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Communicating with stakeholders and the public

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6.1 INTRODUCTION

Water management in a transboundary context is much more complex and multi-faceted than water management within one nation state. Transboundary waters 'are interwoven with landscapes, with societies and cultures, and with political systems; international issues are always complex, always serious' – stress (Grey and Sadoff 2003). There are many dimensions of the complexity of management of transboundary waters. A sound transboundary water management system can never be an arithmetical sum of national water projects on different sides of a transboundary water basin.

Most of the issues connected with the management of waters on a transboundary level are intangible and are related to the rise of comparatively new phenomena during the last few decades. These issues include globalisation, the development of civil society and increased competition between economy sectors for limited natural resources. Due to this intangibility and also to the fact that there is only a relatively

recent history of interest in issues of water management on a transboundary scale, there is still a low awareness and understanding among water managers of the importance of addressing those intangible and complex issues as a part of the water management planning process. When the intangible complexities of water management are not properly addressed during the formation of a transboundary water regime, frustration and over-polarisation of water management issues takes place in transboundary water basins.

The major challenge of the management of transboundary waters is that the waters must be managed in the context of anarchy where there is no single government to take control. Transboundary water management is faced with the task of solving complicated problems dependent on the specific conditions created by the interaction of two or more political systems (Gooch *et al*. 2002). These specific conditions include differences or similarities in political systems of states sharing international water basins, and cultural similarities of neighbouring nations. A history of the earlier relations is also important, for example, if there are or were any political, interethnic or economic conflicts in the history of the relations of the involved states. When the political systems of the states sharing transboundary waters are close to each other and the sharing nations are also close culturally and linguistically then it is much easier to organise the cooperation. There is then more understanding and trust between those countries' political and economic elites as well as between stakeholders in these neighbouring countries. The Great Lakes cooperation between the USA and Canada or the Finnish–Norwegian cooperation on their transboundary waters are good examples of this kind of comparatively smooth cooperation of politically and culturally close nations.

However, if we argue that culturally close nations are more likely to have successful cooperation, we leave ourselves on a very weak ground. The majority of states in the world are increasingly multicultural, and besides, it is not unusual that cultural and ethnical minorities of bordering states inhabit the border areas.

Speaking of the importance of cultural connections across borders as a factor of the sustainable management of transboundary waters, it is important to keep in mind that culture is a social construct (i.e. it is something that does not exist in the objective reality). Each culture has its own 'appropriated symbols and signs which are nested in a complex set of ideas, and which is given completely through cultural assimilation, not through genetics or instinct' (Doxa 2002). Political and economic elites in bordering countries of similar cultures (i.e. sharing the same or similar sets of ideas and imperatives of behaviour) are likely to better understand each other's positions, trust each other and find joint solutions to the shared water management problems. Therefore, socially constructed images of a neighbouring state and perceptions of the nature of neighbours influences to a great extent the outcome of the cooperation in shared transboundary waters. This aspect places more focus on the importance in transboundary water basins of supporting the development of cultural links across borders, including projects that emphasise shared cultural heritages for all people living in a transboundary water region.

Culturally and politically determined perceptions of diverse issues of transboundary water management will therefore 'become realities on international rivers' (Grey and Sadoff 2003). In this context, the role of the exchange and communication of

information relevant to the management of transboundary waters and the perceptions of representatives of the riparian governments becomes very important factors that can strongly facilitate or otherwise hinder transboundary water cooperation. The kind of information that decision-makers receive and the format of that information are very important for the outcome of the transboundary water policy-making. The main factor influencing the outcome of information communication is the source, or a sender, of information provided to policy-makers. Depending on a source of information, a decision-maker may or may not trust the information he or she receives.

At a moment of uncertainty, a decision-maker may have difficulty in identifying the form of policy that will help him or her to retain power. The way out of the dilemma is often to refer to advisors who can help to develop a solution to the problem. In this context, the existence of 'epistemic communities' or transboundary 'networks of professionals with recognised experience and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue' (Haas 1992) can be central. These are the communities or networks that the decision-makers rely on for information in the moment of uncertainty, and as such they are critically important for the success of developing transboundary water management systems. Uncertainty compels decision-makers to enlist the aid of epistemic communities. Typically, these epistemic communities will assess the problem and develop a solution to it. The epistemic community tries to act in an objective way, seeking to devise a solution that will favour the norms and beliefs held by the community. Consequently, policy-makers working within the confines of an epistemic community withdraw from the fray when the issue that is being debated does not fall within their area of specialisation. This characteristic differentiates the epistemic community from interest groups, who will stay in the fray (Ulland 2001). Transboundary epistemic communities may be formed over a long period of time by water experts and scientists working on different sides of the border on the same water-management-related issues. To stimulate the establishment of transboundary epistemic communities, more attention and support to scientific and universities' transboundary cooperation should be provided in transboundary water management. The existence of transboundary epistemic communities is an important factor to conflict prevention and the long-term sustainability of transboundary water management systems. It is therefore necessary to create greater awareness among policy-makers about the value of the transboundary scientific and educational cooperation. Better balance is needed between valuing good scientific advice to the management challenges of today on one hand, and encouraging the long-term benefits of strengthening the 'transboundary epistemic communities' on the other hand.

The next layer of complexity in the management of transboundary waters is connected with multiple uses of the water basins' natural resources and diverse interests in these basins. There are different interests of stakeholder groups that should be taken into account; these groups should be involved in the process of preparation, negotiations, and implementation of water management plans and programs from the very beginning of the process. The involvement of stakeholders in water management should be institutionalised through giving the stakeholders a possibility

to participate in international water commissions, respective working groups and forums where water policy is shaped and discussed.

Managing shared water resources requires setting up institutions between riparian countries usually by means of establishing intergovernmental or interregional joint bodies that can accommodate the interests of riparian countries and other actors involved in water management in respective transboundary water basins. Joint bodies are a major instrument used in transboundary water management for resolving possible differences in interests and conflicts. The joint bodies established by transboundary agreements may vary as to format, structure or functions according to the specific circumstances in question.

As a prerequisite of stakeholder involvement in transboundary water basins, intersectoral cooperation between water managers, environmentalists, farmers, water transport businesses, industry and other interest groups should be a part of transboundary water institutions. In the countries where institutions for water management are established on a purely sectoral basis, developing intersectoral cooperation and stakeholder involvement might be a long and a painful process. Here it may be a question of changing sometimes quite strong traditional water management institutions and changing the way that water specialists think of water management to promote more integrated way of managing transboundary waters.

The main questions that concern the institutionalisation of transboundary water cooperation are the transboundary cooperative institutions' design and their effectiveness. In the design of transboundary water institutions it is important that the institutional arrangements are tailor-made to the major environmental issues to be addressed in the region. This can be arranged through establishing temporal working groups or task forces. If a transboundary water cooperation evaluation mechanism exists, it also allows the identification of specific issues to be addressed at a given stage of development. Concerning the effectiveness of joint bodies as instruments to facilitate long-term effective transboundary water cooperation, it is worth mentioning that in some cases joint bodies have sufficient capacity to serve this role and to address conflicts and develop trust, but sometimes the capacity of joint bodies is not sufficient. It is therefore important to address factors that help or impede the effective management of transboundary waters.

The development and implementation of water management plans, including the involvement of stakeholders, should take place at three complementary levels: international, national and sub-national. At national level, national authorities develop their national policies, strategies and programs, and in doing so they have to take into account transboundary environmental risks that may affect the implementation of national policies. At the international level national agencies set up coordination mechanisms, including signing transboundary water agreements, establishing transboundary water commissions or secretariats that develop bi- or multilateral joint approaches and actions between cooperating parties on the shared waters. Public and stakeholder involvement on the national and international basin levels usually remains limited to a few large (international) non-governmental organisations (NGOs) and well-organised interest groups (Mostert 2000).

At sub-national level the participation of local governments, the private sector, NGOs, civil society institutions and various stakeholders is needed to translate

these policies and programs into actions and to provide feedback. Civil society institutions active on the sub-national level are the important mechanisms for the expression of views by parties concerned with environmental issues as well as marginalised social groups who, with support, can become advocates for sustainable water use. At this level of governance it is important to involve multiple local stakeholders into larger transboundary networks of stakeholders through promoting the exchange of information and communication and helping them to develop their shared vision of the future in the transboundary water basin. It is important to provide support for the development of these networks as local stakeholders, local authorities, farmers, grassroot NGOs, etc. which usually have little knowledge and capacity to address local environmental and development problems by themselves. The potential power of these networks lies in the sharing of information and knowledge, and in the development of the capacity and skills of local organisations. On the transboundary level, support to transboundary networks is of utmost importance. Regular information exchange and communication between the stakeholders on different sides of borders creates trust; the trust and the shared vision of the future of an international basin, if it exists, is another important factor that contributes to the long-term sustainability of the management of transboundary waters.

An important issue in managing transboundary waters is financing water management. The implementation of water protection measures requires considerable financial resources, usually much higher than is available in a region. Implementation often requires the utilisation of matching finances from the respective states as well as from regional and local authorities and the private sector. It is therefore important to take into account that transboundary areas often consist of peripheral and usually less economically developed regions and that the budgets of local authorities in these areas are often poor. Usually there are not many private entrepreneurs in those border areas who are willing to put their resources into water protection either. The market for businessmen is greater in the major cities where most of the wealth of countries is usually concentrated; this is at least the case in Estonia and the other Baltic States, as well as in Russia. In this context, it is imperative to combine environmental objectives with the economic development priorities of the border regions. This is the only way to ensure the availability of financial resources in the long run for the implementation of water protection measures. Water management plans and projects should jointly address issues of economic development and environmental protection in the whole water basin and include both economic and environmental components.

6.2   MANAGING TRANSBOUNDARY WATERS ON THE EUROPEAN UNION EXTERNAL BORDERS

Along with the general transboundary water management issues that are relevant to all transboundary waters, there are specific issues of concern in transboundary water basins located on the European Union (EU) external borders. In the context of the EU economic, environmental and security policies, the EU internal borders

serve multiple integration purposes including an intensification of economic net-
working, enhanced regional participation in policy-making, greater responsiveness
to local interests in spatial planning and regional development. On the other hand,
the external borders of the EU are of a different kind and are formed in an 'inter-
state' context between the EU and Russia or other third states (New Independent
States (NIS), Balkans, other). While practices of transboundary cooperation could
be similar for both internal and external borders of the EU, the legal frameworks
and institutional arrangements for the cooperation can differ considerably and this
influences cooperation patterns and dynamics. For example, in areas on the EU
external borders, visa-free movement of the local population across the border is
often impossible while visa-free border crossing is a common practice in regions
on borders between EU member states. Transboundary cooperation regimes on
the EU external borders, besides their specific direct functions such as economic
development (trade regimes, management of shared resources – energy, forest, oil)
or environmental protection (water, biodiversity protection) also have the function
of ensuring the security of the EU.

   An important feature of transboundary areas on the European external borders
is a growing gap in socio-economic development and living standards on the dif-
ferent sides of the border. If this gap grows very high it is likely that there will be
little mutual understanding between the organisations and stakeholders on differ-
ent sides of the border and as a result trust and cooperation across the border can
decrease. The Estonian–Russian border area is one of the examples where a grow-
ing disparity in socio-economic development is taking place. This disparity will
probably increase now that Estonia has become a member of the EU and Russia is
on the other side of the external border of the EU. However, this gap should not be
unmanageable, but in order to allow the development of understanding, trust and
cooperation, it is important to provide more international funding for the Russian
side of the border. This is necessary for developing infrastructure, building admin-
istrative and institutional capacity, and especially for information dissemination
about the EU as well as for capacity building activities. If no practical actions are
taken to manage the disparities and also to overcome them, the growing gap in
socio-economic development and living standards on different sides of the border
is likely to become the main bottleneck to the successful implementation of inte-
grated water management strategies in these regions.

   Transboundary water basins shared by EU countries and NIS of the former
Soviet Union are usually new emerging or reconstructed borders, as it is in the
case of the Estonian–Russian border. Here institutions, including procedures for
communication and cooperation, are still in transition and transboundary stakeholder
networks are still weak and not yet institutionalised. However, 'water management
is not … a problem to be solved, but … a process that must continue in perpetu-
ity' (Morrison 2003). To sum up, transboundary water basins should be managed
interactively, that is, through regular communication and consultation among all
major stakeholder groups in the basin. Neighbouring countries sharing these
water basins have many differences regarding institutions, and social and economic
development. In the Lake Peipsi region they are also in a process of economic and
political transition. Due to these differences communicating successfully with

stakeholders and the public is vital for transboundary water management. As part of the MANTRA-East project an evaluation of the use of role games as a method for improving environmental information was conducted. This study is presented in the following section.

6.3 ENVIRONMENTAL INFORMATION FOR END USERS

6.3.1 Introduction

Recent research within the MANTRA-East project and elsewhere has clearly demonstrated the significance of environmental information management in transboundary water management settings (Timmerman and Langaas 2003). With environmental information management we here mean dedicated information-related activities aimed to guide and support policy- and decision-making including operational management with an aim to resolve water quality or quantity issues of concern. Several studies indicate that environmental information may be considered the 'oil in the transboundary water management machinery' (e.g. see Enderlein 2001; Langaas and Timmerman 2003). Consistent and relevant information on the status of water systems and the associated river basin is clearly indispensable for rational and cost-effective water and river basin management. This statement has general validity for all types of river basins, but is particularly relevant for transboundary water regions. Yet, the terms 'consistent' and 'relevant' may imply different types of information for various groups of actors and stakeholders since they may operate at various levels and are concerned with a multitude of activities affecting water quality and quantity. Such activities and examples of levels may involve a consumer's choice in a grocery store on whether to buy a detergent containing phosphate or not, a farmer's decision to invest in a new technical solution for reducing the emissions of nutrient from manure, from a pig farm, or the development of a River Basin Management Plan by a transboundary water commission. Traditionally, research and development activities concerned with the use and role of environmental information in transboundary water management settings have primarily addressed the international level and in particular activities of transboundary water commissions. Timmerman and Langaas (2004) advocate that the term mind-frame could be used to describe the perspectives of various stakeholders. The information needs of the Estonian–Russian Transboundary Water Commission have been given special emphasis in the MANTRA-East project. The key argument for this is that they have assumed the task of coordinating the activities related to Water Framework Directive (WFD) implementation on the transboundary level. Still, due considerations have been given to other actors and stakeholders in the case region.

In this section we will briefly summarise some activities conducted within the case region, of which some has a research focus and others are of more technological and development nature. First, we describe an experimental study designed to examine the use and valuing of information within a transboundary water commission context and the main findings from this study. Second, we summarise

some main points from a strategy developed to guide future water environmental information production, dissemination and communication activities within the Lake Peipsi region. Third, we describe briefly two interrelated activities in which the Internet is being used as a vehicle to disseminate information to various stakeholders in the region.

6.3.2   Evaluating the role and use of information in a transboundary water commission using a role game

This section provides a summary of Timmerman *et al.* (2002). Role or actor games have earlier been used to allow various water actors to play the part of another actor and thus getting insight into other perspectives and mind-frames (e.g. see Wittgren *et al.* 2000). One purpose of performing role or actor games has commonly been as an instrument to find strategies to identify remedial measures to water quality problems. In this study, we focused upon increasing the scientific understanding of the role and use of environmental information primarily developed from monitoring activities within a transboundary water commission context resembling the Estonian–Russian one concerned with the Lake Peipsi region.

The theoretical basis of the study was the recognition that information may be defined in different manners. At least six definitions of information can be identified, as listed below. The first definition describes information as related to the information user. The other definitions can be seen as part of a hierarchy in which information as useful data is the most basic and information as a constitutive force is most encompassing. In all definitions (Figure 6.1) of this hierarchy the implicit basic assumption is that information has a fixed meaning for the specific user (after Braman 1989; Rowley 1998):

(1) *Information as subjective knowledge*: In this definition, information has a variable meaning dependent upon the user's perceptions or values, and the nature of the task at hand. Information can, in this definition, be seen as potential knowledge and to convert information into knowledge, it must be integrated into an existing knowledge structure.

(2) *Information as useful data or as a 'thing'*: In this definition, data is processed for a purpose and is presented in a form that is meaningful to the recipient. Information is seen as processed and presented data. In order to communicate knowledge, information is expressed or represented in some physical way as a signal, text or communication.

(3) *Information as a resource*: In this definition, information is an objective resource, which is attainable and useable and which accordingly can be managed like other factors of production. The value of information is not readily quantifiable as its value depends on the content and use. Furthermore, information is not lost when it is given to others. This definition emphasises the uses people make of information rather than its effects upon people and society. Information as a resource links the use of information to the definition of information as a thing. This is the definition Denisov and Christoffersen (2001) use in their model where information is a resource that ultimately may cause an impact.
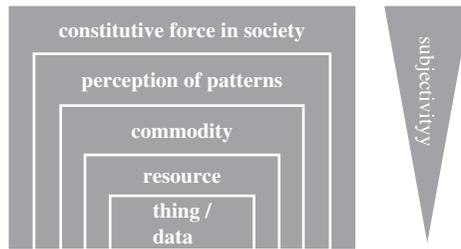
Figure 6.1   Different definitions of information.

(4) *Information as a commodity*: In this definition, the notion of information as a resource is complemented with a right to use it. This right contains a certain value that is subject to trade. The commodity notion also requires a concept of an information production chain including creation, processing, storage, transportation, distribution, etc. of information. Information gains in economic value as it passes through each stage of the chain. As compared to information as a resource, information is granted at least economic power. This is an increasingly relevant definition with the current trends towards commercialisation of public sector agencies. For example, some specific types of geographical information system (GIS data) may have very high commercial value, for example to telecommunication companies, and may tempt public sector agencies in charge of producing GIS data pricing their data high.

(5) *Information as perception of pattern*: This definition adds context to information as a commodity. Information in this perspective has a past and a future, is affected by various factors, and itself has effects. Reduction of uncertainty is one major capacity of information in this definition. Reduction of uncertainty increases the productivity of decision-making. Not only the possession of information but information itself is granted power.

(6) *Information as a constitutive force in society*: In this definition, information is a dynamic force for change in the systems within which it operates. Information is not only affected by its environment, but it is itself an actor affecting other elements in the environment. As such, information is a power in itself.

The goal of the study was to examine the type and nature of environmental information that is considered important to the policy-maker, and also to analyse the way such information is used in decision-making. The way decision-makers use information may vary depending on how they define the information (e.g. asset, commodity, infrastructure, legal obligation) and characteristics of the information provided such as:

(1) *Type of information*: What kind of information is used in what way? These can be in the form of physical, chemical, ecological, sociological, and economic information, or related to information structured according to the driving forces–pressures–stress–impact–responses (DPSIR) framework.

(2) *Presentation of information*: The way the information is presented may determine the way it is used. Presentation forms can be text, tables, maps, diagrams, etc.

(3) *Accuracy, reliability, etc.*: How much uncertainty is acceptable for the decision-maker, and how do they treat uncertainty?
(4) *Sender of information*: Does the sender of the information influence the decision? Is, for example, in a transboundary context information from the receiver's own country more valuable or trustable than information from another country?
(5) *Level of aggregation*: Will a decision-maker only use high-level, aggregated information, or will he/she be interested in detailed, local information?

This presents a wide selection of variables to the input. The way information is considered by the decision-maker was part of the observations. The information that was provided is part of the case description that has been used for the study. Given the wide range of dimensions of information that can be evaluated and considered, this study was limited to primarily consider aspects related to the type of information and the sender of the information. Furthermore, some emphasis was given to the presentation of information.

To study the use and valuing of information, a constructed and theoretical water management situation was provided to a group of selected Estonian officials that in real life also were representatives of the Lake Peipsi transboundary commission. Ideally, one would have preferred to also involve Russian officials. However, logistical and resource considerations made this impossible.

While being constructed and theoretical, the described water management situation resembled the Lake Peipsi situation quite closely so that the actors could exploit prior knowledge in the gaming situation. To determine the type of information that should be presented, it was considered that cause–effect relationships should be made clear. For this purpose, the DPSIR-framework (EEA 1998) was used. This framework describes the cause–effect chain as beginning with a *driving force* (any human or human-related activity) that causes a *pressure* (e.g. through emissions) on a water body, in turn changing the *state* of the water body. This changing state has an *impact* on the functioning of the water ecosystem and/or on the human uses of the water. This results in hopefully a societal *response* directed at any of the four elements mentioned to minimise the negative impacts.

Major driving forces were agriculture and households. Information on the type of crops, animal farms, number of households and number of cities was included. Derived from these were pressures, such as the estimated nutrient loads from crops, animal farms, and wastewater treatment plants. The status of the water was presented as concentrations of nutrients and as some trends stretching over a number of years. Impacts were described as fish kills, turbidity and oxygen concentration in the water. Possible responses (measures) were the introduction of good farming practices, connection of animal farms to wastewater treatment plants, and the improvement of treatment capacity of wastewater treatment plants. Economic and social information was also included. Economic information contained, for example the economic value of farming and fishing, costs of improving wastewater treatment capacity, etc. Social information consisted of the number of households depending on farming, fishing, etc.

The information was arranged on fact sheets. The water management situation was explained to the participants through two presentations and through the fact

sheets. The task that the participants were given was to take measures in order to overcome the problems as introduced by the case. It was stated that scientists had estimated that a 40% reduction of phosphorous and nitrate loads was necessary to obtain a sustainable situation. Participants were split up into two groups: an Estonian delegation and a Russian delegation. The delegations were given time to decide upon their position. Then a 1-hour session was organised as representing the transboundary commission meeting in which decisions were made. The discussions were taped and transcribed.

On the basis of the transcriptions, the discussion was analysed. The points in the discussion that were considered crucial to the decision-making process were coded, as were the kind of information the decisions were based upon. The analyses of these key sections of the discussions provided insights into the policy-relevance of specific pieces of information. Special notice was given to the ways in which certain pieces of information were disputed, and the reasons that were presented for disputing them. This form of analysis provided insights into the importance that may be attached to specific forms of information and the ways that the information's quality can influence negotiations. The meeting was evaluated before closing. The participants were asked to what extent they thought this form of roleplay was realistic, and if the information provided was realistic enough, as well as if there was enough information available.

Estonia had interests in complying with the goals of the EU WFD as they would soon become an EU country. The goals as stated in the fact sheets to obtain a sustainable situation were therefore logical for the Estonian delegation. The stated necessary reduction of nutrient loads of 40% was to some extent disputed, but the overall attitude was to find solutions (measures) that would account for this reduction. The Estonian delegation used the fact sheets to learn about the driving forces and pressures, and used the information of the effectiveness of responses to come to measures. After these measures were formulated, the economic aspects (is it affordable) and to a lesser extent the social aspects were discussed. It seemed that the tendency to follow EU-regulation in combination with an improving socio-economic situation made it possible for the Estonian delegates to focus on the measures to take whereas the socio-economic factors were of secondary importance. Wastewater treatment in Estonia had reached a reasonable level and the focus in water management was shifting towards diffuse sources like agriculture. There was no reason in this situation to dispute the information presented as it was in accordance with the perceptions of the participants. The result of the discussion in the Estonian delegation was a set of measures that would lead to a considerable reduction in pollution loads. The funding of these plans was not yet established, but ideas were present to cope with this.

Russia is not aiming for EU accession and is legally not committed to the EU WFD. Furthermore, Russia has serious socio-economic problems and solutions for this situation are not in sight. Wastewater treatment in Russia is still under development and has much attention in water management. In this situation, the information as presented in the fact sheets is not in compliance with priorities as felt by the Russian delegation (made up of Estonians for the purpose of this study). One of the first issues in the discussion of the Russian delegation was consequently to dispute

this information. In the fact sheets, agriculture was pointed out as the major source of pollution and was implicitly a priority issue. As the Russian delegation did not agree with agriculture being the major source, new priorities had to be found. The fact sheets were more or less disregarded, because they did not give information on the new issues. Therefore, new information had to be added to be able to discuss measures. When this was settled, information from the fact sheets was used to support the necessity of measures. Then, the socio-economic aspects of measures were discussed and finally the discussion was about summarising measures and alternatives for measures. The result of the discussion was an overview of possible measures, the effects of which were not calculated. Also measures were added that could cause an increase in pollution load. The overall effect of the proposed measures, if implemented, would never come close to the goal of 40% reduction.

The discussion in the joint meeting of the two delegations followed the results of the separate groups. The Estonian delegation could present clear measures whereas the Russian delegation had some possible measures to offer. The Russian delegation started to argue that the situation was not yet clear and that more information was needed. The Estonian delegation responded to this by asking for concrete measures. As the Russian delegation disputed the information presented, they were not able to come up with concrete proposals. Information on the state of the lake was not referred to in the discussions. Similarly, information on pressures and impacts is mostly referred to in a qualitative way. Only information on driving forces and responses is regularly used in a quantitative way to support possible measures. This implies that much of the information from physico-chemical and ecological monitoring is not used in decision-making. However, it is clear from the discussions that this information is used as a reference. For the Estonian delegation, the situation as presented in the fact sheets was recognisable and was used as a starting point for their decisions. The Russian delegation had trouble in recognising the situation as their situation and as a result started to dispute the information and asked for more information.

All in all, the participants seemed to have a sense of reality in the discussions. On the other hand, the opportunity to discuss and make decisions without any future responsibility was felt as relaxing. This implies that a real conflict would have been hard to invoke in this meeting. Based upon the evaluation of the use of the provided information (and lack thereof), the following conclusions were drawn:

- Maps are essential to describe the situation and locate specifics.
- In decision-making there is little attention for the exact figures, especially the physico-chemical and biological data. However, if such figures are not present, these will be asked for.
- If the information presented, especially information concerning the problem description, lies not within the expectation scope of the decision-maker, the decision-maker will dispute the information and ask for additional information.
- Information on the state of the water system is not directly used. Information on pressures and impacts is also little used in decision-making. In the DPSIR-framework, driving forces and responses are most used in decision-making.
- Socio-economic information, especially socio-economic implications, is indispensable for decision-making.

From these conclusions, the following recommendations were made:

- Information should, if possible and useful, be presented as geographical information in the form of maps.
- The information presented should be well founded. The information should be reliable and accurate in the perception of the decision-maker, however not necessarily very precise.
- Cause–effect relationships should be presented. These should be supplemented with information on the type and effectiveness of measures taken.
- Information for decision-making should also contain information on possible measures including their effects on the socio-economic situation of various stakeholders, that is, who will bear the cost for the various measures.
- Information for decision-making, especially the analysis of the problem, should fall within the scope of expectations of the decision-makers. For a transboundary water management situation this implies that an existing problem should be described from the viewpoints of the countries involved. Furthermore, the information should also allow for different solutions in the different countries accommodating for different implementation strategies on the basis of economic feasibility.

6.4   DEVELOPMENT AND PARTIAL IMPLEMENTATION OF AN INFORMATION AND COMMUNICATION STRATEGY FOR THE LAKE PEIPSI REGION

To guide future information-related activities in the Lake Peipsi region, an information and communication strategy (ICS) was developed. The strategy was developed by Centre for Transboundary Cooperation (CTC). CTC is an international NGO that works to promote sustainable development and cross-border cooperation in the border areas of the Baltic States and the NIS. Its main activities fall into the categories of Community Development and Civil Society and the Environment, specifically through involvement in environmental policy analysis, community and NGO development, information dissemination, communication and environmental education projects. Within the region, CTC serves as an implementing agency for a number of environmental and transboundary water management projects. CTC follows an interdisciplinary approach to the implementation of various projects that stems from a close cooperation among multiple end user organisations, including governments of the EU accession countries and EU member states, national and regional governments, municipalities and NGOs in Estonia, Latvia and Russia.

The strategy was developed both as an internal instrument for CTC's own ongoing activities in the region, and as an external support to all those projects and processes in which CTC are involved and that incorporate information-related activities aimed to resolve water-related issues, in particular, those of transboundary nature. In particular, the purpose of the ICS was to discuss and suggest mechanisms for the dissemination of expert-based environmental information concerning the

Lake Peipsi pilot study region to various stakeholder groups. This strategy is here-after named the Lake Peipsi region ICS.

A legal and principal starting point for the development of the Lake Peipsi region ICS were the principles laid forward in the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, the so-called Aarhus Convention.

Considering the rather fluid character of the term 'information', the Aarhus Convention's definition of relevant 'environmental information' was used in ICS development. According to the Aarhus Convention 'environmental information' includes information on:

- The state of the environment and its elements, such as water, air, land, soil, atmos-phere, landscapes, natural sites and biological diversity, including genetically modified organisms.
- Factors such as substances, noise, radiation, and activities, including policies, legislation, plans, programs as well as data used in economic analysis influ-encing the state of the environment.
- The state of human health and safety, and the conditions of human life, cultural sites and buildings that might be affected by the state of environment.

Specifically, in interpreting this broad definition with regards to transboundary rivers or international lakes, public information according to the developed ICS includes:

(1) Environmental state of the transboundary waters and results of monitoring thereof, including floods and ice drifts, as well as transboundary impact.
(2) Measures taken to prevent, control and reduce transboundary impact, includ-ing water saving measures.
(3) The effectiveness of those measures.
(4) Joint and national water quality objectives.
(5) Permits issued and the conditions required to be met.
(6) Results of water effluent sampling.
(7) Results of compliance checking with water quality objectives.
(8) Results of checking water quality with permit conditions.
(9) Drafts of treaties, protocols, rules of procedure including comments from NGOs relevant for the area of application of the Water Convention or Department of Environment (DOE) specific transboundary waters.
(10) Drafts of plans and programmes, including comments by NGOs.

In an attempt to allow the public a larger role in the development of policy, the Aarhus Convention furthermore requires that the following information be included about a proposed public decision:

- The proposed activity and its possible effects on the environment, including emissions.
- A description of measures envisaged to prevent or reduce negative impacts.
- The possible decision.
- An outline of main alternatives.

- The public authority responsible for decision-making.
- Opportunities for the public to participate.
- The time and place of public hearings.
- The public authority from which necessary information can be obtained.
- The public authority to which comments, questions and proposals can be submitted.

The Convention furthermore allows that the information may be presented 'in any form, such as written, electronic, visual, aural or other material form' but it stresses that 'each country should ensure that environmental information increasingly becomes available in electronic databases easily accessible to the public', including the Internet.

A focus of the Lake Peipsi region ICS was on the relevance and importance of information dissemination, as connected to various facets of public participation.

While scholars vary in agreement over the nuances between the various forms of public participation it can be defined as 'the process by which individuals and groups come together in some way to communicate, interact, exchange information, provide input around a particular set of issues, problems, or decisions, and share in decision-making to one degree or another'. Public participation occurs at many different levels. Initially, the most basic form of participation occurs at the information dissemination level. This one-way flow of information can occur through informal seminars, information sessions, presentations, public meetings, or the translation of information into local languages or local jargon and dissemination using various media. Of course, while this form of participation requires minimal action, it is an extremely fundamental stage in more complex participatory mechanisms.

Participation can also occur in the form of consultation, which translates into two-way communication. Consultations can occur in any one of the following: participatory assessments, beneficiary assessments, consultative meetings or field visits and interviews. As the name suggests, consultations are beneficial because they garner the thoughts and perspectives of stakeholders. While information dissemination in its purest form is biased towards one perspective, consultations represent a two-way flow of ideas. The final form of public participation, and also the most intense, is empowerment. Signifying the transfer of control over decisions and resources, empowerment accords the public the highest amount of power.

Public participation with respect to the requirement of the WFD includes information supply, consultation (written and oral consultations) and active involvement where the 'active involvement' contains different collaborative participation approaches (see Figure 6.2).

As a first step in the process of developing the Lake Peipsi ICS identified the stakeholders in the region and their information needs through the following steps:

6.4.1   Step 1: Mapping the stakeholders

The main stakeholders for water use and protection in the Lake Peipsi basin were structured according to their geographical levels of operation. At the international basin level stakeholder groups include international organisations that are involved
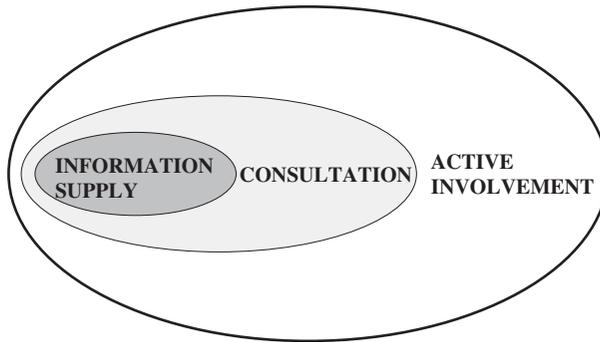
Figure 6.2   Different degrees of public participation as defined by the EU WFD Guidance Document on Public Participation. *Source*: Guidance on Public Participation (2002).

in development and implementation of policies for management of transboundary waters in Europe such as the World Bank, UNECE, UNDP, UNEP, Council of Europe, IWAC, WWF, the European Commission and other EU organisations and agencies. In the Baltic Sea region, important international organisations include the HELCOM, Council of Baltic Sea States and Baltic Sea Subregional Cooperation Council among others. On the true Lake Peipsi level there are two intergovernmental commissions: the Estonian–Russian Intergovernmental Transboundary Water Commission, and the Estonian–Russian Joint Commission for the Use of Fish Resources of Lake Peipsi, Lake Lämmi and Lake Pihkva.

There are several research groups interested in different aspects of managing waters in the Lake Peipsi basin as well. Many research projects and activities take place in the area. International development projects with a transboundary aim or scope in the region include the GEF/UNDP Lake Peipsi project, Tacis and PHARE project.

The national-level stakeholder groups include:

- national governmental institutions (sectored national agencies, such as ministries of the environment, economics, etc.);
- businesses and farmers' associations;
- national NGOs and similar associations;
- national-level universities, including researchers.

Informing and involving stakeholders on at a local level is important and can be most effective when concerning local environmental problems, such as water pollution, due to the local nature of such issues. One of the most important local-level stakeholder groups is the local government. Local governments are responsible for water management within their territory and recognise the link between development and sustainable management of water resources. Along with the local authorities, other stakeholders, such as schools, local businesses, women and youth groups, and grassroots NGOs play important roles in the implementation of water management policies.

6.4.2   Step 2: Assessing information needs of stakeholders

To assess the information needs of stakeholders several approaches were applied. The needs of the international stakeholders were quite well known through earlier activities. Thus, it was decided to place emphasis on the needs of the local-level stakeholders through a small series of dedicated information needs assessment activities. The information needs assessment activities included group interviews in several municipalities with local stakeholders, interviews with local administrators in Estonia, an anthropological study in four rural municipalities (two in Estonia and two in Russia) aimed at understanding the public's perceptions of the environment and the willingness of local stakeholders to participate in discussions and decision-making processes with regards to environmental issues on the local level. The process also included a survey of 200–300 people that explored the opinions of local people, and finally based on these public opinion surveys, eight focus group discussions in local municipalities and two citizens' juries organised on the Estonian and Russian sides of the region.

Additionally, on the combined international and national level, the before-mentioned experimental study was incorporated in the information needs assessment. Furthermore, interviews with water management experts in eight regional environmental protection departments of Estonian Ministry of the Environment were conducted.

6.4.3   Step 3: The information needs and channels

Local communities and stakeholders address local-water-related environmental problems. Therefore the perceptions of these stakeholders concerning regional development perspectives and the environmental state are important to understand. Interviews with local stakeholders showed that communication on the local level often takes place through local newspapers of which some are distributed free of charge. Local meetings were considered important to develop a dialogue between local authorities and inhabitants. A few people use Internet, mostly those involved in work of local authorities and younger people. Access to Internet is higher on Estonian side. Many people stress problems with the physical communication infrastructure. Yet, in many municipalities there are already public Internet centres or a computer class with a permanent Internet connection, or these are planned to open.

The local authorities all use the Internet on a daily basis. None, however, access specific information about the Lake Peipsi region from the Internet for the moment. All would be more interested in a comprehensive website that allowed them to do so. Topics of great importance were the economy and the environment of Lake Peipsi region. Respondents suggested that the information should be easily accessible including reports with various levels of detail, updates, news analyses and texts of international and local relevance, and that this information should be in Estonian, Russian and English language. In addition, information about culture and tourism should be included. The lack of Internet access for the majority of the general public does not necessarily stop them from receiving important information. Some are still interested in receiving information in print. In most municipalities a local newspaper is published and distributed free of charge.

Due to the poor technological infrastructure in many parts of the Lake Peipsi area, in particular the Russian part, one might conclude that Web information dissemination for the time being might not be the best information dissemination channel. However, several steps are being taken on the national and regional level to increase Internet availability in rural areas of the country. In addition, villagers have managed to find ways for information to be disseminated. Information regarding the economy, environment, agriculture, fisheries and the EU is of utmost interest.

The information needs of decision-makers are directly related to procedure, laws and regulations in question. While physico-chemical and ecological monitoring results were seldom used in decision-making, Estonian decision-makers on the national level dealt mostly with information required by the Estonian Water Act and the EU WFD. In addition, the conclusions drawn from the experimental study designed to assess information needs of national administrators on the international level (see above) were used to guide in the information needs (Timmerman *et al*. 2002):

6.4.4   Step 4: Devising the appropriate approaches

In the analysis of information needs and appropriate channels for communication, a wide variety of information needs on various levels were expressed and identified, and a wide range of optional channels for information dissemination and communication identified and discussed. Most of the information needs and communication channels are mentioned above. Two main approaches to environmental information dissemination and communication were suggested:

(1) Internet-based approaches
(2) Non-internet-based approaches

Provided a reasonable technological level and capacity, it is incontestable that the Internet is a most attractive channel for information dissemination and communication in modern societies. Although there are asymmetric development patterns and status of Internet implementation and use in Estonia and Russia, respectively, the ICS still argues that the most interesting vehicle for information dissemination is the Internet. This is in line with the viewpoints of Langaas *et al.* (2003).

It is likewise clear that alternative channels for providing pertinent information to stakeholders are required, in particular so on the local levels for those concerned with local water-related issues although often affected by and affecting the transboundary issues. Based upon the assessment activities and previous activities of CTC the following approaches were identified as useful, each with its own comparative advantages:

- *Community information sessions and campaigns*: Such interactive approaches not only work to inform the general public on environmental issues for example, but they also provide a medium for suggestions, comments and participation. On a national and regional level, especially, effective measures for disseminating information to the public and integrating stakeholders in the policy-making process include using information centres, public awareness and education programs and cultural events.

- Production and distribution of written information including brochures, information packets, pamphlets, leaflets and information booklets.
- *Citizen juries*: In these interactive 'town hall' type meetings, a randomly selected and demographically representative panel of citizens discuss the issues surrounding a particular policy area. It is of especial importance to the environmental field seeing how it is a way to collaborate both expert knowledge and public concerns, which usually is a challenge.
- *Other activities*: Peipsi CTC have coordinated various other activities and projects in the interest of furthering the public participation through the dissemination of information. These include fieldtrips, contests, conferences, workshops and tours.

In this way, the Lake Peipsi ICS provides for a consultative participation that forms the basis for future active involvement of local stakeholders. As a hopefully central instrument for the information dissemination on the lake basin environmental issues, CTC is in the process of developing a regional Lake Peipsi web portal. The purpose is to cater for the collection, processing and dissemination of information pertaining to the Lake Peipsi region. The portal, available in Estonian, Russian and English languages at http://www.peipsi.org/, has been designed to tailor-make, otherwise highly specialised environmental and sustainable development information pertaining to the Lake Peipsi Region to the needs of multiple stakeholder groups, including municipal government officials, businessmen, schools, NGOs and the local public with the aid of innovative web technologies. The home page of the portal is shown in Figure 6.3. The portal uses tools such as GIS software,
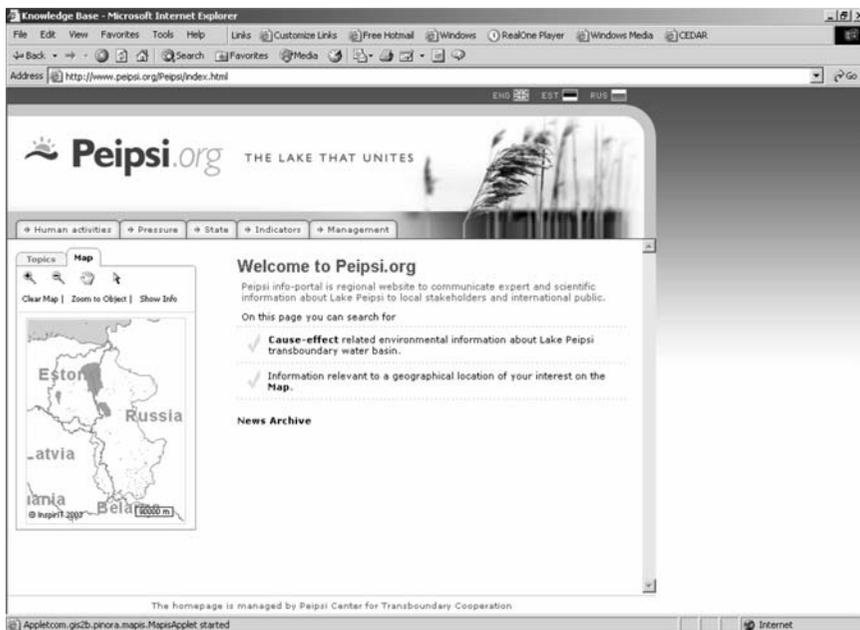

Figure 6.3   The Lake Peipsi web portal regional website aimed to communicate expert and scientific information about Lake Peipsi to local stakeholders and international public.

which allows interactive use of maps and provides important information on Lake Peipsi fauna, flora and various environmental challenges to the area. This builds upon the GIS database efforts reported in Hannerz *et al.* (2002) and Langaas *et al.* (2003). In addition, to sort through the excessive information that may exist on the web, the portal development also includes semantic region in question. Semantic Web ('next generation web') is an extension of the current web in cooperation. Information on the portal is initially structured using the DPSIR framework. There are four different ways to browse the contents of the portal: via a common hierarchical structure organised into main and sub-categories of which the main categories are accessible from every page; via a references system that is attached to every bit of information; via a direct keyword search; and via the GIS map. Visitors can run queries based on the GIS map of the Peipsi region. Altogether, the benefits of this portal will be twofold. On the one hand, it may facilitate the research process by allowing users to find the most relevant information without having to waste time for shifting through unnecessary sources. On the other hand, it may help users understand the extent of connections between different concepts and keywords encountered on a daily basis.

6.5   SUMMARY

A main water-related environmental issue of concern in the transboundary Lake Peipsi region is eutrophication. Eutrophication is a most complex environmental problem issue with a multiple set of actors and stakeholders influencing the bio-geochemical cycles leading to undesirable states of nutrient concentrations in the Lake Peipsi and secondary impacts upon fish stocks. These actors and stakeholders operating from the individual household and farm level up to the international level represented by the Estonian–Russian Transboundary Water Commission and external actors such as the EU. With this in mind, and the considerable significance and role that environmental information and communication plays in transboundary river basin governance a small set of information- and communication-related activities were carried out. First, to improve the understanding of how environmental information is appreciated within the context of a transboundary river basin commission, an experimental role game study was carried out with Estonian participants. This study showed that:

- Maps are essential to describe the situation and locate specifics.
- There is little interest in precise quantification of the physico-chemical and biological status, unless they are missing or controversial.
- Information on the state of the water system is not directly used. Information on pressures and impacts is also little used in decision-making. In the DPSIR-framework, driving forces and responses are most used in decision-making.

Second, to solicit the views and opinions of other actors and stakeholders – in particular representatives of municipalities and communities – a series of other information collection activities were carried out. The aim of these was to obtain a better comprehension of information needs, and the most appropriate information and

communication channels. Based upon this an ICS was developed. In the analysis of information needs and appropriate channels for communication, a wide variety of information needs on various levels were expressed and identified, and a wide range of optional channels for information dissemination and communication was identified and discussed. Two main approaches to environmental information dissemination and communication were suggested, Internet-based approaches and Non-internet-based approaches.

Third, in attempt to partially implement some components suggested in the ICS, a web portal has been designed and is now under development and continuous updation.

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