



**Convention on Protection and Use of Transboundary Watercourses and
International Lakes**

**SEMINAR ON THE ROLE OF ECOSYSTEMS
AS WATER SUPPLIERS**
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ROMANIA NATIONAL REPORT

A. Floods control

Water in excess – floods – represent the most important natural disasters which cause huge damages and human losses.

In Romania, the floods represent a hydrological phenomenon ever-present on our regions.

Floods frequency and their proportions increased, mainly due to the climatic changes and reduction of the river bed transport capacity, generally through the developing of localities in flood plain area.

The floods from the period 1992-2003 have produced damages of over 25.920 billion lei on all country area. We mention that in the same period of time, the total value of investments for floods defense works from the state budget was about 11% from total value of damages.

Floods defense principles:

- Floods are natural phenomena. They have forever existed and will continue to exist in the future. The human intervention in natural processes has to be limited in the future, and the intervention impact has to be low and do not produce the irreversible disturbances for the ecosystems.
- Strategy control of floods have to elaborated on the catchment level and have to promote a coordinated development and management of undertaken actions in the water field, land planning and of other resources.
- Taking into account the evolutions and trends in floods forming, it is necessary to move from defense actions against disasters to risk management and to the concept of “living with floods”, having in view that floods prevention have not to be limited only to the disasters with high frequency, and have to include, also those with low frequency.
- International efforts for rivers reconstruction will be increased in order to restore the natural conditions of wetlands and flood plain area, to retain water and to attenuate the floods effects. The use of the flood plain areas has to take into consideration the hydrological rivers regime. It will be developed proper measures and tools for all water related problems: floods, groundwater level increasing, erosions, alluvial sedimentations, landfalls, sewerage network problems, pollution, etc.

Water retention and non-structural measures

An ecological strategy for floods management is based on the improvement of land use from the river basin, prevention of torrents forming and increasing the efforts for the natural wetlands restoration. The trend is the restoration of natural conditions of wetlands and flood plain areas in order to attenuate the floods. In addition, these measures lead to the other advantages: conservation of biodiversity, groundwater recharge, cleaner water, recreation areas, and tourism opportunities.

The main non-structural prevention measures:

- Conservation, effective protection, and where it is possible, the restoration of the vegetation, forests and orchards.
- Conservation, actual protection, and where it is possible, the restoration of wetlands and degraded flood plain areas, inclusive some river meanders. The maintenance of vegetation on the bank streams is necessary from environmental biodiversity point of view and as protection against floods.

- Landuse improvement through reductions of drainage works, meanders maintenance and bank consolidation. All drainage works of marshy lands and wetlands can be considered as being contrary of floods prevention objectives.
- Change of destination of ex-flood plain areas and lakes through movement of some dikes, elimination of natural dams and creation of some connections with the lowest land sections in order to transform these natural areas in retention areas.
- Ensuring a correct landuse in areas located in high floods and erosion risk through bank consolidation with vegetation (grass), maintaining the vegetation on flood plain areas, transformation of arable land in pastures for reducing of nutrients and pesticides in rivers.
- Polders building up which will be used, especially, as pastures or alluvial forest restoration which will be flooded for attenuation the maxim flows during the floods.

The estimated value of works on reduction of flood risk is about 510 million EURO, for the period 2005 - 2020.

B. Integrated management of water resources

Integrated management of water resources presumes:

- **Integration of physical aspects of all water categories:** surface waters, groundwaters, transitional waters, coastal waters and also of quantitative, qualitative and biological aspects of water.
- **Integration of water uses at river basin level** – solving the equation resources-water demand and water resources protection requires the analysis of water use at river basin level.
- **Upstream-downstream integration** – upstream water uses must recognize the rights of downstream water uses on using good quality and sufficient water resources.
- **Integration of water resources in planning policies** – water is one of the key elements of life and also a factor which influences economic and social development, being often a limitative factor.

Integrated management of water resources is based on *Master Plans on River Basin Management and Planning*.

Romania is one of the first countries which introduced water management on river basin level, even since 1959. Between 1959 and 1962, Romania carried out first *River Basin Management Plans*.

It have been elaborated River Basin Management Plans for 14 hydrographical basins and also for Danube Delta and Danube floodplain, covering the entire territory of the country. It should be noticed that these management plans were based upon elaborated studies and researches in the hydrological, hydrogeological, climatic, topo geodesical, demographical evolution, urban and territorial development, drinking water and industrial supplies, land reclamation, navigation, hydronenergetical and fishing domains.

According to new Law no 310/2004 that updates Water Law no 107/1996, Master Plans on River Basin Management and Planning will have a new content conformably to the Water Framework Directive 2000/60/EC requirements.

River Basin Management Plans shall cover the following elements:

1. A general description of the characteristics of the River Basin District:
 - 1.1. For surface waters:
 - mapping of the location and boundaries of water bodies,
 - mapping of the ecoregions and surface water body types within the river basin,
 - identification of reference conditions for the surface water body types;
 - 1.2. For groundwaters:
 - mapping of the location and boundaries of groundwater bodies;
2. A summary of significant pressures and impact of human activity on the status of surface water and groundwater, including:
 - estimation of point source pollution,
 - estimation of diffuse source pollution, including a summary of land use,
 - estimation of pressures on the quantitative status of water including abstractions,
 - analysis of other impacts of human activity on the status of water;
3. Identification and mapping of protected areas
4. Monitoring networks
5. Environmental objectives for surface waters, groundwaters and protected areas;
6. A summary of the economic analysis of water use;
7. A summary of the programme or programmes of measures adopted in order to reach “good water status”;
8. A register of any more detailed programmes and management plans for the River Basin District dealing with particular sub-basins, sectors, issues or water types, together with a summary of their contents;
9. A summary of the public information and consultation measures taken, their results and the changes to the plan made as a consequence;
10. A list of competent authorities;
11. The contact points and procedures for obtaining the background documentation and information and in particular details of the control measures and of the actual monitoring data.

C. Woods role in water and soil protection

The woods ecosystems have great importance on the water resources forming and on their protection.

The most stable forest biocenosis are those which have the composition and structure close with the natural ones; in these cases it is ensuring plenary exerting of environment and biocenosis conserving functions, and also the timber production.

The woods have a positive influence on diminishing of maximum flows, especially when they are located on the upper river basin or are spread on its surface.

Concerning the influence of the woods on minimum flows it can be affirmed that where the precipitation quantity exceeds the necessary woods physiological processes and the aquifers base is relative deeply located, the woods favorably influence the flow repartition through an underground supply of the rivers, supply which is increased in the low flow period on the basis of reducing of surface flow.

On the other hand, where the precipitations are quantitatively smaller, and the impermeable stratum is not deeply located, woods can consume more water than the quantity which would be discharged into the river as run off, if the woods didn't exist.

In Romania, the woods role in the water resources management increases, having in view that:

a) Water resources are not uniformly spread on the country territory

The water repartition is strongly correlated with the woods distribution. Thus, in the mountain area – which represents about 21 % of the country territory and has a woods weight of about 65 % - it is ensuring about 37 billion m³ water/year, which means 66 % from the total water resource of rivers. The hilly and piedmont area, which means 31 % from the country territory with 26 % woods area, has a weight of 24 % from the total water resource of rivers.

Plain and low plateau area, with extend of 48 % on the country territory and a surface of woods of 9 %, contributes with 10 % at the global water resource.

b) Forestry fond participates at the hydrological balance with approximate 70% of the total water quantity

c) Mountains, woods and water forms a complex system, where the forestry vegetation has the role to be the most efficient way of their protection and of hydrological stability maintaining from the rough relief areas

Due to this fact, the wood cutting in the mountain forests from the catchment area with reservoirs has to be practically not allowed, indifferent of the property type.

Thus, at the national level, by forest planning the woods were framed in specific functional categories, having in view the water and soil protection. For the water protection were framed a surface of woods of about 1 million ha and for soil protection about 1,358 million ha woods. This means that the woods have, as the main role, the water protection, respectively the land and soils protection. The forests are managed to the optimum structures through a complex management system in order to properly achieve the functions which were assigned.

Concerning, the forests with functions in water protection play role in:

- Protection of springs, deposits and mineral, drinking and industrial water sources;
- Protection of natural lakes and reservoirs;
- Protection of rivers and streams slopes which supply the reservoirs;
- Protection of natural rivers banks and of dike – bank area of those with embankments;
- Protection of torrential river basins or with excessive alluvial transport.

The anti-erosion role of forest consists in its various natural features, which is positively acting on the run off regime and on the soil and subsoil humidity regime, on the surfaces with forests and also on the neighboring areas. In this way the erosion is prevented.

Concerning, the forests role in land and soil protection it is mentioning:

- Protection of lands with slope bigger than 35 %, of those with deep erosion, of those with detritus and rocks, etc;
- Protection of public roads and of railway in zones with rough relief;
- Protection of alpine zones;
- Protection of hydraulic works and industrial ones depending on erosion and land slide potential;
- Protection of degraded lands;
- Protection of zones of avalanche forming of their passages;
- Protection of moving sands;
- Protection of marshy lands;
- Protection of surface mines and quarries, depending on erosion potential;
- Protection of karstic zone;
- Protection of lands with strata very vulnerable at erosions and slides.

The wood is a complex biocenosis with multiple functions in the frame of geographical landscape, among the fundamental one is the regulation of the water regime.

For the prevention and attenuation of torrential phenomena, and also for reducing of degradation processes of lands from the forestry stock the following activities are proposed:

- **Concerning the torrent conducting:**
 - Ensuring the security of existing works and systems for torrent conducting, as well as the continuation with actions for the torrential basins, which have works executed in a earlier period:
 - 2005 – 2006 – 90 km of network
 - 2006 – 2010 – 300 km of network
 - carrying out of new works in the basins after torrent calamities where were affected the general interest objectives – localities, agricultural land , communication ways, reservoirs, etc.:
 - 2005 – 2006 – 90 km of network
 - 2006 -2010 – 200 km of network
- **Concerning the ecological reconstruction:**
 - Carrying out of the amelioration works for the degraded lands in constituted perimeter, located in torrential catchment area:
 - Taking over and forestation of the affected lands by excessive erosion:
 - 2005 – 2006 – 350 ha of plantations
 - 2006 – 2010 – 2500 ha of plantations
 - Bringing back in the productive circuit of the degraded lands inapt for agricultural uses, by forest plantation:
 - 2005 – 2006 – 5000 ha of plantations
 - 2006 – 2010 – 25,000 ha of plantations
 - Carrying out of the forest curtains for the protection of agricultural cultures:
 - 2005 – 2006 – 30 km/90 ha
 - 2006 – 2010 – 250 km/750 ha

D. Public participation and information dissemination

In Romania, the *Public Participation* in the water field decision making is achieving through the River Basin Committees.

Through the Governmental Decision 1115/2002, it has been created 11 River Basin Committees at the level of the River Basin Authorities (fig. 1), which are made up from representatives of:

- Local communities;
- Users from river basin district;
- Beneficiaries of water management services;
- NGOs.

The overview objectives for creation of these structures are:

- Efficient cooperation between water management territorial structures and local public administration
- Balance between conservation and sustainable development of water resources;

The tasks of River Basin Committees are:

- Collaborate with Water Directorates in the implementation of national water management policies and strategies;
- Agree on River Basin Management Plan;
- Approve the list of protected areas and establish measures for ecological reconstruction;
- Recommend priorities for the financing of sustainable development programs;
- Propose the revision of the water management norms and standards and, if it is necessary, develop quality norms for effluent waters, specific for river basin;
- Inform the public about the organized actions with at least 30 days before the planned action;
- Public debates on all the problems concerning water management;
- Public access to documents and to official meetings;

The information dissemination from the water management is achieving, also through the office of *Public Relations* from the every River Basin Authority, which is dealing with the preparation of Press Conferences and interviews on the water issues, as a result of European Directives implementation and of elaboration of certain chapters of the River Basin Management Plan.

In Romania, approx. 60 NGOs were currently involved in the WFD and Acquis Communautaire awareness campaigns. NGOs active participate on pilot projects for the implementation of the WFD and RBMP, wetlands restoration, etc, which enable the involvement of all stakeholders (local government, NGOs, business, large public).

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