way of doing this, which gives a prominent role to a River Basin REMP, is set out in Figure 6.2 - 2. The advantage of a River Basin as a geographical area for environmental management planning is that it is not subject to change whenever there is a re-organisation of local government. Local Environmental Agency Plans (LEAPs), based on River Catchments, are being adopted in the UK and it is believed that the Slovak Republic could usefully follow this example. REMPs would then provide the overall environmental strategy for whatever system of local government existed and could be developed further by each into suitable 'sectoral'/local action plans and implementation programmes for waste, air ect by the responsible national and local authorities.

The diagram shows four interconnected ovals with bidirectional arrows:

DISTRICT/SECTORAL ENVIRONMENTAL PLANS
Eg Air Quality; Waste Management; Forest Management; National Parks; Industrial Pollution (Air, Water, Soil)

TERRITORIAL PLAN
Kraj and some Okres
Multi-sectoral, including Environment and Water

REMP
River Basin
Focus: All Environmental Issues inc. Water Quality (as derived from WMP)

WATER MANAGEMENT PLAN
River Basin
Groundwater and Surface Water.
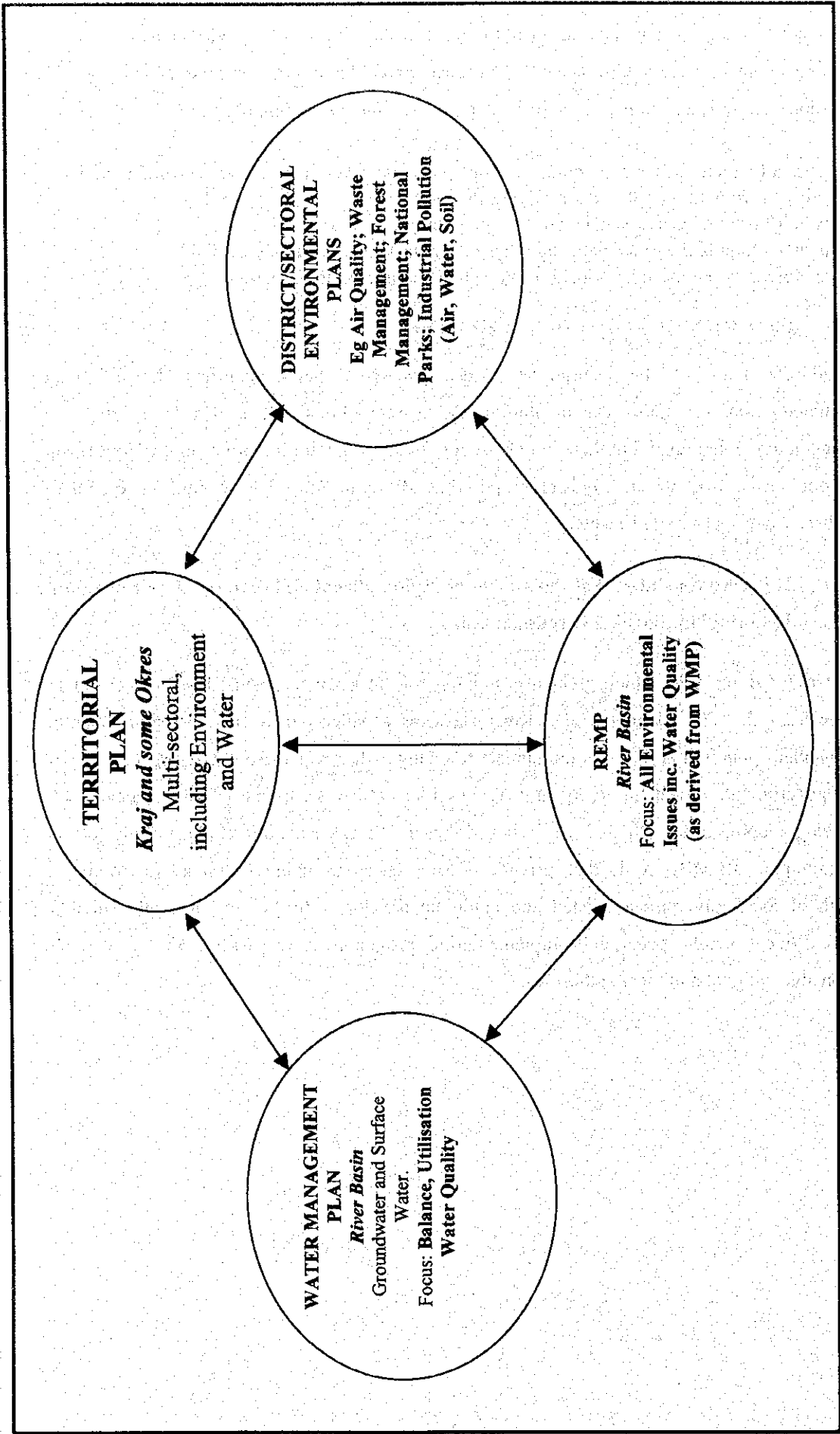Focus: Balance, Utilisation Water Quality

Figure 6.2-2   Proposal - Simplified Environmental (and Water) Planning at Regional and District Levels in Slovakia and Relationship to Regional Environmental Management Plan (REMP) for River Basins

IM2　It is recommended that an inter-institutional Hron River Basin Management Board or Commission is established in order to facilitate co-ordinated planning and management activities.

There is a draft EU Framework Directive Water that requires member states to have a Competent Authority for River Basins at a national and international level. Slovakia already has the Slovak Water Management Authority, of which Povodie Hrona is a part, under the Ministry of Agriculture. Whether its responsibilities, according to Slovak Law, are in full compliance with the directive will need to be reviewed in due course. Experience with the preparation of the REMP has emphasised the need for a co-ordinating body, to include StVaK, ZsVaK and many other organisations as listed in Table 5.1 - 9 against measure SW4.4. The body would represent a partnership between existing institutions. The creation of a new, separate institution, to undertake the preparation of REMPs and to oversee their implementation, is considered unnecessary at a time when there is pressure to reduce the state administration - the priority is to develop mechanisms for bridging gaps and enhancing co-operation between existing institutions.

IM3　It is recommended that re-organisation of the Ministry of Environment, and its agencies/institutes, takes into consideration some of the institutional and legal issues that have been raised in the REMP, especially those relating to internal and external co-ordination of its activities and the requirements of EU directives (eg for Integrated Pollution Prevention and Control). The review should include, but would not be restricted to data sharing, information availability, monitoring, inspection activities, management of National Parks and Protected Landscape Areas, environmental education and community participation.

It is understood that the Ministry of Environment is in the process of reviewing its organisational structure and that changes have already been made during 1999 eg the establishment of the Centre for the Protection of Natural and Cultural Heritage (COKPD) within the SAZP. The review should take into account that frequent institutional changes (it seems that changes have taken place on a regular basis) can be disruptive, so change for its own 'sake' should be avoided.

IM4　It is recommended that the Ministry of Environment, in co-operation with other Ministries where appropriate, adopt a policy of encouraging the establishment of local Task Forces, Working Groups etc to investigate and address specific issues raised by monitoring and other studies (eg the contamination of groundwater with nitrate) to ensure that information that it has been gathering is put to effective use. The Task

Forces etc should in general include a wide selection of representatives (eg state government, municipalities, NGOs, industry).

This step should help to facilitate improved intra- and inter-ministerial co-ordination and action prior to formal re-organisation of the Ministry of Environment. The Task Forces should consider implementing their recommendations on a pilot basis wherever this is appropriate eg with the ecologisation of forestry.

IM5   It is recommended that the Ministry of Environment support moves to re-organise regional and local self-government in such a way that rural Municipalities are formally merged into larger units (eg based on micro-regions or Okres), in order to facilitate environmental investments and programmes that are beyond the means and/or scope of smaller municipalities.

Within the last 10 years, significant changes in local government/administrative areas have already been made and it is understood that changes to *Kraj*, *Okres* and Municipalities (in terms of geographic area and responsibilities) are likely to be made, in part to facilitate accession to the EU. High level discussions on this Local Government re-organisation are already well-advanced through the preparation of a National Strategy for Sustainable Development and in the Conception for Reform of Public Administration. Changes are required, from an environmental perspective, because the smaller Municipalities do not have the technical or financial resources to deal satisfactorily with matters such as the establishment of sewerage systems and drinking water supplies - and these often require co-ordinated action by several villages to be cost-effective. Even some *Okres* office Environment Departments feel they are under-resourced, in terms of qualified staff and equipment, and cannot carry out fully their responsibilities, including environmental planning, inspections and other work with/for the public - and that the situation will become worse with pressures to reduce staffing in the State Administration.

If *Kraj* and *Okres* offices are re-organised at the same time as the Municipalities, there is scope for the technical staff of the *Okres* offices to form the executive of a locally elected council (which would replace the smaller municipalities). This could reduce duplication of effort by *Okres* and Municipalities and strengthen environmental capacity, encourage greater transparency and accountability and allow a better response in meeting the requirements/priorities of the local communities. If the technical staff report to an elected council, not the Ministry of Interior, it will still be necessary for environmental advice and guidelines to be provided by the Ministry of Environment.

6.3 AN INTEGRATED APPROACH TO ENVIRONMENTAL INFORMATION SYSTEMS

(1)   General Concept.

A broadly accepted model for studying and analysing the interactions between people and the environment and for structuring environmental planning and decision making is the "Pressure - State - Response" framework devised and used by the OECD. It is this model that has been used as a framework for this Management Plan.

This model suggests that the environment is subject to different pressures caused by the effect of human activities and behaviour. In the development of any management plan it is essential to understand what these Pressures are, how they came about and how they are changing. The Responses to these pressures are in the form of groups of legislative, technical and administrative measures that are established to improve the environment and encourage more environmentally sustainable forms of behaviour. Again, sound management planning requires a thorough understanding of these responses. These two elements of the model can be considered the human /society /economy components of the model.

The State part of the model involves a description of condition of the natural and physical environment, how it has changed over time and what changes are likely to occur in the future given current trends. The model also has this dynamic element and makes an attempt to predict how in particular, the pressures may change in the future, and what are the likely impacts of these changes on the state of the environment.

Human activity is the main factor causing the pressures that affect the environment. Human needs and desires involve the consumption of resources. The need for food, water, heating, movement, communication and the desire for recreation and the consumption of different goods leads to human behaviour that uses natural and environmental resources. It is these behaviours that are the main causes of the alternations to natural systems and environmental problems. These pressures are caused both through individual human behaviours (such as driving cars to work, consuming water and electricity) and also through the activities of businesses in producing different goods and services that are consumed by individuals.

If environment improvement is a goal for policy makers, then **information** is needed on which to base sound environmental management planning and decision-making. The information that is needed has to be identified, collected, analysed and processed, and then communicated to decision makers. It has to be used by decision-makers in an appropriate way. This is called the **flow of information** and makes up an **information system**. This information is needed by all the stakeholders, or actors in the environmental decision making process. The current

environmental information flows in Slovakia and their relationships to the different stages of the Pressure-State-Response model and to the different stakeholders, are shown in Figure 6.3-1.

Traditionally, as Figure 6.3-1 suggests, all these stages from the identification of information needed through to the decision making process, have been dominated by the so-called experts, the scientists, researchers and politicians. Scientists and experts have identified the information that they consider is needed by society. They have collected and analysed it, and then have presented it to decision-makers. The decision-makers have used it to make the decisions on behalf of the general public. So we can see in Figure 6.3-1 that both the pressures on the environment and the state of the environment are monitored and described by scientists and researchers who undertake the analysis and then present information to the decision makers, the general public and businesses. Through usually relatively restricted systems of information communication, consultation and interaction, decisions are made that form the response to the environmental state and pressures. One characteristic of this traditional system is the difficulty many groups have of actually getting access to information. Those with the information, scientists and politicians alike work within a culture which does not easily allow the sharing of information and data.

This traditional model requires a fairly simple information system. However, it is a tradition that is fast being eroded both through public pressure, such as the recent disruption of the World Trade Organisation Talks by NGOs in Seattle, and through International Conventions such as the Aarhus Declaration on Public Participation. Decision makers themselves are also realising that the traditional model does not always produce the best decisions and is not sustainable in the future. The Recommendations made in this Plan are part of the challenge to this traditional system. The proposed framework for an integrated approach to environmental information systems recommended in this Report is shown in Figure 6.3-2.

The key difference between the traditional system and the proposed system of information flow, is the principle that all the stakeholders have to be given the opportunity to make decisions about what information is important, to provide this information, to analyse and interpret and use the information for decision making. This takes information gathering, processing and communication out of the hands of the experts and decision-makers alone, and puts more rights and responsibilities in the hands of the general public and business. It also makes the information system more complex, a complexity that is apparent in Figure 6.3-2.

In practise, although the major information collection will still largely be undertaken by scientists, researchers and others, they now need to take into account both information collected and traditional wisdom in the local community. They will also have to guided by the local
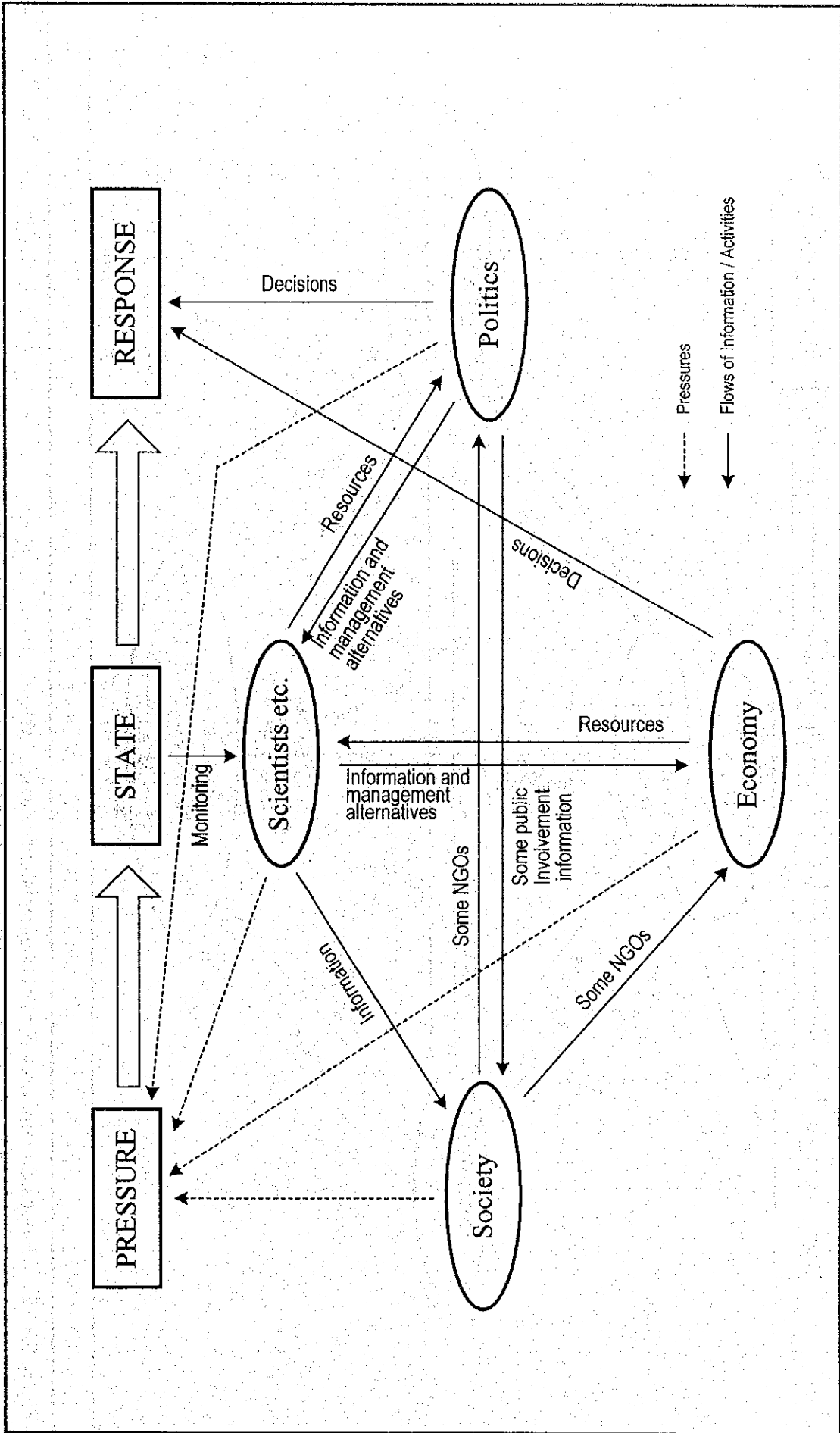
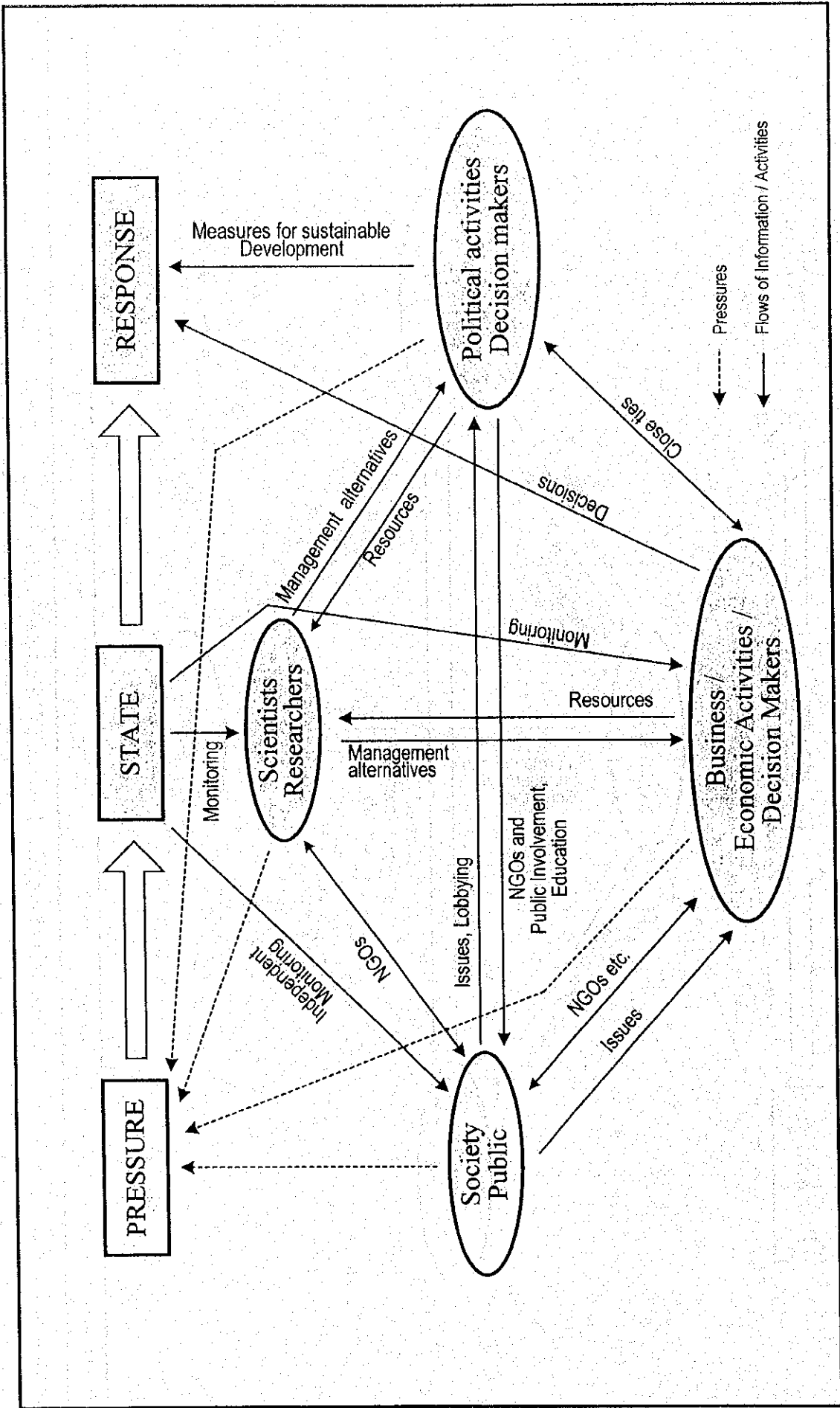Figure 6.3 - 1   Current Information Flows and Their Relationships to Stakeholders

Figure 6.3 - 2   Proposed Framework for Environmental Information System

community and the needs they express, in terms of making judgements about the information that is important to collect.

Much of the information analysis and evaluation is also still conducted by scientists and researchers, who also have the responsibility of deriving additional information about the natural processes of the environment. However a much greater responsibility is now placed on them to present this information to both the general public and decision makers, both political and business, in a way that is comprehensible and as unbiased as possible. Likewise the political and business decision-makers have a responsibility to ensure that there are appropriate and effective mechanisms to give the local community and other stakeholders access to the information. They have a responsibility to develop a feedback process that enables local communities to effectively take part in the decision making process.

It is the local community that should play a major role in promoting the main issues regarding environmental problems that affect their lives. With the right level of information and awareness of environmental issues, the local community directly, or though NGOs, can put pressure on decision-makers to work with them to provide solutions. The local community should have a civil control over the decision making process. This means that systems of education and information flow have to be developed that promotes public participation. Once developed, such systems will have the result that decisions will be built on consensus, and that this consensus will facilitate implementation.

An environmental information system which facilitates this process can be complex, integrating the different actors through a wide variety of different communication means. The main aim of an environmental information system should be the development of effective channels of communication that enable effective decision making. These channels should also be open to continuous development and improvement and therefore should be dynamic. The system of information and communication will also have to be appropriate for the country in terms of political systems, access to technology and levels of education systems.

Developing an effective information system is not easy! Some of the critical success factors that need to be considered when developing an environmental information system are.

1)   An understanding by the traditional gatekeepers and users of information, that all stakeholders now have access to this information, and that access to this information should be made as easy as possible.

2)   The development of technologies and systems that allow the information to be gathered, analysed and communicated swiftly and effectively.

3) The presence of decision making systems that allow all the stakeholders to take part in the decision making process at an appropriate level.

4) A realisation amongst all the stakeholders, that all information is biased. There is no such thing as objective information. The assumption in the past that objective information existed has been one of the major causes of poor environmental decision making.

Slovakia is in an unique position to consider the environmental information system it can develop. Most countries of the west have so called systems that usually focus on one or two of the links in the model, rather than a holistic system which encompasses all the elements in a coherent system of environmental information.

(2) Implications for REMP

In the corresponding earlier chapters its was highlighted that strengthening of the information, communication channels is needed.

Therefore the following plans are included in the REMP:

– Community Participation and Information Dissemination Plan (section 6.4)
– Environmental Education Plan (section 6.5)
– Environmental Information Network Plan (section 6.6)
– Environmental Monitoring Plan (section 6.7)

To promote this process of improving the flow of environmental information in the Study Area, the following workshops were held by the Study Team and SAZP to provide training for decision-makers, "scientists", and NGOs:

– Public Information and Participation Workshop
– GIS workshop.

6.4 COMMUNITY PARTICIPATION AND INFORMATION DISSEMINATION PLAN

(1) Introduction

The recommendations below comprise of a number of specific project based activities. Taken as a whole they can form a coherent set of policies and activities that would ensure the integration of effective public participation in decision making both a national and drainage basin level. However, each of the projects can be implemented at an appropriate time depending on the commitment both in terms of a belief in the process and the available finances.

The overall goal of these projects is to develop a system of community consultation and involvement in the Hron River Basin. Many of the projects are based on the requirement of the Aarhus Convention, and the Local Agenda 21 Principles, both of which Slovakia will have to implement before becoming a member of the EU.

It has been demonstrated that the success of community participation depends on a number of factors. Firstly, there is a need for the appropriate legislation to be in place. Secondly, there is a need for the hearts and minds of all the stakeholders to be committed to community participation. Thirdly, there needs to be systems and trained people in place to implement these systems and fourthly, there is a need for appropriate levels of funding to be made available to allow effective consultation to take place.

In Slovakia, the legislation is largely in place, although there are a number of amendments that would strengthen aspects of the rights of communities to be heard. The finances required for community consultation are not large when compared with money that can be potentially saved, and when compared with the capital investment needed for many environmental improvement schemes. The critical area for improvement is in winning the hearts and minds of the stakeholders, and for this to happen - training resources, support and demonstrations of success are required.

This section does not identify the scale of resources needed to implement the recommendations, or where this funding is likely to come from. It is recommended that the Slovak Government and the international community generally, lobby the EU to ensure that sufficient funding is made available for pre-accession countries, not only to ensure that investment is made in infrastructure, but that funding is put into improving public participation and environmental information services.

The Recommendations have been grouped into different areas.

(2)   **Recommendations**

CP1.1 **LEGISLATION and POLICY**

LEGISLATION and POLICY

It is recommended that the Slovak Government ratifies the Aarhus Convention on Public Participation as soon as possible, and amends the Slovak Legislation as appropriate to allow the convention to become part of Slovak law. (CP1.1)

The Slovak Government is currently considering the implications of the Aarhus Convention.

Implementing Agency: Ministry of Environment

Timescale: Short term, by mid 2000

It is recommended that the Slovak Government establishes an independent cross-Ministry Commission to review current legislation on public participation and that this Commission has the remit both to identify areas where public participation legislation requires strengthening and to put forward suggestions for legislation. (CP1.2)

It is recommended this commission takes evidence from and has a wide membership including business and NGOs. The main areas of legislation requiring strengthening are listed below.

(i)   Giving stakeholders the right to be heard in terms of environmental impact assessments, planning developments, siting and permitting, and commenting on the territorial and other land use plans.

(ii)   Changing the system of Ministry "Self Review" as to whether public comments should be ignored or taken into account through appointing an independent body to evaluate cases as they arise.

(iii)   Giving NGOs the right to have an administrative standing in the procedures for planning to allow the representation of views.

(iv)   Placing more requirements on business and industry to be open and public about their environmental impact.

Implementing Agency: Ministry of Environment

Timescale: Short term, by the end of 2000

It is recommended that at a Kraj level, Public Participation Task Forces are established (CP 1.3)

This local Task Force on Public Participation should be made of representatives from the Kraj and Okres, NGOs, local communities, Business and other stakeholder groups. Its remit should be to review the state of public participation and then assist in the process of developing the

strategic framework for the Kraj. Once this is in place, it should have a monitoring role to ensure that activities carried out.

Implementing Agency: Kraj Offices

Timescale: Short term, by the end of 2000

It is recommended that each Kraj and Okres produce a strategy statement of public participation (CP1.4)

This should be a fairly short document that can be used to guide public participation activities developed by the Task Force. It will contain a series of principles and, depending on the form selected, could act as a customer charter for local communities in their relationships with Kraj and Okres offices and be used to guide the development of other plans such as Local Agenda 21.

Implementing agency: Kraj and Okres

Timescale: Short term - by end of 2000

TRAINING AND CAPACITY BUILDING

It is recommended that guidelines, in the form of a handbook, be developed and issued to local authorities to encourage local administrations (state and self-government) to both inform the community more actively about environmental issues and in decision making through consultation and taking account of views. (CP2.1)

These guidelines should be prepared by a specially appointed project team with experience of developing training materials and guidelines. The purpose of the guidelines should be to encourage local administrations to be more open in the way they work with the general public, and to provide ideas about how relatively low costs methods of public information and community consultation can be highly effective. Initially the handbook materials should be targeted at environmental departments.

In addition, leaflets should be developed for all local government officials who need to be aware of the environmental impacts of their areas of service provision, and of the importance of local community consultation. The materials should encourage local authorities to see the current legislation as a minimum rather than the standard. The materials could be trialled in the Hron River Basin before being adopted nationally. Obviously, if the legislative changes suggested above are implemented then the materials can integrate the changes.

Implementing Agency:	Contract to develop the materials should be awarded to a local Hron River Basin Consortium invited to develop the materials
Timescale:	Short term - by the middle of 2001

It is recommended that the guidelines as in CP4 above are accompanied by training for local authority staff and others Agencies such as Povodi Hron and SHMU that are involved in working on environmental issues. (CP2.2)

Training will need to be provided for local government officials on how to provide information and involve the community in a customer focused way. The exact nature of the training developed will have to be flexible to meet the needs of the different target groups. For full time local authority officials, a short course based at the University of Mateja Bela (UMB) might be appropriate, whereas for locally elected part time councilors, some form of distance learning will be more effective and the potential of work place based training may be more appropriate. Different courses will have to be developed to meet different needs. The training will need to cover a wide range of themes for some of the user groups, so that local authority environment departments can become on the one hand more customer-focused and, on the other, become an advocate for public participation and environmental protection through environmental inspections and ensuring that legislation, such as EIA, is interpreted as widely as possible.

Implementing Agency:	Contract to develop and implement the training programme should be awarded to a local Hron River Basin Consortium invited to develop the materials
Timescale	Short term-by the middle of 2001

It is recommended that specific training be provided for the Media and possibly NGOs, to strengthen their role in the provision of information and involvement of the community. (CP2.3)

It is recommended that a high level conference be held on the role of the Media in promoting public participation. (CP2.4)

It is recommended that a high level conference for business be held on Environment and Business, possibly as part of one of the business environment exhibitions. (CP2.5)

Specific training also needs to be provided for Businesses on their responsibility towards the environment and also for the provision of information. This might focus on the development of Environmental Management Systems and encourage businesses to establish local

business/community forums. This training will need to be developed for different business and industry groups and be flexible enough to meet the needs of different target audiences. Several business associations are already developing training programmes and they should be supported in this work. However, there is a real need to consolidate current thinking and progress and so two conferences - one for media and one for business would be useful to re-invigorate the work with these two key groups.

Implementing agency: ASPEK and other business / environment associations,

Ministry of the Environment.

Timescale: Short term - by 2000

INFORMATION PROVISION

It is recommended that each Kraj produce a local State of the Environment Report on an annual basis, and that environmental goals and improvements are shared or two-yearly with the local community. (CP3.1)

Local people need more information about the state of their environment and how they can become involved in environmental improvements. Ideally, a local state of the environment report could be linked to a local report provided by the Okres and Kraj as a whole, rather than be a separate document. However, such ways of publicising information is not common in Slovakia and so it is recommended that a state of the environment report is produced for a selected number of Okres and one Kraj as a way of trialling the methodology and evaluating its potential. Funding for this should be provided centrally, although it might be possible to integrate the report with editions of local newspapers. This would cut the cost of production and distribution. The first such State of the Environment Report could include data from the Regional Environmental Management Plan for the Hron River Basin; if the River Basin is to become a more widely used planning and administrative unit for environmental matters, then the first state of the Environmental Report could be for the Hron River Basin.

Implementing Agency: Banska Bystrica Kraj and Brezno Okres

Timescale: Short term - through 2000 and 2001.

It is recommended that each Kraj and Okres produce a leaflet informing people about where they can get hold of environmental information, and that these leaflets are made widely available. (CP3.2)

Many people are uncertain about information that is available, and where they can go if they have a problem and who to approach. Each local government body should produce a leaflet telling people where information can be obtained.

Implementing Agency: Kraj and Okres in conjunction with an NGO such as Central European Partnership that has already produced a document of this kind.

Timescale: Short term, by the end of 2000

It is recommended that a number of Environmental Information Centres are established to provide "one stop shops" for local communities, businesses and other organisations wishing to get hold of environmental data. (CP3.3)

It is recommended that at least in the major cities in the Hron River Basin, that environmental information centres are established, along the model of the Centre established in the Ministry of Environment in Bratislava. These Centres need not be large, and can be a room in a current local authority building. The rooms should be easily accessible and ideally should be on the ground floor of any building and centrally located. The Centre in the Ministry of Environment ideally positioned. The Centre should be staffed full time and should contain basic environmental information, and should be able to get hold of other information when requested.

Many people in the Hron River Basin live in rural communities, and so in the medium term it is recommended that the two basin Kraj consider funding an Eco Bus. This would be a bus, equipped as an environmental information centre, that could travel around the villages of the basin acting as an information point. The bus could also be used for special events, and even be parked in the central squares of the main towns to provide information.

Again, it might be useful to focus on one or two key settlements such as Banska Bystrica and Brezno in the first instance, to evaluate the success of the centres.

Implementing agencies: Kraj and Okres

Timescale: Medium term - by the end of 2002 in major settlements.

It is recommended that each Kraj and major Okres (or groups of Okres) appoint a local community liaison officer with the responsibility of working with communities and encouraging the development of local community groups. (CP3.4)

Through the Environmental Partnership, some liaison officers are already provided to NGOs

and community groups. However, working to achieve change in the environment is always a partnership responsibility and a local community liaison officer would help in enabling groups to become more effective through ensuring that the appropriate contacts were made within the local authority administration structures. The Community Officer could be based at the Environmental Information Centre, and support the development of many of the resources and training programmes listed in other recommendations. The officer would also be able to administer the system of small grants.

Implementing agency: Kraj and Okres

Timescale: Medium - by the end of 2001

FUNDING

It is recommended that funding be provided to establish a small grants scheme for local groups in urban and rural areas to develop community improvements. (CP4.1)

Many local groups suffer not only through a lack of advice and support for their work, but also because there is a lack of funding for community initiatives. Unlike countries such as the UK, people do not often have their own resources to be able to support community based work. NGOs do not usually need large amounts of funding to achieve relatively substantial results.

Implementing agency: Ministry of Environment, Kraj

Timescale: Short/medium - by the end of 2001

DEMONSTRATION PROJECTS

It is recommended that one or two communities are selected as demonstration communities for the implementation of the key elements of the public participation projects listed above. (CP5.1) This could be part of a Local Agenda 21 Process or a development of the Village Renewal Scheme.

One of the things that leads to success in public participation is the building up of a culture and behaviour of good practice that includes as many elements as possible. So, for example, to appoint a local community liaison officer, working from a newly established Environmental Information Centre, administering a system of local community grants and assisting in the development and publication of leaflets and a local state of the environment report, all in one place, will begin to build a critical mass of activity that will be likely to succeed and bring about the required change in the attitudes and behaviours of others.

There are many examples of good practice and sometimes best practise in the basin. These examples should be more widely publicised. Two formal demonstration projects on information provision and community participation should be developed, for an urban and a rural community in the Basin. These could be based on existing projects communities that could be extended to include more environmental information and participation. Such demonstration projects could be used as a component in any training courses provided.

It is recommended that a "big publicity" awareness raising event should be developed to take place on an annual basis. (CP5.2)

This should capture the imagination of the people of the Hron River Basin and lead to a united effort by NGOs, Business, Administrations and the Community to raise public awareness and improve the local environment - for example a Hron River Basin Action Day. Similar "Action Days" have been very successful for other coherent environmental areas. The initial action day could be related to the launch of the State of the Environment Report, and have some activities associated with it. The Action Day could be linked to other recommendations in the REMP in terms of raising public awareness of environmental issues.

Implementing Agency: Kraj or Okres working in partnership with business

Timescale: Medium term

6.5   ENVIRONMENTAL EDUCATION PLAN

(1)   Introduction

As with Community Participation the recommendations below comprise of a number of specific project based activities. Taken as a whole they can form a coherent set of policies and activities that would ensure the continuing development of an effective system of environmenal education. Each of the projects can be implemented at an appropriate time depending on the commitment both in terms of a belief in the process and the available finances.

The following plan builds on the current strengths of environmental education in the Hron River Basin and addresses some of the pressures and weaknesses. The plan is really a group of specific projects that should be implemented by different agencies. Once all in place they should fit together to provide a coherent approach to environmental education in different sectors.

Although some of the projects focus on the Hron River Basin, it is emphasised that it would not normally be appropriate to have specific River Basin environmental education projects. Firstly, because it would not be a good use of scarce resources, for example, to develop materials and training specifically for the River basin. Secondly, especially in terms of business and professional education, people working in the basin have often been trained in institutions outside the Basin. Basin based projects therefore would not tackle the problems. In educational terms the solutions have to be national. However, if River Basins become planning and administrative units for environmental matters, some environmental education matters could be addressed at a River Basin level. One basin related project however, did receive support, and that was a Water Quality Monitoring project related to the Hron River.

Slovakia has a good legislative and strategic framework for environmental education in place although no doubt, it is possible to argue about some of the details and emphases. These recommendations can all be seen to support the action plans of the different strategies for environmental education already produced by the Slovak Government.

(2)   Recommendations

Elements of the Environmental Education Action Plan Schools (EE1)

SUPPORT

It is recommended that the Slovak Government establish a National Centre for Environmental Education. (EE1.1)

There is a great need for greater co-ordination and strategic encouragement of environmental

education at all levels and well as the development of better networking and provision of information. Many countries in Europe have sought to do this through the establishment of environmental education or environmental information centres. It has been demonstrated through the experience of other countries that such Centres often provide a useful focus and resource for the development of environmental education for a broad range of target groups. Poland for example, has just established such a Centre.

Implementing Agency: Slovak Government through the SAZP

Timescale: Medium term, by the end of 2002

It is also specifically recommended that at least one, but preferably two environmental education centres be established in the Basin, specifically for schools and communities (EE1.2)

The role of the centres would be to provide a focus for the co-ordination and support of environmental education and they would also be able to manage a number of the projects suggested below. Ideally a national network should be established, and it is proposed that through the framework of the REMP, two centres are established in the Hron River Basin as trial centres before a national network is established. One of the Centres should be for the upper Hron and a second for the lower Hron. Banska Bystrica and Levice are obvious locations.

The development of such Centres is also one part of the Action Plan developed by the SAZP. SAZP already have a strategy to develop a network of 12 centres, three of which are already established. The strategy has been submitted to the Ministry of Environment, but currently lacks any funding.

Implementing agency: SAZP

Timescale: Short term, the first centre by the end of 2001

RESOURCES AND INFORMATION

It is recommended that a basic set of environmental education resources are developed for Basic Schools in Slovakia. (EE1.3)

It is recommended that these books are supported by an environmental education handbook for teachers and school environmental education coordinators.

Although these resources might focus specifically on the River Hron basin it was felt that there

was a great need for an environmental education text/activity book aimed at Basic schools which teachers could use to integrate environmental education in the curriculum of all subjects. The production of such materials could be linked with a number of the other priorities below, and could also build on the data that have been collected as part of the REMP. Such materials were developed about five years ago as a result of a PHARE programme in Slovakia, however, they were never published. It might be useful to revisit these materials as a first step in achieving this recommendation.

Implementing agency: a partnership of the EE providers coordinated by the Ministry of Education and Environment

Timescale: Short term, by the end of 2001

It is recommended that a termly Schools EE Newsletter is produced (EE1.4)

The newsletter could include information about environmental education events and resources together with ideas for teaching activities. The SAZP "NET" and the Banska Bystrica Methodological centre both produce newsletters and other information for teachers which have a limited circulation. The newsletter could be linked and their role and circulation could be expanded.

Implementing Agency: Through SAZP NET

Timescale: Short term, by the end of 2001

TRAINING AND PEOPLE

It is recommended that an environmental co-ordinator be appointed in each school (EE1.5)

In theory environmental coordinators should already be in place in schools, however this is not the case in most institutions.

Implementing Agency: Kraj and Okre Education Department

Timescale: Short term, by the end of 2000

Training for teachers should be enhanced. A course should be developed specifically for Environmental Coordinators in all Schools and also for classroom teachers of different subjects. (EE1.6)

This will build on the work of the Methodological Centre and the University of Mateja Bela, and supplement the range of environmental education courses provided for teachers of different subjects. Teacher training for all primary teachers should include a module on environmental education. The survey will establish how many schools have environmental coordinators and the work they do.

Implementing agency: Education Department, and Methodological Centre in Banska Bystrica

Timescale: Short term, by the end of 2001

It is recommended that all students training to be teachers in Basic Schools experience one module on environmental education related to their subject. (EE1.7)

This will ensure that future teachers all realise the importance of environmental education, and understand how it can be integrated with their subjects. The modules should be developed by working teams co-ordinated by current teacher training establishments, and training should be provided for those delivering the modules

Implementing agency: UMB and Teacher Training Vocational Schools

Timescale: Medium term, by the end of 2002

PROJECTS

It is recommended that a Hron River Basin Water Quality Project is undertaken over a three year period. (EE1.8)

A highly successful project in the UK was run by the Royal Society for Nature Conservation and called River Watch and there have been several small-scale adaptations of the River Watch Project in Slovakia. One Basin focused project could be to apply the River Watch project to all the schools in the basin to involve schools collecting water quality data and making suggestions for local improvements. The project could run over three years and encourage schools to look at different aspects of the Basin and their inter relationships. Such a project could be linked with a Schools Environment Day focused on Water Quality.

Implementing Agency: SAZP working in partnership with an NGO

Timescale: To run in 2001 in the first year

Elements of the Environmental Education Action Plan for Universities and Further

Education (EE 2)

It is recommended that the individual Universities establish an Environmental Committee with sufficient status to review the provision of environmental education within different subject areas. (EE2.1)

Through the reviews the Committee should make recommendations to improve the environmental approach and content of different subjects and ensure that the courses meet the needs of professionals and the environment in the future. It is recommended that the environment committees also have representatives from business as members. Ideally the Committee should be chaired by the Rector or Dean of the University and the recommendations very strongly supported from this highest level.

It is recommended that the Universities throughout Slovakia establish an Inter-University Environmental Committee (I-UEC) chaired at the highest level and with sufficient status for recommendations to be implemented (EE2.2)

The remit of the Committee (I-UEC) should be similar to the University based bodies and should examine how Higher Education throughout the country can become more responsive to the requirements of the environment. This committee should have representatives of each of the University Committees sitting on it and also have representatives from government and business.

It is recommended that the first task of the I-UEC is to review current provision for environmental professionals and make recommendations for the development of new course approaches and structures that are more in tune with future professional needs. (EE2.3)

This could be done through an initiative similar to the Greening of the Higher Education Curriculum that took place in the UK. The new courses should pay attention both to the structure and also content. Universities should be encouraged to develop more short term and distance learning courses to meet the needs of busy professionals.

It is recommended that an environmental education and information web site is established for Universities, Businesses and other professionals to ensure easy and up to date access to information (EE2.4)

Implementing agencies   UMB and the Technical University in Zvolen, and the Ministries of Education and Environment.

Timescale: Medium to longer term, by 2004

Elements of the Environmental Education Action for Professional Training and Business. (EE3)

It is recommended that Universities work with other professional bodies to establish a series of short courses for Professionals and Business to enable the development of further professional training (see above). (EE3.1)

It is recommended that those networks that have been established to support professional development in environmental matters, of such as ASPEK, are supported through funding being made available for their activities. (EE3.2)

It is recommended that the Ministry of Environment produce publicity and develop some form of incentive system to encourage appropriate businesses to adopt ISO 14000 (EE3.3)

Strong consideration should be given to core funding some ASPEK's and other professional bodies, activities. Specific projects could include the development of appropriate web sites for the provision of environmental information.

Implementing agency: ASPEK and Ministry of Environment

Timescale: Short to Medium term, by 2002

6.6 ENVIRONMENTAL INFORMATION NETWORK PLAN

This sub-chapter introduces the recommendations made to improve the technical components of the Environmental Information System that is referred as the Environmental (Information) Network.

The plan has two main parts. Firstly, the recommended measures are presented. These recommendations are the possible solutions to the problems/issues raised in Chapter 3.7. Secondly, the concept of the REMP network is introduced that includes the plan of an Open-GIS system. Open-GIS is presented as a powerful and easy to use tool for data sharing and dissemination that can improve the technical part of communications among the users of an Environmental Information Network.

(1)   Recommended Measures

Infrastructure development (EN1)

Hardware and Software: It is recommended to continue the development of a multi-user computer environment for both hardware and software (client-server) support for both inter- and intra-network usage. (EN1.1)

Networking: It is recommended to improve the accessibility of the Environmental Network by establishing new nodes with direct network connections. Dial-up network connections should be replaced by direct network connections in the existing network, whenever feasible. (EN1.2)

Database development (EN2)

Data sources: It is recommended to strengthen existing co-operation and establish new links with possible sources of environmental data and information (eg SIZP and private companies for pollution sources, StVaK for water and wastewater infrastructure, NGOs for public interest issues, etc.). This might be done by establishing an Environmental Data Task Force (Working Group) that meets on a regular basis (eg four times per year) to explore and implement ways of sharing and using environmental data. (EN2.1)

Data formats: It is recommended to have agreement on and enforce the use of interchangeable data formats. Different type of data formats should be converted to one of the commonly used type (ie TOPOL GIS formats should be converted to Arc/Info Export Files). (EN2.2)

Data processing: It is recommended to provide each data set with an accompanied description file, in addition to the metadata file, that gives detailed information on the data manipulation and processing steps, methodologies and assumptions used, etc. This description file is

especially important for simulation models and scenarios used in deriving data and information. (EN2.3)

Data validation: It is recommended to carry on the proposal that SAZP CEEV becomes a "cleaning house" of environmental related data and information. Although for most of the data and information SAZP functions as a mirror site, CEEV should check the reliability of any new data or information that is going to be placed into ISZP. The Centre should request the origin (metadata) and processing steps (description file) from data providers. Based on this information the data and information provided must be evaluated and then classified by an appropriate "quality scale" to inform the users about the reliability level of the data. It is essential that the evaluation process involves both data producers and users. (EN2.4)

Data dissemination: In addition to the meta-catalogue system it is recommended to publish annually (both printed and digital versions) the list of available data and information about the state and changes of the environment. The material should include the sources and methods of ordering data and information. The list should be sent via mail and/or e-mail to all stakeholders. In addition it might be included as an appendix in the State of the Environment publications. (EN2.5)

Data accessibility: It is recommended to introduce an Open GIS system (often referred to as Internet GIS or WEB GIS) at SAZP CEEV to provide easy access to GIS based data for a wider range of users. (EN2.6)

Expertise (EN3)

Non-specialists: It is recommended to broaden the variety of GIS training offered by SAZP CEEV to promote the use of digital databases in studying, analysing, and evaluating the state of the environment. Training should be introduced to target non-GIS specialists as well. GIS promoting training should be set up for decision-makers, the public and other interested bodies. (EN3.1)

(Note: Two GIS workshop training sessions for non-expert users were held successfully by the Study Team and SAZP on 29th and 30th November at SAZP CEEV.)

Technical support: It is important to provide technical support for specialists between training periods. ISZP technical discussion groups (eg databases and GIS applications) could be established and Frequently Asked Questions (FAQ) lists should be circulated in both digital and printed forms. (EN3.2)

DLP: In addition to intensive courses a Distance Learning Programme (DLP) should be introduced for those specialists and non-expert users who cannot afford a longer intensive training at SAZP CEEV. DLP could be used as a complementary training between intensive courses as well. (EN3.3)

(2)   REMP Network and OPEN GIS

Concept of REMP NETWORK in Slovakia

During the Study a comprehensive database was prepared by (i) integrating existing and (ii) incorporating new results of analyses about the state and characteristics of the Hron river basin environment. The Study Team explored and utilized all available environmental databases from both counterparts (GSSR, LVU, SAZP, SHMU, VUPOP) and other co-operating organizations (Kraj and Okres Offices, Povodie Hrona, Institutes, Universities, etc.) in establishing its own database for the REMP Study. The stand-alone databases are established and maintained for specific purposes (eg soil, water, air quality monitoring and analysis, etc.) by the individual organizations. Since environmental processes are complex and wide-ranging phenomena, these databases are useful for other organizations, as well. The utilization of the data sets should not be limited to the data owner/source organization; access to stakeholders who can benefit from sharing and utilising them is regarded as necessary in the future.

Slovakia can be divided into several river basins, as it is shown in the following figure (Figure 6.6-1).
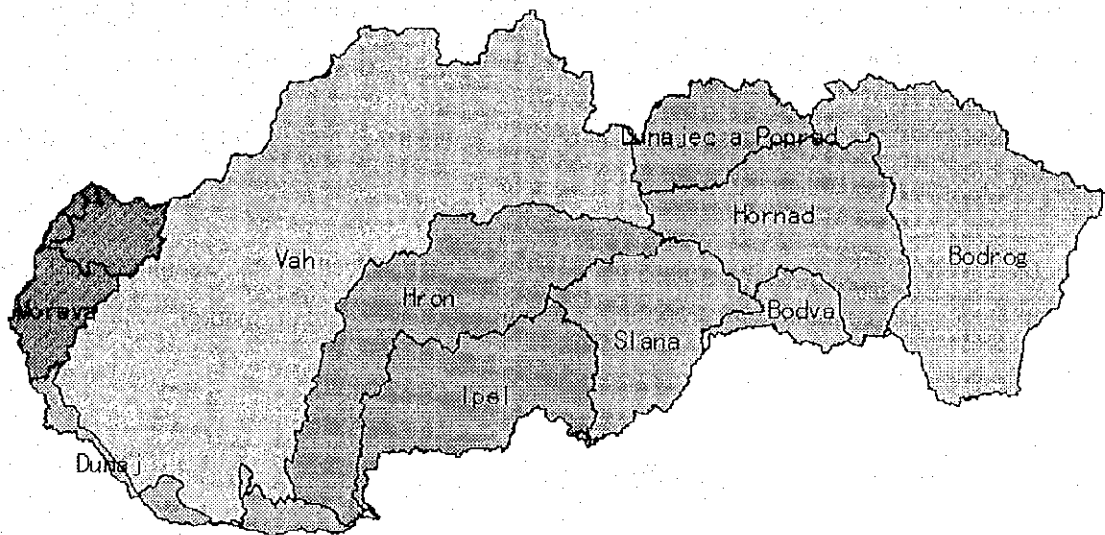

Figure 6.6 - 1   Main River Basins in Slovakia

The Hron river basin is one of the large river basins of Slovakia. Each basin has its own environmental characteristics, issues and likely solutions to tackle the problems.

Therefore the following scheme is introduced to create a series of comprehensive environmental databases by basin units, and an accompanying network that mutually connects them. Further on the network is referred as the "REMP NETWORK in Slovakia" (Figure 6.6-2).

It is considered that, in the future, REMP projects will be implemented in all the main river basins of the country. It is assumed that each REMP will have a common structure, so that mutual comparison is possible.
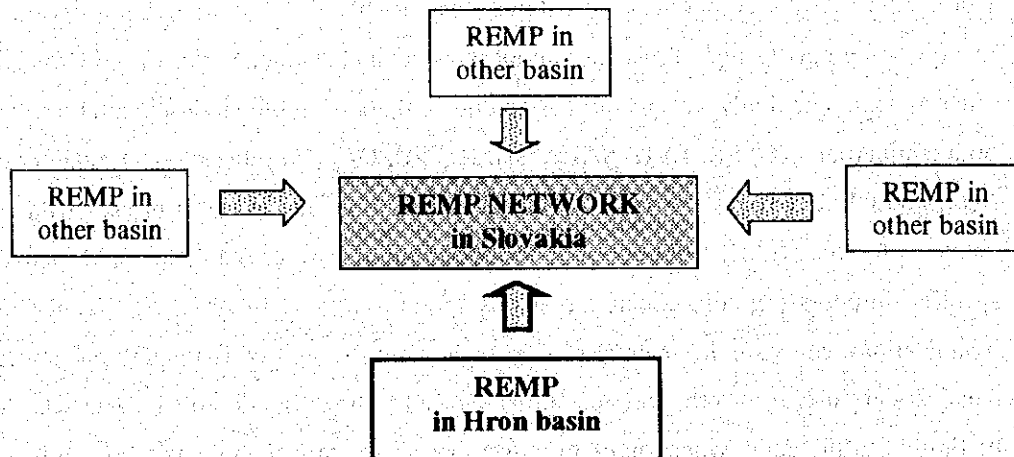

Figure 6.6 - 2   Outline of proposed future REMP NETWORK in Slovakia

Following this study (Hron River Basin REMP project), it is assumed that SAZP and other agencies will carry on preparing REMP studies for other basins in Slovakia. Therefore, it is expected that by adopting the methodology SAZP could create the REMP NETWORK in Slovakia that incorporates the follow up REMP studies for each basin in the future.

The REMP NETWORK is based on comprehensive databases and includes an advanced data sharing system to establish the linkages between basins.

In the following sections an Open GIS system is introduced as the recommended core component of geographically referenced environmental data/information collection and distribution.

Main concept and an example of OPEN-GIS

OPEN-GIS is often referred to as: Internet GIS or WEB GIS. Its basic concept is that by using an OPEN-GIS system the clients (ie officers of Kraj and Okres officies, etc.) through the Internet are able to browse and manipulate the contents of a GIS database from distant locations.

There are various ways to build up an OPEN-GIS. Since most of the geographically referenced data and information that were available for the study are in ArcView (AV) compatible format, herein we introduce a system that is based on AV and Internet Map Server (IMS) that are commercial software produced by Environmental System Research Institute (ESRI) Company of USA.

In principle, OPEN-GIS consists of a server and a client as is shown in further detail in Figure 6.6-3. Clients are the users, for example of Kraj and Okres offices, who utilize the database in their daily work. The Map Server and the Web Server software are installed in the server computers. The two server machines are connected with 10BASE-T network cable, but they can be placed in the same computer, as well. The servers should be equipped with an Internet dedicated line that provides 24 hour accessibility from and to the Internet. In this case if AV and IMS are running, clients will be able to access the OPEN-GIS system at any time.

The Map Server, that is the core element of the system, consists of four applications. These are the Map Link (basic module) and the Attribute Link, Photo Link and Web Link (extension modules). The requests that are made by the clients are interpreted as orders ie by JAVA programming language in MapCafe. However some basic functions (ie zoom, pan, identify, search, query, etc.) are already available in IMS (Internet Map Server) as the default.

An example of the use of Open-GIS, using the data integrated into the GIS database of the project, is given in Figure 6.6-4.
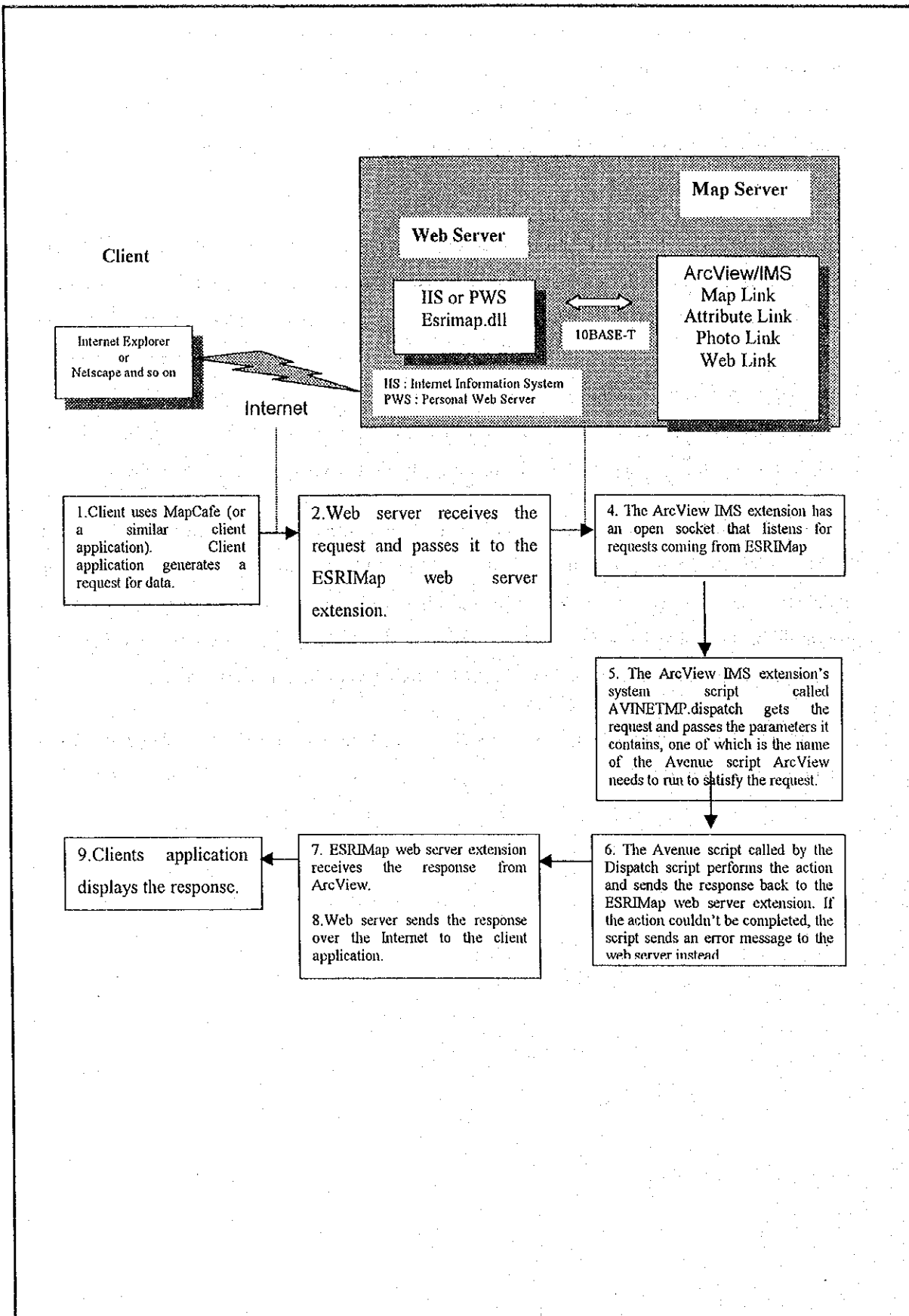
Client

Internet Explorer
or
Netscape and so on

Internet

Web Server

IIS or PWS
Esrimap.dll

IIS : Internet Information System
PWS : Personal Web Server

10BASE-T

Map Server

ArcView/IMS
Map Link
Attribute Link
Photo Link
Web Link

1.Client uses MapCafe (or a similar client application). Client application generates a request for data.

2.Web server receives the request and passes it to the ESRIMap web server extension.

4. The ArcView IMS extension has an open socket that listens for requests coming from ESRIMap

5. The ArcView IMS extension's system script called AVINETMP.dispatch gets the request and passes the parameters it contains, one of which is the name of the Avenue script ArcView needs to run to satisfy the request.

9.Clients application displays the response.

7. ESRIMap web server extension receives the response from ArcView.

8.Web server sends the response over the Internet to the client application.

6. The Avenue script called by the Dispatch script performs the action and sends the response back to the ESRIMap web server extension. If the action couldn't be completed, the script sends an error message to the web server instead

Figure 6.6 - 3	Outline of an "OPEN - GIS" System

TitleFrame
This frame shows Map Title

InfoFrame
This frame shows instructions that we wants clients to see when they first access our page.

ExtraFrame
This frame shows another information like extra graphics and links.

MapFrame
This frame shows MapFrame. We can put our own text, graphics, and links in this frame.
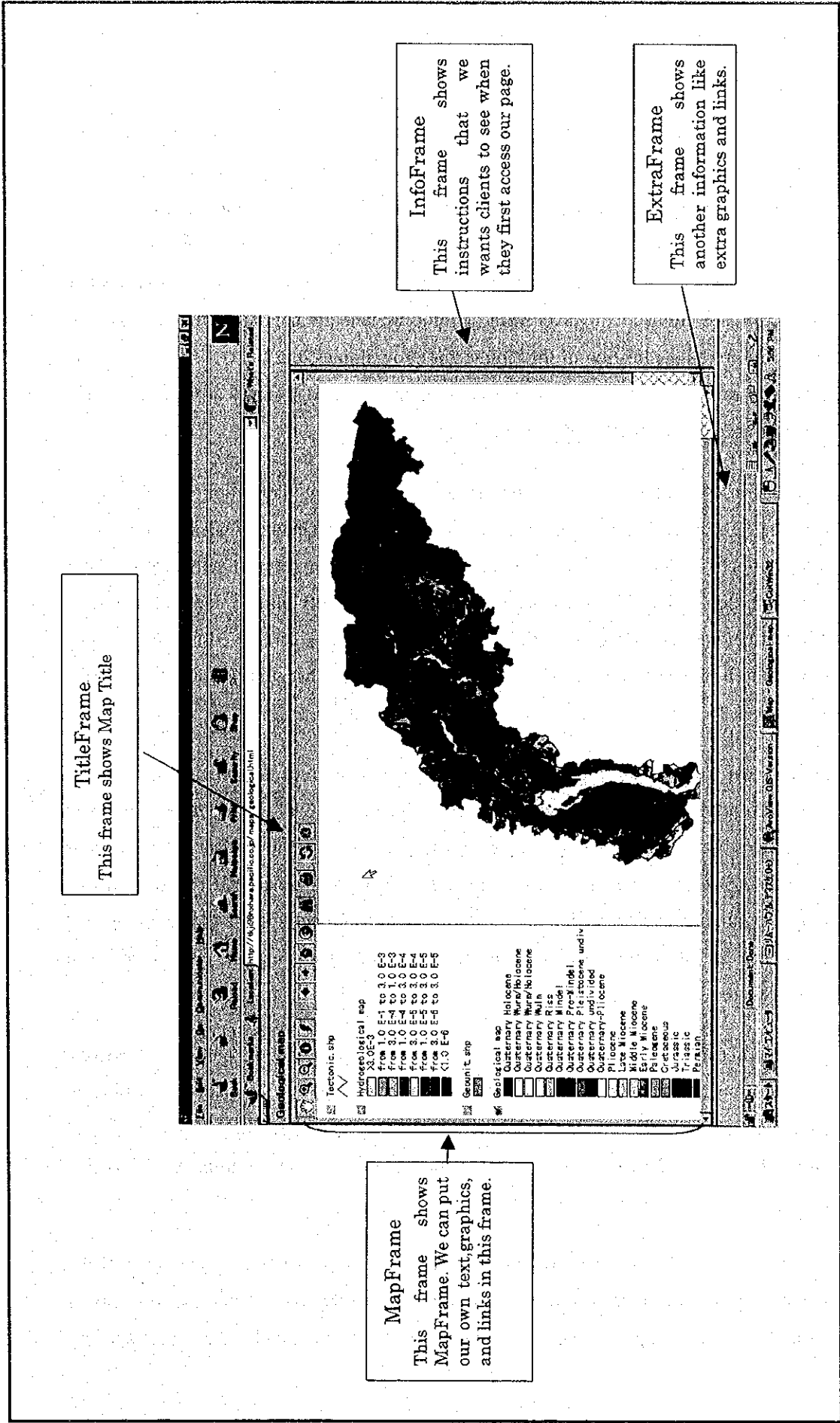
Figure 6.6 - 4   Example: The Display Window of Open - GIS Using the GIS Based Environmental Database of the Study Team