



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

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**Recommendations**  
**on issues of interstate distribution of water resources**  
**of transboundary watercourses and their rational use**  
**with due regard for water quality aspects**

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**of international rivers”**  
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## ABSTRACT

According to the Work plan for the period of 2000-2003, MP.WAT/2000/11, adopted by the Second meeting (The Hague, the Netherlands, March 2000) of the parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the Russian Federation as the Lead Party took obligations on executing of the Plan Item 2.6 "Interstate distribution and rational use of transboundary rivers water resources in water-deficient regions". In the framework of these obligations a workshop is to be held in order to discuss legal/regulatory, administrative, economic and technical aspects of water rational use, and to develop recommendations on rational and just use of transboundary water bodies. These recommendations are to be oriented to water-deficient countries subjected to other unfavorable social/economic

The proposed draft Recommendations on issues of interstate distribution of water resources of transboundary watercourses and their rational use with due regard for water quality aspects give some general recommendations on implementation of the Convention principal objectives. They are based on the analysis of world best practice and recent decade achievements of water science on the route of sustainable water use. The recommendations are addressed, first of all, to water-deficient countries, developing countries and countries in transition.

The draft recommendations have been developed at the Russian Research Institute for Integrated Water Management and Protection (RosNIIVKh) by the commission of the Ministry of natural Resources of the Russian Federation.

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## Introduction

Being aware of the necessity of unifying the efforts aimed at prevention of the planet water resources depletion, of securing the main vital demands of all population spectra, and just distribution of water resources, international community over the past decades developed a number of essential documents meant to determine general principles of water resources use, rehabilitation and protection, as well as principal rules of relations between riparian countries concerning joint use of transboundary water bodies.

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

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment;
- Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels;
- Water has an economic value in all its competing uses and should be recognized as an economic good.

These principles were further developed in Chapter 18, Agenda for XXI Century [1], adopted in Rio-de-Janeiro at the second (1994) and the sixth (1998) sessions of the UN Commission on Sustainable Development (CSD) and at special session of the UN General Assembly in 1997. An appeal to unify efforts to develop integrated approaches to water resources management and to pay more attention to demands of the poorer segments of population and poverty-stricken countries was voiced at all these forums. Measures on ecosystems protection and securing of wider participation of all population groups in water management were mentioned as specific priorities. Among tasks set for the period up to 2015 in the United Nations Declaration of Millennium, Item 19, the following is proclaimed:

*We resolve further to halve, by the year 2015...the proportion of people who are unable to reach or to afford safe drinking water.*

Thus, development of efficient policy in the sphere of water management and water supply is being fixed as one of the principle priorities for the world community.

Over the years past after the Rio Conference, active efforts were taken in this direction within the frameworks of UN Commission on Sustainable Development. Concurrently a number of other important actions was taken, the most important of them were the following: preparation of the World Water Resources Prospects, commenced at the World Water Forum in the Hague in

March, 2000, and proclamation of the Ministerial Declaration on Water Resources Safety in XXI Century, adopted by the countries representatives at the concurrently held Ministerial Conference in the Hague. The above Declaration identified seven problems facing the world community; solution of them should require concentrated efforts of the states. Four of them are of particular importance for the topic of these Recommendations:

- *Protecting ecosystems:* to ensure the integrity of ecosystems through sustainable water resources management.
- *Sharing water resources:* to promote peaceful co-operation 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.

International community and individual governments are to realize main principles and recommendations developed over the past decade with taking into consideration specific conditions and capabilities of every state.

In parallel with development of water policy main principles all states, being aware of the necessity to coordinate efforts, took concrete measures to develop co-operation in the sphere of joint water resources use, rehabilitation and protection. In this process both documents having international legal status and bi- and multi-lateral agreements on particular river basins and regions were worked out.

The Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes [2] (further on referred to as Convention-92) acting within framework of the UN Economic Commission for Europe was signed in 1992 and came in force in 1996. Today 34 states ratified and/or signed Convention-92 (there is also a collective ratification on behalf of EU).

"Protocol on Water and Health" [3] to the above Convention was issued in 1999. This is a good tool facilitating unification of efforts aimed at " 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". By now 36 states have signed the Protocol.

Within the framework of the same process the UN Convention on the Law of the Non-Navigational Uses of International Watercourses [4] was signed in 1997 in New York. Many countries of Europe, North and South America, Asia and Africa have already signed this Convention.

Correlation between these two conventions is being determined by legal experts [5] as mutual supplementation. The given conventions define general principles and factors of equitable and reasonable utilization and distribution of transboundary water resources, interaction obligations and procedures concerning transboundary watercourses use, rehabilitation and protection that the states volunteered to be bound with. This is extremely important both for prevention of global water crisis and for solution of tasks related to preservation of specific water basins. The Conventions is a framework in accordance with their purpose.

Detailed elaboration of the whole set of objectives and mechanisms of their attainment is necessary to secure actual co-operation of the states. To this end work groups on a number of key directions of the conventions implementations, (namely: legal and administrative aspects, water resources management, monitoring and assessment, water and health) were established at the second meeting of the Parties to Convention-92 [6]. As the working groups have issued a number of documents and continue their activities, correspondent directions are not reflected in these Recommendations.

A prerequisite of the negotiating parties interaction is, beside the Convention itself, clear state water policy of each of the riparian countries.

EU Water Framework Directive (EU WFD) [7] signed in 2000 can serve an illustrative example. It defines in details requirements to member-states water policy, identifies concrete targets and mechanisms of their attainment. Even the first steps in implementation of the Directive permit to refer it to examples of the best world practice. However, not all the parties to Convention-92 are on the similar level of social/economic development, or on the same level of readiness to real implementation of targets set by Convention-92.

The proposed draft Recommendations on the basis of world experience summary and the past decade scientific researches outcome touches on key mechanisms of equitable and reasonable

use of transboundary water bodies, oriented, first of all, to water-deficient countries and countries under other physical and socio-economic constraints, in full agreement with decisions of the April, 2002 conference of the Parties to the Convention-92 [8].

Main terms and definitions used in the Recommendations are in accordance with Article 1, Convention -92.

### **1. Special problems in interstate distribution and use of water resources in the countries influenced by unfavorable factors**

Due to diversity of specific physiographic and socio-economic conditions and historical factors there is no opportunity to provide general technical recommendations on deciding upon the shares of each State. The only recommendation, included into Convention-92 and Convention-97 is to reach fair and reasonable (in the meaning of Clauses 5, 6 of Convention-97) distribution and use of the water resources by joint efforts. As following stated in the paragraph 1, Article 5 of Convention -97:

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.

In the paragraph 1, Article 6 the main factors are listed, which need to be considered in order to provide fair 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.

According to paragraph 3 of the same Article:

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 the rational use and fair distribution of the water resources are of global importance. Nevertheless the level of socio-economic development as well as readiness level in order to accomplish the objectives in real life, fixed in corresponding international conventions and agreements differs a lot.

The problems of interstate distribution of the water resources have a specific value for the countries with arid or semi-arid climate. It has been settled historically that such a problem is often being redoubled by unfavorable socio-economic factors. Thus the states in great need of water demand satisfying has the least possibilities to do it without external assistant. In such conditions it is important to know how to present a serious argue about demands, to realize a clear state water policy, directed at water savings and demand regulation.

State's opinion analysis on priority of factors stated above allows to make a conclusion that water resources deficiency countries, mark (according to the priority) the following factors: b, c and g. These are the factors that are most difficult to quantitative assess.

The next sections of the Recommendations are devoted to the certain mechanisms, which use could help to provide more precise determination and argue of States' demands, to set up the objectives and decide on the activities concerning joint use of transboundary watercourses. Use of these recommendations will allow to substantiate the necessity of international support (financial, technical, expert), activities oriented on rational use and protection of water resources, provide all layers of the population with an access to drinking water of good quality.

## **2. The role of government in sustainable water use maintenance**

The problem of water supply under the conditions of increasing fresh water resources deficit becomes more and more political problem and it requires political solutions. Recently spread term "water governance" means this state/political component of water resources management problems. Integrated water management can require considerable changes in the current relationship between policy, legislation, management system, civil society and a consumer who is concurrently a voter. Organization of Global Water Partnership (GWP) [9] devotes a lot of efforts to analysis of this problem.



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

Swelling water crisis does not allow to the states to postpone attainment of the sustainable water use goals to far-off future. In the current situation headway of economics and sustainable water use are inseparable from each other. The most efficient way of sustainable water use securing 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, application of integrated water management and sustainable water use significantly depends on availability of favorable external and internal conditions.

Governments of many countries are under strong pressure of water problems. It is important that these governments are well aware that it is practically impossible to solve these problems alone. Only considerable involvement of public, non-governmental organizations and private sector could lead to success. Synchronism and diversity of problems that face the governments make them to apply to vast variety of foreign experts for assistance in implementation of integrated water management. Contemporary worldwide concern about water problems considerable expand such possibilities.

General current conditions of state policy pursuit in water sector can be characterized in the following way:

- *External conditions:* State government system is based on a wide spectrum of political conditions, economic factors and cultural traditions. There are no and can not be any unified managerial formula that could suit all diverse conditions. The role of state government mechanisms outside water sector scope is crucial for management within water sector as well.
- *Partnership:* The role of government in attraction and support of NGOs and private sector to secure awareness of water problems and their solution is considered to be crucial.
- *Driving factors:* Development of water management system in developed countries is determined mostly by pressure of internal factors (economy, population, depletion of resources, politics). Developing countries experience additionally external impact from the side of donors and international non-governmental organizations.
- *Systematization:* organizations, laws, and managerial systems develop slowly but have to be adopted to quickly changing conditions.

- *Synchronism:* 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 legal/institutional basis.
- *Sustainability:* In contrast to conditions of earlier decades problems of development and sustainability have to be solved concurrently.

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

GWP relates the following to a number of necessary actions aimed at improvement of water management system [10]:

- strengthening of political will for overcoming obstacles to realizing the changes;
- adoption of integrated water management in practice
- reforming of water management system
- reconstruction of financial and economic mechanisms.

Creation of the atmosphere of trust between stakeholders and politicians at the very different managerial levels is needed. Dialog at interstate, national and local levels is necessary to establish advanced water management system.

In full accordance with the general recommendations on establishment of water management system (for instance, decisions of the UN Commission on Sustainable Development sixth session) considerable decentralization of management system, while maintaining the integrated water management central role, is needed. The nearer managerial institutions are to a management subject, the more responsible to population directly using specific water body they are, the better feedback is, the more personalized decision makers responsibility is. At the same time it is necessary to provide clear distinction of functions and responsibility between different levels of management. Special attention should be paid to local municipalities. It is the level where there are maximal information about vital problems. It is necessary to attract non-traditional structures, such as local water users association etc., to water management, as well as to provide advanced training and to improve labor conditions in water sector.

The only way to efficient implementation of water policy is to facilitate establishment of "water-oriented" civil society. Creation of a kind of non-governmental basin organizations will permit to

secure control and support for governmental measures and policy, as well as will simplify solution of disputable matters.

One more important aspect of the necessity of efficient water management for developing countries and countries in transition is rising of investment attraction of other sectors of economy. Provision of sustainable water use rises reliability assessment of investments to the national economy as a whole.

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

### **3. Targets and principles of state water policy**

One of the key conditions of realization of tasks in the sphere of water resources use and protection set for the new century by the world community is development, proclamation and fixation as an appropriate document of state water policy by each and every country. This document is to be adopted on the basis of wide discussion and is to proclaim main objectives and principals of state activities in the vital sphere of water bodies use, rehabilitation and protection, as well as problems to be solved in future.

The utter importance of this element in solution of global water problems was outlined in decisions of the sixth session of the UN Commission on Sustainable Development [11] where the states that had not yet done it were called to develop, proclaim and realize state water policy.

Reasoning from the analysis of world practice the most common goal of contemporary state nature-protective policy can be briefly formulated as securing of safe and valuable human habitat/environment with satisfaction of human demands. While doing this, no rights for valuable environment of either other states or future generations are to be violated.

The core of nature-protective and water policies is to be care about Humankind, its health and maximal complete satisfaction of its demands (in full correspondence with the first principle of the Rio Declaration). Such a flexible methodological approach permits to change specific criteria of nature use as knowledge of environmental impact on human beings is more extensive, as apprehension of human community harmonic development is more perfect (and, consequently, as mass conscience is changed).

Humankind preserves (or destroys) nature only in terms of its ability to understand helpfulness and/or safety of this process for itself. Depending on the set of issues under consideration and development of public awareness either an individual, or a group of people (a family, an

enterprise, municipality etc.), or state or world community can be interpreted as a representative of the humankind.

In doing this realistic nature-protective solutions can be taken only when the compromise between the following is found:

- public awareness of the necessity to limit impacts on environment;
- willingness to bear associated additional expenses and/or to face some limitations;
- economic, organizational and technical capabilities.

The role of scientific institutions is to research processes and make forecasts; the role of NGOs is to inform public, create motivation and express public opinion; the role of politicians is to search for a compromise; while the role of a state is to fix the reached compromise in the form of regulatory legal acts securing administrative and economic impact on nature users, and to establish an efficient organizational structure meant to solve the identified problems.

Based upon the above said, it is possible to determine the objective of state water policy [12]:

**The objective** of state water policy is attaining and maintaining of economically optimal and ecologically safe level of water use.

State water policy is to secure:

- access of all layers of population to safe drinking water within the scope of hygienic requirements;
- realization of present and future generation rights for use of ecologically valuable water resources potential;
- balance of economic development demands and ecologically valuable water resources reproduction abilities.

Attaining of the said set of targets is defined by the term **sustainable water use**. Thus, sustainable water use is a strategic target of state water policy.

Analysis of the current situation permits to outline several **main directions of implementation** of water policy:

- creation of conditions for regular water supply of all layers of population within the scope of sanitary-hygienic norms (satisfaction of basic needs);
- regulation of economic activities in order to reach the balance between economic development demands and ecologically valuable water resources reproduction abilities;

- step-by-step restoration of distorted ecosystems conjugated with water bodies.

**Three principal problems**, that must be solved on the way to attaining the set targets:

- non-productive consumption and losses of water in the process of economic activities, extensive water use;
- pollution of water bodies from point and diffuse (from watershed) sources;
- inadequacy of the used drinking water treatment technologies in respect of water sources conditions, water works wear-and-tear.

Analysis of positive world experience and the current situation permits to formulate the following main principles of state water policy:

- basin-based planning and territorial administration of water activities.
- persistent and gradual reduction of harmful impacts on water bodies, water saving.
- step-by-step transition to self-financing of economy water sector;
- broad public awareness and participation into process of decision preparation/making.

The formulated principles give the foundation for determination of mechanisms for attaining the set targets and developing an integrated actions program. While doing so, it is meant to comply with the Dublin principles and principles of the Rio Declaration and to use integrated approach to water resources management that was widely spread over the past decade.

Clearly formulated state water policy creates stable foundation for reaching agreements on rational and just solution of transboundary water bodies joint use, rehabilitation and protection tasks.

#### **4. Basin planning and territorial administration of water activities**

##### **4.1. General approach**

Considerable isolation of water basins, on one hand, and deep inter-dependence of the basin elements, on the other hand, cause the need to consider a river basin as an integral management subject. Water/economic activities planning should be performed for the basin as a whole with taking into consideration of 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 enough.

Riparian countries located within the same water basin territory have their own specific, sometimes conflicting, interests in the sphere of water resources use, can have considerable

differences concerning administrative, economic and regulatory/legal mechanisms of water management. The necessity of establishment of water management system based on rational combination of basin planning and territorial (on the territory of the corresponding state) administration is obvious.

In general case, parts of water body basins within the state territory are to be elements of management system. Then, at the basin level this or that management parameter is this or that characteristic of a water body condition of the inter-state boundary. Thus, water body condition characteristics at the inter-state boundary and, possibly, at some other key ranges are the object of inter-state planning.

The procedure of determination of these characteristics list and agreement on their control values is to be defined by specially authorized inter-state body in the sphere of water resources use and protection. The negotiating parties are to delegate appropriate powers to these bodies. Bodies like this can be established on the regional basis (for instance, EU WFD), on the basin basis (the Rhine basin) or on the bilateral basis (Russia-Kazakhstan in respect of the Tobol, the Irtysh, the Ishym, and the Ural)

**On the territory of states** appropriate authorities effect water/economic activities administration. Administration includes all issues of interaction with water users, approval of plans and control over realization of all economic measures on water bodies restoration and protection, monitoring, creation of appropriate financial flows, as well as agreeing of measures and reporting to state authorities of higher position.

**Interaction of riparian states** in terms of transboundary water bodies rational use and protection is effected on the basis of bilateral and multilateral agreements. These agreements are based on approved at the interstate (regional, basin, or bilateral) level target indicators of the water body conditions and planned terms of their attainment. The main points of the water bodies condition target indicators control are boundary ranges. All agreements are to be concluded voluntarily on the basis of awareness of mutual interests and mutual beneficially co-operation of neighboring countries in transboundary watercourses management directed to sustainable reproduction of ecologically valuable water resources.

It is obvious that participation of all states located on the catchment territory is necessary for attaining the best results in the basin water resources regulation.

While at the global (the Rio Declaration) and at the regional (EU WFD) levels the states agree about common goals and principles of water management for a longer prospect (15 years and

more), at the inter-state (basin) level agreements usually fix concrete goals, interaction procedures, measure programs etc.

Next subdivision gives some general proposals on preparation and conclusion on water sharing in the basins with stressed water sector balance.

#### **4.2. *Objective of basin agreements***

A basin agreement is to be concluded in accordance with Article 9, Convention-92 and its purpose is to fix legally voluntary combination of the parties efforts in order to co-operate and coordinate activities on transboundary water bodies restoration and protection, with further goal to reach balance between economic development demands and ecologically valuable water resources reproduction capabilities, while satisfaction of basic human demands remains the first priority.

A basin agreement is to be concluded between executive power bodies of neighboring countries personified by specially authorized for water fund use and protection management. When the states are participants of Convention-92 or any other similar regional inter-state agreements executive body of this regional agreement can participate in such a basin agreement.

A basin agreement is an interstate regulatory/legal act containing mutual obligations of the parties in the sphere of water use/protection activities. An agreement between parties is to be concluded on the principles of good will and parity. Mutually beneficial co-operation of the parties is a prerequisite of the agreement conclusion.

The aim of a basin agreement is fixation of the provision of regulatory character in the sphere of water-protective and water-economic activities. An agreement is to become a system-forming basis for the whole package of regulatory/legal documents securing implementation of water-protective and water-economic activities in river basins.

Within the agreement framework system solution of the following issues is stipulated [13]:

- water bodies protection against supply of pollutants, prevention of pollutants transfer, and water bodies restoration to the best possible status (chemical, ecological etc., see [8]);
- securing prevention and compensation of any harm done to environment, economic entities, property, life and health of citizens due to ecological accidents;

- joint development and implementation of target action programs for water bodies protection and water resources rational use;
- establishment and maintaining of water bodies monitoring system, control over water quality and quantity at boundary ranges and exchange of monitoring data according certain procedure.

A coordination body (basin board) is to be established within the basin agreement framework. Status of the basin board is to be approved by governments of the parties with participation of the executive body of the relevant regional agreement.

Participation of representatives of executive power, municipalities, non-governmental organizations and water users is to be regulated by the status of the basin board.

#### ***4.3. Procedure of the basin agreement preparation***

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

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 work group on preparation of the draft basin agreement, and development of basic and accompanying materials.

Preparation of the basin agreement includes development of basic and accompanying materials (Annex 1). An approach to these documents composition, the information scope, the procedure of inclusion to the agreement can vary and depend on specific features of the basin and character of the agreement (bilateral or multilateral).

Generally basic documents include information on current and target conditions of the water body, on water division in the boundary ranges, on reservoirs operational regime, on main water users and standing regulations setting norms of their activities and the like, depending on the agreement type and character.

Documentation called "accompanying" is meant for securing high-quality operations of the basin board. 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.

In the process of the agreement stages implementation basic and accompanying documents can be updated in accordance with the changes of regulatory/legal base and water/economic situation in the water basin.

#### **4.4. *Draft basin agreement***

Basin agreements can have forms of general basin agreement, i.e. between all states located within the given basin, or bi-and multilateral agreements on specific problems of water/economic activities.

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

When concluding basin agreements the parties are to be guided by the regulations contained in Item 5, Article 2 of Convention -92 and articles 5 and 6 of Convention of 1997.

An example illustrating the basin agreement structure [14] is given in Annex 2.

Existence of a multilateral basin agreement does not exclude conclusion of additional non-contradicting bilateral agreements directed to solution of concrete problems within concrete span of time.

#### **4.5. *Procedure of basin agreement conclusion***

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

A basin agreement is to be signed by authorize representatives of the participant countries governments. If there is an agreement (convention or the like) of higher level (Convention-92, for instance) it is expedient to attract representatives of the latter executive body to the basin agreement signing procedure.

The term of the basin agreement action is to be determined by the parties depending on the period of the agreement objectives attaining. Agreements with unlimited term 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.

The agreement is to be ratified by representative power bodies of the parties (where applicable).

The agreement comes into force after signing and ratification by all the parties.

#### **4.6. *Implementation of basin agreement***

Basin board acts as the agreement coordinating body, at least once a year it approves the budget (where applicable, see below), plans and reports on the work done, as well as changes in the accompanying documents, if necessary.

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

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

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

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

Provided this is stipulated by the agreement, any party inflicting a damage to other party due to infringement of the agreement terms and conditions is to pay compensation in amount and forms determined by the agreement.

Representatives of municipalities, non-governmental organizations and industrial water users are to be involved into development of the Basin Agreement implementation plans. Both basin agreements and measures to be planned and realized on the basin should be timely opened and accessible for the public. The river basin population should be aware that safety and health of every family depend on successful fulfillment of the basin agreement.

Introduction of an integral basin information system including relevant data base and mathematical models to secure planning, operative control and support of managerial decisions facilitates successful realization of the agreement goals on the basin territory.

The Basin agreement, among other things, should stipulate the procedure of disputable matters consideration.

## **5. Persistent and gradual reduction of harmful impacts on water bodies**

The main vector of development in quotation of water use in contemporary world is gradual transition from the permission system (in respect of pollutants fixed quantity that is supposed to be safe) to the system ensuring persistent and gradual reduction of harmful impacts on water bodies on the basis of the best world practices.

Such an approach seems to be the most harmonized and completely corresponding to the main provisions of the Rio Declaration, as well as articles 2 and 3 of Convention -92.

Possibilities of that approach implementation are limited by technical, economical and social potentials. It is obvious that such limits are especially narrow in countries with unstable economies.

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

Upon the adoption of Water Framework Directive EU countries have passed to the national and transboundary water bodies management system that most completely correspond to the principle of persistent reduction of harmful impacts on water bodies.

The model of national water policy formation and interaction on transboundary water bodies use, rehabilitation and protection defined by the Directive can be rightfully considered the standard and be recommended for gradual adoption in all parties to the convention and other states.

In general, the basin countries behavior algorithm within the Directive framework can be presented as the following sequence of actions.

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<sup>1</sup> The introduced term «water body status objectives» is further development of the terminological base of Convention-92. The term «water quality objective» used in convention-92 was further developed in EU WFD. Such terms as «surface/groundwater status», «ecological status», «chemical status» and «environmental objectives» are used there. There water body total status is determined by the worst ecological and chemical estimations. At the same time characteristics of ecological status includes 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 range can be defined not only by ecological but also by

- 1) Survey of the water basin:
  - a) necessary and agreed by the Parties survey of the transboundary water body is to be performed in order to determine hydromorphological, hydrological, hydrochemical, and hydrobiological characteristics of its status, inventory of diffuse and point sources of pollution, definition of surface water and groundwater interconnection degree etc;
  - b) type determination of the basin water bodies (river, lake, artificial, highly modified water body etc.) is to be performed, water bodies (or their parts) suitable for drinking water supply are to be identified;
  - c) physical/geographical regions (ecoregions, as EU WFD put the term), uniform in terms of runoff formation conditions and water quality in natural (undisturbed) state are to be identified.
- 2) Determination of long-term water body status objectives:
  - a) on the basis of the survey outcome the controlled list of the status parameters for each water body type is to be completed;
  - b) current values of these parameters are to be fixed;
  - c) target values of these parameters are to be determined for each water body type; they are to form, after all, the matter of the basin agreement (for natural water bodies these values are close to background);
  - d) terms of the objectives attaining are to be set on the basis of general engineering/economic analysis.
- 3) Determination of monitoring, reporting and solution of disputable matters procedures.
- 4) Agreement of the action program.
- 5) Realization, interim outcome analysis, updating of the programs.

Such is the general pattern of setting the long-term water body status objectives (LSO). This is mostly oriented to attaining of the best possible ecological status of water bodies [7].

High level of economic development, advanced institutions of civil society, high living standards of citizens and ecology-friendly public conscience secure good prospects of successful realization of EU WFD goals. One more favorable factor is existence of international power bodies that provide good coordination of activities and organization of necessary financial flows.

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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 more precise definition.

For New Independent States, for other developing and countries in transition it is recommended to adopt the above approach for setting long-term co-operation objectives on transboundary water bodies use and protection. The terms of these objectives attainment are expected to be longer. That is why special attention should be focused on construction of long-term status objectives attaining algorithm.

It is proposed to agree gradually short-term (3-5-years) status objectives and set of measures aimed at their attaining.

The next sub-section gives the general algorithm for short-term water bodies status objectives (SSO) setting.

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

Short-term status objectives and their attaining program are to be developed on the territory of each countries-parties to the Basin Agreement.

Upon long-term status objectives determination, 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, management system and goals, namely:

- by state boundaries;
- by administrative boundaries;
- by ecoregions boundaries;
- by boundaries of water/economic plots (for instance, water reservoirs, major water intakes and inhabited localities, predominating type of water use etc.)

Within the design-region the water body current state is to be carefully assessed, point and diffuse pollution sources are to be put into the inventory, with the analysis of the main production technology and wastewater treatment, where applicable. Further on analysis of the corresponding available technologies of the main production and wastewater treatment ("the best world practices") should be done, technical and socio-economic aspects of their application in the region are to be carried out. Evaluation of economic feasibility is to be done on the basis of comparison of necessary expenses with available financial resources.

It is essential to accompany the process of short-term status objectives and necessary expenses determination with negotiations with all stakeholders, first of all, with water users – as well as

broad public awareness. Only deep perception of common interests and necessity to implement the short-term status objectives program can guarantee the attainment of the set tasks.

Economically feasible technological scheme that could improve the water body status is to be determined on the basis of the carried out survey and negotiations. In the process all forecasts and plans of social/economic development on the catchment territory within the limits of the design-region are taken into consideration. Time necessary to implement the set of measures and expected values of short-term status objectives are to be calculated.

Calculation of short-term status objectives is to be performed within the water body basin limits by the design-regions from the origin to the estuary. The state basin body is to coordinate these activities and to agree on short-term status objectives. The same body deals with redistribution of funds allocated for these measures on short-term status objectives attaining among the designed-regions, if necessary.

Short-term status objectives values on boundary (interstate) ranges are the matter of agreement by the interstate basin body (Basin Board). If the SSO proposed by the country do not, for some reasons, satisfy the basin body, additional engineering/economical examination is to be appointed. Impossibility of improvement of the SSO proposed by the country is the reason for solution of the issue of additional funding to be allocated for appropriate water-protective measures.

After attaining of the SSO or upon termination of the planned term the procedure is to be repeated.

Such a method of water bodies status objectives setting gives economically feasible platform for realization of the policy directed to persistent and gradual reduction of harmful impacts on water bodies and does not contradict with general principles of Convention-92 and EU WFD.

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

Updating of national regulatory/legal and organizational/economic foundations of water use might be needed to implement the proposed approaches. Calculation of water users payment depending on agreed cost of SSO attaining measures at a concrete water body (designed region) will be the best financial base for realization of the water body status objective ideology.

## 6. Water saving

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

Water saving as an integral component of integrated water management at the national level could require complex researches and measures on improvement of regulatory/legal and economic mechanisms, renovation of management system, restructuring of tariffs, as well as changes in social aspects. In this process public awareness, education and involvement are of key importance; they result not only in more careful attitude to water of every individual, but also in general understanding and support of state water policy and concrete water/economic projects.

Analysis of world experience in development and realization of water saving programs permits to come to several main conclusions [14] :

- essential part of water consumption decrease is resulted from rising requirements to water-distribution fittings;
- measures on water consumption reduction aimed at lowering of peak values are the most economically effective;
- 10-20 % reduction of demand for water during 20-30 years is quite realistic and self-paying.

Summary of positive world experience permits to formulate the following general recommendations.

### Concerning water saving policy

- 1) To make water saving an integral part of water policy.
- 2) To consolidate co-operation of water services:
  - a) promote establishment of regional, national and regional association;
  - b) facilitate development of data base "The best world practice of water saving" and securing an access to it of all interested persons;

- c) encourage water services to fund water saving programs at the expense of capital investments.
- 3) To implement the agreed strategy of water saving through programs of water saving and water resources rational use:
  - a) include water saving plan into mandatory documents necessary for issue of permissions for water use and into documents proving the necessity of water abstraction increase;
  - b) develop general recommendation on development of water saving plans.
- 4) To set unified state requirements to rational water use:
  - a) to demand installation of water saving plumbing equipment in the process of construction and restoration of housing on the basis of appropriate regulatory/legal documents;
  - b) to ban use of wasteful water technologies in industry and agriculture.
- 5) To develop national program of public awareness and involvement, and to include relevant courses into general educational process.
- 6) To render technical assistance to water saving activities:
  - a) fund researches on rising water use efficiency;
  - b) disseminate widely requirements to and possibilities of water saving technologies, including use of internet;
  - c) to conduct workshops and presentations devoted to water saving at professional events in various branches.

Concerning planning of water saving measures

- 1) To use target program approach:
  - a) assess how water saving technologies could decrease water and funds, what are potential economic and other benefits;
  - b) determine suitable national or regional targets in respect of reduction of water consumption;
  - c) assess ecological and other non-economic benefits of attaining of the above said targets;



- d) outline concrete projects on capacities increase or the like that could be replaced or compressed provided the sufficient level of water saving is reached. In other words, consider water saving as an additional source of water supply.
- 2) To mark out the most appropriate measure on water saving:
- a) use the best world experience;
  - b) pay special attention to decreasing of leakage from distribution networks;
  - c) develop payment system that promote water saving;
  - d) develop measures on regulation of demand for water for each essential type of consumers;
  - e) pay special attention to the measures directed to decrease of peak daily loads in order to decrease needs for capital investments in future;
  - f) consider the measures on increasing of water use efficiency in domestic appliances.
- 3) To make assessment of economic efficiency of various water saving technologies, and assess their effects on local water supply and sewage networks:
- a) special attention is to be paid to facilities and equipment with 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;
  - b) calculate benefits due to decrease of water and waste water treatment services price;
  - c) calculate benefits resulted from reduction of impacts on environment.

## **7. Economic mechanisms**

Charging for water is commonly recognized as the most effective tool of water resources rational use and full reproduction. Step-by-step transition to coverage of all corresponding expenses due to water users payment is the most reliable basis for the sustainable water use policy realization. Of course, during the transition period attraction of additional financial resources for implementation of essential or urgent measures can not be excluded.

While having a social value as the vital prerequisite of human existence water still is recognized to be an economic product. Water cost is resulted from addition of its value as extracted natural

resource (with taking into account the potential benefit) and expenses necessary for goal-oriented reproduction and redistribution of water resources.

In general case water users payment should form financial funds to allocate money for realization of the water body status objectives attainment programs. These funds, if necessary, can be replenished from other sources: voluntary donations, loans, insurance allocations etc.

Payment amount should stimulate rational water use. Payment should be oriented to prevention of pollution rather than to compensation of pollution aftermath.

Formation of realistic payment amount is possible only on the basis of economic assessment of water resources potential. 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. Complete economic assessment should become a basis for establishing of water use management economic mechanism at both basin level (preparation of plans and programs for production potential location, schemes of water bodies integrated use and protection, rising of awareness in respect of water bodies value etc.) and regional economic processes level (water use tariffs system, regional plans and programs on water bodies restoration, protection and rational use, licensing of water use etc.).

The goals of economic assessment are the following:

- optimization of expenses for development, use and reproduction of water-resource potential as an integral system formed from interconnected components;
- assessment of water use efficiency both at the branch level and at the national economy level;
- reflection of water-resource potential value in national accounts;
- measurement of quantity of the losses caused by the water-resource potential use termination or its quality deterioration due to a water body degradation;
- creation of material and financial prerequisites for water-resource potential reproduction;
- securing of necessary relation between different kinds of a water body use, rational territory deployment of economic, social, and specially guarded facilities, prioritizing in water-resource potential development;
- stimulation of water body rational use.

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

## **8. Public and water users involvement into decision preparation/making process**

Any actions in vital sphere of water bodies use, rehabilitation and protection are to be taken gradually and to be accompanied by comprehensive socio-economic analysis. Public opinion must be formed in goal-oriented and professional way. Without understanding of necessity and destiny of reforms by the active segment of population one can not expect any long-term success.

Executive power agencies of all levels must have absolutely open position: complete access to information on water bodies conditions, drinking water quality, safety of water supply and sewage systems, tariffs formation, expenses structure, results of water companies inspections/audit etc.

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

To realize the principle given in the title it is necessary to secure:

- accessibility of data on water and water/economic bodies conditions, as well as on drinking water quality;
- transparency of tariffs determination, funds accumulation and spending procedures;
- possibility to participate in preparation of action plans and in control over their realization results;
- competition-based conclusion of contracts for works on realization of the approved measure plans;

- development of appropriate general educational and special educational programs.

Within the framework of Convention-92 provisions realization Recommendations on rising public awareness and involvement were issued [15].

## **Conclusion**

The proposed recommendations objective is to contribute to development of common strategy of realization of the tasks listed in Convention-92, to facilitate the process of getting the Parties positions closer and development of common approaches to solution of tasks of transboundary watercourses rational use, rehabilitation and protection.

The choice of main topics touched upon in the Recommendations is caused, first of all, by the needs of the water-deficient countries, developing countries and countries in transition.

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## **Annexes**

### **Annex 1**

#### **General composition of basic and accompanying documents for a basin agreement**

- 1) Documents reflecting organizational/economic mechanism of the agreement realization:
  - Regulations on the Basin Board and executive body of the Basin Agreement (where applicable).
  - Procedure of organization and funding of joint activities.
  - Procedure of routine control and information exchange, as well as emergency warning.
  - Agreement on response to emergency situation.
  - Regulations on cross-checking of the parties to the Basin Agreement.
  - Regulations on economic liabilities of the parties for failure to fulfil the Agreement provisions (where applicable).
  - Procedure of disputable issues solution.
  - General principles of rising public and water users awareness and involvement in to decision preparing/making process.
- 2) Methodological documents securing unification of approaches to the set tasks realization:
  - Methods of development and determination of priorities in realization of target basin program.
  - Methods of calculation of undisturbed (ecological) flow in the boundary range.
  - Methods of assessment of a water body conditions and determination of long-term and short-term target indicators.
  - Methods of determination of and compensation for the damage caused by pollutants transport to downstream ranges.
- 3) Documents reflecting the water sources, water use, water-protective measures and monitoring network current state in the basin, as well as objectives and requirements to the above defined by the Basin Agreement:

- Assessment of water/economic situation in the river basin. Ecological problems of the river basin.
- Schematic map of the river basin with marked observation points and boundary ranges as well as results of ecological/water/economic zoning.
- List of boundary and calculated ranges in the basin.
- Certificate of boundary range of joint control over water resources conditions.
- Distribution of the river basin water resources in boundary ranges.
- Agreement on undisturbed (ecological) flow in the boundary range.
- Agreement on water/economic balances in boundary ranges.
- Agreement on the basin reservoirs use regime.
- Agreement on accident-free flood passage.
- Agreement on distribution of transit runoff, when it is deficient.
- Map of surface water and groundwater interaction, data on groundwater abstraction adversely affecting surface runoff.
- List of criteria and the water body condition long-term target indicators.
- Target basin program of water resources rational use, rehabilitation and protection.
- Plan of regulatory/legal, organizational, engineering/technical water/protective and water/economic measures.



## **Structure of the model basin agreement**

### ***Preamble***

Main factors serving the basis and legal foundation for the agreement conclusion are to be reflected

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

Objectives and targets of the Agreement are to be given

### ***Article 2. Zone of responsibility of the Basin Agreement***

The river basin covered by the Agreement is to be defined

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

The list of issues to be regulated within the Agreement framework is to be given

### ***Article 4. Liabilities of the parties***

The Parties mutual obligations in respect of water-protective and water-economic activities at the basin water bodies are to be given

### ***Article 5. Main directions of co-operation***

Mutual obligations of the Parties on water bodies conditions monitoring in boundary ranges, agreed limits of water use and maximal permissible amounts of harmful impacts on the basin water bodies, undisturbed (ecological) flow in the boundary range, volume and regime of the transit runoff, high water and flood passage regime, basin reservoirs use regime etc. are to be given.

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

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

### ***Article 7. Economic mechanism of the Basin Agreement realization***

The economic mechanism of the Agreement realization or principles of its development approved by the Parties are to be defined

### ***Article 8. Organizational mechanism of the Basin Agreement realization***

Organizational structure adopted by the Parties for the planned measures realization is to be defined

***Article 9. Procedure of disputable matter solution***

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

***Article 10. Check up of the Agreement implementation***

The procedure of the Parties interaction concerning checking of the Agreement implementation is to be defined

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

Terms of the Agreement 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. The Agreement coming in force***

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