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The post-2015 development agenda

Bulgaria stakeholder perspectives on a water goal and its implementation

Global Water Partnership

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Acknowledgements

GWP would like to acknowledge the support of Denmark, represented by its Foreign Ministry, the European Union Water Initiative – Africa Working Group, and the core GWP donors for their support in funding the national consultations. GWP also acknowledges the support of UN-Water for advice and guidance on the consultations.

GWP also wishes to thank all those in the GWP Regional and Country Partnerships who organised and conducted the consultations so effectively – as well as the numerous stakeholders who contributed to the country consultations.

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1 Comments on the recommended Sustainable Development Goal and Targets for water

1.1 Discussion of the recommended Goal and Targets in relation to local development aims

The discussions in Sofia city demonstrated the considerable importance of water to national development, recognized that the SDGs aim to develop a broader sustainability framework with a global vision, focused on the identified targets for sustainable development to 2030 (Fig. 1). The experts and stakeholders confirmed that the dedicated post-2015 global water goals offer a unique opportunity to ensure water for people, economies and environmental needs, conserving the water resources for current and future generations at national and river basin level.

Bulgaria is a country located in South East Europe with a population of 7.28 million and territory of 110.9 thousand sq. km. As an EU member state since 1 January 2007, Bulgaria is obliged to fulfill its Accession Treaty commitments, of which harmonization of Bulgarian legislation with the European law. Also, to reach the identified targets Bulgaria is taking into account its commitments under Agenda 21, the Rio Conventions, the Millennium Development Goals (MDGs), the Johannesburg Plan of Implementation and the Rio+20 conference and also the UNECE Water and Health Protocol .

The compliance with the UN proposed global goals for water and the EU Water Framework Directive (WFD) goal of reaching “sustainable water use based on a long-term protection of available water resources” for all Community waters by 2015 requires from Bulgaria extensive efforts in meeting a number of objectives, such as preventing and reducing pollution, promoting sustainable water use, environmental protection, improving aquatic ecosystems and mitigating the effects of floods and droughts**.** The participants at the national consultation agreed that the identified targets, through the UN and EU policy processes, objectives such as timely and adequate provision of clean water and sanitation services, improving water management, and preventing, controlling and reducing water-related diseases, are part of current and post-2015 national strategies/programs. The problem is its implementation.

1.2 Consideration of the approach for target setting (national or global level) and any country specific issues related to the targets, and elements to the targets, to enable countries to set its level of ambitions according to local circumstances

The applicability of the SDGs at the country level is recognized through the acceptance of the official targets and requirements imposed by international legislation and agreements.

The National Strategy for the Management and Development of the Water Sector in Bulgaria, adopted in November 2012 by the Parliament, is built on the following criteria, taking into account social, economic and environmental conditions:

- *Economic efficiency of water use.* Water should be used for maximum performance possible, considering the increasing shortages of fresh water of good quality and limited financial resources;
- *Equality*. Access to water in adequate quantity and quality is a fundamental right of all people;
- *Environmental sustainability*. Use of water resources in such manner that does not compromise the ability of future generations to meet their own needs with the same resource.

The Strategy outlines measures to ensure continuous access to water in terms of climate change (droughts and floods), starting from the water source to the discharge, namely:

- Increase in water flow from watersheds applying best practices to increase the flow and reduce evapotranspiration. Management of forest watersheds and land use which affect the physical distribution and water quality should be taken into account in the overall planning process and management of water resources;
- Integration of the activities in the up–stream and down-stream of the rivers. Recognition of the vulnerability of downstream water users in the up-stream activities is required. In this case management affects both natural systems and those associated with human activities;
- Establishment of an appropriate system of facilities to ensure annually adequate water quantity and quality from available water sources (dams and reservoirs) and to reduce the loss of pure natural water requiring additional treatment for next usage;
- Implementation of environmentally friendly methods and technologies for cleaning without introduction of additional compounds harmful to nature and allowing recirculation of water.

1.3 Sub-sections discussing the Goal and each of the water targets

1.3.1 Target 1: Water supply, sanitation and hygiene

The implementation of the EU Directives, UN Protocol on Water and Health, and MDGs at country level shows the development progress of drinking water targets and indicators and the services improvement to secure long term benefits.

The percentage of the population connected to the public water supply network is high - 99.3%, but the drinking water treatment plants cover only 47.6%. In 2012 the number of samples not corresponding to the norms about mechanical/chemical/ radiological parameters are 94% of total measures and 96.6% about microbiological parameters.

Most of the water supply networks are made of asbestos cement pipes, leading to a deterioration in the quality of drinking water and heavy water losses which are about 60% at national level. The length of the water supply network is 74 404 thousand km and the percentage of asbestos cement pipes is 74%.

Variations in the quality of drinking water supplied in some regions of the country are mainly due to the lack of wastewater treatment plants (WWTP) and modern facilities for disinfection, obsolete water supply network, water pollution in water sources of anthropogenic impact or pollution of natural origin. While the microbiological problems can be solved immediately when they occur, the contamination of drinking water with nitrates, manganese, arsenic and chromium require significant investments and more time. The variations in quality parameters of drinking water and the introduction of seasonal water regimes is common in rural areas, which occupy 54% of the territory of Bulgaria and serve 37% of the population.

Degradation of surface and groundwater bodies is due to the insufficient number and capacity of waste water treatment plants, environmentally outdated land use and industrial activities. 74.3% of the population is connected to sewerage, its length is 12 323 thousands km. The wastewater of 56.1% of the population is treated. However, WWTPs with removal of nitrogen and phosphorus serve only about 34.7% of the population. 29.4% of the population uses septic tanks. The use of septic tanks is considered to fit in the narrow definition of “sanitation” in rural areas.

1.3.2 Target 2: The sustainable use and development of water resources

Measures for sustainable use and development of water resources on SDGs/ IWRM basis are part of: 4 RBMPs; national strategies on water sector management, and forestry development; the program for rural areas development etc. Nevertheless, there are some conflicts between different users in drought periods.

The total internal flow in the country is 18 billion m^3. In 2010, Bulgaria included the external flow of the Danube River to the amount of 88.7 billion m^3 in the calculation of fresh water resources. Although the water resource of the Danube River is great, the usage by the Danube and the Black Sea region is still limited due to lack of appropriate infrastructure. Now the Danube waters are mainly used in cooling systems of Kozloduy nuclear power plant. Country as a whole is not threatened by water stress - the ratio of water used to total surface water (including the Danube flow) and groundwater resources is less than 10%. Water use by sectors is structured as follows: industry - 86%, agriculture, forestry and fisheries - 7%, households - 6% and other services - 1%.

53 complex and important dams have been built with a total volume of 6.7 billion m^3. Existing dams have the capacity to retain 37% of the mean annual runoff. The number of the irrigation dams is over 2000. 15 retention dams are built to protect against the adverse effects of water. There are 68 dams that are in dangerous condition. Almost all hydropower systems are designed, constructed and operated as complex hydraulic systems that meet the needs of all water users outside the energy sector (irrigation, drinking and industrial water supply, recreation, fish-breeding) according to the capabilities of each system. Until 1990 agriculture areas of 1.2 million ha were irrigated. Now the irrigated areas are 740 600 ha only. The water losses in irrigation systems are extremely high – 70-80% of total water supplied.

Bulgaria is one of the richest countries in Europe in mineral waters. More than 200 mineral water sources are identified and studied. The usage rate of mineral waters resources is low - about 24%.

Much of the runoff of the country is formed in forest catchments which management and operation affect the quality and quantity of water. Forest areas in Bulgaria occupy 4 148 114 ha or 37.4% of the territory. Water is essential for maintaining the rich biodiversity of the country. Animal species are 27 736, and 17.41% of them are protected. Plant species are 4000 - 4250, and protected are 13.51% - 14.35%.

1.3.3 Target 3: Reduce risk of water related disasters

The Water Act, promulgated in State Gazette No. 67/27.07.1999 and effective by 28.01.2000, regulates the ownership and management of waters within the territory of the Republic of Bulgaria as a national indivisible natural resource and the ownership of the water development systems and facilities.

Figure 1 Map of the four river basin districts in Bulgaria

The objective of this Act is to ensure integrated water management in the interest of society and for protection of public health, as well as to create conditions to: ensure a sufficient supply and good quality of surface waters and groundwater for sustainable, balanced and equitable water use; reduce the pollution of waters; protect surface waters, groundwater and Black Sea water; eliminate the pollution of the marine environment with natural or synthetic substances; reduce the discharges, emissions and losses of priority substances; eliminate the discharges, emissions and losses of priority hazardous substances; prevent or reduce the harmful consequences for human life and health, the environment, cultural heritage and economic activity associated with water-related damage and loss.

The regulation of relationships associated with ownership of waters, water sites and water development systems and facilities are based on the following principles: public significance of water as a valuable natural resource; multiple-purpose use of waters and water sites with a view to serving economic interests without prejudice to public interest and to existing rights; protection of the right to ownership of waters, water sites and water development systems and facilities, insofar as the exercise of such right does not interfere with the integrity and unity of the hydrological cycle and of the natural aquatic system; exercise of the right to ownership in a manner ensuring the technological unity of the water development system.

The water management in Bulgaria is carried out on a national and basin level. There are four river basin districts - Danube, Black Sea, East Aegean and West Aegean (Fig. 1). Six-year river basin management plans - RBMPs (2010-2015) have been developed based on integrated water resources management (IWRM) in accordance with the WFD and the Bulgarian Water Act.

1.3.4 Target 4: Improved water quality and wastewater management

In the Strategy for Development and Management of Water and Sanitation in the Republic of Bulgaria, approved by Council of Ministers in April 2014, the costs necessary for the water supply&sanitation sector until 2038 to be transformed from the current state to a future

sustainable state are estimated to 24.6 billion BGN, or 17.4 billion U.S.$. Not only expenditures and adequate financing are required to improve the quality of service, environmental performance, resource efficiency and the optimum value, but also improvements in water sector governance, institutional and regulatory framework, changes in the attitudes and skills of employees in the sector. For the period 2014 - 2023, the assessment of the necessary investments amounts to 12.2 billion BGN (8.6 billion U.S.$), of which 5.0 billion BGN (3.5 billion U.S.$) are for water supply (yield, purification, transmission and distribution), 4.4 billion BGN (3.1 billion U.S.$) – sewerage collectors, and 2.8 billion BGN (2 billion U.S.$) – construction or rehabilitation of wastewater treatment plants.

Although the absorption of EU funds for the implementation of water infrastructure projects is a slow process. EU financial support is one of the best tools to ensure good quality of drinking water and access to modern means for waste water treatment in order to reduce pollution of national and transboundary river basins.

1.3.5 Target 5: Reduce risk of water related disasters

Bulgaria and other countries in South East Europe are affected by climate change. The long run scenarios for precipitation to 2035 prove that reduced rainfall like in 2000 (the driest year) is not expected (Fig. 2). The decrease in the precipitation in 2000 in different regions of the country was 10% - 70% as compared to the precipitation in the contemporary climate period 1961-1990. This does not preclude the recurrence of such extremely low levels of rainfall in some years.

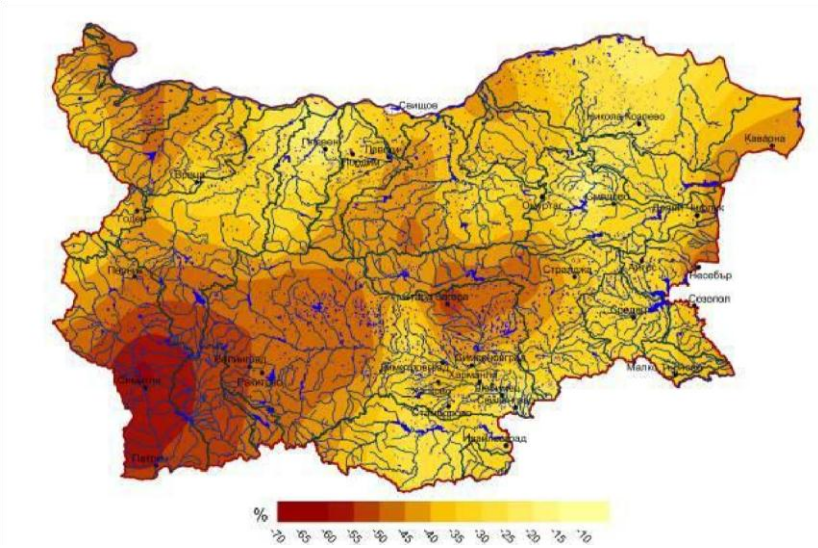

Figure 2: The percentage deviation of annual rainfall in 2000 compared to the contemporary climate (1961-1990) in Bulgaria

The National Strategy for Forestry Development in the Republic of Bulgaria 2013-2020, adopted by Council of Ministers in November 2013, focuses especially on afforestation of watersheds with suitable tree species regarding drought mitigation and involves a great number of measures for the limitation of forest fires and erosion.

According with the requirements of Directive 2007/60/EC on the assessment and management of flood risks, the 4 River Basin Directorates are obliged to develop RBMPs for the period 2016-2021.

The main problems of irrigation, drainage and avoiding and reducing the adverse impacts of floods (hydro-melioration sub-sector) are the following: old pumping stations (some were put into operation in 1938); dikes (excluding those on the Danube) are constructed mainly of materials taken from the rivers with high content of sand and ballast. That is why, when high waters stay for a longer period, filtrations in the dike body are observed; extraction of inert materials from corrected parts of rivers or just in front of them, which changes the water flow and causes breaking of dikes;

construction works in the parts of the corrected areas; aggravating of erosion because of deforestation and clearing the forests, etc. Nowadays almost no investments are made to recover hydro-melioration facilities, only emergency repairs and breaks are funded to protect endangered settlements and valuable agricultural lands.

2 Key implications and means of implementation identified for achieving the goal and targets over the period 2015 to 2030

The guidelines about sustainability and the final outcomes of UN-Water document "A Post2015 Global Water Goal" from January 27, 2014, were the basis of the national consultation in March 2014. The aims to achieve sustainability in the water sector have been reviewed in the light of Bulgaria's geographical location and its EU membership.

Experts and stakeholders at national consultation unanimously supported the following principles in relation to water, ensuring SDGs implementation in Bulgaria:

- Ownership of water should not be determined in the national legislation;
- Water resource use of transboundary rivers/basins to be based on the principles of solidarity and reciprocity. Measures should be taken so that the quality of these waters is not affected to a degree that would deprive the right to use in downstream or coastal countries;
- River Basin Management Plans should become the main tool for ensuring the required amount of water without the risk to human health and environment damages;
- Flood Risk Management Plans should become the main tool for minimizing the risk of flooding, causing human casualties and economic losses. Each country should build early warning systems for floods, as a primary measure minimizing the flood risk to the population and the economy for the country itself, as well as for the transboundary countries.

The reform in the water sector is compulsory for achieving SDGs in Bulgaria, including:

- A common strategy for the whole water sector without sub-sectors strategies;
- One ministry (center) to determine the water policy in the water sector;
- Effective reorganization of irrigation/drainage in order to increase the water sector sustainability;
- Introduction of the polluter pays principle;
- The state should ensure the services of public interest in the water sector;
- Taking into account the importance of dams for avoiding and reducing the adverse impacts of floods, and their role in mitigation of future droughts;
- Introduction of modern information reporting system for water resources;
- Mapping of ecosystem services in the basins and evaluation of payment for the use of forests, wetlands, fertile soils and other natural ecosystems to encourage owners to manage resources in a sustainable manner;
- Updating the mechanism for assessing the affordability of water services costs; - A priority of scientific research and achievements in water management.

Specific objectives have been outlined in each water sub-sector for ensuring sustainability, such as:

- **Water supply, sanitation and hygiene**:

  - Modernization and reconstruction of water infrastructure to reduce water losses and improve water quality; introduction of licensing for water operators; address the issue of reinvesting profits of water & sanitation operators; increase administrative capacity to exercise control.
- **Irrigation, drainage and avoiding and reducing the adverse impacts of floods**
  - Concerning irrigation: rehabilitation of the equipment and systems for gravity irrigation – intake structures, main and distribution channels with the aim to reduce water losses, construction of an additional internal network enabling water supply to every consumer, replacement of energy intensive engines and units in the pump irrigation systems, replacement of old and carcinogenic pipelines.
  - Concerning drainage systems: replacement of old outworn energy intensive units and engines, rehabilitation of the open channel systems.
  - Concerning corrections of river beds and retention dams – update of the hydrological information base for calculation of the high waters volumes, reassessment of the design parameters of the corrections according to the new regulation boundaries of the settlements, review and amendment of the legislation and defining stricter requirements towards protection facilities to ensure protection from adverse water impacts.
- **Dams**:
  - Legal regulation of risk analysis in determining the security of the newly designed and existing dams; preparation of emergency plans about updated potentially dangerous dams.

3 Concluding comments specific to the country

The experts and stakeholders at the national consultation confirmed that SDGs for the next 15 years is a good base for improvement of water sector at basin, regional, national and global level. SDGs implementation depends on political and economic conditions of the state.
The common agreement at the national consultation is that the water sector in Bulgaria needs a governance reform which can only be achieved by changes of the existing institutional structures and some national regulations.

The necessary capital investments to build a sustainable water infrastructure including measures to prevent the risk of floods and droughts, calculated in the National strategy for the management and development of the water sector in Bulgaria amount to 43 billion BGN or 30 billion U.S.$ - an enormous amount impossible to be covered only by the state budget. To cover all the SDGs by 2030 the experts and stakeholders of the national consultation proposed that the range of European and other funding to be extended to other sectors (irrigation, dam constructions in arid areas and protection technical facilities against the floods).

Annex 1: List of Participants

Full Name	Organisation	Position
Mitko Dimitrov - moderator of opening session	Economic Research Institute-Bulgarian Academy of Sciences	Director, professor
Dochka Velkova - moderator of water&sanitation discussion	Economic Research Institute-Bulgarian Academy of Sciences (ERI-BAS)	Chief Assist., Dr.
Todor Hristov - moderator of IWRM discussion	Bulgarian Academy of Sciences	Former Director of Institute of Water Problems – BAS, professor
Vangel Vassilev - moderator of dams discussion	Bulgarian Academy of Sciences	Former Head of Dams Department, Institute of Water Problems-BAS, professor
Vladimir Stratiev - moderator of irrigation discussion	Bulgarian Water Association (BWA)	Member of BWA Council, Former Water Director in EC (2010-2012)
Evgeniya Ivanova	Ministry of Foreign Affairs- United Nations and Development Cooperation Directorate	Diplomat
Wilfried Hundertmark	The World Bank – Bulgaria country office	Water Management Expert
Asen Lichev	Ministry of Environment and Water (MOEW) – Water Management Directorate	Director of Water Management Directorate
Rositsa Petrova	Ministry of Environment and Water (MOEW) – Water Management Directorate	State expert
Aneta Ivanova	Ministry of Environment and Water (MOEW) – Water Management Directorate	State expert
Nadya Ivanova	Black Sea Basin Directorate at MOEW	State expert
Maiya Ninova	Ministry of Agriculture and Food (MAF)	State expert
Soniya Chehlarova-Simeonova	Ministry of Agriculture and Food (MAF)	Chief expert, Assoc. prof., Ph
Stoycho Bialkov	Ministry of Agriculture and Food (MAF) – Executive Forestry Agency	Director of Forestry Directorate
Dimitar Bardarov	Ministry of Agriculture and Food (MAF) – Executive Forestry Agency	Chief of department
Ivo Atanasov	Ministry of Health – Directorate “Public Health”	State expert
Sergey Tsvetarsky	National Statistical Institute (NSI)	Deputy president
Stefan Tzonev	National Statistical Institute (NSI)	Head of Ecology Department
Stoiyanka Mastikova	National Statistical Institute (NSI)	State expert (water)
Ivaylo Kastchiev	State Energy and Water Regulatory Commission	Head of department “Water pricing and business programs”
Valentin Slavov	“Irrigation Systems” Ltd	Technical director
Dobromir Chagorsky	National Electricity Company – “Dams and Cascades”	Head of department “Water Balance”
Teodora Todorova	“Sofiyska voda” – Sofia capital	Manager of water quality departmet

Full Name	Organisation	Position
Pencho Sarnev	Vodocanalproekt – Clean Water	President
Dimitar Raynov	Vodocanalproekt – Clean Water	Chief designer
Nikola Miloshev	Vodoconsult Engineering	President
Plamen Petkov	Water and Rural Institute Ltd	Manager
Valentin Anastasov	Hydrogeocomplect Ltd	Manager
Angel Angelov	Hydroconsulting Ltd	President
Nikolay Mihaylov	Geoconstruct Ltd	Executive director
Nevyana Teneva	EGIS-Bulgaria	Water expert
Stanimir Niagolov	Generali Insurance	Chief expert on agriculture insurance
Emil Hristov	Generali Insurance	Risk engineer
Ivan Ivanov - moderator	Bulgarian Water Association (BWA)	President
Galia Bardarska – presentation of UN Agenda “A Post-2015 Global Water Goal”	GWP-Bulgaria	member of GWP CEE Council, Assoc. prof., PhD
Atanas Kostadinov	Ministry of Environment and Water	Deputy minister
Plamen Nikoforov	Scientific-Technical Union of Water Affairs	President
Irina Kostova	University of Architecture, Geodesy and Construction	Head of Hydrological Department
Dimitar Toshev	Association of Big Dams (BUNCOLD)	President, professor
Valentin Anastasov	On behalf of Ministry of Regional Development	
Borislav Velikov	Aquatech	President of Aquatech, Former President of Parliament
Tomas Metelka	DHI – Bulgaria	President
Ivanka Prunet	DHI – Bulgaria	Water experts
Vladimir Stratiev	Bulgarian Water Association (BWA)	Member of BWA Council, Former Water Director in EC
Plamen Nikoforov - moderator	Scientific-Technical Union of Water Affairs	President

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