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ON THE PROTECTION AND USE OF TRANSBOUNDARY  
WATERCOURSES AND INTERNATIONAL LAKES**

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Item 8 (d) of the provisional agenda

**INTERSTATE DISTRIBUTION OF WATER RESOURCES OF TRANSBOUNDARY  
WATERCOURSES AND THEIR RATIONAL USE WITH DUE REGARD  
TO WATER QUALITY ASPECTS:  
PRINCIPLES, APPROACHES AND RECOMMENDATIONS**

Prepared under the auspices of the Ministry of Natural Resources of the Russian Federation  
by the Russian Research Institute for Integrated Water Management and Protection

According to the work plan for the period 2000-2003 (ECE/MP.WAT/5, annex II), adopted at the second meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (The Hague, Netherlands, March 2000), the Russian Federation as the Lead Party agreed to be responsible for the implementation of programme element 2.6 "Interstate distribution and rational use of water resources of transboundary rivers in water-deficient regions". In the framework of these obligations, draft "Recommendations on interstate distribution of water resources of transboundary watercourses and their rational use with due regard for water quality aspects" have been drawn up. At the international workshop, convened by the Russian Federation (Yekaterinburg, December 2002), these draft recommendations were thoroughly discussed and adopted as a whole. The workshop decided to amend the text of the recommendations: first, the recommendations should primarily focus on requirements of the newly independent States (NIS); second, the sections describing examples of how problems of water resources distribution are solved should be extended

The Convention's Working Group on Water Management at its fourth meeting (Helsinki, 28-29 April 2003) examined an updated draft version of the current document, proposed editorial amendments, and agreed on its submission to the third meeting of the Parties (Madrid, 26-28 November 2003) for endorsement.

The amended and updated, in accordance with the outcome of the international workshop and the Working Group's proposals, document provides principles, approaches and recommendations in order to achieve the Convention's objectives. These are based on an analysis of best practice and the recent decade's achievements in water science regarding sustainable water use. The recommendations are addressed, first of all, to the newly independent States (NIS), other countries with economies in transition and developing countries.

The Ministry of Natural Resources of the Russian Federation commissioned the Russian Research Institute for Integrated Water Management and Protection (RosNIIVKh) with the drawing up of the draft recommendations. The team of authors comprised Mr. S. D. Belyaev, Mrs. G. Y. Odintseva, Mr. A. N. Podust, Mrs. N. B. Prokhorova and A. M. Chernyaev.

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## **Introduction**

1. Being aware of the necessity of joining forces to prevent the depletion of the planet's water resources, secure the vital needs of all members of the population, and achieve equitable distribution of water resources, the international community has, over the past decades, developed a number of essential documents that have laid down general principles of water resources' use, rehabilitation and protection as well as principal rules regarding the mutual relations between riparian countries concerning the joint use of transboundary water bodies.

2. The 1992 Dublin Conference, where the Dublin Statement on Water Resources and Sustainable Development was adopted, served as a real starting point in the establishment of new global relations in the field of water resources use, rehabilitation and protection. The Dublin principles cited below are not outdated and still serve as the basis for the development of a global water management policy:

(a) Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment;

(b) Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels;

(c) Water has an economic value in all its competing uses and should be recognized as an economic good.

3. These principles were further developed in Chapter 18 of Agenda 21 [1], at the second (1994) and the sixth (1998) sessions of the UN Commission on Sustainable Development (CSD), the Special (1997) and the Fifty fifth (2000) sessions of the UN General Assembly, the World Summit on Sustainable Development (Johannesburg, South Africa, 2002), the Third World Water Forum (Kyoto, Japan, 2003) and the Fifth Ministerial Conference “Environment for Europe” (Kiev, 2003). Appeals to join forces in the development of integrated approaches to water resources management and to pay more attention to the needs of the poorer members of the population and poverty-stricken countries were voiced at all these forums. Measures on ecosystem protection and guaranteeing a wider participation of all population groups in water management were mentioned as specific priorities.

4. Among all the targets and target dates, the following two deserve special attention:

- by 2015 - to halve the proportion of the world's people who are unable to reach or to afford safe drinking water and the proportion of people who do not have access to basic sanitation;
- by 2005 – to develop integrated water resources management and water efficiency plans in all countries.

5. Thus, the development of an efficient policy in the field of water management and water supply became one of the principle priorities for the world community.

6. After the Rio Conference, particular efforts were made in this direction under the auspices of the UN Commission on Sustainable Development. Concurrently, other important actions were initiated, the most important of them are the following: preparation of the World Water Resources Prospects, which commenced at the Second World Water Forum in the Hague in March 2000, and the Ministerial Declaration on Water Resources Safety in the 21<sup>st</sup> Century, adopted by the countries at the concurrently held Ministerial Conference in the Hague.

7. The above Declaration identified seven problems facing the world community; and their solution requires concerted efforts of all States. Four of them are of particular importance for the purposes of this document:

- *Protecting ecosystems:* to ensure the integrity of ecosystems through sustainable water resources management;
- *Sharing water resources:* to promote peaceful cooperation and develop synergies between different uses of water at all levels, whenever possible, within and, in the case of boundary and transboundary water resources, between States concerned, through sustainable river basin management or other appropriate approaches;

- *Valuing water*: to manage water in a way that reflects its economic, social, environmental and cultural values for all its uses, and to move towards pricing water services to reflect the cost of their provision. This approach should take account of the need for equity and the basic needs of the poor and the vulnerable;
- *Governing water wisely*: to ensure good governance, so that the involvement of the public and the interests of all stakeholders are included in the management of water resources.

8. The international community and individual Governments were to implement these main principles and recommendations, which were developed over the past decade, taking into account the specific conditions and capabilities of every State.

9. In parallel with development of the main principles of a water policy, all States - being aware of the necessity to coordinate efforts - took concrete measures to develop cooperation regarding the joint use, rehabilitation and protection of water resources. In this process, legal documents have been drawn up at the international, regional and/or sub-regional level, the latter in the form of bilateral and multilateral agreements on particular river basins.

10. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes [2] (further on referred to as 1992 UNECE Water Convention), drawn up under the auspices of the United Nations Economic Commission for Europe, was adopted in 1992 and came into force in 1996. As of 1 October 2003, 33 countries and the European Community have ratified this Convention.

11. The "Protocol on Water and Health" [3] to the above Convention was adopted in London in 1999. This is an excellent instrument to facilitate the joining of forces aimed at the "protection of human health and well-being... through improving water management, including the protection of water ecosystems, and through preventing, controlling and reducing water-related disease". As of 1 October 2003, ten countries have ratified this Protocol, which was originally signed by 36 countries.

12. Within the framework of the same process, the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (hereinafter referred to as the 1997 UN Convention) [4] was adopted in New York in 1997. Though this Convention has not yet entered into force, the fact that 103 States have adopted it is already a good basis for establishing agreements on transboundary watercourses.

13. As laid down in a legal expert study [5], both Conventions supplement each other. The given Conventions define general principles and components of equitable and reasonable utilization and distribution of transboundary water resources, mutual obligations and procedures concerning the use of transboundary watercourses, as well as rehabilitation and

protection measures that States volunteered to be bound with. This is extremely important, both for the prevention of a global water crisis and the solution of tasks related to the conservation of water resources in specific water basins. Both Conventions are framework agreements; the 1992 UNECE Water Convention specifically states that basin-specific agreements should be drawn up.

14. An in-depth elaboration of a whole set of objectives and mechanisms to achieve these objectives is needed for the purposes of cooperation among the riparian States. To this end, working groups on a number of key issues of the Water Convention's implementation (namely: legal and administrative aspects, water resources management, monitoring and assessment, water and health) were established at the second meeting of the Parties [6]. As the working groups have issued a number of documents and continue their activities, correspondent findings are not repeated in the current document.

15. A prerequisite for successful interaction among the riparian Parties is, besides the Convention itself, a clear-cut State water policy of each of the riparian countries.

16. The EU Water Framework Directive (EU WFD) [7] adopted in 2000 can serve as an illustrative example. It defines in detail the requirements regarding the Member States' water policy, and identifies concrete targets and mechanisms for their attainment. Already the first steps undertaken in the implementation of the Directive permit to refer to it as an example of best practice. However, not all the Parties to the 1992 UNECE Water Convention are on a similar level of social and economic development, or on the same level of willingness to really implement the targets set.

17. The principles, approaches and recommendations contained in the subsequent chapters of this document make use of the experience gained in the UNECE region and other regions as well as the results of scientific research over the last decade. They dwell on key mechanisms of equitable and reasonable use of transboundary water bodies, and are oriented, first of all, to countries in transition and countries under other physical and socio-economic constraints in full agreement with the conclusions and recommendations of the Second International Conference on Sustainable Management of Transboundary Waters in Europe (Poland, 21-24 April 2002) [8].

18. The main terms and definitions used in the following chapters are in accordance with article 1 of the 1992 UNECE Water Convention.

## **I. EXAMPLES OF INTERSTATE WATER DISTRIBUTION AND USE**

19. Due to the diversity of specific physiographic and socio-economic conditions and historical factors, there is no opportunity to provide general technical recommendations for decisions regarding the individual shares of water, which can be used by each State within a transboundary basin. The only statement included in the 1992 UNECE Water Convention and

the 1997 UN Convention is to reach an equitable and reasonable (in the meaning of articles 5 and 6 of the latter Convention) distribution and use of the water resources by joint efforts.

20. The following is stated in article 5, paragraph 1, of the latter Convention:

*“Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse.”*

21. Article 6, paragraph 1, lists the main factors, which need to be considered in order to provide an equitable and reasonable use of watercourses:

- (a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
- (b) The social and economic needs of the watercourse States concerned;
- (c) The population dependent on the watercourse in each watercourse State;
- (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse States;
- (e) Existing and potential uses of the watercourse;
- (f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;
- (g) The availability of alternatives, of comparable value, to a particular planned or existing use.

22. In addition, paragraph 3 of the same article states:

*“The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.”*

The problems of rational use and fair distribution of the water resources are of global importance and concerns. However, the level of socio-economic development as well as the readiness to really implement the objectives laid down in corresponding international conventions and agreements differs a lot among riparian countries.

The problems of interstate distribution of the water resources have a specific value for countries with arid or semi-arid climate. History shows that solutions of such problems are made even more complicated by unfavourable socio-economic factors. Thus, the States in great need to satisfy their water demand have the least possibilities to do so without external assistance. Under such conditions, it is important to know how to formulate and present a good case about water demands and to implement a clear-cut State water policy, directed at saving water and regulating demands.

23. An analysis of replies by Governments regarding the priority of the items (a) to (g) listed in paragraph 21 shows that countries with water resources deficiency mark (according to their priority) the following items: b, ? and g. These are the items that are most difficult to quantify.

24. In this connection, the experience of mutually beneficial cooperation gained by some countries on the joint use of the water resources of transboundary waters seems particularly helpful. In this regard, we do not analyse the cases when States reached agreements on equitable use of water bodies; nowadays, a number of such agreements is operational with certain degree of success. It is more interesting to analyse cases whereby “damage” occurring on the territory of one Party (for instance, reduction of water level in a reservoir) is compensated by other means (for instance, power supply) by the other Party. Such a “win-win solution” means that both Parties are beneficiaries.

#### **A. Cooperation between Finland and the Russian Federation**

25. The long-standing relations between Finland and the Russian Federation are one of the vivid examples of long-term interstate cooperation on the protection and use of transboundary waters [9]. The first agreement on water issues was signed in 1947: it concerned the regulation of Lake Inari through the construction of the Niskakoski Dam. In 1964, a more fundamental agreement on transboundary water systems was signed with Finland; it covered economic and environmental aspects of water management, including regulation of water resources’ use, water protection, water transport, timber rafting and fishery. In 1966, the Joint Finnish-Russian Commission started to settle problems concerning the water regulation in the Saima Lake Vuoksa River system.

26. There are four hydropower stations on this river (two in Finland, and two in the Russian Federation). When dealing with critical for both Parties issues, some contradictions surfaced. For example, the reduction of the water level in the lake requires release of water, and, consequently, leads to a reduction of power production at the Russian hydropower stations. At the same time, at the Svetogorsk Hydropower Station (Russian Federation) the dam ridge was heightened, and this caused a reduction of power production at the Imatra Hydropower Station (Finland). The problem was settled through the 1972 Agreement Concerning the Production of Electric Power in the Part of the Vuoksa River Bounded by the Imatra and Svetogorsk Hydroelectric Stations that stipulated a compensation of power supply (19.9 million kW/hour) to the Finnish Party due to the heightened dam of the Svetogorsk Hydropower Station.

27. Later on, in order to minimize damage by floods and low water levels, the Commission developed and approved a new regulating regime based on the 1989 Agreement on the Rules of Regulating the Lake Saimaa and the Vuoksa River. Cooperation on water protection issues includes water-quality monitoring at 4 sites (Vuoksa, Seleznevka and Hiitola rivers and the Saimaa canal), construction of water treatment plants, implementation of low-waste technologies, and reduction in the discharge of pollutants from different industrial enterprises located on the rivers and lake banks. Thus, the experience gained over a long period of time by the Joint Finnish-Russian Commission has shown the efficiency of the

principles and approaches of the 1964 agreement. These are completely in line with principles and approaches of the 1992 UNECE Water Convention.

## **B. Cooperation between Egypt and Sudan**

28. The principle of observing the interests of the negotiating Parties was fundamental to the agreement of 8 November 1959 between Egypt and Sudan concerning the construction of a hydropower station on the Nile and its subsequent use for irrigation purposes. In accordance with this agreement, the Sudanese Government recognized the right of the Egyptian Government to construct a high-elevation dam and a hydropower station in the Aswan area. In turn, the Egyptian Government took the responsibility to observe interests and rights of Sudan on the Nile River and, in particular, agreed to the construction by Sudan of a reservoir on the Blue Nile in the Rosier area.

29. The agreement also determined quotas for water abstraction from the Aswan reservoir: 55.5 billion cubic meters per year for Egypt, and 18.5 billion cubic meters per year for Sudan. The Egyptian Government obliged to redeem the damage incurred to Sudan as a result of the dam construction and water reservoirs establishment in the amount of 15 million Egyptian pounds. A Permanent Technical Committee composed of representatives of both Parties was formed on 17 January 1960 to observe and control the implementation of the agreement.

## **C. Cooperation of nine African countries on the Nile basin**

30. The growing cooperation among nine African countries within the framework of the “Initiative on the Nile basin” (INB) is another example of successful cooperation. All basin States (except Eritrea that participates as an observer) took a decision to join efforts in order to solve problems of the joint and equitable use and protection of this big river, being fully aware of its role in securing the region’s sustainable development. Three task groups were established to reach these goals:

- A Ministerial Board as the supreme body to take decisions; this is composed of Ministers from the competent national ministries;
- A Technical Support Committee as a body to provide technical support to the Ministerial Board, e.g. by preparing and implementing decisions as well as developing and coordinating an action programme.
- A Secretariat as an body to provide efficient administrative and financial management for the Technical Support Committee and the Ministerial Board, and support the implementation of the agreed action programme.

31. The Strategic Action Programme adopted under the INB framework comprises two complementary programmes:

- A “Shared Vision Programme” as a set of measures aimed to create coordination mechanisms and favourable conditions for the implementation of joint approaches to water resources management; and
- “Subsidiary Action Programmes”, which set out specific measures for particular water bodies with due regard to benefits and effects of these measures on the other countries.

32. In these programmes, a wide spectrum of problems is covered: water-related problems (water supply and sewage, pollution control, efficiency of water resources use, irrigation and drainage, flood and drought control etc.), infrastructure development (power generation, transport, etc.), trade and industry development, fight against endemic diseases as well as environment and ecosystem protection.

33. The basin States’ awareness of the benefits of joining efforts, the demonstrated political will, the setting of clear-cut goals and the definition of a strategy permitted them to attract considerable funds from international financial organizations in order to solve problems.

Provided that there is good will of neighbouring countries, it is always possible to find mutually acceptable solutions concerning the water distribution in transboundary water bodies. If the watercourse countries proclaim and implement a clear-cut water policy, whose main principles are in line with contemporary international approaches, the search for international financial institutions that are willing to support the implementation of the preset measures is much easier.

New possibilities are available for the newly independent States to attract funds for the solution of sustainable water management problems. At the World Summit on Sustainable Development in Johannesburg, the European Union officially started a global Water Initiative: “Water for Life – Health, Well-being, Economic Development and Safety” (EU Water Initiative). The European Union Council approved this initiative; the European Commission and the 15 EU Member States politically support it. Now, the EU spends about 1.5 billion EUR per year for projects in the field of water resources management. In countries in Eastern Europe, the Caucasus and Central Asia, for which a specific component of the Water Initiative has been designed, EU Member States are willing to increase funding, in accordance with the component’s priorities.

34. The next sections of this document deal with certain mechanisms, which could help to specify and substantiate more precisely the needs of the countries, set up objectives and determine measures regarding the joint use of transboundary watercourses. This will help countries to substantiate the necessity of international support (financial, technical, expert assistance), activities oriented towards the rational use and protection of water resources, and the provision of all members of the population with access to drinking water of good quality.

## II. THE ROLE OF GOVERNMENT REGARDING SUSTAINABLE WATER USE

35. This section contains some main recommendations addressed first of all to developing countries and countries in transition.

The problem of water supply under the conditions of an increasing deficit of fresh water resources becomes more and more a political problem and requires political solutions. The recently used term “water governance” indeed points to such a State or political component of water resources management. Integrated water resources management can require considerable changes in the current relationship between policy, legislation, management systems, civil society and consumers, who are concurrently the electors. The Global Water Partnership (GWP) [10] devotes a lot of its efforts to the analysis of this problem.

The growing water crisis does not allow States to postpone achieving the aims of sustainable water use to the far-off future. In the current situation, economics and sustainable water use cannot be separated from each other. The most efficient way to guarantee sustainable water use is to include all necessary elements at the earliest stages of planning and development of relevant political concepts. As for developing countries and countries in transition, integrated water resources management and sustainable water use significantly depends on the availability of favourable external and internal conditions.

36. The Governments of many countries are under strong pressure due to water problems. It is important that these Governments are well aware that it is practically impossible to solve these problems on their own. Only considerable involvement of the public, non-governmental organizations and the private sector can lead to success. The synchronism and diversity of problems that face Governments forces them to ask for a vast variety of foreign experts to assist in the implementation of integrated water resources management. The contemporary worldwide concern about water problems considerable expands such possibilities.

37. The general conditions, under which the State policy in the water sector should be designed, can be characterized in the following way:

- *External conditions:* The State government system is based on a wide spectrum of political conditions, economic factors and cultural traditions. There are no and cannot be any unified managerial formula that could suit all diverse conditions. The role of Government mechanisms outside the water sector is also crucial for the management within water sector;
- *Partnership:* The role of Government in attracting and getting support from NGOs and the private sector to raise the awareness of water problems and their solutions is crucial;
- *Driving factors:* Development of water management system in developed countries is mostly determined by pressure of internal factors (economy, population, depletion of

resources, politics). Developing countries additionally experience external impact from the side of donors and international non-governmental organizations;

- *Systematisation*: Organizations, laws and managerial systems develop slowly but have to be adapted to quickly changing conditions;
- *Synchronism*: The high rate of economic and social changes and the rate of environmental changes threaten to exceed capacities of developing countries in terms of appropriate development of the legal and institutional basis;
- *Sustainability*: In contrast to conditions of earlier decades, the problems of development and sustainability have to be solved concurrently.

38. Still a question remains: how can water management combine the solution of water supply issues with the integrated nature of the water sector itself? To provide higher efficiency of management, it is necessary to create conditions that facilitate successful operations of both the public and private sectors. Therefore, it is necessary to secure the climate of confidence and mutual responsibility for the conditions of the water resources among the main stakeholders.

39. GWP relates the following to a number of necessary actions aimed to improve water management system [11]:

- (a) Strengthening the political will for overcoming obstacles to realizing the changes;
- (b) Adoption of integrated water resources management in practice;
- (c) Reforming the water management system;
- (d) Reconstruction of financial and economic mechanisms.

It is necessary to create an atmosphere of trust between stakeholders and politicians at the very different managerial levels. Moreover, a dialog at interstate, national and local levels is necessary to establish advanced water management system.

40. In full accordance with the general recommendations on the establishment of water management systems (for instance, decisions of the 6<sup>th</sup> session of the UN Commission on Sustainable Development), a considerable decentralization of management systems, while maintaining the decisive role of integrated water resources management, is also needed. The closer the managerial institutions are to a “management object”, the more responsible is the population, which directly uses a specific water body, the better is the feedback from them, and the more personalized are the decision makers’ responsibilities. At the same time, it is necessary to provide a clear distinction among functions and responsibilities of different levels of management. Special attention should be paid to local municipalities. It is this level, where there is maximum information about vital problems. It is necessary to attract non-traditional structures, such as local water users association, to water management, as well as to provide advanced training and to improve labour conditions in water sector.

41. The only way to efficiently implement water policy is to facilitate the establishment of a "water-oriented" civil society. The creation of a kind of non-governmental basin organizations will permit to secure control and support for governmental measures and policy, and will also simplify solution of disputable matters.

42. One more important aspect of efficient water management for developing countries and countries in transition is to attract other sectors of economy to raise their investment. The provision of sustainable water use increases reliability assessments of investments in the national economy as a whole.

43. Efficient water management must be based on the world's best experience, taking into account economic, social and cultural peculiarities of different countries, provided that there are a number of general rules.

### **III. TARGETS AND PRINCIPLES OF STATE WATER POLICY**

One of the key conditions to implement the tasks in the field of water resources use and protection, which were set for the new century by the world community, is the development and publishing of State water policy by each and every country, which is to be laid down in an appropriate document. This document, to be adopted after a thorough and wide discussion, should lay down the main objectives and principles of State activities in the vital area of use rehabilitation and protection of water bodies, and indicate the problems to be solved in future.

44. The utter importance of the above for the solution of global water problems was outlined in decisions of the sixth session of the UN Commission on Sustainable Development [12], where the States that had not yet done so were encouraged to develop, publish and implement State water policy.

45. Given an analysis of world's best practices, the most common goal of contemporary State nature-protection policy can be briefly formulated as: "securing a safe and valuable human habitat/environment while satisfying human needs". In doing so, the rights of either other States or future generations for having a valuable environment are not to be violated.

46. The core of nature-protection and water policies is to take care about mankind, its health and the maximum possible satisfaction of its demands (in full correspondence with the first principle of the Rio Declaration). Such an approach permits to change specific criteria of nature use, as knowledge of environmental impact on human beings becomes more extensive, and as the apprehension of a harmonic development of the human community becomes more perfect (and, consequently, as mass conscience is changed).

47. A human being preserves nature according to his/her ability to realize the danger of environment degradation. Depending on the set of issues under consideration and the level of development of public awareness, this also applies to a group of people (a family, an enterprise, municipality etc.), the State or the world community.

48. Realistic nature-protection measures can only be developed if a compromise between the following is found:

- (a) Public awareness of the necessity to limit impacts on the environment;
- (b) Willingness to cover associated additional expenses and/or to face some limitations;
- (c) Economic, organizational and technical capabilities.

The role of scientific institutions is to investigate processes and make forecasts; the role of NGOs is to inform the public, create motivation and help expressing public opinion; the role of politicians is to search for a compromise; while the role of a State is to lay down the reached compromise in form of regulatory or legal acts, which safeguard administrative and economic influence on nature users, and to establish an efficient organizational structure meant to solve the identified problems.

49. Based upon the above, it is possible to determine the objectives of State water policy [13] as follows: *The goal of the State water policy is achieving and maintaining the economically optimum and ecologically safe water use level.*

50. The State water policy should guarantee:

- (a) Access of all members of the population to safe drinking water according to hygienic requirements;
- (b) The present and next generations' rights to use ecologically safe water resources;
- (c) A balance between the economic development requirements and the possibilities for reproduction of ecologically safe water resources.

51. The achievement of the above set of goals is defined by the term "sustainable water use". Thus, sustainable water use is a strategic goal of the State water policy.

52. An analysis of the current situation permits to outline several main directions of implementation of water policy as follows:

- (a) Creation of conditions to satisfy the needs of all members of the population regarding safe water supply according to sanitary-hygienic norms (satisfaction of basic needs);

(b) Protection of the population and the economic complex against the harmful impact of floods, water erosion, drought etc.;

(c) Regulation of economic activities for reaching a balance between economic development requirements and possibilities for reproducing ecologically safe water resources;

(d) Stepwise rehabilitation of disturbed water ecosystems.

53. Three main problems to be solved to achieve the above goals are as follows:

(a) Inefficient expenses and water losses in economic activities, extensive water use;

(b) Pollution of water bodies by point and non-point sources in the catchment area;

(c) Inadequacy of the water sources' condition and drinking-water treatment technologies used; outdated water facilities.

An analysis of international experience and the current situation permits to formulate the following main principles of a State water policy:

- Basin planning and territorial administration of water activities;
- Continual and gradual reduction of harmful impacts on water bodies, water saving;
- Step-by-step transition to self-financing of the water sector;
- Openness and broad public participation in the processes of decision preparation and decision-making.

These principles provide the basis for mechanisms to achieve the set targets and develop an integrated action programme. In doing so, one complies with the Dublin principles and the principles of the Rio Declaration and uses integrated approaches to water resources management, whose scientific basis has been developed over the past decade.

54. A clearly formulated State water policy creates a stable basis to reach agreement on reasonable and equitable solutions of issues linked to the joint protection, use and rehabilitation of transboundary water bodies.

### III. BASIN PLANNING AND TERRITORIAL ADMINISTRATION OF WATER ACTIVITIES

#### A. General approach

The deep inter-dependence of the basin elements causes the need to consider a river basin as an integral management unit. The planning of water management activities should be performed for the basin as a whole, taking into consideration the consequences of all measures to be taken. However, the territorial area and diversity of geographic, economic and demographic conditions make such a management task difficult.

55. Riparian countries located within the same water basin have their own specific, sometimes conflicting, interests in the field of water resources use, and can have considerable differences concerning administrative, economic and regulatory/legal mechanisms of water management. The necessity of establishing water management system based on a rational combination of basin planning and territorial (on the territory of the corresponding State) administration is obvious.

56. In general, parts of water basins within the State territory are to be elements of the management system. The characteristics of the water body's condition at the inter-state boundary are the management parameters at the basin level. Thus, water body condition characteristics at the inter-state boundary and, possibly, at some other key monitoring sites are the object of inter-state planning.

57. The procedure of determination of these characteristics' list and an agreement on their control values is to be defined by a specially authorized joint inter-state body in the field of water resources use and protection. The negotiating Parties are to delegate appropriate powers to these joint bodies. Such bodies can be established on a sub-regional basis (for instance, EU WFD), on a basin level (e.g. the Rhine basin) or on a bilateral level (e.g. Russian Federation and Kazakhstan in respect of the Tobol, Irtysh, Ishym, and Ural rivers).

58. On the territory of States, appropriate authorities implement administrative tasks of water management. Administration includes all issues of interaction with water users, approval of plans and control over the implementation of all economic measures regarding the restoration and protection of water bodies, monitoring, creation of appropriate financial flows, agreement on other measures to be undertaken as well as reporting to interstate authorities.

59. The interaction of riparian States regarding the rational use and protection of transboundary water bodies is done on the basis of bilateral and multilateral agreements. These agreements are based on approved, at the interstate (regional, basin, or bilateral) level, objectives of the water bodies' conditions and target dates of their attainment. Usually, the main points to control the water bodies' conditions are boundary monitoring sites. All agreements are to be concluded voluntarily, being aware of mutual interests and mutual

beneficially cooperation of neighbouring countries in transboundary water management aimed at sustainable reproduction of ecologically safe water resources.

60. It is obvious that the participation of all States located on the catchment area is necessary to achieve the best results in the management of the basin's water resources.

61. While at the global (Rio Declaration) and at the sub-regional (EU WFD) levels the States agree about general goals and principles of water management for a longer period of time (15 years and more), the agreements at the inter-state (basin) level usually fix concrete goals, interaction procedures, programme of measure etc.

62. The next section gives some general proposals on the preparation and conclusion of agreements on water sharing in basins that experience water stress.

## **B. Objective of basin agreements**

63. A basin agreement is to be concluded in accordance with article 9 of the 1992 UNECE Water Convention and its purpose is to lay down in a legal format the Parties' joint and voluntary efforts to cooperate and coordinate activities regarding the restoration and protection of transboundary water bodies in order to reach a balance between economic development needs and the reproduction of the ecologically safe water resources, while satisfying basic human needs in the first instance.

64. A basin agreement is concluded between the executive power entities of the neighbouring countries through specially authorized personnel for water use and protection. When the States are participants of the 1992 UNECE Water Convention or any other similar regional or sub-regional inter-state agreements, the executive bodies of these agreement can participate in such a basin agreement.

65. A basin agreement is an interstate regulatory/legal act containing mutual obligations of the Parties in the field of water use and protection. An agreement between Parties is to be concluded on the principles of good will and parity. Mutually beneficial cooperation of the Parties is a prerequisite for conclusion of such agreements.

66. The aim of a basin agreement is to establish provision of a regulatory character regarding water-protection and water-economy activities. An agreement is to become a system, which forms the basis for a whole package of regulatory/legal documents that safeguard the implementation of water-protective and water-economic activities in river basins.

67. Within the framework of the agreement, a systematic solution of the following issues is stipulated [14]:

(a) Protection of water bodies against inputs of pollutants, prevention of pollution transfer, and restoration of water bodies to the best possible status (chemical, ecological etc., see [8]);

(b) Securing prevention and compensation of any harm done to environment, economic entities, property, life and health of citizens in the case of ecological disasters in water bodies;

(c) Joint development and implementation of targeted action programmes for water bodies' protection and water resources' rational use;

(d) Establishment and maintenance of water bodies' monitoring systems, control over water quality and quantity at boundary monitoring sites and exchange of monitoring data according to given procedures.

68. A coordination body (joint body, basin board) is to be established under the basin's agreement. The status of the basin board is to be approved by the Governments of the Parties with participation of the executive bodies of the relevant regional agreement. The participation of representatives of the executive power, municipalities, non-governmental organizations and water users is to be regulated by the status of the basin board.

### **C. Procedure of the basin agreement's preparation**

69. One or more of the negotiating countries, executive bodies of regional agreements, representatives of non-governmental organizations and water users associations can initiate the conclusion of a basin agreement. One of the countries is to take an obligation concerning the organization of the first meeting of the Parties.

70. At the first meeting, authorized representatives of the countries are to define objectives and targets of the basin agreement, identify the main directions of activities, approve the composition of a working group on the preparation of the draft basin agreement, and development basic and accompanying materials.

71. The preparation of the basin agreement includes the development of basic and accompanying materials (Annex I). The approach to compile these documents, the scope of information needed, and the procedures of inclusion various items into the agreement can vary and depend on specific features of the basin and the character of the agreement (bilateral or multilateral).

72. Generally, the basic documents include information on current and target conditions of the water body, on water division at the boundary monitoring sites, on reservoirs' operational regimes, on main water users and standing regulations, which establish the norms of their activities and the like in dependence on the agreement's type and character.

73. "Accompanying documentation" is aimed at securing high-quality operation of the basin board. The composition of these documents greatly depends on the composition and professional background of the board members, objectives of the agreement and the amount of available knowledge about the water basin.

74. In the process of the agreement's implementation, basic and accompanying documents can be updated in accordance with changes of the regulatory/legal base and water/economic situations in the water basin.

#### **D. Draft basin agreement**

75. Basin agreements can have the form of a general basin agreement, i.e. an agreement between all States located within the given basin, or of a bilateral or multilateral agreement on specific problems of water management activities.

76. The Parties are free to choose any particular type of agreement to regulate their relations. The Parties are also free to determine the agreement's conditions provided that they do not interfere with other (for instance, regional) agreements, do not lead to the deterioration of the water bodies' conditions and public water supply, and do not affect interests of third parties that do not participate in the said agreements.

77. When concluding basin agreements, the Parties are to be guided by the provisions contained in article 2, paragraph 5, of the 1992 UNECE Water Convention and articles 5 and 6 of 1997 UN Convention. An example illustrating the structure of a basin agreement [15] is given in Annex II.

78. The existence of a multilateral basin agreement does not exclude the conclusion of additional non-contradicting bilateral agreements directed towards the solution of concrete problems within a concrete span of time.

#### **E. Procedure of the conclusion of basin agreements**

79. A basin agreement is to be concluded after preliminary discussion and consideration of the draft agreement by the Parties.

80. A basin agreement is to be signed by authorized representatives of the participating Governments. If there is an agreement (Convention or the like) of a "higher level" (the 1992 UNECE Water Convention, for instance), it is expedient to attract representatives of the executive body of the latter agreement to the basin agreement's signing procedure.

81. The terms of the basin agreement is to be determined by the Parties depending on the time period needed to achieve the agreement's objectives. Agreements with unlimited terms

of action are possible; they can have regularly (for instance, once in five years) updated annexes that can specify targets and activities of the Parties for the next period of time

82. The agreement is to be ratified by the respective executive power entities (e.g. Parliaments), where applicable. The agreement comes into force after signing and ratification by all the Parties.

#### **F. Implementation of basin agreement**

83. The basin board acts as the agreement's coordinating body, at least once a year it approves the budget (where applicable, see below), plans and reports on the work done, and adapts, if necessary, the accompanying documents.

84. It is useful to establish an executive body for the agreement - a Basin Agency (the term has already been adopted as best practice) - to organize current activities concerning the agreement (preparation of basic and accompanying documents, organization of work, control over their execution etc.). The basin agency's composition, budget (where applicable, see below), and operational plans and reports are to be approved by the basin board.

85. In accordance with voluntarily taken obligations, the participating countries implement all measures stipulated by the agreement. The Parties can delegate part of their authority and obligations, upon agreement with the Basin Board, to the Basin Agency (with appropriate funding).

86. Funding of the measures on the implementation of the agreement can be done in any form agreed by the Parties.

87. The Basin Agency has the right, upon agreement with the Basin board, to attract additional financial resources for the realization of the action plan to implement the agreement.

88. Provided this is stipulated by the agreement, any Party inflicting damage to another Party due to infringement of the agreement's terms and conditions is to pay compensation in amounts and forms determined by the agreement.

89. Representatives of municipalities, non-governmental organizations and industrial water users are to be involved into the development of the basin agreement's implementation plans. Both the basin agreements and measures to be planned and realized in the basin should be timely opened and should be accessible to the public. The river basin's population should be aware of the fact that safety and health of every family depends on the successful fulfilment of the basin agreement.

90. The introduction of an integrated basin information system including relevant data bases and mathematical models to secure planning, operative control and support of managerial decisions facilitate the successful realization of the agreement's goals within the basin territory.

91. The basin agreement, among other things, should included procedures regarding the settlement of disputes.

#### **IV. CONTINUAL AND GRADUAL REDUCTION OF HARMFUL IMPACT ON WATER BODIES**

92. The main feature in the development of regulations in the field of water use is the gradual transition from a permit system that allows the emission of a fixed amount of pollutants (which is regarded as being "safe") to a system that ensures a continual and gradual reduction of harmful impacts on water bodies by using best available technologies (BAT). Such an approach completely corresponds to the Rio Declaration as well as articles 2 and 3 of the 1992 UNECE Water Convention.

93. The possibilities to implement such an approach are limited by the country's technical, economic and social potentials. It is obvious that such limits are especially "tight" in countries with unstable economies.

##### **A. Long-term water body status objectives<sup>1/</sup>**

Upon the adoption of the Water Framework Directive, EU countries have passed to a system to manage their national and transboundary water bodies, which most completely corresponds to the principle of a continual reduction of harmful impacts on water bodies.

The model of developing the national water policy and the interaction with the use, rehabilitation and protection of transboundary water bodies, as defined by the Directive, can rightfully be considered as "the standard" and be recommended for a stepwise introduction by all Parties to the Convention and other States.

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<sup>1/</sup> The introduced term «water body status objectives» is a further development of the terminological base of the 1992 UNECE Water Convention. The term «water quality objective» used in this Convention was further developed in the EU WFD. Such terms as «surface/groundwater status», «ecological status», «chemical status» and «environmental objectives» are used there. There, the water body total status is determined by the worst ecological and chemical estimations. At the same time, characteristics of ecological status include also hydromorphological, hydrological, chemical and ecological features. Besides, not all the planned objectives have an ecological meaning. For instance, such an important characteristic as water flow at a transboundary cross-section can be defined not only by ecological but also by social-economic demands. As the goal of water protective activities is expressed in terms of water body status improvement, the term «water body status objectives» is considered to be a more precise definition.

94. In general, the algorithm of interaction between the basin countries within the framework of this Directive can be presented as the following sequence of actions:

- Survey of the water basin
  - To carry out the necessary and agreed by the Parties survey of the transboundary water body in order to determine hydromorphological, hydrological, hydrochemical, and hydrobiological characteristics of its status; make an inventory of diffuse and point sources of pollution, and define the degree of surface water and groundwater interconnection; etc;
  - To characterize the basin's water bodies (rivers, lakes, artificial, highly modified water bodies; etc.), and to identify water bodies (or their parts) suitable for drinking water supply;
  - To identify physical/geographical regions (e.g. ecoregions, as used in the EU WFD), which are "uniform" in terms of runoff formation and water quality in natural (undisturbed) state.
- Determination of long-term water body status objectives
  - On the basis of the outcome of the survey, a list of status parameters, which are subject to control, for each water body type is to be completed;
  - The current values of these parameters are to be fixed;
  - Target values of these parameters are to be determined for each water body type; they are to form, after all, the subject-matter of the basin agreement (for natural water bodies these values are close to background level);
  - Target dates for achieving the objectives are to be set on the basis of general engineering/economic analysis.
- Determination of monitoring, reporting and dispute settlement procedures
- Agreement of the action programme
- Implementation, interim analysis of achievements, updating of the programmes

95. The above describes the general scheme of establishing the long-term water body status objectives (LSO). This scheme is mostly oriented to attaining the best possible ecological status of water bodies [7].

96. A high level of economic development, advanced institutions of civil society, high living standards of citizens and ecology-friendly public conscience guarantee good prospects for the successful realization of EU WFD goals. One more favourable factor is the existence of internationally empowered bodies that provide a good coordination of activities and organize the necessary financial flows.

For the newly independent States, for other countries in transition and developing countries it is recommended to adopt the above approach of setting long-term cooperation objectives regarding the use and protection of transboundary water bodies. The time period needed to achieve these objectives is expected to be longer. This is why special attention should be given to the algorithm, described above, regarding the establishment and achievement of the long-term water bodies' status objectives

It is proposed to agree on a stepwise approach and set short-term (3-5-years) status objectives and measures aimed at their achievements.

97. The next sub-section gives a general algorithm for establishing short-term water bodies' status objectives (SSO).

#### **B. Short-term water body status objectives**

98. Short-term status objectives and a programme on how to achieve them are to be developed on the territory of each country that is a Party to the Basin Agreement.

99. Upon establishment of the long-term status objectives, it is necessary to divide the whole water body basin within the State boundaries into design-regions. Boundaries of the design-regions are defined by the uniformity of the water body, and management system and goals, namely:

- (a) By the State boundaries;
- (b) By administrative boundaries;
- (c) By ecoregions' boundaries;
- (d) By boundaries of water management areas (for instance, water reservoirs, major water intakes and human settlements, predominating type of water use etc.).

100. Within the design-region, the water body's current state is to be carefully assessed, point and diffuse pollution sources are to be put into the inventory and complemented, where applicable, with an analysis of the main production technology and waste-water treatment facilities. Further on, an analysis of the corresponding "best available technologies (BAT)" of the main production and waste-water treatment processes should be undertaken together with an assessment of the technical and socio-economic aspects of their application in the region. An evaluation of the economic feasibility is to be done on the basis of a comparison of necessary expenses with available financial resources.

It is essential to accompany the process of determining the short-term status objectives and the necessary expenses with negotiations with all stakeholders, first of all, with water users as well as public awareness raising. Only a deep perception of common interests and the understanding of the necessity to implement the short-term status objectives programme can guarantee the achievement of the established tasks.

101. An economically feasible technological scheme that could improve the water body's status is to be determined on the basis of the above-described investigations and negotiations. In the process, all forecasts and plans of social/economic development on the catchment territory within the limits of the design-region should be taken into consideration. The time necessary to implement the set of measures and the expected values of the short-term status objectives are to be calculated.

102. Calculations of the short-term status objectives are to be performed within the water body's basin for all design-regions from the river's source to the estuary. The State Basin Body should coordinate these activities and agree on short-term status objectives. The same body could deal with the redistribution of funds allocated for measures to achieve the short-term status objectives in the design-regions, if necessary.

103. The establishment of short-term status objectives on boundary (interstate) cross-sections are subject to agreement by the interstate basin body (Basin Board). If the SSO proposed by a country do not, for some reasons, satisfy the basin body, additional expertise in the field of engineering and economy has to be sought. The impossibility of improving the SSO proposed by a country is the reason for the search for additional funding to be allocated for appropriate water-protection measures.

104. After achieving the SSO or upon termination of the planned term, the above-described procedure is to be repeated.

105. Such a method of establishing water bodies' status objectives gives an economically feasible platform for the implementation of the policy directed towards a continual and gradual reduction of harmful impacts on water bodies and does not contradict with the general principles of the 1992 UNECE Water Convention and the EU WFD.

A step-by-step careful assessment of the engineering and economic feasibility and social consequences will permit to avoid the setting of unrealistic status objectives and secure, probably a slow, but coherent process of improving the water body's status. On the other hand, the proposed approach will permit to prove the necessity of additional funding, if the calculated terms and SSO values do not satisfy the partners to the basin agreement or other relevant international institutions. This is of particular importance for developing countries and countries in transition.

106. An updating of the national regulatory/legal and organizational/economic basis of water use might be needed to implement the proposed approaches. The calculation of water users payments in dependence on the agreed cost of achieving the SSO measures at a concrete water body (design region) will be the best financial base for the implementation of the water body status objective's "ideology".

## VI. WATER SAVING

One of the key elements of contemporary water policy is the reduction of specific water consumption in industry, agriculture and households due to an increase of water resources use efficiency. Best practice demonstrates that an active stimulation of water users to water saving results in a considerable decrease of negative impact upon natural water bodies.

Water saving as an integral component of integrated water resources management at the national level could require complex research and measures to improve regulatory/legal and economic mechanisms, upgrading of the management system, restructuring of tariffs, as well as changes in social aspects. In this process, public awareness, participation and education are of key importance; they do not only lead to a more careful attitude to water of every individual, but also to general understanding and support of the State water policy and concrete water management projects.

107. An analysis of experience in the development and realization of water saving programmes permits to come to several main conclusions [15]:

- (a) An essential part of water consumption decrease results from rising requirements regarding water-distribution fittings;
- (b) Measures on water consumption reduction, which aim to lower peak values are the most economically effective;
- (c) A 10-20 % reduction of water demand for a period of 20-30 years is quite realistic and self-paying.

108. The summary of positive experience permits to formulate the following general recommendations (see boxes below).

**Water saving policy**

- To make water saving an integral part of water policy.
- To consolidate cooperation of water services:
  - promote the establishment of regional, national and regional association;
  - facilitate the development of a data base "The best practice of water saving" and secure an access of all interested persons to this data base.
- To implement the agreed strategy of water saving through programmes of water saving and rational use of water resources:
  - include water saving plans into mandatory documents, which are necessary for issuing permits for water use, and into documents, which are drawn up to prove the necessity of an increase in water abstraction;
  - develop general recommendations regarding the drawing up of water saving plans.
- To set "unified" State requirements regarding rational water use:
  - to require the installation of water saving plumbing equipment in the process of construction and restoration of housing on the basis of appropriate regulatory/legal documents;
  - to forbid the use of wasteful water technologies in industry and agriculture.
- To develop national programmes of public awareness and participation, and to include relevant courses into the general educational process.
- To render technical assistance to water saving activities:
  - fund research on rising water use efficiency;
  - widely disseminate requirements to, and possibilities of, water saving technologies, including use of internet;
  - to conduct workshops and presentations devoted to water saving at professional events in various branches.

**Planning of water saving measures**

- To use a targeted programme approach:
  - assess how water saving technologies could decrease water consumption, and what are potential economic and other benefits;
  - determine suitable national or regional targets in respect of reduction of water consumption;
  - assess ecological and other non-economic benefits of attaining the above targets;
  - outline concrete projects on capacity building or the like that could be replaced or shortened if a sufficient level of water saving is reached. In other words, consider water saving as an additional source of water supply.
- To mark the most appropriate measure on water saving:
  - use the best experience;
  - pay special attention to decrease leakage from distribution networks;
  - develop payment system that promote water saving;
  - develop measures on water demand regulation for each essential type of consumers;
  - pay special attention to measures directed to a decrease of daily peak loads;
  - consider measures to increase water use efficiency in domestic appliances.
- To make assessments of economic efficiency of various water saving technologies:
  - special attention is to be paid to facilities and equipment with a 10-20 years service life. It is possible to get a remarkable reduction of capital investments due to water saving over the time period like that. At the same time, such a prospect of getting benefit is not too long-term;
  - calculate benefits due to a decrease of costs for water and waste water treatment services;
  - calculate benefits resulting from a reduction of impacts on the environment.

**VII. ECONOMIC MECHANISMS**

109. Charging for water is commonly recognized as the most effective tool of the rational use and full reproduction of water resources. A step-by-step transition to coverage of all corresponding expenses, through water users' payments, is the most reliable basis for the implementation of a sustainable water use policy. Of course, during a transition period, the attraction of additional financial resources for the implementation of essential or urgent measures cannot be excluded.

110. While having a social value, as the vital prerequisite of human existence, water is still recognized to be an economic good. Water cost results from its value as extracted natural resource (taking into account the potential benefit) and expenses necessary for the goal-oriented reproduction and redistribution of water resources.

111. In general, water users payment should form financial funds, from which money is allocated to implement the “water body status objectives attainment programmes” (see chapter V). These funds, if necessary, can be replenished from other sources, such as voluntary donations, loans and insurance allocations.

The amount of the payment should stimulate rational water use; and payments should be oriented to prevent pollution rather than to compensate for pollution.

112. The setting of a realistic amount of payment is only possible on the basis of economic assessments of the water resources. The main purpose of such an assessment is to give to the resource owner an adequate impression of the property value and the factors that affect the change of this value. A complete economic assessment should become the basis for establishing economic mechanisms of water use management both at the basin level (preparation of plans and programmes for the deployment of the production potential, schemes of integrated use and protection of water bodies, rising of awareness in respect of the value of water bodies, etc.) and at the level of regional economic processes (water use tariffs system, regional plans and programmes regarding the restoration, protection and rational use of water bodies, licensing of water use, etc.).

113. The goals of an economic assessment are the following:

- (a) Optimisation of expenses for the development, use and reproduction of water-resources as an integral system formed by interconnected components;
- (b) Assessment of water use efficiency both at the branch level and at the national economy level;
- (c) Reflection of water-resources value in national accounts;
- (d) Measurement of the losses caused by termination of water-resources use or its quality deterioration due to a water body degradation;
- (e) Creation of material and financial prerequisites for water-resources reproduction;
- (f) Securing the necessary relations between different kinds of water body uses, rational territory deployment of economic and social facilities, protected natural areas, and prioritising in water-resources development;
- (g) Stimulation of the rational water use.

The use of economic assessments of water-resources as an economic tool in the preparation of basic documents for agreements on the joint use and protection of transboundary water bodies will rise the validity of decisions and will accelerate the decision making process.

### **VIII. PUBLIC AND WATER USERS INVOLVEMENT INTO THE DECISION PREPARATION AND DECISION MAKING PROCESS**

114. Any actions in the vital sphere of the use, rehabilitation and protection of water bodies should be taken gradually and should be accompanied by a comprehensive socio-economic analysis. Public opinion should be formed in a goal-oriented and professional way. Without understanding of the necessity and inevitability of reforms by the active members of the population one cannot expect any long-term success.

115. Executive power agencies at all levels must have an absolutely open position: complete access to information on the condition of water bodies, drinking-water quality, safety of water supply and sewage systems, tariffs setting, expenses' structure, results of inspections and audits of water companies, etc.

Authorities should sincerely explain to the population all problems and dangers and should reaffirm their willingness and capability to find a way out of the water crisis in the best (most efficient, least expensive etc.) way. However, it should also be explained that at least some portion of expenses associated with the improvement of the situation would be added to the burden of the population. There is no other possible way. It should be emphasized that social protection should not be understood as a practically free-of-charge provision of "bad and dangerous for health" services on water supply and sewage, which would also be associated with the degradation of rivers and lakes. It means the provision to everyone of worthy services for a realistic price that could be paid by the majority of the population, and support of unprivileged and those who need protection, with preservation of the natural resources for the future generations.

116. To implement the main principle of this chapter it is necessary to secure:

- (a) Accessibility of data on the conditions of water bodies and water facilities, as well as on drinking water quality;
- (b) Transparency of tariffs determination, funds accumulation and spending procedures;
- (c) Possibility to participate in the preparation of action plans and in the control over the results of their implementation;

- (d) Competition-based conclusion of contracts for works to implement the approved plans of measures;
- (e) Development of appropriate general educational and special educational programmes.

117. Within the framework of the 1992 UNECE Convention, recommendations regarding public participation in water management were drawn up [16].

## **IX. CONCLUSIONS**

118. The principles, approaches and recommendations, developed in this document, aim to contribute to the development of a common strategy to implement relevant provisions of the 1992 UNECE Water Convention, to facilitate the process of getting the Parties' positions closer, and develop common approaches to resolve tasks linked to the rational use, rehabilitation and protection of transboundary watercourses.

119. The choice of the main topics dealt with in this document was made to respond, first of all, to the needs of the newly independent States, other countries in transition and developing countries.

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Note: UNECE documents can be downloaded from the Water Convention's web site at [www.unece.org/env/water](http://www.unece.org/env/water)

### **Annex I**

#### **GENERAL COMPOSITION OF BASIC AND ACCOMPANYING DOCUMENTS FOR A BASIN AGREEMENT**

1) Documents reflecting organizational/economic mechanisms of the agreement's implementation:

- Regulations on the Basin Board and executive body of the Basin Agreement (where applicable).
- Procedures of organization and funding of joint activities.
- Procedures of routine control and information exchange, as well as emergency warning.
- Agreement on responses to emergency situations.
- Regulations on compliance of the Parties with the provisions of the Basin Agreement.
- Regulations on economic liabilities of the Parties for failure to fulfil the provisions of the Agreement (where applicable).
- Procedures of dispute settlements.
- General principles of raising public and water users awareness and involvement in the processes of decision preparation and decision-making.

2) Methodological documents that enable a common approach to implement the established tasks.

- Methods of development of the targeted basin programme and determination of priorities of its implementation,
- Methods of calculation of undisturbed (ecological) flow at the boundary sites.
- Methods of assessment of the conditions of the water body and determination of long-term and short-term water body status objectives.
- Methods of determination of, and compensation for the, damage caused by the downstream transfer of pollutants.

3) Documents showing the current conditions of water sources, water use, water-protective measures and monitoring networks in the basin, as well as related objectives and requirements as defined by the Basin Agreement:

- Assessment of water management situation in the river basin; ecological problems of the river basin.
- Schematic map of the river basin with marked monitoring sites (including transboundary monitoring sites) as well as results of ecological and water-management zoning.
- List of boundary monitoring sites and sites, which are used for the calculation and assessments in the basin.

- Detail description of joint boundary monitoring sites.
- Distribution of the river basin water resources at the boundary sites.
- Agreement on the undisturbed (ecological) flow at the transboundary sites.
- Agreement on water balances at the transboundary sites.
- Agreement on the use regime of reservoirs in the basins.
- Agreement on flood management and control of adverse flood impacts.
- Agreement on the distribution of transboundary runoff during periods of water deficiency.
- Map of surface water and groundwater interaction, data on groundwater abstractions, which adversely affect surface runoff.
- List of long-term water body status objectives.
- Basin programme on the rational use, rehabilitation and protection of water resources.
- Plan of regulatory, legal, organizational, and technical measures to protect and manage the water resources, to manage water use.

## **Annex II**

### **STRUCTURE OF A MODEL BASIN AGREEMENT**

#### ***Preamble***

Main issues, which provide the basis and legal foundation for the conclusion of the agreement, are to be reflected

#### ***Article 1. Objectives of the agreement***

Objectives and targets of the Agreement are to be given.

#### ***Article 2. Scope of the Basin Agreement***

The river basin covered by the Agreement is to be defined.

#### ***Article 3. The subject matter of the Agreement***

A list of issues to be regulated by the Agreement is to be given.

#### ***Article 4. Responsibilities of the Parties***

The Parties' mutual obligations in respect of water-protective and water-management activities are to be given

#### ***Article 5. Main directions of cooperation***

Mutual obligations of the Parties regarding the monitoring of water bodies at boundary sites, long-term and short-term water bodies status objectives, undisturbed (ecological) flow at the boundary sites, volume and regime of transboundary runoff, high water and flood passage regimes, basin reservoirs' use regime, agreed limits of water use and maximum permissible amounts of harmful impact on the water bodies etc. are to be given.

#### ***Article 6. Coordination body of the Basin Agreement***

Main provisions on the composition, structure, functions and operative procedures of the Basin Board are to be given.

#### ***Article 7. Economic mechanism to implement the Basin Agreement***

The economic mechanisms to implement the Agreement or principles of its development as approved by the Parties are to be defined.

***Article 8. Organizational mechanism to implement the Basin Agreement***

Organizational structure adopted by the Parties for the implementation of the planned measures is to be defined.

***Article 9. Procedure of dispute settlement***

The procedure of settling disputes and conflicts that can arise between the Parties in connection with the subject matter of the Agreement is to be given.

***Article 10. Compliance with the Agreement***

The procedure of the Parties' interaction concerning the checking of compliance with the Agreement and its implementation is to be defined.

***Article 11. Term of the Agreement's validity and the withdrawal procedure***

Terms of the Agreement's validity or its unlimited duration are to be stated, as well as the withdrawal procedure for any of the Parties to the Agreement.

***Article 12. Joining the Agreement***

Conditions and the procedure of joining the Agreement are to be stated.

***Article 13. Entry into force of the Agreement***

The date on which the Agreement comes in force is to be defined.