

**Daegu-Gyeongbuk Recommendations to the Ministers at the  
7<sup>th</sup> World Water Forum**

The following recommendations and points reflect the views, comments, and ideas offered by different participants and experts during the processes of the Forum.

**Water Security for All<sup>1</sup>**

**Enough Safe Water and Sanitation for All**

1. Water is the most vital public resource on Earth for its indispensable role in sustaining life and health of people and ecosystems, as well as for its economic and social values towards sustainable development of countries. Providing sufficient, affordable and safe water and sanitation for all has become a critical challenge of increasing concern in the 21<sup>st</sup> century due to freshwater deficiency, rapid population growth, water pollution, unsustainable use of water resources, adverse climate change impacts, rapid growth in demand for water and the lack of cooperative water management frameworks. Efforts have been made at the national and local levels to provide sufficient amount of safe drinking water and to improve water supplies for human needs, economic development and ecosystems. There is much left to be done, and solutions and frameworks are required to ensure safe water in adequate quantities for all uses and users for present and future generations. Solutions demand shared responsibility and active participation of all actors who benefit from all supplies.

2. The right to safe and clean drinking water and sanitation is a human right, which entitles everyone, without discrimination, to have access to sufficient and safe drinking water and physical and affordable access to sanitation, that is, safe, hygienic, secure, socially and culturally acceptable, and, that provides privacy and ensures dignity. There is an urgent need to provide efficient and appropriate technologies, financial support, policy and institutional frameworks and means at all levels to ensure sufficient, safe and affordable water and sanitation for all, paying special attention to the needs of women and girls, the aged

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<sup>1</sup> UNESCO Member States representatives at the 21st session of the Intergovernmental Council of the UNESCO International Hydrological Programme adopted the following as working definition: Water Security is the capacity of a population to safeguard access to adequate quantities of water of acceptable quality for sustaining human and ecosystem health on a watershed basis, and to ensure efficient protection of life and property against water related hazards - floods, landslides, land subsidence and droughts.

and those in vulnerable situations.

3. It is important to protect and improve water quality by significantly reducing pollution of water resources, improving wastewater collection and treatment, reducing and preventing the release of pollutants into water and protecting surface and subsurface water bodies.

4. It is important to ensure supply and sustainable withdrawals of freshwater, both from surface and groundwater, and to take measures to significantly increase water-use efficiency across all sectors through the use of non-conventional and alternative water resources to address rising demand for water. There is a need to generate and utilize non-conventional water resources such as safe wastewater reuse and recycling, rainwater harvesting and desalination in providing enough safe water for all uses.

5. Participatory and inclusive approaches and access to information and decision making are essential in sustainable water management. Appropriate technologies and assessment measures as well as transparent decision making processes are essential to ensure inclusive participation of all relevant stakeholders.

6. Sanitation and wastewater management play an essential role in improving public health and hygiene. Therefore it is necessary to intensify efforts to achieve affordable, physically accessible, adequate and sustainable sanitation for all, without discrimination of any kind.

#### Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness

7. The world is experiencing increasingly frequent as well as intense water-related disasters. Therefore water-related disasters deserve more attention at the global level and dialogues on water and disasters should be promoted at various levels. Disaster risk management could be enhanced through : incorporating disaster risk management perspectives in development planning; prioritizing disaster risk management as key policy; increasing investment on reduction, preparation and prevention of water-related risks by combining structural and non-structural measures; and by taking the “build back better” approach towards reconstruction and recovery of societies after disasters. Providing systematic and effective response mechanisms through proper water management is critical to cope with the increased risks and uncertainties of water-related disasters arising from major global changes such as climate change.

8. There is a need to empower national platforms and institutions as a key step towards practical and evidence-based disaster risk management and adaptation to climate change which guarantees participation of relevant stakeholders, and the strengthening of preparedness, responsiveness, adaptive capacity, and resilience regarding water-related disasters. Coordination and integrated planning mechanisms are crucial in this regard. Strong public and private institutions with clear mandates, responsibilities and tasks are paramount. Capacity to identify sectoral and multi-sectoral risks and sharing of knowledge, data and good practices at the local, national and regional levels are vital for the development of solid and effective disaster risk management plans.

9. Policies and practices for disaster risk management should be based on systematic surveys, records of disaster losses and assessments of economic, social and health impacts. Capacity to assess damage by various hazards should be strengthened based on interdisciplinary knowledge to formulate preventive policies and strategies at the global, regional, national and local levels. To that effect, it is important to include in relevant policies and practices a reference to risk-based approaches which may serve as a basis for assessments and preventive measures.

#### Infrastructure for Sustainable Water Resource Management and Services

10. It is important to continuously develop, implement and maintain sustainable and climate-resilient water infrastructures which are technologically appropriate, environmentally sound, socially acceptable and cost-effective, with a special focus on economically water insecure regions, while promoting win-win approaches to infrastructure with transboundary effects. Infrastructure development should be conducive to optimizing stakeholders' benefits as well as to restoration, protection and maintenance and enhancement of ecosystems services. Existing infrastructures need to be updated and improved to track emerging and projected climate impacts. Effective utilization and management of water infrastructure considering foreseeable changes in stakeholders' demand need to be promoted.

11. Water infrastructure planning and development is necessary to achieve a balance among drinking water and sanitation needs, agriculture, energy, industry, risk mitigation, disaster reduction and preparedness and environmental and economic sustainability purposes. Water infrastructure should also take into account sustainability perspectives, including capacity development and training and economic, environmental and social sustainability.

## **Water for Development and Prosperity**

12. A continued focus on an integrated approach towards water, food, and energy security considering their interdependence is crucial to effectively cope with the increased food and energy requirements. It is important to align and harmonize policy measures both inside and outside the water domain, especially as related to water use for food and energy production and poverty eradication, enhanced through interdisciplinary research, institutional improvement and technologies.

### **Water for Food**

13. Structural and nonstructural measures and systems are necessary to effectively manage the rise in demand for water for food production. Appropriate investments are needed for the modernization of existing irrigation schemes and the deployment of improved technologies for recent and future ones to increase food security, rural prosperity and poverty eradication. The recognition of multiple functionality of agricultural water is important for preservation of biodiversity and natural environment. Enhancing understanding of the values and benefits as well as appropriate investments are necessary to secure and develop this multi-functionality.

14. It is important to implement approaches to minimize possible adverse impacts of water use for food production on ecosystems including soil degradation and groundwater depletion, through measures such as improving the efficiency of agricultural irrigation systems, efficient use of fertilizers and pesticides and the development and sharing of relevant technologies, knowledge and information.

### **Water and Energy**

15. Sustainable planning, building and operation of water and energy infrastructures and systems, while preserving and improving water resources and taking into account the sustainability of ecosystems need to be continuously strengthened.

16. It is important to improve the efficiency of water-energy systems across sectors such as water supply, wastewater, irrigation, energy production and provision and mining. Increased beneficial treatment,

use and management of non-traditional waters in the energy sector such as the use of recycled water, brackish groundwater and treated wastewater can improve the sustainability of withdrawals and supply of freshwater.

### Water and Cities

17. Most of the world's current urbanization is happening without sufficient planning, leading to slum growth on one hand and low density sprawl on the other, both of which aggravate water and sanitation inequalities, increase water loss, water pollution and service provision costs and impact negatively water resources. Water and sanitation services including water management, drinking water provision, drainage and wastewater treatment rely on good basic urban planning. Cities present enormous opportunities and potentials for resource capture, reuse and recycling that carry environmental benefits and make basic urban services more financially viable. Creating urban water resiliency involves building institutions and infrastructures that are capable of handling the difficult-to-predict events associated with climate change and urbanization, while contributing to the strengthening of underlying societal resilience that allows communities to withstand and recover from extreme events.

18. Urban water management and development of resilience need to be indispensable components of integrated and inclusive urban planning in order to assure resource recovery, water resiliency, water carrying capacity and improved livability. As such, it is important to foster improvements in water governance and capacity building in an integrated manner at the city level. Integrated Urban Water Management (IUWM) approach in the whole water cycle is useful in this regard. Strong city-level leadership for spatial planning and enabling multi-stakeholder platforms with particular regard to the poor and disadvantaged are important. There is a need to plan for resource recovery in cities by maximizing water, energy and materials recovery and reuse, enabling the identification and realization of cross-sectoral synergies for recovery and reuse and promoting the economic opportunities for resources recovered.

### **Water for Sustainability: Harmonizing Humans and Nature**

#### Green Growth, Water Stewardship and Industry

19. There is a need to increase synergies between environmental protection and economic growth. To

this end, it is necessary to seek policy frameworks to encourage the transition from resource-intensive economic growth to green growth in the context of sustainable development.

20. The establishment of national, regional and global partnerships and international financial cooperation to promote green growth and water stewardship in the context of sustainable development may contribute to enabling all countries, especially the most vulnerable, to strengthen their capacity required to effectively address the structural causes of poverty, inequality, climate change, and environmental degradation. The development of strong and effective public and private institutions, processes, platforms and partnerships needs to be supported as a pillar for effective and coordinated planning, evidence-based decision making processes, data collection, research and implementation of solutions towards green economy.

#### Managing and Restoring Ecosystems for Water Services and Biodiversity

21. Sustainable use, protection, conservation and restoration of biodiversity and ecosystems are the bases for environmental services and functions, which are fundamental for human well-being and sustainable development. Aquatic ecosystems including wetlands, forests, mountains, lakes and glaciers that provide considerable ecosystem services, are cradles of biodiversity. Water management needs to be enhanced in harmony with the principles of conservation and restoration of ecosystems and biodiversity and needs to incorporate ecosystems considerations into future policy making. There is a possible impact of invasive alien species on water ecosystems that needs to be addressed.

22. Strengthening sustainable and participatory management of water resources can guarantee the ecological flows and biodiversity. Water infrastructures including dams are tools for the development and management of water resources.

#### Ensuring Water Quality from Ridge to Reef

23. Safe and sustainable treatment of domestic, agricultural and industrial wastewater and discharges as well as enhanced management of hazardous chemicals and materials are essential to ensure water quality from ridge to reef. Water use efficiency needs to be promoted by reducing water loss in distributing system, encouraging the safe reuse of wastewater, improving monitoring and reporting of water accessibility and

quality, strengthening governance in sustainable management and enhancing management of various pollutants including emerging pollutants, aimed at reducing their use or introduction from the very beginning. Shared but differentiated responsibility among all actors who benefit from water sources, is a core factor to succeed in this regard.

24. It is important to assess the status of water quantity and quality at the basin, national and local levels and agree on how to monitor and manage their future development. In this regard, the World Water Assessment Programme of the United Nations system offers a vehicle that needs to be strengthened and supported. Global and local understanding by all stakeholders of the interconnectivity and importance of water quality and quantity management and monitoring from ridge to reef should be encouraged in order to address the related issues in a sustainable manner.

#### Smart Implementation of Integrated Water Resources Management (IWRM)

25. In the face of rising demand for water and increasing problems with water-related disasters and water quality, the future management of water must implement holistic solutions, in particular through smart and innovative technologies, taking into account the application of water of different qualities for different uses. This approach seeks greater efficiency in the management and utilization of water resources across competing uses including domestic, agriculture, food production, ecosystems, industry and energy uses.

26. Smart water policies, technologies and tools are necessary for the conservation and sustainable utilization of water as well as to implement IWRM. To this end, it is important to foster capacity building and participation of relevant stakeholders at all levels. There is a need for establishing basic operation guidelines for IWRM at the national level, taking into account country-specific means of implementation. Ensuring sound water cycle may contribute to the sound development of national economy and society and stable improvement of citizens' lives. It is important to maintain and recover sound water cycle through promoting relevant international cooperation as well as managing water cycle and river basins in integrated and comprehensive manner.

#### Constructing Feasible Implementation Mechanisms

##### Economics and Financing for Innovative Investments

27. Water resources and ecosystems services need to be funded in a sustainable way at the local, regional and national level from domestic and international as well as public and private sources to minimize the risks of shortage, excess, inadequate quality, inequalities in accessibility or undermining of the resilience of ecosystems. In this regard, creative financing mechanisms and enhanced public and private contributions are essential for the investments on water.

#### Effective Governance: Enhanced Policy Decisions, Stakeholder Participation and Technical Information

28. Water governance is critical to enhance effective, efficient and socially acceptable design and implementation of water policies and projects, to strengthen institutions' resilience and to articulate stakeholders' interests. Governments play a key role in strengthening water governance at all levels, taking into account that there is no one-size-fits-all solution to the water-related challenges worldwide, but a range of home-grown and context-dependent solutions. In this regard, it is important to improve water governance, as appropriate, through ensuring appropriate water planning, inclusive and participatory stakeholder engagement, transparency and accountability, preventing corruption, and strengthening administrative capacity.

29. It is imperative to define roles and responsibilities of different authorities and to establish legal and institutional frameworks. Cross sectorial coordination among water-related policy fields needs to be encouraged to improve policy coherence and synergies at different scales. Multi-stakeholder initiatives promoting exchanges of best practices such as the OECD Water Governance Initiative, which builds upon the 6th World Water Forum's commitments, and the Lisbon Charter guiding the Public Policy and Regulation of Drinking Water Supply, Sanitation and Wastewater Management Services recently approved by the International Water Association(IWA) are good mechanisms to develop new tools for water governance and stakeholder involvement. Further strengthening of financial instruments for effective governance should aim at ensuring economic efficiency and equity across people, places and generations, while the use of policy-relevant data and information is essential to guide decision making and to enhance monitoring and evaluation in order to adjust policies where needed.

#### Cooperation for Improving Transboundary Water Management



30. Cooperation and dialogues over transboundary waters among riparian countries offer significant prospects for their sustainable development, regional integration and enhancement of mutually beneficial relations in economic, social and environmental fields. In many regions, riparian countries of transboundary basins have created joint commissions, authorities or international organizations, improving dialogues, exchanges of useful information, conflict resolutions and benefit sharing.

31. One of the keys to building trust could be facilitating data and information exchanges among riparian countries of transboundary basins and aquifers. Enhancing public access to water-related information - especially that enable reducing risks from floods and droughts - should be enhanced, and the exchanges of relevant information among riparian countries should be facilitated. Cooperative efforts in the field of transboundary waters are strongly encouraged. The recent entry into force of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses in August 2014, as well as the amendments for the opening of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes to all United Nations Member States are useful in this context, noting that they can only apply when appropriate.

32. Policy coherence and stronger integration across sectors for energy production, land management, water resources planning and environmental management should be enhanced to prevent negative cross-sectorial and transboundary impacts and create additional opportunities for equitable and sustainable sharing of benefits from water use. There is also a need for coordination between the governance and management of freshwater, land and marine systems and prevention of the pollution of surface, ground and coastal waters and oceans.

33. There is a need for reasonable and sustainable management of transboundary aquifers, and countries are encouraged to enter into effective dialogues to this end. Implementation of IWRM plans by applying different instruments including basic operation guidelines for IWRM at the national level should be enhanced, taking into account the means of implementation specific to countries and regions. Capacity building in terms of water governance is also crucial.

#### Water Cultures and Equity

34. Water is at the core of civilizations and is a key component in all cultures, past, present and future. Water-related decisions have economic, social, environmental as well as ethical dimensions of existential importance, especially for most vulnerable groups affected by poverty, exclusion and discrimination, including women and indigenous peoples. It is imperative to foster the knowledge embedded in the collective experience of humanity to respect its diversity which holds irreplaceable keys for the human made and natural environmental capacity to respond with wisdom and justice to change as a catalyst for peaceful and equitable cooperation. There is also a need to fully take into account the complex cultural realities, ethical imperatives and the vulnerable groups in decision making, water management and governance to enhance cooperation with all relevant actors.

#### Enhancing Education and Capacity Building

35. Education and awareness on water and capacity development in water-related activities and programs at all levels are essential for reducing inequality and empowering the civil societies, taking into account the gender dimension at all levels. Effective educational programs on water for women, children and youth are essential in this regard. It is also important to foster the creation of water-related jobs and to enhance expertise in water management such as irrigation, aquaculture, hydropower, water supply and sanitation. Vocational training on water supported by sustainable financial mechanisms and creating and strengthening national and international water training centers should be promoted. It is necessary that multilateral cooperation programs on water through international cooperation organizations incorporate these ideas and promote the experimentation, evaluation and exchange of know-how on vocational training and higher education, including supporting cooperation networks between existing training and academic centers and new ones to be created.

36. Women are experts, leaders and agents of change in the water-sustainable development nexus, thus play important roles in achieving equitable access to water for all and all uses including sanitation. Therefore, it is effective to include women at all levels of decision making by setting quota of at least 40% women in water governing bodies and ensure their voices are actually heard; and by involving them in designing, implementing, evaluating programs and projects in the field of water and sustainable development. Allocation of sufficient means and budget, inter alia, for empowerment, capacity development including vocational training, career enhancement and institutional arrangements, to enable women to fulfill these roles is a condition for their effective involvement.

## **Science and Technology**

37. It is important to provide scientific support and to promote the development and diffusion of relevant technologies for reduction of water-related diseases, improvement in purifying treatments required in the production of drinking water and wastewater management. It is necessary to use science, technologies and innovations to design and implement policies that improve efficiency throughout the water cycle, including those that recognize the inter-linkages between water-land-energy and policies that promote sustainable production and consumption and management of water demand. It is important to reinforce the ongoing process to create an intergovernmental panel under the United Nations on water-related matters in accordance with the recommendation of Budapest Water Summit and the Lima Ministerial Declaration on Climate Change, Education and Awareness-raising regarding the need of a robust intergovernmental institutional mechanism to establish an innovative platform which pursues to bringing together the science and the policies in recognition of the importance of this vital resource.

38. A robust methodology for water-related data collection, as well as relevant socioeconomic analysis are vital to enhancing water management and evidence-based policy making. The integration and fusion of collected observational data with socioeconomic data, as appropriate, are relevant steps to transform such data into usable information for sound decision making. Disaggregated data collection is crucial to develop effective policies for equity and involvement of major groups and to evaluate the effectiveness of programs –related to gender, age and income..

39. Science and technology provide unprecedented tools for policy makers and practitioners to act for successful disaster risk management and climate change adaptation at all levels. It is important to enhance scientific and technological research in managing risk and uncertainty for resilience and disaster preparedness through mobilization of existing networks of scientific and research institutions at the national, regional and international levels as well as to promote capacity development and collection, processing and dissemination of data.

40. Innovation in the water sector should incorporate developments from outside the water domain. Information and Communication Technology(ICT) development should harness innovation in the water

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sector, and best practices such as GEOSS(Global Earth Observation System of Systems) and DIAS (Data Integration and Analysis System) should be shared between the water and the science and technology sectors voluntarily and on mutually agreed terms.

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