

# Thematic Commission

## Theme, Topic and DRAFT Session Descriptions

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Please note that Session Descriptions are working DRAFTS

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### Theme 1: CLIMATE

Climate change impacts water resources first and foremost. Changes in climate mean changes in the water cycle, in rainfall distribution patterns, in river water flows, in groundwater recharge and quality, and in the occurrence of extreme hydrological events, such as drought, flooding, storms, ice melting, etc. Climate change further exacerbates existing freshwater challenges related to both quantity and quality for human activities and ecosystems.

Its cross-sector nature makes water security the key to successful adaptation measures – which require articulated policy, planning and action, involving governments at all levels, sectors and society. At the same time, water is critical for successful climate change mitigation, as many low-carbon solutions depend on reliable access to water resources. Progress will be dependent on good communication between science and decision/policy making and implementing actors.

With the 2015 Sendai, SDG's and COP21 agreements, the world committed itself to ambitious goals and targets for both water and climate. Our common task is now the Implementation of these goals and targets. This WWF8 is a unique opportunity to discuss between governments, science, NGOs and the private sector how to jointly organize the implementation process in a speedy and effective way. The 8th World Water Forum discussions should focus on sharing inspiring examples of the necessary policies and measures and proposing and financing and mechanisms with which these ambitious goals and targets can be reached.

The 8th World Water Forum discussions under this theme will focus on climate risk assessment, water safety and protection of people and livelihoods and should result in climate being a major consideration in sharing water and the implementing the SGDs, including the Paris Climate Agreement.

The Climate Change theme will focus on water security and climate change, considering the following four topics:

- a. Managing risk and uncertainty for resilience and disaster preparedness
- b. Water and adaptation to climate change
- c. Water and climate change mitigation
- d. Climate science and water management: the communication between science and decision/policy making

SDGs and other relevant global agendas linkages:  
SDG 13, SDG 11.5, COP 21-22, Sendai DRR Summit

Implementation Roadmaps linkages:  
IR 1.3

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### **Topic a. Managing risk and uncertainty for resilience and disaster preparedness – IR 1.3**

**Topic Description:** Draft (19 June 2017) In a society conditioned by the effects of climate change, the adoption and implementation of management measures for risks and uncertainties to extreme water-related events is mandatory. In order to promote socio-economic growth and sustainable development, it is fundamental to establish a society resilient to extreme events.

Taking into consideration the Sendai Framework, in order to accomplish human dimensions based on knowledge, capacitation, cooperation and preparedness, we propose the following issues:

- To assess disaster risk and vulnerability related to extreme natural events and use scientific information to develop appropriate and innovative integrated strategies to reduce risks.
- To analyze governance projects promoted by the local communities within an integrated management of environmental risks, considering the role of civil protection and determine interface and synergy points.
- To determine resilience and adaptive capacity level of communities, as well as pull together key tools, resources and partnerships for enhanced adaption planning.

#### **Session 1 – Title:** Uncertainty, vulnerabilities and resilience

**Session 1 – Description:** Disaster risk reduction and building resilience are among the themes chosen by the Secretariat of the United Nations Conference on Sustainable Development, Rio + 20.

On July 2014, the United Nations Development Program (UNDP) released the Human Development Report 2014, the title of which is self-explanatory: “Sustaining Human Progress: Reducing Vulnerabilities and Reinforcing Resilience”.

This session aims to discuss adaptation to climate change in a context of uncertainty, as a strategy to reduce local vulnerability and to form processes of transition to more sustainable states of social and environmental resilience.

#### **Session 2 – Title:** Hydro-climatic risk in land planning and management

**Session 2 – Description:** The prevention of hydro-climatic risks is a need currently recognized unanimously by international and EU guidelines, and is based on the general principles of integration of public policies with a territorial impact.

The planning and management of the territory thus contribute to the prevention of hydro-climatic risks inherent in disaster situations and to the mitigation of their effects. With this session, we intend to discuss the different strategies and methodologies developed in the scope of the integration of hydro-climatic risks in the management of the territory.

#### **Session 3 – Title:** Local communities and hydro-climatic risks

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**Session 3 – Description:** The lack of policies that promote the management of hydro-climatic risks is a reality. In this context, the role of local communities in the risk management process thus becomes vital: they are the most interested in preparing against these extreme events. With this session, we intend to contribute to the discussion of hydro-climatic risk management models emphasizing the importance of local communities and participatory planning as tools for the prevention and coping of disaster scenarios and their integration into common security and civil protection policies.

### **Topic b. Water and adaptation to climate change**

**Topic Description:** Final (29 June 2017) At COP21 and COP22, the international community acknowledged that climate change strongly impacts freshwater resources, leading to water cycle changes and unpredictable rainfall patterns. More frequent and intense floods and droughts, reduction of snow cover and melting of glaciers altering river flows, lowering of aquifers and sea level rise are some of the main consequences of climate change.

Such changes have far-reaching social, economic and environmental impacts. Increasing resilience to climate change is therefore becoming an urgent concern in all countries, especially in the most vulnerable ones.

This topic will therefore identify solutions to adapt our societies and water resources and aquatic ecosystems management to climate change. By promoting technical, institutional and ecological solutions adapted to specific local, basin, national and transboundary contexts, it will illustrate how measures to reinforce water security at all levels can contribute to adaptation to climate change. Financing tools and procedures, knowledge and information improvement and sharing as well as governance and capacity building issues will also be addressed.

**Session 1 – Title:** How climate change affects all the different water users: The need for cross-sectoral approaches for adaptation

**Session 1 – Description:** The session aims to promote an integrated vision through the main actors affected by climate variability and its implications on water management. A cross-sectoral approach aims to bring together the many human demands and activities depending on the management of hydrological systems under a common adaptation strategy. The session will address different levels of actions, tackling the shortcomings towards an integrated distribution of surface and underground water resources and environment towards adaptive and resilient systems. Discussions may include speakers from different sectors (national and local authorities, water utilities, business, farmers, communities, NGOs...) presenting practices and challenges they have been making and facing to deal with this new integrated paradigm.

**Session 2 – Title:** Innovative financial mechanisms for adaptation to climate change

**Session 2 – Description:** Countries worldwide have adopted INDCs and NAPs under the UNFCCC, with a strong focus on adaptation of water management, as many economic sectors highly depend on the availability and quality of this resource. A major financial effort is required for implementation of structural and non-structural measures for adaptation: basin management, monitoring, flood protection, drought forecasting, demand management, aquifers and wetlands

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protection and restoration, soil conservation, multipurpose storage reservoirs, resilient cities or efficient irrigation.... This session will discuss the lessons-learned in planning and financing basin adaptation worldwide and in particular in Latin America and promote financing tools (incl. redistributive financial mechanisms, payment for ecosystems services, users/polluters pay systems...) for the development and implementation of adaptation measures and projects.

### **Session 3 – Title:** Do not reinvent the wheel: Making the most of no-regret adaptation measures

**Session 3 – Description:** At UNFCCC COP21 (Paris) and COP22 (Marrakech), fresh water was recognized as a full priority of the Global Climate Action Agenda: 359 organizations in 94 Countries have signed the Paris Pact for water resources adaptation in basins and commit themselves to act quickly. They identified key issues for action from capacity building, stakeholder involvement, risk prevention, demand control to ecosystems services solutions...all are non-regret measures successfully implemented in different regions. This session will mobilize the Paris Pact signatories and organizations sharing the same approaches to show their initiatives and exchange best practices to facilitate their adoption by different actors and to mobilize energies to react quickly.

### **Topic c. Water and climate change mitigation**

**Topic Description:** Final (19June2017) To limit impacts of climate change, it's crucial to ensure high-level commitments made by countries in the Paris Agreement and the Sustainable Development Goals are fulfilled. While the water sector has to cope with climate impacts, it's also a significant source of global GHG emissions from nitrous oxides, methane and energy use in services. Fortunately, there are many promising solutions to reduce emissions using water as natural resource, as well as designing low-carbon urban water services. Mitigation measures such as renewable energy production (e.g. hydro-power, biofuel crops, energy forests), agricultural intensification, water reuse and rainwater harvesting present new opportunities, but should be considered holistically to avoid adversary effects. Measures must be ordered by merit according to their emissions reductions and by assessing their impacts on water management. Co-benefits of integrated mitigation and adaptation approaches can be leveraged by developing appropriate policies, unlocking financing, improving governance, data access and building capacities.

### **Session 1 – Title:** Water and land management contributing to Climate Mitigation targets

**Session 1 – Description:** How can water resource and land management effectively contribute to climate mitigation and the uptake of measures be accelerated to achieve global targets by 2030?

There are opportunities to reduce carbon emissions through different sectors and orders of magnitude within a watershed such as water reuse in agricultural production, using water quality fit-for-purpose for landscaping, green infrastructure and sustainable approaches to capture rainfall in aquifers, ponds and wetlands. Also, larger scale approaches using water in renewable energy production (e.g. hydropower, biofuel crops) exist, although these need to consider the value chain of energy production to account for a positive carbon balance.

### **Session 2 – Title:** Low carbon water services to achieve climate mitigation

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**Session 2 – Description:** Population growth and urbanisation are estimated to increase the demand for water and sanitation services by 40% in only 15 years. Globally, approximately 80 percent of wastewater is discharged to the environment untreated, a crucial area of emissions reduction.

Utilities can anticipate the need to expand service levels to ensure adequate water supply and sanitation services, while investing in low-carbon urban water services that include energy efficiency and GHG reduction technologies to prevent water insecurity. Those include the reduction of water losses, increased energy efficiency, improved wastewater treatment, conversion from waste to energy and the reuse of nutrients. What are the key challenges and how can these be overcome?

**Session 3 – Title:** Strengthening waterwise management and climate mitigation through integrated policies, regulation and financing

**Session 3 – Description:** There are strong synergies between climate and water action. Emissions from the water sector (especially drinking water and wastewater services) present new opportunities to contribute to Nationally Determined Contributions limiting global temperature rise. Holistic water management approaches guided by good policies and governance require special emphasis, for example for using water to produce renewable energy. Integrating water and climate agendas, promoting coherence between adaptation and mitigation approaches, and sound accounting methods for GHG emissions will improve access to financial mechanisms and drive the so-needed upscale of mitigation measures. How to create an environment enabling the mitigation in the water sector?

### **Topic d. Climate science and water management: the communication between science and decision/policy making**

**Topic Description:** Final (27 June 2017) Scientists and policy makers have a joint responsibility to work together in the development of sustainable solutions to existing and emerging water problems, and provide necessary transformations towards achieving the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.

The sessions will touch upon the urgent need to increase coherence and clearness for decision-making and science, and improve science-policy communication institutionally. Science communication needs to be tailored to different audiences and allow mutual communication, allowing for feedback that can identify research questions to address the most urgent challenges and political and societal needs on climate change and water security.

The sessions will discuss how clear science communication may be developed despite the uncertainties of scientific findings. It will also discuss how political frameworks that recognize the role of science in weighing options for multiple scenarios can support science-based decision making and greater interactions and trust between scientists and governments.

**Session 1 – Title:** Influence of Science on Policy and Decision Making

**Session 1 – Description:** The influence of science and scientific data and tools are fundamental for integrated water resources management and to move towards climate informed decision and

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policy-making. Several challenges need to be addressed regarding current governance structures, which are often scattered by multi-sectoral approaches and with overlapping responsibilities, and working on limited human and financial capacities. This session focusses on best practices and lessons learned regarding climate science integration in policy and decision making, and explores how changes in governance structures could allow for better science-based decision making in the water sector.

**Session 2 – Title:** Citizen Science approach in Hydro-Climate Services for achieving the SDGs and global goals

**Session 2 – Description:** The session will discuss the interaction between the decision-making process and the necessity of benefit-sharing partnerships that promote the convergence of decisions towards common goals. The role of citizen science is highlighted as an important driver in hydro-climatic data collection and validation. Water information network systems and accessible, innovative technologies have the potential to be developed further in support of SDG implementation. The session will present best practices to empower and inform the public as way to strengthen the triangular interface of academia, the public and government.

**Session 3 – Title:** Uncertainty and limitation of Science and Science Communication

**Session 3 – Description:** Climate science has made significant advances during the last two decades. However, this knowledge has not yet been implemented at the policy level for decision making in the medium and long term, due to a mismatch in spatial and temporal scales and the significant uncertainty in projections under climate change scenarios. Innovative approaches are needed to bridge the gap between climate science and policy making in order to better integrate climate risk informed decision-making, and to provide a framework to foster community-based adaptation strategies for improved water resources management, disaster prevention, and to reduce the impacts of global change.

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### Theme 2: PEOPLE

Access to safe water and sanitation is indispensable to everybody, everywhere and all the time. WASH, water scarcity and pollution have become systemic global risks with negative impacts on people's lives.

SDG6 and human rights to safe water and sanitation (HRWS) provide a people centred approach to sustainable development in countries at every level of development. Water connects people through their lives. Providing access to water and sanitation is essential for guaranteeing well-being and ending poverty. Solving water related issues is a primary requirement for other development actions, sharing prosperity and sustainability. However, even today, many people still lack adequate access to safe water and sanitation facilities.

Monitoring, analysis and advocacy have become increasingly tangible and contribute to evidence-based decision-making, dialogue, and improved coherence of the global water agenda.

Considering these aspects, under the perspective of peoples' dignity, ensuring human equality, as well as considering new realities such as those related to migrants and refugees, this theme aims to create a space in which all water sector actors, including youth, can discuss development and implementation of effective water and sanitation services delivery models and technical innovations, scaling them to strengthen public health through new financial mechanisms. Also, it wants to be a space for showing innovation and partnership models, fostering know-how transfer, scaling-up best practices, access to data and attracting additional funds.

Putting all together, the discussions for developing sustainable access to safe water and sanitation services, while protecting public health, will be both challenging and rewarding.

The People theme will focus on water, sanitation and health, considering the following three topics:

- a. Enough safe water for all
- b. Integrated sanitation for all
- c. Water and public health

SDGs and other relevant global agendas linkages:

SDG 6, targets 6.1, 6.2, 6.3, 6.b and SDGs 1 and 3

Implementation Roadmaps linkages:

IR 1.1 and IR 1.2

#### Topic a. Enough safe water for all – IR 1.1

**Topic Description:** Topic 'Enough Safe Drinking Water for All' will seek to identify sustainable avenues and new coalitions to raise political prioritisation for the implementation of SDG6. New

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data from the UN show there is a need for a step-change (<http://www.un.org/apps/news/story.asp?NewsID=57163#.WWd9k4jyjwB>): Some three in ten people around the world lack access to safe and readily available water at home, and almost six in ten to safely managed sanitation, a new United Nations report has warned. Topic will focus on the bridges with the other SDGs it underpins, with involvement of “stakeholders from ALL generations” and by bringing in non-water box players. The ambitious goals of SDG6 need high political support, understandable targets; and effective partnerships to deliver those; and equally efficient monitoring tools to help promote: new practices, financing tools and innovative strategies to deliver the human rights to safe drinking water and sanitation for all, everywhere, forever.

### **Session 1 – Title:** SDG6 - Source of Life!” Helping Governments to implement the Water Targets

**Session 1 – Description:** Session will highlight the prioritization of the SDG6 implementation at national level, by showcasing (priority and beneficial) impacts on populations, nature and economy directly, and by highlighting interconnections with the achievement of other SDGs (not standalone from Topic Sanitation!). The SDG 6 implementation requires the Governments to move from MDG ‘successes’ of providing access to ‘improved water source’ and SDG ‘gaps’ to provide ‘safe’ water for all based on new indicators. As the Governments will report to the HLPF at the UN in 2018, the session will be right platform to build a political commitment to implement the SDG6 targets.

### **Session 2 – Title:** Water as a human right: Implementing sustainable financing and institutional tools and strategies

**Session 2 – Description:** This session will explore the institutional changes needed to achieve the human rights to water and sanitation, everywhere. How to mobilize sustainable financing and implement the 3T model while respecting all the dimensions of the human rights to water and sanitation? How to convince Governments and general public that for every €/ \$ spent on water services, economic and social and health benefits yield multiples? What are the appropriate frameworks and best practices to be put in place at institutional and societal level to help achieve the goals of water and sanitation services for everyone, forever, everywhere; (and most disadvantaged/discriminated first)?

### **Session 3 – Title:** The Invisible Realities: Safe Water in Slums, Post-Conflict and Post-Disaster Situations, and Other Communities

**Session 3 – Description:** Vulnerable groups and settlements, such as slums, post-conflict and post-disaster camps, and rural and indigenous communities with specific characteristics and needs, require particular forms of intervention in WASH services, both for environmental, technological and educational issues as well as for management and sustainability. Investments in water and sanitation infrastructure historically have been concentrated on public policies aimed at urban areas at the expense of these communities. As a result, populations in remote, rural and indigenous communities; informal settlements; and post-conflict and post-disaster areas not have (proper) access to these services. Therefore, it is fundamental to provide them with equitable access to WASH services.

### **Topic b. Integrated sanitation for all – IR 1.2**

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**Topic Description:** The global sanitation situation is critical: In 2015, 2.3 billion people still lacked even a basic sanitation service. Most excreta and wastewater are not safely disposed of. Almost 900 million people practice open defecation. SDG 6.2, focusing on sanitation and hygiene, is an ambitious target, the capital financing required to ensure services for all being an estimated 71 billion US\$/year. Good sanitation and hygiene support public health, food security, education, the environment and the economy. Moreover, sanitation is a human right, which demands that we prioritise the most vulnerable people and ensure dignity for all. Sanitation is a highly personal issue and it requires intensive participation of all stakeholders. We invite you to discuss how to: increase political prioritisation and financing; engage all stakeholders in this taboo issue; look beyond technical solutions and understand how the sanitation chain affects different population groups; address the fragmentation in the sector and the links between sanitation and wastewater management; work in partnership within and across sectors.

### **Session 1 – Title:** Realizing the human right to sanitation

**Session 1 – Description:** In 2010, there was consensus at the Human Rights Council recognizing the human right to sanitation. Now, with the 2015 agreement on the Sustainable Development, which also refers to the right to sanitation, governments are struggling with how to realize the right to sanitation. This session will examine how the human rights principles of access to information, participation, non-discrimination, accountability and sustainability can help governments to make the right decisions to make sanitation accessible to all, focusing on the needs of the most disadvantaged individuals and communities.

### **Session 2 – Title:** Whole sanitation approach, sanitation chain, innovation

**Session 2 – Description:** The indicator of success on reaching SDG target sanitation is the proportion of the population using safely managed sanitation services, which means “excreta are safely disposed in-situ or transported and treated off-site”. This session will provide an opportunity to discuss sanitation chain through the stages of collection, storage, transport, treatment and recycling/reuse of faecal matter. Participants will consider innovative technological, social and economic models that can accelerate progress towards achieving safely managed sanitation services. Participants will also examine ways of sustaining these services in a global context of rapid urbanization and high population growth, especially in developing countries with limited financial resources.

### **Session 3 – Title:** Putting in place the necessary building blocks to reach Sanitation for All

**Session 3 – Description:** Achieving sustainable access to sanitation for all, while prioritizing the needs of the most disadvantaged individuals and groups, will require realistic plans and strategies; adequate institutional and human resource capacity; robust institutional arrangements; adequate and efficiently-utilized financing, and strong accountability mechanisms. This session will focus on these essential building blocks for a well-functioning sector. Participants will discuss the gaps and challenges in the sanitation sector, the difficult decisions that face policy-makers and practitioners particularly in eliminating inequalities in access, and approaches to unblocking bottlenecks which impede progress.

### **Topic c. Water and public health**

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**Topic Description:** Water is recognized as a human right by the UN, intrinsically connected to the quality of life and health. As a determinant of health, well-being and good nutrition, if water is not offered in sufficient quantity nor quality, it may transmit various diseases or reduce absorption capacity of the human body. Recent researches stress the link between the lack of sanitation, poor water quality and undernutrition among vulnerable groups - such as children under 2 years old. People suffering from humanitarian crisis are also vulnerable in terms of water and public health. In such way, the discussion brought under this topic intends to further this debate, focusing on diseases related to or transmitted by water, as well as look for alternatives which guarantee the universal access to safe water, adequate and equitable hygiene and sanitation beyond the toilet, as a way to promote/ensure well-being for everyone, everywhere, guided by SDGs 3 and 6.

**Session 1 – Title:** Safe Water: What still needs to be done for the prevention of WASH and waterborne diseases?

**Session 1 – Description:** Nowadays, people still do not have adequate access to public health and WASH in terms of quantity and quality. Such issues are aggravated in humanitarian crisis, affecting populations as refugees and other displaced citizens as a result of conflicts, poverty or lack of opportunities – in rural areas and others vulnerable due to natural disasters. Such scenario may increase waterborne diseases outbreaks in these populations, demonstrating recurrent social and environmental inequities everywhere. This session aims, while discussing strategies for waterborne diseases outbreaks prevention, indicate and develop adequate and sustainable infrastructure, financing, integrated management, policy making and enforcement, considering cultural particularities.

**Session 2 – Title:** Synergies beyond SDG 6: access to safe drinking water, sanitation and hygiene for improved nutrition and public health

**Session 2 – Description:** The beginning of the SDG era calls for joint multi-sector action, collaboration, engagement; and is a right time to demonstrate, practically, how nutrition and WASH actions can be integrated for better health outcomes. The WHO estimates that 50% of cases of child undernutrition are the result of repeated diarrhoea and intestinal infections caused by poor sanitation and hygiene conditions or lack of safe water. This session will present experiences from countries advancing on WASH, nutrition and health linkages at research, policy and implementation levels, aiming to overspread feasible ways to improve the situation.

**Session 3 – Title:** Risk communication related to quality of water for human consumption: seeking population's empowerment and the minimization of health risks

**Session 3 – Description:** Dialogue promotion incorporates community's needs in policy making process. Integrating population in risk management and public health policies, through a confidence relationship is essential. A routine surveillance, mainly by drinking water monitoring, generates information that can become public, enabling community engagement and empowerment, especially young people, who can be agents for a better WASH practices. Such practices contribute to individual and collective behavior change. Hence, this session will debate the importance of empowering the people as well as the need for transparency of governmental and non-governmental actions, contributing for public health and related policies effectiveness.

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### Theme 3: DEVELOPMENT

Water plays a critical role for sustainable development. From food and energy security to human and environmental health, water contributes to improvements in social well-being and inclusive growth, affecting the livelihoods of billions. Our current pathway of development puts considerable pressure on water resources – agriculture, energy, industry and cities all affect the quality, availability and accessibility of water. Competing demands, inefficiency and lack of financial support impose difficult allocation decisions and set limits for all sectors.

As the largest water user, agriculture plays a key role in addressing water issues. At the same time, agriculture must produce enough food with less water to feed a growing world population, requiring profound changes in our food and agricultural systems. Meeting ever-growing demands for energy will generate increasing stress on freshwater resources with implications for other users, such as agriculture and industry, which also require energy, creating some synergies as they develop together. The theme will discuss how this can be done by the water-using sectors in terms of efficiency, sustainability and governance through a Nexus approach.

Water stewardship has come to redefine the role of industry and business in sustainable development challenges. Companies are beginning to understand what water means to them, their profits and their long-term viability. Wise investment in both hard and soft infrastructure that is adequately financed, operated and maintained facilitates the structural changes necessary to foster advances and efficiency in many productive areas of the economy.

The outcomes of this theme must support the development and implementation of policies and actions for the sustainable use of water, to achieve the goals and targets of the 2030 Agenda for Sustainable Development.

The Development theme will focus on water for sustainable development, considering the following five topics:

- a. Water for Food
- b. Water for Energy
- c. Inclusive and sustainable growth, water stewardship and industry
- d. Efficient use of surface water and groundwater - urban and rural
- e. Infrastructure for sustainable water resource management and services

SDGs and other relevant global agendas linkages:

SDG 6, target 6.4 and SDGs 2, 7, 8, 11 and 12

Implementation Roadmaps linkages:

IR 1.4, IR 2.1, IR 2.2 and IR 3.1

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### Topic a. Water for Food - IR 2.1

**Topic Description:** If discussions about sharing water do not include the use of water in agriculture, we're missing 70% of the conversation. That is the percentage of the world's freshwater currently consumed by agriculture. As you know, water is our most precious and limited resource and competition for its use is one of the most urgent challenges of our time. By 2050, we'll have nearly 10 billion people on our planet. Fortunately, this growth is leading to prosperity, but as more people rise from extreme poverty, there is mounting demand for water intensive foods, such as meat and dairy products. There are also the devastating effects of climate change – prolonged droughts, floods, violent storms and temperature extremes. But great challenges attract bright, optimistic challengers. This topic will explore innovative solutions being developed to increase water productivity and ensure food security through effective water management and governance; technology advancements; climate monitoring and mitigation; and building capacity through education and outreach.

#### **Session 1 – Title:** Soil and Water Conservation Practices for Improved Food Production

**Session 1 – Description:** Soil conservation practices in agriculture are an effective way to promote a real increase in the availability of water in watersheds. Correct soil management, soil infiltration and porosity monitoring and improvement, new cropping technologies, and efficient irrigation management can help farmers to better understand water productivity and soil health conditions. However, without the direct involvement of the farmer, the information will not be put to effective use.

This session will include case studies, as well as discussions on ways to successfully introduce and implement effective tools and techniques for disseminating information and technology on improving soil and water conservation practices and availability of water in river basins. SDG Goals: 6.3, 6.4, 6.6 and 2.4

#### **Session 2 – Title:** Water for food processing: waste reduction, optimization and reuse

**Session 2 – Description:** One-third of all food is wasted as it moves from field to fork. Besides the economic costs, wasted food consumes a quarter of all water used by agriculture annually, while putting pressure on land and energy resources. Thus, cutting food waste could get us closer to feeding 9 billion people by 2050.

This session will explore strategies for accounting and reducing food losses in the supply chain, while integrating opportunities for water optimization and reuse in the food-processing sector as an additional approach to reduce waste. These strategies will be analyzed using tools and comparison metrics for the decision making process. SDG Goals: 12.2, 12.3, 12.4, 12.5, 12.6

#### **Session 3 – Title:** Floods, Droughts, Wind, Fire: Building Resilient Agricultural Systems

**Session 3 – Description:** Changing climate will pose additional challenges to agriculture, livestock and food production systems with more frequent climatic extremes. Building resilience to these events includes a number of conservation practices as well as the use of information resources and biotechnology. The introduction of better soil and water conservation practices, the development

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of crop varieties resistant to drought and other stresses, the introduction of sustainable irrigation systems and the implementation of climate monitoring and early warning systems are some of the ways we can ensure food security despite uncertain climatic conditions. This session will explore some of these techniques along with infrastructure needs and information systems to improve resilience in agricultural areas. SDG Goals: 13.1, 13.3, 2.3, 2.4, 2.5, 6.4

### **Topic b. Water for Energy - IR 2.2**

**Topic Description:** Across the energy sector, water is used from sourcing to production, including extraction of fuels (oil, gas, bio-fuels, uranium, etc.), energy production (cooling systems, hydro turbines, geothermal, production of biofuels) and conversion, refining, storage, and transportation. In a context of increasing pressure on natural resources combined with climate and land use change, population growth and urbanisation the inter-linkages across energy and water systems have grown more complex and interdependent, resulting in impacts on the availability and cost of energy generation. Improving wise use and efficiency of water needs to be considered across the energy production value chain for there to be beneficial effects on business, society and the environment. There are opportunities for improving the combined efficiency of water use, while maximising energy production through innovative technology as well as financial mechanisms, policies and regulation. This includes decentralized and independent energy systems such as micro-hydro solutions, and tapping into energy production from wastewater. The targets of the SDG water goal impact the targets of food and energy goals. Being able to estimate and optimize the energy sector's interactions with water is a crucial challenge to contribute to a sustainable future.

#### **Session 1 – Title:** Optimizing the water-energy production value chain

**Session 1 – Description:** There are numerous opportunities for achieving sustainable water use in the energy sector. This includes: improving water efficiency for energy production through water reuse, using water of a quality fit for purpose, reducing water loss in energy processes, producing more kWh per drop of water, applying the circular economy concept to water use in energy production and promoting conservation practices. These can be supported through approaches such as water footprint, water impact assessments and value chain analysis

#### **Session 2 – Title:** Securing water for energy through resilience to global change

**Session 2 – Description:** Water resources are under increasing pressure due to unprecedented population growth, a changing climate, rapid urbanization, expansion of infrastructure, migration, land conversion and pollution. These global changes are impacting the flows and stores of water – from rapidly melting glaciers to the decline of groundwater due to overexploitation. Despite the increasing threat to water resources and the resulting impact on energy production, there are innovative approaches to improve resilience including low energy systems, energy production from wastewater (biogas) and water distribution networks (microturbines), generating energy through decentralised systems including geothermal energy, as well as improving watershed management for energy generation.

#### **Session 3 – Title:** Promoting good water governance for sustainable energy production

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**Session 3 – Description:** Choices and actions around water and energy will impact each other, therefore decisions on policies and investments need to sustain or improve benefits and minimize trade-offs. Unfortunately, in many regions, water use planning and energy production policies are not aligned so infrastructure development and shortage management plans are non-functional during extreme events (e.g. droughts). Current practices must make water provision as energy efficient as possible, and to ensure the impacts of energy production on water and their ecosystems are minimised. The establishment of a supportive enabling environment with financing, policy, planning and regulation is essential for sustainable energy production, and equitable distribution.

### **Topic c. Inclusive and sustainable growth, water stewardship and industry – IR 3.1**

**Topic Description:** Water stewardship has the potential to bring together multiple community, industry and government stakeholders to achieve common agreed goals in sustainable water use at local, regional and catchment levels, and across community and industrial sectors. The water stewardship concept is inclusive and can provide a robust regulatory and policy framework to guide and support environmentally sustainable growth in agriculture, industry and urban development. Global water stewardship standards may allow meaningful comparisons between different countries to monitor and measure their progress towards sustainable water use, the maintenance of vital ecosystem services, and conserving biodiversity. This topic will explore the role water stewardship can play in supporting and guiding inclusive and sustainable agricultural, industrial and urban growth; and protecting the environment. It will also focus on how water stewardship is considered by the private and public sectors and how it can contribute to address water-related risks and create business opportunities.

**Session 1 – Title:** From water use efficiency to stewardship: Is industry aware of its water-related risks and opportunities?

**Session 1 – Description:** This session will focus on the challenges and opportunities of engaging in water stewardship, including the presentation of successful initiatives from private and public sectors. Water stewardship is a simple concept but challenging to implement effectively. It goes beyond individual business efficiency, requiring a wider vision of the water resource. Stewardship requires an understanding of the resource's context, how it is shared, and how water users' activity is affected by and affects other water users and the environment in general. The engagement in water stewardships can contribute to business sustainability and water security, within an inclusive and sustainable growth pattern.

**Session 2 – Title:** International water stewardship standard

**Session 2 – Description:** This session will examine the appeal of a common water stewardship framework as well as the institutional and other barriers to widespread adoption of the Alliance of Water Stewardship international standard and certification process. Financial support, appropriate regulatory frameworks, robust decision-making processes and community ownership are just some of the ingredients necessary for water stewardship to facilitate sustainable development. Barriers include education, capacity building and engagement for the sustainable use of water, relevance for industrial and agricultural sectors, making the business case, as well as the limitations of the international standard itself.

# Thematic Commission

## Theme, Topic and DRAFT Session Descriptions

### **Session 3 – Title:** Water allocation: demand management and water availability

**Session 3 – Description:** This session will bring together shared experiences in systems and technologies to allocate, regulate and efficiently manage water use by all stakeholders including industry and the environment. Water markets, metering, licensing, centralized management, user pays and leveraging private investment are all being tried, in combination and alone, to achieve the rational and efficient sharing, management and use of water among competing stakeholders. Using a workshop format with three or four case studies, participants will debate the relative merits of different approaches in achieving genuine triple bottom line outcomes beyond narrow economic parameters.

#### **Topic d. Efficient use of surface water and groundwater - urban and rural**

**Topic Description:** Access to, and use of, water is dictated by several social, political and economic relations at different levels and scales. The efficient use of water resources is crucial to ensure sustainable development on the planet. To achieve this dimension, from both ground and surface water, a number of fit-for-purpose policies and public interventions are needed. It means that water users must have to either change their current behavior or being persuaded by innovative policies and practices. Three major approaches to drive change and achieve water efficiency have been identified: (i) Governance; (ii) Development; and (iii) Scarcity. The feasibility and institutional implications of those approaches are discussed alongside several study cases of policies and practices from around the world.

### **Session 1 – Title:** Efficient use of water through Governance

**Session 1 – Description:** Proper management of surface and groundwater is a strategic mechanism to promote efficient water use. In many countries, surface and groundwater are managed separately due to political, social, geographical and historical precedents. This session will explore the existing and emerging opportunities for effectively engaging stakeholders in the planning and implementation of coordinated water management to promote efficiency use of water with social, environment and economic approaches.

### **Session 2 – Title:** Efficient use of water as a development inductor

**Session 2 – Description:** The waste of water in the productive processes, in the process of supplying water to the population, among other situations, increases the possibilities of water restriction for its various uses in the planet. Thus, there is a worldwide trend of supply constraints and cost increases, also influenced by climate change. Water efficiency is therefore one of the drivers of sustainable development that generates social, environmental and economic benefits. This session aims to bring experiences of water efficiency promoted by practices of management, use of technologies, reuse of water, and other examples that are being implemented by the private, social and government sectors to reduce the consumption of water and scale the sustainable development.

### **Session 3 – Title:** Water-use efficiency and sustainable withdrawals: coping with water scarcity

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## Theme, Topic and DRAFT Session Descriptions

**Session 3 – Description:** Continued economic development leads to growing water demand through all water users with direct impact on water security. Globally, urbanization is expanding, as it is the intensification of agriculture potentially triggering water use conflicts due to the paradigm of “demand vs supply” of water. Given the “business as usual” scenario, increased over-allocation of scarce resources combined with weak governance often results in long-term water security issues and looming water crises. This session will share experiences and examples of the challenges faced by water-scarce regions and of approaches to get ahead of the curve.

### **Topic e. Infrastructure for sustainable water resource management and services – IR 1.4**

**Topic Description:** This topic is part of the larger context of the Development theme and aims to addresses issues related to infrastructure for sustainable management of water resources and services. The principle of universalization of the water supply and sewage networks, urban drainage master plans, multiple water use, sectors and objectives planning and management in physical and temporal sense will be discussed. Faced by the challenges of climate change, urbanization development, environmental stress and water shortage, is increasingly the recognizing of the importance of managing water resources in a more comprehensive and scientific way by engaging in rational planning, operation, and management techniques. This topic will provide a platform for sharing different countries’ experiences. This includes the management of water diversion projects, water storage infrastructure, water supply projects, irrigation and drainage facilities, and sanitation and sewage systems on various scales in a bid to deliver related services and enhance climate change resilience.

### **Session 1 – Title:** Multipurpose Water Infrastructure Planning and with Multiple Objectives in Management Units

**Session 1 – Description:** With the growing need for water resources in agricultural, industrial, environmental and service sectors, comprehensive and multipurpose planning, development and management of water infrastructure should be prioritized both in the UN’s SDG agenda and in finance. In this session, we will discuss proposals for planning, financing, maintenance, and management of water resources and water infrastructure, and the current trends and proposals for the conciliation of conflicts in management units. It is important to have multi-objective planning and management both in the physical and temporal sense, including at the level of river basins, counties and cities, in order to reconcile the conflicts among various sectors including human, environmental, economic, and others.

### **Session 2 – Title:** Improvement of Water Infrastructure Resilience and Sustainability

**Session 2 – Description:** As industrialization and urbanization development deepens, the comprehensive and sustainable management of water infrastructure to improve its resilience to global challenges becomes more important. This session will discuss the challenges faced by water infrastructure and share the experiences of different countries in balancing the demands for infrastructure development and sustainable water resources management. This includes the management of water diversion projects, water storage infrastructure, water supply projects, and irrigation and drainage facilities at both local area and river basin scales. Strategies for coping with these challenges and enhancement of related services will be discussed in this session.



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## Theme, Topic and DRAFT Session Descriptions

### **Session 3 – Title:** Universalization of Environmental Sanitation and Urban Drainage Master Plans

**Session 3 – Description:** This session addresses the issues involved in the universalization of environmental sanitation and urban drainage master plans as guiding factors for quality of life in large and small communities. It seeks to highlight the importance of basic infrastructure for urban populations. While there are many categories of basic infrastructure (water supply networks, sewage and rainwater networks, electricity networks, street lighting, earthworks, paving and garbage collection), this session will only address aspects related to water resources and their interference in the quality of life in cities, such as water and sewage supply and treatment, urban drainage master plans, and other aspects.

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## Theme, Topic and DRAFT Session Descriptions

### Theme 4: URBAN

Urban water security is increasingly under pressure, due to a growing demand for water, depletion of water resources, flooding, water pollution and poor wastewater management, the whole being aggravated by impacts of climate change. The upcoming predominance of urban population puts responsibilities directly into cities' hands.

Rapid urbanization is also often accompanied by a worsening social gap: water has to be affordable and its associated services equitably provided. The demand for reliable infrastructure and the pressing need for improved institutional effectiveness make those challenges even greater in emerging countries.

Water governance cannot be limited to city boundaries but requires adopting an integrated vision considering upstream and downstream implications, and involving technical, economic and social actors in systems thinking approaches, as recommended by the New Urban Agenda and the SDGs.

To make a city healthier, greener and safer, water is a major means. Opportunities rely in adopting integrated approaches in city planning, taking into account all water uses, introducing new financing models, promoting multi-sector circular economy, promoting behavior change, fomenting dialogue among key stakeholders, making wastewater and rainwater potential new resources, and adjusting regulatory frameworks. Betting on innovation and technologies as well as on collective intelligence and wisdom, is key to success.

The Urban Theme engages “water actors” into partnerships where collective action efficiently drives the urgent change needed. It also seeks to inspire participants to take action towards 1) bridging to other professionals for active collaboration, and 2) develop tools to support the transition. Join the journey to water-wise cities!

The Urban theme will focus on integrated urban water and waste management, considering the following three topics:

- a. Water and cities
- b. The circular economy – reduce, reuse, recycle
- c. Treatment and reuse technologies

SDGs and other relevant global agendas linkages:  
SDG 6, target 6.3 and SDGs 11 and 14, HABITAT 3

Implementation Roadmaps linkages:  
IR 2.3

#### Topic a. Water and cities

**Topic Description:** The New Urban Agenda highlights the role of cities in building consensus towards efficient, inclusive and integrated planning, governance and communication processes.

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## Theme, Topic and DRAFT Session Descriptions

Water should be a central element of urban design used to integrate necessary interventions in the construction, renovation and maintenance of water-wise cities, resilient to climate change.

Just as crucial in the search for inclusionary societies is mitigating the existing social gap in rapidly growing urban areas. Only by offering essential services for all while rehabilitating neighborhoods will we reach sustainable cities. Slum upgrading imposes current needs as well as expected future growth of urban population.

Water governance is of complex implementation, considering its multisectoral development dimension and unmatching political and territorial boundaries. An efficient dialogue among actors must be supported by communication tools and information systems to foment participatory processes. Facing the challenges of our urban world requires seizing innovative opportunities and learning from previous experiences.

### **Session 1 – Title:** Design for water - wise cities

**Session 1 – Description:** The construction of water-wise cities demands integrated planning and design as tools for better management: cities that plan renovation, development and maintenance of territory by articulating urban design, infrastructure and land management. A new vision requires a paradigm shift, considering water as a fundamental resource and favoring integrated vision of social responsibility, fostering participation of all. New financing models are just as crucial, especially in rapidly growing cities. Opportunities for urban development range from considering water as a major design element in urban interventions, to renaturalization of water bodies, and new solutions, such as Blue Green - and nature-based solutions for urban drainage, aiming for livability, inclusiveness and resilience.

### **Session 2 – Title:** Water security through collaboration with basin stakeholders

**Session 2 – Description:** Water Security for Cities depends on them using the river basin as a planning unit. This requires cooperation between all basin stakeholders, implementing programs to reduce vulnerability and risks upstream and downstream. Cities ought to play a leadership role in driving investments in the basin combined with urban projects that protect and recover water resources, through integrating urban drainage, sewage infrastructure, recovery of vegetation coverage and urbanization of surrounding settlements. All these measures – adding up to progressive improvements – can reduce the risks to the water resource and become key risk prevention strategies against degrading water quality, floods and droughts.

### **Session 3 – Title:** Governance and communication

**Session 3 – Description:** Water governance raises the question of geographic and jurisdiction limits and the need for appropriate legal framework for institutional coordination among key stakeholders. Governance must enable multi-disciplinary planning practices involving water as a major asset and allowing cross-scale partnerships between technical, economic and social actors, from local to regional ones.

Communication is central to transparent and cost-effective management, including the engagement of all stakeholders. Information systems designed with the perspective of integration

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## Theme, Topic and DRAFT Session Descriptions

enable participatory processes regarding the multiple uses of water as well as risk mitigation of water scarcity and impacts caused by extreme events.

### **Topic b. The circular economy – reduce, reuse, recycle**

**Topic Description:** UN World Water Development Report 2017 demonstrates the importance of water for transition to the circular economy. We see three main pathways towards circular economy: water, materials and energy. This topic includes reuse, reduction, and recovery of water and resources as well as water governance.

The circular economy promotes innovation and new business models, where the water sector engages with new sectors and industries. It paves the way for cross-sectoral partnerships between traditional and new water stakeholders.

To promote the circular economy we will share knowledge globally and between all stakeholders in developed and developing countries. We need to promote innovation and research and to address and overcome regulatory and governance barriers to be able to develop circular economy in the water sector to its full potential.

The circular economy thinking is a means to engage partners in the implementation of the SDG's, which includes and goes beyond goal 6.

#### **Session 1 – Title:** Reuse and recover resources in urban water management

**Session 1 – Description:** Is reduction of water consumption, better reuse of water and other materials, improved recycling and recovery of resources possible? Modern wastewater treatment plants function as resource factories, being able to recover energy, phosphorus, and nitrate and produce biogas, bioplastic and fertilizers.

This is just the beginning of a transition towards integrated management of wastewater, stormwater, solid waste and energy within urban water planning and management, where utilities and multi-stakeholder-partnerships engage in long-term planning and development of the sector. Therefore, the circular economy approach contributes to development of sustainable, water-wise cities where water and liveability go hand in hand.

#### **Session 2 – Title:** "Recycling" waters

**Session 2 – Description:** Water recycling is an opportunity and challenge to advance research and dialogue around sustainable water management solutions. Thanks to technology resources it can be used for a variety of purposes inclusive potable water use and, in this context, must follow quality parameters that vary according to the applications that will be destined. In regions with high water scarcity, this solution becomes essential for social, economic and environmental sustainability because it reduces stress on the water resource. Recycling water promotes productive activities across sectors, and consequently reduces negative economic and environmental impacts and diminishing potential conflicts through a sustainable water cycle

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## Theme, Topic and DRAFT Session Descriptions

### **Session 3 – Title:** Promoting circular economy by building an enabling environment

**Session 3 – Description:** Making circular economy a reality requires a conducive and enabling environment. It will require coordination mechanisms at all levels of government and the involvement of all stakeholders. The transition to a circular economy, which generates new sustainable social, economic and environmental benefits, implies social dialogue and communication and education strategies, which must be active, deliberate and tailored. It will also imply innovation, regarding innovative and sustainable technologies, new interrelationships, new business models, new funding policies and new forms of governance, which have to be inclusive, with the participation and commitment of all stakeholders, especially the civil society.

#### **Topic c. Treatment and reuse technologies**

**Topic Description:** The challenge of supplying all the urban population with water and wastewater services have to be supported by a innovative way to implement them. It's very important that the new technologies be part of the planning of the cities. Make the new technologies affordable for use requires governments efforts with policies and regulation that incentive the development of projects with new technologies, educational institutions that have to apply your knowledge to develop and validate new technologies lastly companies efforts in order to create new ways of introducing them at your business model.

New treatment technologies for wastewater and water reuse have to be able to face some challenges as lack of areas to implement new plants, be prepared to be affordable in all plant's life cycle and be enough modularized to meet the needs with the best OPEX and CAPEX.

### **Session 1 – Title:** Reuse Technologies: Can We Handle Innovation?

**Session 1 – Description:** Water reuse isn't the future – it is the present. But are we ready to unleash this innovation that promises to transform our relationship with water? This session presents the technologies that can be implemented for reuse, rainwater harvesting, and desalination. Case studies will show how these innovative technologies and approaches can diversify sources of water while at the same time decreasing costs, protecting human health, and increasing resilience of communities. The session will discuss the importance of investing in human capacity and the need to integrate systems for successful reuse.

### **Session 2 – Title:** Lemons to Lemonade: How Technology is Turning Sludge Management Into Opportunity!

**Session 2 – Description:** Sludge was traditionally considered a waste in the water sector. But now technology has turned it into a valuable resource from wastewater that can be used to generate electricity, recover nutrients, and reduce landfill disposal. This session will present case studies where technology and innovation were used for sludge management in ways that lowered costs, built community resilience, and benefited human health and the environment. The session will explore how viewing sludge as a resource has led to more integrated approaches for water and waste management.

### **Session 3 – Title:** One System Does Not Fit All! Navigating the Costs for Urban Water Management



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## Theme, Topic and DRAFT Session Descriptions

**Session 3 – Description:** There seem to be an endless – and often confusing – combination of challenges and solutions when it comes to urban water management, particularly when it comes to cost. What are the benefits and trade-offs of centralized, semi-centralized, and decentralized systems? What are the human health issues to address? How does affordability factor in? Through a series of case studies, this session will explore cost issues including capex, opex, and asset management, as well as operation and maintenance and distributing costs among stakeholders. ICT will be discussed as an enabling technology to increase safety, efficiency, and accountability.

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## Theme, Topic and DRAFT Session Descriptions

### Theme 5: ECOSYSTEMS

Protecting and rehabilitating freshwater ecosystems represents an important shift towards sustainability in water resources development approaches for the 21st Century. Human pressures on our rivers, lakes and wetlands continue to grow, not only threatening biodiversity but also many essential services that healthy freshwater ecosystems provide, including the provision of clean drinking water. Balancing the water needs for humans and nature is a major challenge for society, requiring improvements in water use efficiency in rural and urban settings, through improved technologies and water planning reforms that can incentivise behavioural change. Restoration of hydrological connectivity and the identification and provision of environmental flows for river and wetland systems will also be important to achieve this balance. Cost-effective approaches combining grey and green infrastructure to reduce water pollution are needed, not only for urban and industrial sources but also to minimize the delivery of sediment, nutrients and other contaminants from diffuse sources. Improving resilience of our catchments and waterways to extreme weather events will also become increasingly important in the face of a changing climate and growing population. New strategies and tools are needed to quantify the full costs and benefits of these actions to society, not simply in monetary terms, and to effectively communicate these values to decision makers and the broader community.

This theme will explore these challenges and identify ideas and actions that can be condensed into technical, social, legal and political proposals that influence and enable society to adopt a new agenda for development and lead to a sustainable water future.

The Ecosystem theme will focus on water quality, ecosystem livelihoods and biodiversity, considering the following four topics:

- a. Managing and restoring ecosystems for water services and biodiversity
- b. Natural and engineered hydrological systems
- c. Water and land use
- d. Ensuring water quality from ridge to reef

SDGs and other relevant global agendas linkages:

SDG 6, targets 6.3, 6.6 and SDG 15

Implementation Roadmaps linkages:

IR 3.2, IR 3.3

#### **Topic a. Managing and restoring ecosystems for water services and biodiversity – IR 3.2**

**Topic Description:** Interventions on ecosystems for the production of water services and their consequences for biodiversity are intimately linked. Under growing pressures from population growth and climate change, new paradigms are necessary to manage, preserve and restore such ecosystems, while supporting human well-being. Some concepts and actions are emerging worldwide to change the traditional grey approach, including: ecological engineering; Natural

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## Theme, Topic and DRAFT Session Descriptions

Water Retention Measures; environmental flows (e-flows); economic valuation of ecosystems services; payment for ecosystems services; linking green and blue economies. This topic will show the importance of preserving, managing, valuing and modelling aquatic ecosystems, their processes and services, to reap multiple benefits, including biodiversity conservation, adaptation to climate change, green tourism and water services. It will also demonstrate the importance of fostering regional development and food production, associated with water services implementation, bringing success cases and experiences. Sharing information with transparency between stakeholders is a must.

### **Session 1 – Title:** Balancing water needs for humans and nature

**Session 1 – Description:** Balancing the water needs for humans and nature poses a major challenge for society, requiring improvements in water use efficiency, and the recognition that environment has its own legitimate water needs. Restoration of hydrological connectivity and the identification and provision of environmental flows for river and wetland systems are fundamentally important to protect aquatic biodiversity and to maintain healthy ecosystems capable of providing sustainable services. This session will examine how water needs for the environment are being recognized in water planning, and provide success case studies in this perspective, showing multiple benefits collected and the approach of Nature Based Solutions.

### **Session 2 – Title:** Water basin revitalization for supporting water quantity and quality and human well-being

**Session 2 – Description:** Considering regional development and water security, restoring ecosystems for water services and biodiversity can be articulated in a series of revitalization actions in a basin scale perspective, such as soil conservation measures, prevention of sediments flows to the rivers, regeneration of the natural vegetation, sustainable ecological economics activities for the local population, ichthyofauna preservation and implementation of technics for recovering degraded areas. The use of new technologies, green and blue initiatives, sharing of information and fostering of funding for those activities can potentiate programs with these targets. The results converge to water quantity and quality, preserved ecosystems and human well-being.

### **Session 3 – Title:** Sharing information with transparency for better and more effective decisions on management and restoration of water ecosystems

**Session 3 – Description:** Managing and restoring ecosystems for water services demands a whole preoccupation with the population to be served with the water, with the residents nearby or in the ecosystems as well as with ecosystems themselves. Legislation, funding, sharing information with transparency in an inclusive chamber, capable of unite and consider the opinions, sometimes conflicting, of all the stakeholders involved is a way of creating empathy and accelerating important decisions. This session will bring experiences of these chambers of discussion for effective decision to preserve ecosystems for water services and biodiversity, and show the importance of sharing information to produce better decisions.

### **Topic b. Natural and engineered hydrological systems**

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## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** Natural and engineered solutions are needed to reduce threats to water availability, water quality and aquatic ecosystems and decrease vulnerability to water related extreme events. This topic will discuss the advantages and disadvantages of grey vs. green solutions to water problems and, most importantly, demonstrate the 'right mix' to optimize solutions as well as the necessary enabling environment to address local, regional and global water challenges. This requires integrated knowledge based on transdisciplinary science and its application, such as interdisciplinary approaches implemented in close collaboration with various stakeholders throughout the project cycle. While focusing on water challenges, it is important to consider the big picture and sustainability in three dimensions – environmental, social and economic – emphasizing co-benefits of alternatives and co-beneficiaries. The topic will not only cover aspects related to all targets of SDG 6, but take into consideration and balance the potential conflicts of other goals of the 2030 Agenda.

**Session 1 – Title:** Wastewater management and multiple benefits arising from nature-based solutions

**Session 1 – Description:** The session will focus on the complimentary roles that nature-based and engineered solutions can play in reducing pollution, removing contaminants, re-using (waste) water and recovering useful by-products (nutrients, metals and energy), recognizing that the best blend of solutions depends on local conditions (bio-physical, social and economic). Tools and instruments supporting innovative approaches to wastewater management and multiple benefits arising from nature-based solutions will be discussed. As highlighted by the UN World Water Development Report 2017 "In a world where demands for freshwater are ever growing, and where limited water resources are increasingly stressed by over-abstraction, pollution and climate change, neglecting the opportunities arising from improved wastewater management is nothing less than unthinkable in the context of a circular economy".

**Session 2 – Title:** Implementing natural and engineered solutions – the need for innovative financing

**Session 2 – Description:** Innovative financing based on integrated economic models is needed to implement the right mix of natural and engineering solutions to improve water availability, access and sustainability. One challenge is the appropriate consideration of all co-benefits and costs in economic models from the initial investment until long-term operation and maintenance, which is particularly challenging for (combined) nature-based solutions. It will also be discussed how legal and market based approaches and other enabling conditions make public-private partnership effective. Furthermore, ways to increase finance and scale up effective green and grey solutions for water will be deliberated using examples from around the world.

**Session 3 – Title:** Grey or/and green – Can integrated solutions help to avoid conflicts and facilitate cooperation among users?

**Session 3 – Description:** Can integrated solutions to water management challenges that consider the right mix of natural and integrated systems help to avoid conflicts between users and facilitate cooperation in the long-term? Although primarily targeted at improving the economic, social and environmental benefits of water resources management, considering and understanding the multiple co-benefits (including building resilience) or threats in a holistic approach, remains a

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## Theme, Topic and DRAFT Session Descriptions

challenge. Traditional knowledge from indigenous peoples and local communities can also help support a cooperative long-term sustainable approach. Appropriate governance structures that foster stakeholder participation will be examined.

### Topic c. Water and land use

**Topic Description:** Integrated land and water planning and management are key to healthy and resilient catchments/watersheds. Catchments provide ecosystem services essential for achieving sustainable agriculture, liveable cities, and terrestrial and coastal biodiversity consistent with SDGs 2, 6, 11 and 15. On an increasingly urbanised and crowded planet, the challenge is striking the right balance between competing environmental, urban, rural, economic and cultural demands. Issues include sustainable water withdrawal for urban and agricultural use; effective tools for rural and urban land use planning to minimise threats to freshwater ecosystems; more efficient agricultural use of water and chemicals; water-sensitive urban design; floodplain development; land use change; sustaining natural ecosystems in highly modified landscapes and regulated river systems; and, community ownership of policy and management reforms. Policy and action are often caught up in the hotly contested interface where policy, politics, commercial interest and community values clash. Sessions in this topic will explore water and land use planning and management to improve development, but considering ecosystem health and resilience.

**Session 1 – Title:** Urban land and water use: can natural systems thrive in unnatural environments?

**Session 1 – Description:** Water sensitive city design, incorporating blue and green infrastructure, can play a role in improving water quality and quantity in urban settings. The challenge is integrating biodiversity conservation and ecosystem functions as essential design components in retrofitting existing cities, a task that requires adequate institutional, regulatory and funding frameworks. This session will focus on devising and debating ways to promote ecosystems functions related to water, based on case studies from around the world consistent with SDGs 6 and 11.

**Session 2 – Title:** Farming for ecosystem services: can farmers save rivers and still make a profit?

**Session 2 – Description:** Agriculture is a keystone activity, modifying and altering landscapes, habitats and ecosystem functions at a large scale. Historically, the spread and intensification of agricultural activities has had effects on native biodiversity, water availability and quality, and ecological system resilience. This session will focus on policy frameworks and management tools to integrate profitable small and large-scale farming practice with ecosystems functions related to water and improved catchment management consistent with SDGs 2, 6 and 15.

**Session 3 – Title:** Integrated land and water management: focus on the big picture

**Session 3 – Description:** Effective catchment/watershed management requires complex, multi-dimensional adaptive management. Actions delivering positive outcomes in one area or sector can have unintended environmental social and economic consequences at catchment level. Similarly, policy prescriptions with narrowly defined benefits can result in wasted time, money and resources, and heightened community frustration. This session will be a workshop on managing competing pressures to achieve SDGs 2, 6, 11 and 15, using catchment management case studies. Issues will include managing tensions between cities, agriculture, conservation and development;

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information, communication and funding for ecosystems and water conservation; and, economic incentives and legislation.

### **Topic d. Ensuring water quality from ridge to reef – IR 3.3**

**Topic Description:** Improving water quality is essential for the achievement of the SDGs, in particular the SDG 6, 14 and 15, and cuts across all SDGs. Water quality plays an important role in the interface between economic development, human health and the integrity of freshwater and coastal ecosystems. With increasing pressures on available resources due to demographic and climatic changes, ensuring water quality is essential to improve governance and integrated management of water resources. This is evident where water quality degradation is responsible for reducing the quantity of water available for various uses, in addition to presenting serious health, ecosystem and economic risks. Sustainable and adaptive management of freshwater, coastal and marine ecosystems requires innovative solutions throughout the entire water cycle and across policy sectors, including the implementation of water quality monitoring and indicators, to improve water quality from ridge to reef.

#### **Session 1 – Title:** Understanding Water Quality from Ridge to Reef

**Session 1 – Description:** Water of adequate quality is an increasingly scarce resource. Understanding the quality and use of water resources is essential for its better management. The complexity of assessing water quality is increasing with emerging pollutants and multiple diffuse sources that are difficult to identify/manage. Showcasing several case studies, including small island states, this session examines examples of how data can be used to build more robust integrated water resource management models, and the importance of sharing this information. This also includes understanding the competing uses of water, the dominant sources of pollution, and who pays and benefits from pollution abatement.

#### **Session 2 – Title:** Emerging Policy Solutions to Manage Water Quality from Ridge to Reef

**Session 2 – Description:** Managing water quality is a complex task for policy makers. It is a challenge to know which policy tools would be most effective to meet water quality standards in different situations, locations or scales. Examples of innovative policy instruments are emerging, but have limitations. How to conceptualize and implement suitable governance arrangements to find the right incentives, funding sources, technologies and capacity to improve water quality is specific to each location, and must adjust to constant demographic and climatic changes. This session will examine examples and frameworks of how to replicate and scale up or scale down innovative policy solutions.

#### **Session 3 – Title:** Implementing Technical Solutions to Improve Water Quality at Medium, Small and Micro-scales

**Session 3 – Description:** Water managers have a variety of technical solutions they can adopt to ensure the quality of water necessary for its competing uses and reuses, including ecosystems. However, the challenges at the medium, small and micro-scale are often harder to overcome due to the lack of appropriate technology, availability of finance/investment and problems of scaling down from larger industrial water management/treatment processes, which are not always



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appropriate or affordable. This session will address the transfer and scaling of solutions not from small to large, but from large to medium, small and micro-scale, such as small island states and urban decentralised infrastructure.

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## Theme, Topic and DRAFT Session Descriptions

### Theme 6: FINANCE

Water Security is multidimensional and a key-driver for achieving the Sustainable Development Goals (SDGs). However, long-term investments to guarantee water security pose challenges on good governance and political stability as well as uncertainties due to climate change.

To address these challenges, the discussions about financing water infrastructure and water management systems will tackle the issue of investments through a review of innovations on payments for environmental services and green infrastructure, land value capture tools, performance-based contracts, microfinance for small-scale water services, research and innovative technologies, and PPP approaches on irrigation and water/wastewater services.

On the other hand, the implementation of the water-related Sustainable Development Goals (SDG) and adaptation to climate change will be addressed by discussions on how to bridge the investment gap and ageing infrastructure replacement. Additionally, it will explore opportunities, mitigation of risks and the improvement of public policies and water management to stimulate investments, including those from capital markets. Furthermore, it will review the practical applications of tariffs, taxes and transfers and best global practices to assess the economic value of water, including cost/benefit and cost/effectiveness analyses.

Finally, reinforcing the idea of water at the core of sustainable development, the thematic sessions will discuss water security holistically by linking water and growth and the water-energy-food nexus. It will also discuss the role of the private sector for water sector development, including mechanisms/metrics adopted by the financial markets to identify business risks associated to water.

The Finance theme will focus on financing for water security, considering the following three topics:

- a. Economics and financing for innovative investments
- b. Financing implementation of water-related SDGs and adaptation to climate change
- c. Finance for sustainable development – supporting water-friendly business

SDGs and other relevant global agendas linkages:

SDGs 6 and 17

Implementation Roadmaps linkages:

IR 4.1

#### **Topic a. Economics and financing for innovative investments – IR 4.1**

**Topic Description:** The topic on economics and financing for innovative investments updates the progress made through the 7th WWF Implementation Roadmap by learning from the past and presenting new tools, metrics, mechanisms and case studies to value externalities from the economic standpoint as a result of environmental services, land value and green infrastructure

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## Theme, Topic and DRAFT Session Descriptions

initiatives and its synergy with gray infrastructure. Economics analysis will also be addressed, considering cost recovery principles, efficiency, savings and benefits. The topic also covers new developments on public-public and public-private performance-based contracts on irrigation and water/wastewater services. It presents opportunities to scale up innovative microfinances cases and sustainable and fair market mechanisms to finance water management and sanitation projects at the national or local level. Financial instruments for water and sanitation, from the user to the national and regional level, will be also addressed. In addition, research and innovative technologies financing is included based on case studies and local experiences.

### **Session 1 – Title:** Financing the ecosystems services dynamics

**Session 1 – Description:** Payment for Ecosystem Services mechanism is already included in several legislations with a variety of financial incentives combined with environmental regulation. On the other hand, collaborative multi-community actions for biophysical basin preservation is undergoing in some developing countries based on traditional knowledge. Both approaches offer complementarities to strengthen the biophysical dynamics of the basin and preserve volume and water resources quality under polluters pay principle and/or cooperative arrangements at river basin scale. In addition, green infrastructure needs metrics to quantify impacts to get increasing funds. The sessions aim to identify innovative financing mechanisms and approaches for green infrastructure (including river basin financing institutions) with support of national and local water and land management authorities.

### **Session 2 – Title:** Broadening the access to financial resources to periurban low-income areas and small scale water services

**Session 2 – Description:** Peri-urban low-income areas and small scale services are often out of the market. In addition, in some cases governments cannot reach dispersed rural communities. Grouping or re-locating rural communities and adopting new institutional arrangements are WASH strategies often implemented in these contexts, along with adapted technology and the required investment. Microfinance through local and rural banks, lending associations or cooperatives and public revolving funds have gained experience in recent years. The Session aims to identify strategies to provide a sustainable access to financial resources to deliver water and sanitation services both in low-income peri-urban areas and in dispersed small scale communities.

### **Session 3 – Title:** Sustainable market-based mechanisms and national-regional economics and financing

**Session 3 – Description:** Market mechanisms are important to ensure financial sustainability but can exclude those that have less; tariffs need to be sustainable, affordable and also promote conservation of water resources as an economic and social good. It demands comprehensive understanding of national and regional economic and financial conditions to allow or discourage such mechanisms. At the country level, sustainable water-economic reforms need to be identified. This session aims to identify experiences and proposals to boost inclusive market-based mechanisms, as well as sustainable country level water-economic reforms, that could enable more access to water, for multiple purposes, and to sanitation.

### **Topic b. Financing implementation of water-related SDGs and adaptation to climate change**

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## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** Current level of water financing needs to be increased to meet SDGs and calls for innovative financing instruments and engagement of new sources of public and/or private financing. The topic focuses on investments and financing instruments to enhance water-related SDGs and water security, including last-mile infrastructure towards universal access, the renewal of old infrastructure as well as adaptive management systems especially from vulnerable social groups to cope with climate change. Discussions cover approaches and case studies on the 3Ts mix and debates on how to increase the value of the infrastructure life-cycle through new financing schemes. New business models for wastewater recover and reuse is also addressed as part of climate change adaptation. Resilience and Disaster-Risk Management are also discussed by assessing international climate funds opportunities, mechanisms and requirements (including financing hydrological and meteorological data collection) based on local and regional frameworks.

### **Session 1 – Title:** Financing Water Governance

**Session 1 – Description:** Debates on water financing are mostly related to investments in infrastructure and services, demand management and on service provision. There is an increasing gap on financing water resource management and governance systems that are critical for all users, aggravated by climate change. IWRM needs a holistic and sustainable approach to overcome the fragmented decision focused mostly on the supply side which is close related to good water governance and financing. This session intends to discuss the needs and means to finance water governance in a coordinated and integrated approach necessary to ensure water security and sustainability, focusing on the demand side, and assessing what functions should be funded, how should they be financed and by whom

### **Session 2 – Title:** Optimizing existing financial resources to enhance Water Services Sustainability

**Session 2 – Description:** In the next decade huge amounts of capital investments will be needed to develop urban water infrastructures, globally. In most regions, water systems are aging and becoming increasingly inefficient due to large backlog of rehabilitation investments. In others, recent water infrastructures are collapsing due to inadequate management practices. Climate change effects will also impose new investments. This session will discuss approaches for financing the infrastructure gap while enhancing water services sustainability, including new business models for wastewater recovery and reuse. Experiences from repayable financing, climate funds and blended finance and new requirements for engaging additional ODA will also be discussed.

### **Session 3 – Title:** Exploring synergies between water-related SDGs and the UNFCC Adaptation Agenda.

**Session 3 – Description:** The session covers the North-South dialogue on innovative financing arrangements for achieving water-related targets for both 2030 Agenda and the UNFCC Adaptation Agendas in developing and emerging countries. It also handles about climate change adaptation financing, resilience and Disaster-Risk Management as well as finance of hydrological and meteorological data collection for drought/flood management. The session also includes water security financing in semi-arid regions presenting case studies.

### **Topic c. Finance for sustainable development – supporting water-friendly business**

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## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** Water is at the core of sustainable development. The topic discusses water security holistically. The approach includes water and its interlinkages to energy, food, climate and environment to promote economic growth. On this line, funding of multipurpose water infrastructure arises as one key aspect to deal with such challenge along with the development of Public-Private Partnerships for water sector development, including mechanisms and metrics adopted by the financial markets. Financing wastewater treatment plants and their potential to generate energy, their by-products as soil fertilizer for agriculture and water reuse is also assessed and presented under innovative mechanisms and case studies. New funding mechanisms and new business models to encourage the development of actions in the public and private sector are also discussed.

**Session 1 – Title:** Financing innovation for water technology and business

**Session 1 – Description:** This session intends to bring together experts and leaders from various sectors to present cases of success and proposals to overcome challenges related to the development of public-private and private-private partnerships for water sector development, including mechanisms and metrics adopted by the financial markets. The engagement in water stewardships and new business can contribute to sustainability and water security. New opportunities linked to the circular economy also create new niches for development, as the approach on water-energy-food nexus.

**Session 2 – Title:** Financing multi-purpose infrastructure for sustainable growth

**Session 2 – Description:** This session identifies and promotes new business models and new funding mechanisms to encourage the development of actions in the public and private sector with a focus on multi-purpose infrastructures and new technologies. Financial support, appropriate regulatory frameworks, robust decision-making processes and community ownership are some of the necessary ingredients for water stewardship towards sustainable development. Role played by regulation to create an enabling environment for financing and investments in water, both for structuring and non-structuring actions along with success stories will be also presented.

**Session 3 – Title:** Financials cases for water security investments

**Session 3 – Description:** This session intends to identify public and private cases in local, regional, national and international instances in cases of funding for water security with replication capacity in other regions of the world with a focus on technical, legal, institutional and financial aspects. Water and effluent treatment stations, reuse, metering, licensing, centralized management, leveraging private investment, to achieve rational and efficient sharing, management and use of water among stakeholders. In addition to the infrastructure financing mechanisms, linkages with water governance will be addressed to maintain sustainability of institutions and encourage investments and mobilization.

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## Theme, Topic and DRAFT Session Descriptions

### Theme 7: SHARING

Access to drinking water of adequate quality and quantity along with safe sanitation is a shared responsibility and a human right, a prerequisite for anyone's dignity. Water resources are under increasingly severe pressure from climate change and other global drivers, such as economic development models, population growth, urbanization and land-use changes. 80% of the world's population live in areas with high water security threats, which also includes extremes like floods and droughts. The rural poor, women, youth and children are most affected.

At the 8th World Water Forum, the Theme "Sharing" aims to include all in water governance and in the journey to reaching the Sustainable Development Goals (SDG): governments from local to national level, indigenous peoples, civil society, business and the private sector, the scientific and academic community, the UN system and other international institutions. These groups have different perspectives, priorities and solutions regarding water challenges, in addition to representing great cultural diversity. Therefore, the Theme proposes first and foremost to share the various views and experiences and look at their benefits for sustainable development, empowerment and dignity for all.

The challenge of sharing is to concentrate our efforts on putting into practice and implementing specific actions motivated by many diagnoses and solutions and to ensure they move from paper to action to achieve the SDGs.

The Theme's topics shall focus on learning among countries, public and private actors in the water and sanitation sector, urban and rural, sharing traditional and scientific knowledge, including information and data for sound decision-making, informed free and prior consensus, better water management, and the monitoring of SDG implementation, while emphasizing community participation, water education for the empowerment of civil society, women and youth, and gender equality.

The Sharing theme will focus on sustainability through stakeholder involvement, considering the following three topics:

- a. Sharing solutions and good practices
- b. Involving all: public, private, civil society – women and men – young and old - in bottom up and top down approaches
- c. Water, cultural diversity, justice and equity

SDGs and other relevant global agendas linkages:

SDG 6, target 6.b and SDGs 3, 15 and 17

Implementation Roadmaps linkages:

IR 4.4

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## Theme, Topic and DRAFT Session Descriptions

### Topic a. Sharing solutions and good practices

**Topic Description:** The targets under SDG6 can only be achieved if stakeholders from different sectors – government, NGO, research, business, users, etc. – and diverse social and cultural backgrounds – incl. women, youth, indigenous – find shared solutions and best practices to the shared challenges. Furthermore, to reach the targets under SDG 6 and other water related goals collectively, we need to identify and leverage technological, social and financial innovations and we need to find ways to mainstream those solutions among different groups in society, including the most vulnerable ones. To turn small-scale innovations into breakthroughs, knowledge needs to be shared among the different water actors, people need to be empowered and capacities need to be developed where it really matters. A particular challenge is the mechanism for information and technology sharing among different parts of the world. The diversity of the societies' social and financial characteristics and of their cultures influences how people share existing and react to new solutions.

**Session 1 – Title:** Multi-stakeholder platforms and practices as a solution to SDG 6' shared challenges

**Session 1 – Description:** The targets under SDG 6, whether WASH related or water resources management related, can only be achieved if stakeholders from different sectors – e.g. government, NGOs, communities, research, business, etc. – and different backgrounds – incl. women, youth, indigenous – come together in an inclusive way and find collective solutions to the challenges shared. This session is meant to present the most successful and inclusive multi-stakeholder platforms and best practices, covering the different aspects of SDG 6 and the six main themes of the World Water Forum.

**Session 2 – Title:** Sharing technological, social and financial innovations

**Session 2 – Description:** Innovations can be the future key to today's water challenges. This session is meant to highlight some of the most promising innovations in the area of water and to stimulate the exchange of good practices between peers. An important element of that session is that not only technological innovations will be discussed but also social and financial innovations in the area of water are equally important for truly sustainable solutions. How can small-scale innovations be brought to scale and how can innovations of a larger scale be further replicated in other geographies of the world?

**Session 3 – Title:** Empowering people, developing capacities and sharing information

**Session 3 – Description:** Solutions in response to many of the challenges in the area of water already exist, however they are not necessarily known or implemented by the people faced with those issues. For instance, the training of smallholder farmers on irrigation best practices can have a significant impact on the sustainable management of water resources. This session will therefore focus on ways to empower people, develop capacities and share information across the different sectors and segments in society.

### Topic b. Involving all: public, private, civil society – women and men – young and old - in bottom up and top down approaches

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## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** “Including All stakeholders” provides a unique approach for proposing solutions to SGD6 and related SGD water topics. However, inclusion as a principle is overlooked. To bring this view into the decision making process it is important to identify innovative responses and leverage existing strengths that are not the same in all places. How can the opinions of all be heard and considered in the decision making process? Communication mechanisms are strategic to encourage all groups’ active participation. There is a need for a platform in which stakeholders could converge their ideas, concerns and proposals. How accessible is the information to all? There is still more work to do related to retrieving public information. Addressing how to mobilize support and secure resources for creating mechanisms around the world, in which voices of all are equally listened to and taken into consideration, is a vital step to increase SDG ownership.

**Session 1 – Title:** Participatory Platforms during the Decision Making Process within the Water Sector

**Session 1 – Description:** Stakeholders come together in an efficient way when platforms allow ideas and concerns to be converged and properly used. This session is meant to present lessons learnt in which decision making processes within the water sector have worked to involve all. Approaches and results will differ in time and space according to different opportunities and constraints provided by socio-ecological settings. Therefore, the idea is to learn from different regions how to bring greater involvement through increasing different people and organizations knowledge, attitude and skills and how this can end in successful outcomes for decision makers.

**Session 2 – Title:** Implementation of Inclusive Policies with the Participation of All Stakeholders

**Session 2 – Description:** Implementation of inclusive policies (such as the freedom of information act, web-based platforms for retrieving public information) allows stakeholders to develop further analysis, to verify that their messages have been taken into consideration, and to rely on the system’s transparency. This session is meant to highlight the most promising inclusive policies in the water sector. The need for more government data available online will be highlighted.

**Session 3 – Title:** Involving All Through a Stakeholder Driven Process

**Session 3 – Description:** The importance of having a stakeholder driven process as part of the development of plans, feasibility studies, and basin assessments is important to solve the issues around efficient water management. However, a key question is to what extent does involving all stakeholders potentially complicate development processes. This session is designed to answer that question via a discussion about the advantages of involving all (including the most vulnerable such as young and old citizens, indigenous people, and minorities) during the entire process and how to mitigate the challenges resulting from participatory approaches.

**Topic c. Water, cultural diversity, justice and equity – IR 4.4**

**Topic Description:** Water justice is linked to social equity, respect for cultural diversity, and meaningful participation in water governance, including policy and decision-making, by women, youth, indigenous peoples, traditional and local communities, and other civil society actors. Culturally diverse and historically constituted water-related knowledge systems have proven sustainable over long time periods and are indispensable to SDG implementation. Many cultures

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view water as having sacred and spiritual agency with its own rights of existence, and therefore requiring an expansion of legal rights to include these non-human agencies. For both traditional and Western-oriented societies, ethical and socially just water use, as well as recognition of the human right to safe, affordable and accessible water and sanitation, lies at the heart of sustainability. Climate change induced migration exacerbates this challenge. Given the multiplicity of values involved in the definition of water justice, it is needed to establish a multi-cultural platform to define the substantive content of water as a right under the principles of equality and diversity.

### **Session 1 – Title:** Fostering new cultures of participation

**Session 1 – Description:** The session aims at fostering the cultures and mechanisms of participation by involving and empowering women, youth, indigenous people, traditional and local communities, and civil society on an equal basis together with men, legislators and institutions for more efficient water management, and inclusive and fair water governance. It seeks to foster the development of the capacity and leadership of youth and women as a key component to equitable participation in decision-making at project, as well as at policy levels. The new culture of water governance should open space and modalities to utilize the limitless and untapped potential of youth, women and indigenous activists for user-driven design as agents of change in accordance with legislation, national and regional practice and human rights.

### **Session 2 – Title:** Cultures of sharing and the rights of nature

**Session 2 – Description:** Water brings all life together — human and non-human, individuals and communities, ecosystems and environments — creating a collective wealth, responsibility, and promise.

In every environment on Earth, people have developed water practices sensitive to present and future needs, to inter-community equity, principles of reciprocity and the indubitable necessities of surrounding species and environment. Sustainable water cultures are still evident within innumerable living indigenous and local traditions. This session invites discussion and case studies of the practices and principles of water-sharing, as they can help us to understand the full significance of the local and global relationships between people and nature.

### **Session 3 – Title:** From water heritage and to water consciousness

**Session 3 – Description:** Water heritage can connect us to traditional values and ethics, while also inspiring new technological and institutional innovations to address contemporary water challenges in ways that also enrich cultural and place-based identities. This session will highlight recent and ongoing best practices, such as integrating indigenous peoples' understandings of rivers into environmental flow policies; designing water-centric cityscapes inspired by nature that go beyond river restoration; using public art to raise awareness about water; and developing participatory water governance institutions linked to the past while aimed at future needs: of sustainability, inter-generational equity, biodiversity, and human well-being.

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### Theme 8: CAPACITY

The issue of capacity in the water sector is an essential cross-cutting topic. This includes (1) enhancing education, capacity building and awareness raising, (2) reinforcing the science-policy interface, (3) improving monitoring tools, and (4) encouraging effective international cooperation.

Building capacity is essential at all levels. Enhancing capacities and competencies of local governments and building on traditional knowledge is also crucial to ensure sustainable water and sanitation services. By strengthening water education, it is possible to raise awareness about how to better manage water resources.

This theme builds on the IR 4.5 “Enhancing Education and Capacity Building” from the 7th World Water Forum emphasizing the role of education and training for success of any water projects. This theme also perceives, referring to the STP in the 7th Forum, importance of the role of S&T in development and application of leading edge/ appropriate technology, which includes developing guidance on the use of S&T to implement and develop policies. Financing education and capacity building will also be stressed as a critical element in water strategies and implementation of IWRM at all levels.

The theme highlights the importance of building capacity for setting up integrated smart monitoring systems, including systems adapted to monitoring indicators for SDG targets. Therefore, efficient international cooperation is crucial for sharing knowledge on innovative technologies in the water/ sanitation sector. This can increase capacity for developing Countries, and combined to the other actions, for implementing the ‘water target’ SDG-6.a (international cooperation and capacity-building support to developing countries), linked to SDG-4 (education) and SDG-17 (means of implementation).

The Capacity theme will focus on education, capacity building and technology exchange, considering the following four topics:

- a. Enhancing education and capacity building
- b. Science and technology and decision/policy making – 7th World Water Forum S&T Process
- c. ICT and monitoring
- d. International cooperation

SDGs and other relevant global agendas linkages:

SDG 6, target 6.a and SDGs 4 and 17

Implementation Roadmaps linkages:

IR 4.5

#### Topic a. Enhancing education and capacity building – IR 4.5

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## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** After WWF7 acknowledgement that large investments in technology and infrastructure are insufficient to guarantee the successful implementation of water targets, “Enhancing Education and Capacity Building” was considered an essential cross-cutting topic to fill some gaps and overcome current water-related challenges. It highlights the necessity of training for professionals and capacity building for institutions in the water sector and other sectors that highly depend on water (i.e. agriculture, energy, inland navigation, fishing, mining, etc). It also stresses the need for environmental education of stakeholders and of the general public as a key step for achieving available and sustainable management of water and sanitation for all (SDG 6). It focuses on assessment of water education needs, and the development of adapted organizations and financial mechanisms, training programmes and innovative educational centers and toolkits. This topic converges with the Implementation Roadmap after the last 7th Forum and to the United Nations Decade for Action “Water for Sustainable Development” (2018-2028), which should be pursued by improving knowledge generation and dissemination, facilitating access to knowledge and exchange of good practices.

**Session 1 – Title:** Information and training for decision makers

**Session 1 – Description:** Decision makers and water related stakeholders need information and the development of knowledge skills and capabilities relative to socio-environmental processes and dimensions of water. Participatory processes imply different stakeholders should be empowered to enter into dialogue around water-related issues, and this is key for better integrated water resources management processes in emerging, developing and transitioning countries. Training case studies for specific decision makers or for new technologies can be used to facilitate problem-oriented dialogues and to improve interdisciplinary education processes. Gaps and best practices can be shared to bring lessons to suggest new pathways.

**Session 2 – Title:** Education and training on water are not costs but investments!

**Session 2 – Description:** The lack of skilled professionals results in design faults or deficiencies in the way water infrastructures and collective services and utilities are managed, operated, maintained or renew. In every countries and sectors, such as basin management, drinking water and sanitation, energy, agriculture, inland navigation and others, thousands of employees or individuals are concerned, the majority of them being of low educational level. It is vital to optimize investments and ensure their smooth operation: this means increasing skills based on lasting and better founded training programmes and organizations. This session will present the best experiences within the DGIC that demonstrate the economic interest of training professionals.

**Session 3 – Title:** Wanted – skilled labour: The urgency to develop water training

**Session 3 – Description:** Achieving SDG n°6 will require an intense infrastructure development effort in many water related sectors, such as basin management, drinking water and sanitation, energy, agriculture, inland navigation and others. Such effort cannot be made without an equally important improvement of vocational training for the staff entrusted with the design, operation and maintenance of these infrastructures. However, there is a lack of training facilities that need to be addressed with the creation, development and strengthening of specialized training centers and programmes. This session will showcase best practices on how to create and develop dedicated water training centers and toolkits.

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### Topic b. Science and technology and decision/policy making – 7th World Water Forum S&T Process

**Topic Description:** Science and technology have critical roles in addressing the pressures on water resources created by climate change and economic development. Solving water challenges requires better collaboration between water professionals working in science and technology, policy and decision makers. -ultimately, enabling the right environment for sustainable development. The last World Water Forum highlighted capacity as an important limit to the potential to adopt and foster science and technology advancements to address today's water and development needs. Likewise, capacity gaps directly reflect on the process of developing and implementing policies that are fit for purpose to face the water challenges faced by communities around the world. Fostering capacity building and enabling stakeholder collaboration are important to overcome these barriers. This topic focuses on bridging science, technology and policy gaps through capacity building. It will be elaborated through case studies and feedback from short-term and long-term field experiences. Suggestions on how to move forward will be summarized at the end of the last session.

#### **Session 1 – Title:** Enhanced capacity building to align Policy with up-to-date Science and Technology

**Session 1 – Description:** Drafting and applying policies that make solutions available from lab to practice, requires policy and decision makers to be prepared to take advantage of S&T developments. Scientists and technology developers shall make these advancements “understandable” to “policy ears”. This session will explore the capacity needs in both sides to communicate and collaborate better. It builds on the conclusions of the 7th WWF, highlighting the importance of policies enabling lab-to-practice solutions, using case studies to illustrate challenges and benefits of this approach and the way forward.

#### **Session 2 – Title:** Preparing policies that release the S&T potential to (better) solve the water crisis

**Session 2 – Description:** How can S&T find in policy the best ally for innovation? Solving water issues requires S&T to scale up solutions that address short and long-term needs. Policies that foster such solutions require better understanding of their impacts over S&T developments. This session explores capacity needs in the S&T and Policy communities to provide faster and innovative solutions suitable for applications from small to large corporates, and from pilot to full scale applications, while improving public and private sector collaboration. A presentation on how policies address S&T development opens the session, followed by case studies illustrating how policies can accelerate innovations.

#### **Session 3 – Title:** Adapting institutional policies to collaborative water governance: the path to enable S&T and policy dialogue

**Session 3 – Description:** Failed investments to improve collaborations between policy makers, bureaucrats and S&T communities are not rare. Water solutions need a change of mindset, and institutions and governance need to provide the right environment for professionals to develop the necessary new skills. This session will explore the institutional, structural and governance needs to enable capacity building for S&T and policy makers to work together. Identify research gaps and needs, the business opportunities for the public and private sectors and the benefits to society in

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general. Case studies will illustrate successful and failed attempts leading to propose recommendations and a way forward.

### Topic c. ICT and monitoring

**Topic Description:** Today water systems are monitored by a dynamic and distributed system of human observers equipped with connected mobile devices, real time sensors, and satellites/drones observing the earth. This data is used by software, simulating the real world water systems allowing forecast, future scenarios, sending out alerts and warnings, or just providing information to the public or water managers. Stakeholders have become consumers and producers of information alike, using web portals and web-based citizen observatories. Capacity building for the water sector can become more efficient and cost-effective using e-learning approaches. We will explore how these technological innovations have been applied in the water sector and have benefitted different stakeholders. We will address the potential of ICT technology to enhance social, environmental and equitable values.

**Session 1 – Title:** Use of mobile phone technology, sensor technology, remote sensing, drones and modelling in water monitoring and management

**Session 1 – Description:** As the title of this session suggests there are many different ICT innovations which benefit the sector and increase the capacity of water managers. Therefore, this session aims to have a wide array of cases presented. It will be a “market type” event whereby as many participants as possible can make a pitch; to demonstrate and advocate for a specific ICT related innovation. These innovations should help different stakeholders in the water sector to reinforce their capacity to better manage the resource.

**Session 2 – Title:** Enhancing transparency, accountability and inclusiveness by stakeholders through ICT and capacity building

**Session 2 – Description:** This session will focus on how the ICT revolution has helped the different stakeholders to have an impact on the governance of the resource. Civil society, research institutes and universities will be given the opportunity to show how ICT developments contribute to greater transparency and accountability in the sector. A few key note addresses and a panel of experts from civil society, government and private sector will further debate these opportunities and interact with the audience.

**Session 3 – Title:** Open Source and big data for water use efficiency and sustainable management.

**Session 3 – Description:** This session will not only try to have an overview of the recent developments in open source and big data science relevant to the water sector, but will also attempt to look into the future of ICT and do some “out of the water box” thinking. Water use efficiency is a key objective in an increasingly water scarce world and the potential of ICT in this field is great for reinforcing capacity. This session will encourage organizations from outside the water sector to give their reflections and future suggestions/predictions for capacity building.

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### Topic d. International cooperation

**Topic Description:** International Cooperation is an essential enabling environment for achievement of increased capacity of water sector professionals. This topic will address the need to enhance the integration of water related capacity development activities carried out by relevant stakeholders ranging from civil society organizations, to inter-governmental initiatives, and donors, with particular attention to youth. This topic will serve as a platform to reflect upon and make recommendations to established platforms such as the High-level Political Forum on sustainable development and the Addis Ababa Action Agenda, both meant to provide international leadership in achieving the SDGs. More specifically, this topic will address what kind of international cooperation can best support capacity development plans to achieve SDGs.

**Session 1 – Title:** How to expand support to international cooperation and capacity building to achieve SDG 6?

**Session 1 – Description:** The data on international funds for financial and technical assistance to LDCs, LLDCs and SIDS show that after an increase between 2005 and 2010, disbursements declined again between 2010 and 2014 (OECD). At the same time, the Addis Ababa Action Agenda calls for enhanced international support and establishment of multi stakeholder partnerships for implementing effective capacity-building in developing countries; the Doha declaration underscores the importance of capacity development and strengthening technical cooperation for developing countries to attain their development goals. How do we reconcile the strong international commitment to support international cooperation and capacity building with the declining financial assistance?

**Session 2 – Title:** International Cooperation as key factor to address the Water and Climate Relationship

**Session 2 – Description:** Climate Change will have an important role in the overall sustainable development agenda in the year to come, and in particular SDG13. Water is a key element in order to address issues of adaptation and mitigation of climate change impacts. There are already important initiatives related to Water and Climate as a result of the COP process (Climate Adaptation Pacts, #ClimatelsWater initiative, etc.). This session will analyze the existing initiatives, and discuss modalities with which such initiatives should be conducted, in particular how to make sure that there is a cohesive cross-sectoral approach to water and climate issues.

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### Theme 9: GOVERNANCE

Water cuts across (administrative) borders, sectors, people, and geographic scales. It is both a global and local issue that connects a wide range of state and non-state actors. Thus water is not only a question of hydrology or money: it is also highly dependent on governance. In fact, water crises are often governance crises.

Water policies can only deliver if functional institutions are in place; if problems are addressed at the relevant scale within e.g. integrated basin systems; if stakeholders are coordinated and engaged in a whole-of-society approach to secure social and political acceptability – including in transboundary settings; if regulatory frameworks safeguard the public interest; if data and information are guiding decisions; if decisions are made in a transparent way and decision-makers are held accountable; if capacity is built; and if monitoring and evaluation are in place to guide policy and trigger enforcement and compliance.

Water governance encompasses the political, institutional and administrative rules, practices, and processes (formal and informal) through which decisions are taken and implemented, stakeholders can articulate their interests and have their concerns considered, and decision-makers are held accountable for water resources management and water service delivery. Water governance is a means to an end that should deliver beneficial outcomes for society, the economy and the environment. An effective governance system is one that ultimately helps manage “too much”, “too little”, and “too dirty” water in a sustainable, integrated and inclusive way.

[Expected outcomes] Governance discussions at the 8th World Water Forum will provide policy guidance, lessons from practice and measurement tools for governments to build effective, efficient, inclusive and trustworthy water governance frameworks, in partnership with the broad range of stakeholders, in order to achieve the global targets for sustainable development.

The Governance theme will focus on water governance for the 2030 Development Agenda, considering the following three topics:

- a. SMART implementation of IWRM
- b. Cooperation for reducing conflict and improving transboundary water management
- c. Effective governance: Enhanced political decisions, stakeholder participation and technical information

SDGs and other relevant global agendas linkages:

SDG 6, target 6.5, SDG 17

Implementation Roadmaps linkages:

IR 3.4, IR 4.2, IR 4.3

#### Topic a. SMART implementation of IWRM - IR 3.4

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## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** The 2030 Development Agenda with its 17 Sustainable Development Goals, calls, through target 6.5, for implementation of integrated water resources management (IWRM) at all levels by 2030. IWRM serves as a “connector” across SDGs and provides a framework for using synergies and managing conflicts across multiple goals and their water-related targets. IWRM is no longer a question of “if”, but “how”, for all countries of the world. But is IWRM up to the task? Has our experience with putting IWRM into practice since Rio in 2002 equipped us to address the challenges and emerging issues of the coming decades, or must we revitalize IWRM to make this happen? The Topic will attempt to answer these questions by looking at how IWRM can provide integrated solutions across scales, and across sectors and stakeholder groups at all levels, while linking to other management approaches, to deliver sustainable water management across the SDG agenda.

### **Session 1 – Title:** Transformational IWRM for the 2030 Agenda

**Session 1 – Description:** IWRM is pivotal to the 2030 Agenda actualization. Building on preceding decades of experiences, IWRM in the 2030 Agenda must become transformational and deliver results at a higher scale and speed. This session will use case studies and synthesis of learning from alternate models for integrating water resource management horizontally across sectors, stakeholders, states/provinces, legal institutions, and vertically across levels, to test the prevailing IWRM framework. Participants will identify how to revitalize IWRM principles and operational strategies to guide IWRM decision-makers, practitioners within/outside states/countries in the 2030 Agenda.

### **Session 2 – Title:** Operationalising IWRM Adaptively Across the SDGs

**Session 2 – Description:** The critical challenge for IWRM in the 2030 Agenda is to translate principles into change-actions that delivers benefits across the SDGs. This session will examine results from diverse models for IWRM currently used pragmatically to address problems like water allocation, corporate water risks, drought and flood management, ecosystem conservation, etc. Participants will develop recommendations from these experiences on how to maximize the effectiveness of operationalizing IWRM in the SDGs on: stakeholder participation and maximizing synergies across public policies and sectors (within states and across jurisdictions); bridging the gap between IWRM concepts/strategies and actions; and monitoring goals and its achievement.

### **Session 3 – Title:** The New Policy Agenda for IWRM

**Session 3 – Description:** The SDGs demand that IWRM is implemented at all levels by 2030, including transboundary as appropriate. In just 12 years following the 8th World Water Forum, IWRM must deliver benefits for billions of people by seizing synergies across sectors and goals relating to, among others, food and energy systems (the “WEF Nexus”), climate change, sustainable cities, gender equity, clean seas, ecosystem conservation and peace and security. This session will build on conclusions about revitalization of IWRM practice, to raise questions of how policy and investment frameworks for IWRM need to change to increase the scale and speed of results from IWRM. Participants will identify key policy innovations for IWRM in the 2030 Agenda.

**Topic b. Cooperation for reducing conflict and improving transboundary water management – IR 4.3**

# Thematic Commission

## Theme, Topic and DRAFT Session Descriptions

**Topic Description:** Water knows no borders: worldwide, there are an estimated 276 transboundary river and lake basins and 592 transboundary aquifers. Around 40 per cent of the world's population depend on waters shared by two or more countries and over 90 percent of the world's population lives within countries that share transboundary basins.

In a context of demographic, socio-economic and climatic trends that are putting water under increasing stress, coordination among riparian countries is essential to prevent conflicts, optimize water use, including between different sectors, strengthen sustainable management and protect transboundary water resources. Similar challenges sometimes also exist in large federal counties where water resources are shared between two or more states or Provinces.

Under this topic, sessions will seek to exchange experience on how to initiate, develop and improve transboundary cooperation. They will explore legal and institutional frameworks for the management of transboundary basins across sectors and borders, recent developments regarding International Water Law and water diplomacy, the relevance of data and information sharing to build trust and carry out joint projects, as well as lessons learnt from success stories and failures.

**Session 1 – Title:** Managing water across sectors and borders: Institutional frameworks and approaches for efficient transboundary basin organizations

**Session 1 – Description:** Creating and strengthening joint organizations in transboundary lakes, rivers or aquifers basins is key to ensure reasonable, equitable and sustainable management of water resources and aquatic ecosystems across sectors and borders. Effective basin organizations require a clear mandate, a robust structure and a set of permanent means (financing, staff, capacities etc.) in order for them to facilitate exchange of information, manage conflicts, develop a joint vision and sharing of benefits between riparian countries and all water users. Stakeholders, including local authorities, economic sectors and NGOs should also be involved. These requirements will be analysed during this session through case studies and exchange of good practices, in order to prepare recommendations on how to create well-functioning basin organizations.

**Session 2 – Title:** Monitoring, assessment, data and knowledge sharing in transboundary basins

**Session 2 – Description:** We cannot manage that we cannot measure! This is even more important in transboundary basins where information, data and knowledge exchanges must be organized and harmonized between the riparian countries in order to elaborate common diagnosis, take joint decisions and monitor their effects. Or in many situations, the knowledge available is insufficient, inadequate, partial, difficult to inter operate, poorly funded or even regressive.... The first step to achieve transboundary cooperation is to develop data and information sharing and better science policy interfaces which can facilitate dialogue and trust. This session will allow for a sharing of experiences from different continents on how to reinforce data, information and knowledge exchange between riparian countries, States and provinces, the scientific community and water stakeholders and how monitoring and assessment can support cooperation.

**Session 3 – Title:** Successful negotiation and implementation of global, regional and bilateral transboundary cooperation agreements

# Thematic Commission

## Theme, Topic and DRAFT Session Descriptions

**Session 3 – Description:** Legal frameworks and agreements on transboundary water cooperation at basin, regional and global level are paramount for the good governance of transboundary basins. Examples of these agreements include the UN Watercourses Convention, the UNECE Water Convention, the SADC Protocol on Shared Water Resources, the EU Water Framework Directive and basin-level agreements. However, negotiating successful agreements and ensuring their long-term effective implementation is challenging, for example due to lack of resources, lack of political will, increasing water stress and climate change, etc. This session seeks to share and discuss recent examples and lessons learned of global, regional, bi-and multilateral legal agreements on transboundary water cooperation, approaches to water diplomacy and success factors for negotiating and implementing effective agreements.

### Topic c. Effective governance: Enhanced political decisions, stakeholder participation and technical information – IR 4.2

**Topic Description:** The context for freshwater management has radically changed in the last two decades. Increasing competing demand across sectors and users, driven by economic, demographic, climate and regional development trends force governments to do better, for more people, with less money. The 6th World Water Forum (Marseille, 2012) acknowledged “good governance” as a critical condition for success to meeting the water reform challenge worldwide, and the 7th Forum (Daegu-Gyeongju, 2015) called upon concrete guidance to make this happen. The 8th Forum (Brasilia, 2018) will be an opportunity to showcase how robust evidence-based analysis, knowledge sharing and international best practice can help foster integration across people, places and policies, and thus define sustainable pathways to reap the economic, social and environmental benefit of effective water governance and contribute to the achievement of the 2030 Development Agenda.

### Session 1 – Title: How to Enhance Multi-Level Water Governance?

**Session 1 – Description:** Water is a fragmented sector where co-ordination is essential to manage interdependencies across multiple scales, responsible authorities and policy domains. But in practice, role and responsibilities for the management of water resources, services, and water-related disasters are still highly fragmented; combining multiple scales is still a challenge, despite greater attention to the basin level; and the broad range of public, private and non-profit stakeholders affected by decisions on water still do not all have a say on how policies are designed or implemented. Is water governance well-equipped to handle these challenges? The session will explore what can be done at city, basin and country level to enhance co-ordination across policies, places and people.

### Session 2 – Title: How is Water Governance in Your Country? Indicators to Assess Institutional Performance

**Session 2 – Description:** Indicators are means to an end. They provide evidence to governments and key stakeholders to identify challenges and tackle them. The session will introduce OECD water governance indicators and other assessment frameworks on water resources, services and water-related disasters that can be used to build consensus on what work, does not work and what can be improved; and discuss/draw lessons from experiences of “measuring” water governance in



# Thematic Commission

## Theme, Topic and DRAFT Session Descriptions

cities, basins and countries, including from Malaysia, Morocco, Colombia, Peru, Spain, UK, Cabo Verde, Austria, Democratic Republic of Congo and the Netherlands.

**Session 3 – Title:** What's Your Water Governance Story? Identifying and scaling-up best practice across cities, basins and countries

**Session 3 – Description:** Implementing the water-related SDGs will require countries to translate global goals into concrete actions on a number of water topics. It will imply that countries address governance challenges related to water policy design, regulation and implementation in the management of water resources, services and water-related disasters. Sharing and learning from best practices and pitfalls to avoid can help overcome these “gaps”, by fostering peer-to-peer dialogue and bench-learning across cities, basins and countries facing similar types of governance challenges. The session will discuss “stories” of how good water governance can be put into practice to inspire decision makers and stakeholders to strive for more effective governance.



# Thematic Commission

## Theme, Topic and DRAFT Session Descriptions

### Abbreviations

- **IR:** Implementation Roadmap
- **STP:** Science and Technology Process
- **S&T:** Science and Technology