

The following contribution is sent in response to the invitation from the President of ECOSOC, H. E. Mr. Shava, for the World Water Council to “offer substantive inputs to the 2017 HLPF showcasing [the World Water Council]’s contribution towards the 2030 Agenda in general, and particularly for the Sustainable Development Goals (SDGs) and respective targets that are substantial to [the World Water Council]’s mandate”.

This contribution will address "Eradicating poverty and promoting prosperity in a changing world" together with SDG 17: 1,2,3,5,9 and 14 mainly through on water.

The past two decades have witnessed unprecedented economic and social progress. Real incomes in low- and middle-income countries have doubled and poverty rates have halved. Two billion people have gained access to improved drinking water. Maternal mortality has dropped by nearly half, and the share of those who are malnourished has fallen by a third. Yet at the same time the number of people living in poverty has increased. This has been one of the greatest and most rapid transformations in human history; and water resources management has helped initiate much of this change. But these achievements have been accompanied by mounting pressure on our natural resources, especially water.

Considering that water is key to all aspects of sustainable development--food security, health, poverty reduction, women’s empowerment, environmental protection, as well as sustaining economic growth in agriculture, industry, and energy generation, just to name a few--the World Water Council reached out to the 7th World Water Forum Implementation Roadmap Champions in order to provide strong inputs to the 2017 HLPF on behalf of the water community. The Roadmaps embody the strong determination of the global water community to implement collective actions on specific themes that move the global water agenda forward and continuously monitor progress. Together, they benefit from a strategic and comprehensive vision relative to various water related issues.

The following contribution includes inputs provided by the following organizations: Programme Solidarité Eau (pS-Eau); AquaFed; International Water Association (IWA); Food and Agriculture Organization (FAO); K-water; International Water Resources Association (IWRA); OECD Water Governance Initiative (WGI); International Network of Basin Organizations (INBO); United Nations Educational, Scientific and Cultural Organization (UNESCO); Women for Water Partnership (WfWP); International Network of Water Training Centers (INWTC).

I. An assessment of the situation regarding the principle of “ensuring that no one is left behind” at the global level

a. Access to drinking water and sanitation:

Water is a resource revealing striking inequalities, showing that half of humanity is still “left behind”. Nowadays, between 2 and 4 billion people are consuming contaminated water and 2,5 billion people live without access to improved sanitation, which represents 1/3 of the world population. In addition, 1 billion people practice open defecation¹, whereas, on 2002, the international community recognised access to sanitation as a key challenge for this century. Lack of effective sanitation and hygiene seriously impacts health and contributes to poverty.

The question of what happens beyond the toilet: evacuation, treatment and eventual reuse of the wastewater and excreta is rarely considered. Toilets that overlook the rest of this sanitation ladder achieve virtually nothing. Global indicators to monitor evacuation and the treatment of wastewater and excreta are still inadequate.

¹ WHO / UNICEF Joint Monitoring Programme (JMP)

An estimated 90 per cent of all wastewater in developing countries is discharged directly into rivers, lakes or the oceans" causing serious social, economic and environmental damage².

Furthermore, water is a resource highly impacted by climate change: preserving and managing water is thus a consequent challenge, as it deepens inequalities in the face of hydric stress or natural disasters. The principle of "ensuring that no one is left behind" still has a long way to go at the global level, applying also to gender inequalities, and minority rights.

b. Water for Food

Water scarcity – including issues of availability, quality and access - is one of the leading challenges of the twenty-first century. Driven by population growth, economic development, urbanisation and dietary changes, water use grew twice as fast as the world's population last century. Poor water governance has also contributed to a situation where the supplies we do have are not reaching those who need them.

Across the world, it is the most vulnerable – the poor and marginalised, women and indigenous people - who suffer disproportionately when water is scarce. Climate change is expected to disproportionately affect smallholder farmers and make their livelihoods even more precarious as they carry the economic burden of droughts, floods and environmental degradation.

Moreover, water scarcity can be disastrous locally and lead to social unrest and migration, as we are currently witnessing with migrants risking their lives fleeing from water-scarce areas. Addressing the problem in agriculture requires new thinking – from field to fork, from farmer to consumer.

c. Water and energy:

Water is essential for all socio-economic development and for maintaining healthy ecosystems. As population increases and development calls for increased allocations of groundwater and surface water for the domestic, agriculture and industrial sectors, the pressure on water resources intensifies, leading to tensions, conflicts among users, and excessive pressure on the environment. However, it is estimated that by 2025, 1 800 million people will be living in countries or regions with absolute water scarcity and lack of sanitation, and two-thirds of the world population could be under stress conditions.

Clean and secured water supply cannot be realized without energy. Energy is needed across the water cycle including for groundwater extraction, transportation, purification, distillation, distribution, collection and wastewater management and treatment. And desalination plants on average use about 15,000 kilowatt-hours of power for every million gallons of fresh water that's produced. Energy represents the largest controllable cost of many water infrastructures. Energy requirements for surface water pumping are generally 30% lower than for groundwater pumping. It is expected that groundwater will become increasingly energy intensive as water tables fall in several regions.

As equal as the importance energy is to water, water is also crucial for the energy sector. The extraction of raw materials, cooling in thermal processes, in cleaning processes, cultivation of crops for biofuels, and powering turbines, all these processes rely heavily on water. Approximately 580 billion cubic meters of freshwater are withdrawn for energy production every year worldwide. This amount accounts for 15% of the world's total water withdrawal. By 2035, energy consumption will increase by 35%, which will consequentially increase water consumption in the energy sector by 85%.

Water and energy are intricately connected. The interdependence and inter-linkages between water and energy means that the crisis in one sector can quickly diffuse to other sectors and thus cause dramatic ecological, economic, social and political ramifications.

² UNEP-UN-Habitat, Sick Water, 2010

d. Green Growth, Water Stewardship and Industry

“Growing first, and cleaning up later” is no longer a viable option for sustainable development. Growing concerns on population projections, rapid urbanization and unpredictable climate change will put water at a greater risk. In such regard, green growth has emerged as a new development strategy to respond to an unsustainable business-as-usual approach. And, it becomes more necessary for major water users to understand their water use and impacts. We aim to manage water for green growth with different tools and actions, and raise awareness of water users on the importance of socially and economically beneficial water use. It is necessary to explore effective policies, foster the long-term engagement of a variety of stakeholders in water management and recognize the economic value of water.

e. Water Governance

The SDGs are creating a unique momentum for countries to advance on various issues critical for political, socio-economic and environmental development. It is an opportunity for policy makers and stakeholders to mobilise collective efforts, create shared understanding and commit to action to improve the lives of people and the environment by shifting the paradigm focused on solving individual situations and beginning to connect the dots between actors, policy fields and scales to address development challenges in a systemic way. This requires particular attention on:

- Multilevel governance: the SDGs explicitly recognise the importance of governance in shaping, designing and implementing public policies. Both national and subnational governments play a role in themes covered by the SDGs, from carrying out public investment, to eradicating poverty, to ensuring universal access to quality public services.
- Multi-stakeholder engagement: the implementation of the SDGs should rely on a whole-of-society approach for citizens to fully reap expected benefits. Achieving such universal standards is a shared responsibility across multiple actors that requires engagement with relevant public, private and non-profit stakeholders.

f. Transboundary cooperation of rivers, lakes and aquifers

40% of the world’s population lives in transboundary rivers and lake basins, and more than 90% lives in countries that share transboundary water (one or more of the 276 transboundary surface water basins and 608 transboundary aquifers -identified to date). Therefore, enhancing cooperation on transboundary water management is crucial to “ensure that no one is left behind”.

When assessing the situation of cooperation on transboundary water management with regard to the principle of “ensuring that no one is left behind” at the global level, the question is: is the glass half-empty or half-full?

A glass-half-full assessment would highlight the significant progress recorded in the field of cooperation on transboundary water management in the past 30 years. Two international conventions have been established for cooperation on transboundary rivers and lakes and more than 400 agreements are now governing transboundary rivers and lakes. Moreover, Integrated Water Resources Management (IWRM) has been a guiding principle for most of these legal instruments.

A glass-half-empty assessment would stress that not all transboundary waters are covered by an international agreement and by a basin organization in charge of its management. Absence of such legal and institutional arrangements can result in a suboptimal use of transboundary water resources, tensions over conflictive uses or even conflicts. Transboundary basin organizations do exist, they often do not have the resources required to

fulfil their mandate: insufficient institutional or legal structures, lack of financial resources, of qualified staff or of water information system fed with reliable data by robust monitoring networks. Existing capacity building initiatives can bring improvements, but the current funding allocated to them fall short of what is actually needed.

When it comes to transboundary groundwater management, international law is still developing, even though the UNECE Water Convention applies to transboundary groundwaters as well as surface waters and a number of joint bodies for transboundary water cooperation deal also with groundwaters. Though the Draft Articles on the law of Transboundary Aquifers have been annexed to a UN General Assembly Resolution (63/124 of 11 December 2008), they do not have the status of an international treaty. Legal and institutional arrangements have been adopted in only a very limited number of transboundary aquifers. This is of course a significant cause for concerns as 97% of global available freshwater is groundwater, with (as mentioned above) 608 transboundary aquifers identified to date.

Although getting a dedicated SDG target (n°6.5) is good news, there is no guarantee of achieving this goal (as demonstrated with the sanitation target of the MDGs). To yield improvements in cooperation on transboundary water management and “ensure no one is left behind”, proper funding and adequate indicators for the monitoring of progress are required.

Finally, and more broadly, the landscape of international organizations involved in water management is rather characterized by institutional fragmentation and overlaps. This is all the more troubling as the water crisis is first and foremost a governance crisis, as technical solutions do exist. Governance world-wide needs to be strengthened to provide guidance and support to States requiring assistance in water management. Considering transboundary contexts, two global freshwater conventions, an institutional framework and various soft law instruments exist to support States in improving their cooperation. Support is needed to translate the principles of international law into the specific local and basin contexts for sustainable management of waters close to the users.

g. Water cultures, equity and justice:

While water is a key resource for humanity as a whole, the diversity of relationships to this element and its value between regions and sectors contributes to forming many different cultures of water. Whether water is understood as an economic good that individuals and communities have the right to, or a sacred element to be protected and has its own rights, all perspectives on water need to be considered in order to improve its management and governance, ensure its protection, quality and accessibility, while pre-empting potential user conflicts. Hence the need to take into account the diversity of stakeholders in water-related issues in order to ‘ensure that no one is left behind’ and reach water security at all levels.

To ensure that no one is left behind, intense and complementary efforts are required by government, UN and civil society as we implement sustainable development in order to both ensure human rights of all and dismantle systemic inequalities. Achieving gender equality, the realization of women’s human rights and the empowerment of women are essential and cross-cutting to all of the SDGs and to actualizing a transformative agenda, rather than replicating business as usual in new guise.

The twin concerns of "precaution" and "inter-generational equity" are central issues of social justice. The poor are more vulnerable to unintended consequences of water development, and standards of precaution (the "precautionary principle") need to be maintained to protect their interests. Similarly, the interests of future generations depend on restraint in permanently altering water ecosystems through dams, industrial contamination, or exploitation of non-renewable aquifers.

Indigenous peoples’ traditional knowledge has maintained throughout millennia a balance with all living things, practices that protect water and all life. This knowledge will address all SDGs through the implementation of the UN Declaration of Indigenous Peoples.

The principle of “ensuring that no one is left behind” still has a long way to go at the global level, applying also to gender inequalities, and minority rights.

h. Education, capacities and training

To achieve the water related-SDGs (this goes way beyond just SDG6), it is indispensable to improve education, build capacities and train water professionals of the water management sector. It is easy to forget those who work to get our water and sanitation services running and to keep our water resources clean and abundant. But facts and figures provide a clear wake-up call: for instance, it is worth noting that providing a water supply service for 1 million people requires an estimated 500 to 700 qualified staff members. Expenditure in human resources can reach up to a third of the overall water supply cost. Optimizing this considerable item of expenditure implies building capacities through education and vocational training.

Significant investments are made in the water sector each year. However, these investments sometimes miss their targets. With regard to the small water cycle and municipal water and sanitation services, this is often due to multiple deficiencies in the way infrastructures are designed, managed and run. As a result, many infrastructures deteriorate much faster than planned. It is crucial to improve the way infrastructures are designed, operated, maintained and replaced. It will require better governance of services, reinforced capacities and human resources.

With regard to the big water cycle and the management of the basins of lakes, rivers and aquifers, the same issues have been observed. Even when there is a legal and institutional framework for the Integrated Water Resources Management at basin level, there is often a lack of qualified staff trained to perform the basic functions of basin management: planning, financing, monitoring, information sharing, etc. Funds are frequently squandered as a result of the existing gap in education, capacities and training.

II. The identification of gaps, areas requiring urgent attention, risks and challenges

a. Access to drinking water and sanitation:

Access to safe water and sanitation remains a priority: every day between 2 and 4 billion people are consuming non-potable, dangerous, and even deadly water (UN Water , 2012); while 1.8 billion people use water contaminated with faeces, and 2.5 billion people still lack access to sanitation (JMP 2012). Principal causes are:

- Lack of political understanding of the importance of the matters and determined will to resolve them
- Fragmented responsibilities between various ministers and local governments, which prevents action
- Insufficient consideration of the on-site sanitation systems by planners, who only consider sewerage systems
- Barriers (silos) between actors involved in the access segments (toilets and containment) and those involved in the evacuation, treatments and reuse segments
- Barriers between the sanitation and wastewater management sector and the urban planning and the other urban services.
- An overly restrictive framework that fails to recognise a progressive improvement approach as well as discrepancies between desired effluent standards and the actual treatment processes available
- Sanitation is a costly service to provide and complex to finance. This is often exacerbated by political unwillingness to charge for the service.
- Lack of technical and managerial skills and capacities

b. Water for Food

It is important to strengthen national government-led planning processes to guide the development and implementation of effective policies (explicitly ensuring coherence between agricultural, water, sanitation and hygiene, irrigation, climate, nutrition, gender, trade and other policies) and sustainable agricultural water management practice.

For that, tools, models and management approaches need to be systematically applied, taking into account the specificities of different regions, countries and communities. Particular attention should be paid to water productivity improvements, irrigation modernization, use of alternative water sources, pollution control, multiple uses of water resources, landscape approaches, efficient water use in the food chain, reducing food loss and waste, agricultural diversification and trade.

Improvements in technology, agricultural inputs – including crops and livestock genetics – and practices are widely needed to help farmers increase food production using increasingly limited water resources. Empowering farmers to better manage risks associated with water scarcity will also be critical. This will require a combination of public and private investment, training as well as an enabling policy framework.

Most importantly, we need to move away from pilot projects and uncoordinated interventions towards a systematic, programmatic approach to addressing water scarcity in the agricultural sectors.

c. Water and energy:

Climate variability and change threatens water availability and affect the amount of water required to produce electricity or extract fuel. In addition, increasing demand across sectors for water and energy with a lack of management can put further pressure on the resources. Consequent risks to businesses easily can stem from such disruption in water and energy sectors and thus cause serious economic problems. Water and energy scarcity means there will be insufficient resources to maintain production of many goods. Price fluctuation of water and energy can raise product costs and disrupt supply chains. Water pollution and pollution caused by energy production can jeopardize local residents' health and undermine companies' reputation. Areas that need urgent attention include:

- Improving efficiency: Waste less water and energy –improve the efficiency of water-energy systems across sectors (water supply, wastewater, irrigation, energy provision, etc) – to cope with increasing demand on water and energy.
- Ensuring sustainability: Sustainable planning, building and operating of water and energy infrastructure while preserving and improving water resources, the ecosystems they support and social aspects.
- Enabling governance: Stakeholders across sectors are empowered to participate in decision-making, cooperate and share information and maximize sharing of benefits.

d. Green Growth, Water Stewardship and Industry

Economic growth will enable the improvement of the environment, and the improved environment will be a driving force for sustainable economic growth and an improved quality of life. However, it seems not smooth to move from trade-offs to virtuous-cycle relationship between the environment and economic growth because of two challenges: the first is whether Green Growth is achievable; the second is, if yes, how it can overcome the free-riders' dilemma.

On the other hand, it is necessary to raise awareness on the complex role water plays in supporting society, economic growth and our ecosystems. However, just awareness cannot lead us to the achievement of sustainable development. It should be linked to behaviour change for ending poverty and enhancing our quality of life.

e. Water Governance

Water management is both a local and global public good; it is more fragmented than other natural resources area and infrastructure sector; it has many externalities on other domains critical to poverty alleviation (energy, agriculture, urbanisation etc.); and it is at the crossroad of public health, revenue distribution and territorial development. These intrinsic, and quite unique, characteristics make water management particularly vulnerable to governance challenges. The water-related SDGs will not deliver if robust institutions are not in place, if problems are not addressed at the relevant (hydrological) scale, if stakeholders are not properly coordinated and engaged to secure social and political acceptability, if regulatory frameworks do not safeguard the public interest, if data and information is not guiding decisions, if capacity is lacking and/or if monitoring and evaluation are not in place to trigger enforcement and compliance.

f. Transboundary cooperation of rivers, lakes and aquifers

Implementation of IWRM can valuably support achievement of targets of SDG 6 and beyond. Where there is no or insufficiently developed agreements or basin organizations on transboundary waters, the need for joint implementation of the two global freshwater conventions, challenges in ensuring accountability internationally and further development need of international law on transboundary groundwater management, it is very important that transboundary cooperation in water management is monitored and that there is a devoted global indicator for it.

Two indicators are being suggested to measure progress towards target 6.5, namely implementation of IWRM and transboundary cooperation:

1. One indicator on IWRM: indicator 6.5.1 “Degree of integrated water resources management implementation (0-100)” (consideration of UNEP as in charge of the indicator)
2. One indicator on transboundary water cooperation: indicator 6.5.2 “Proportion of transboundary basin area with an operational arrangement for water cooperation” (consideration of UNECE and UNESCO-IHP as in charge of the indicator).

Considering the challenges facing water management in a transboundary context, as described above, it is important to maintain the level of ambition of indicator 6.5.2, measuring implementation and assessing the extent of cooperation and the arrangements for it being operational.

g. Water cultures, justice and equity

The discussion platform on Water Cultures, Justice and Equity that took place during the 7th World Water Forum in 2015, enabled various stakeholders to meet and discuss how to best ‘ensure that no one is left behind’ in the management and governance of water around the world and across communities. Identified key issues included:

- Indigenous leaders, along with a growing number of civil society organizations, religious have been advocating that in addition to the human right to water, water is considered by many as a sacred and spiritual element which has its own rights (e.g. the Whanangui River in Aotearoa/New Zealand): notably to be protected to improve more harmonious co-evolution between human society and nature. Many Indigenous Nations regard the Earth as a living entity with rights to be clean and healthy.
- Although climate change and global systems have created great health disparities and access to clean water in Indigenous Nations and their communities, solutions are found in traditional knowledge and practice.
- While many conventions, declarations and laws already exist regarding water rights at large their implementation is still far from optional (e.g., the 2007 UN Declaration on Rights of Indigenous Peoples, and

the 2010 General Assembly Resolution on the Human Right to Water and Sanitation, etc.), implementation and enforcement are weak.

- Women and men together underlined the challenges related to the representation of women in the decision-making process of the water sector and put emphasis on the need to improve capacity-building but also address discrimination to move forward in that direction.
- The advantages of learning from, applying and protecting water heritage and sustainable traditional water management systems, such as qanats/foggaras for example, were also emphasized.
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h. Education, capacities and training

These are still insufficiently developed. This is true for both high and low levels of qualification. Globally, there are not enough skilled managers and field-workers to manage the small water cycle and the big water cycle, our water and sanitation services as well as our rivers, lakes and aquifers. Urgent attention is needed to build the institutional, economic and technical means to develop education, capacities and training. Gaps, priority areas of actions, risks and challenges are identified as follow:

- Staff cost of water and sanitation services and of basin organizations is very high
- Many operational problems come from lack of competencies at all levels: managers, technicians and also the large number of workers in the field
- Human capital is an asset, which has to be developed and maintained
- Funds assigned for training by governments, water utilities and funding institutions are insufficient
- Often donors finance only short term training programmes which do not enable long term capacity building of utilities staff

Achieving other SDGs will also help improve education, training and capacity building in the water sector. This includes:

- Target 4.7
- Target 4.b
- Target 4.c
- Target 12.8
- Target 13.3.

III. Valuable lessons learned on eradicating poverty and promoting prosperity

a. Access to drinking water and sanitation:

Absence of adequate sanitation and hygiene are major contributing factors to continued poverty and the persistence of inequalities. Lack of sanitation and hygiene expose people to debilitating and fatal diseases, lead to stunting in children and loss of their developmental capacity thus affecting the whole of their lives. They exclude children, especially girls, from education and give rise to enormous domestic and medical costs. They prevent or limit employment opportunities. Recent studies have shown that sanitation deficiencies increase the inequalities between the haves and have-nots, men and women, and people living with disabilities.

b. Water for Food

Much has been learned in the last 50 years about the role of technology in improving water management, increasing crop yields and enhancing farm incomes. Many farmers in arid and semi-arid regions have adopted drip and sprinkler irrigation systems, while many use laser to level their fields, and many deliver fertilizer via their on-farm irrigation systems in a process known as fertigation. Optimizing the use of water and nutrients in crop production, planting hybrid varieties of some crops, using higher quality seeds, and implementing new methods of pest control, have contributed to the large and sustained increase in crop yields observed in many countries since the 1960s and 1970s.

These technical improvements have been accompanied by institutional and policy changes. While there is still much to be done, it is important to acknowledge some success stories, particularly when it comes to establishing water user groups or farmer organisations as well as river basin organisations to make water governance processes more inclusive and context specific. Outreach efforts, such as farm advisory programmes, cooperative extension services, and farmer training programmes have enhanced the capacity of many farm households to implement advances in production technology and to strengthen their participation in input and output markets.

c. Water and energy:

Water and energy are lifelines to sustainable economic and social prosperity. Understanding the inextricable link between water and energy is the key to improving economic, environmental and social well-being. Effective and equitable allocation of water and energy resources includes reaching vulnerable populations as prosperity and poverty reduction is linked to access to clean water and energy availability provides economic opportunities. This means there needs to be wise management of water resources, and the energy production these resources support. Water and energy planning must be clearly linked in national development plans, while enhanced data and knowledge sharing, technology transfer and partnerships across sectors can support implementation of these plans.

d. Green Growth, Water Stewardship and Industry

Water not only impacts the environment and economy, the crucial fields for green growth, but it also a basic consumption need, being essential in food production, sanitation services and public health. So, Water & Green Growth (WGG) approach shed light on the matter of basic needs of people in developing countries, which is often de-emphasized in countries that are committed to achievement of the quickest economic growth in the shortest period of time.

In addition, if humans make an effort to change how they pursue economic growth, they can solve the environmental problems they have caused. Because we have been experienced a serious impact on the environment that it was beyond the capacity of nature to absorb, with consequent negative effects on people's livelihoods and health.

e. Water Governance

Tools and good practices on governance exist in the water sector to support poverty eradication and promote well-being and prosperity. In an effort to compile these resources, an Inventory was prepared by the **OECD Water Governance Initiative** that gathers more than 100 governance tools, water and non-water specific, on stakeholder engagement; performance and governance of water supply and sanitation; basin governance; and integrity and transparency. The key is to scale up their implementation and tailor them to specific contexts. In addition, the OECD Water Governance Initiative is currently working toward an online database of water governance "stories" that can inspire governments and stakeholders move from vision to action on poverty alleviation. The database, to be launched at the 8th World Water Forum, will gather concrete examples that illustrate the OECD

Principles on Water Governance in local, regional, basin, national or international contexts. These “stories” will share success stories but also lessons learned from failed attempts.

f. Integrated Water Resources Management

Some experiences in the field of water have shown that collective decision making within multi-stakeholder structures are particularly relevant for generating virtuous circles and increase prosperity. By implementing integrated water resources management, these organisations help to establish public policies adapted to the environmental and socio-cultural realities of the countries/regions concerned. We can therefore find the same conditions of participation, solidarity and integration, which benefit water resources and the populations that use them.

IV. Emerging issues likely to affect the realisation of poverty eradication and achieving prosperity.

a. Access to drinking water and sanitation:

The Habitat III conference and the New Urban Agenda clearly indicate the importance of managing the water cycle and in particular urban sanitation and wastewater. Integrated sanitation planning needs to be an integral part of urban design. Local governments and municipal planning authorities need to plan for the incorporation of sanitation and hygiene infrastructure and its operation and maintenance into the development and redevelopment programs from an early stage. Retro-fitting systems to overcome backlogs and deficiencies is many times more costly than planned inclusion from the beginning

b. Water for Food

Much of the net growth in the global population up to 2050 will occur in cities of developing countries, thus increasing urban demands for water and food. The interaction between cities and the countryside will become increasingly intertwined and, if well managed, will offer new opportunities for mutual benefit, including recycling and reuse of water and nutrients held within municipal waste products, urban agriculture and greater consumer responsibility.

At the same time, a substantial share of the global population, and many of the poor, will continue to earn their living in agriculture in 2050. Thus, investments in agriculture in lower income countries will be critical in raising the income level of the poor and assisting them to achieve household food and nutritional security.

Climate change will increasingly necessitate investment in measures to enhance adaptation in agriculture that are mostly related to water management, particularly as it relates to vulnerable groups (the poor and landless, subsistence farmers, women, youth, indigenous people).

Policies and investments are needed to enhance the role, equality and success of women in agriculture. Women also constitute 40 percent of the world’s farmers and in many regions agriculture is increasingly feminized as men migrate to urban centres.

c. Water and energy:

Emerging issues include changing political priorities which may not recognise the impact of exploitation of one resource on another. For example, water scarcity is a potentially binding constraint on enhancing energy security. A lack of natural resource management can result in a downward spiral with not only economic consequences but also impacts the water needed for the environment which in turn supports a variety of livelihoods.

Another key issue is the increased frequency of extreme hydro-climate events, such as cyclones, floods, and droughts impacts water security and consequently energy availability. The disruption in supplying these resources can cause set-backs with not only short term acute impacts but also can take a long time to recover from such extreme events.

d. Green Growth, Water Stewardship and Industry

Water sector is the most impacted by the changing climate. Climate variability and change directly impact water availability and the frequency and magnitude of water-related natural disaster. In response, the reengineering of existing and the construction of new water infrastructure, as well as developing new water policies and regulation, are required. Definitely, we will face sudden and unforeseeable impacts of global climate change and we must bear in mind that the poor will suffer most because of climate change.

e. Water Governance

Climate change will impact certain places and people more than others, and this trend will only keep increasing because climate change is expected to hit even harder in the coming decades; because government policies often fail to adequately assist those most at risk; and because the conjunction of these first two factors will leave room for social and environmental crisis, such as current inflows of migrants, to create even greater impacts. Therefore, one of the biggest challenges will be investing in adaptation and development while reducing poverty and inequity. In addition, the current migratory crisis is adding millions of people to the list of people who can potentially be left behind. Yet current political responses are insufficient and often inadequate. Territorial reforms taking place in many countries (e.g. Morocco, France, Tunisia), transfer a number of responsibilities to sub-national governments, including responsibilities directly affecting the most vulnerable people such as stakeholder engagement or the provision of basic services. Yet sub-national governments often lack skills and resources to carry out such responsibilities. Finally, even though legal frameworks in the water sector support poverty alleviation, implementation is often lagging behind and little guidance exists on how such frameworks should unfold on the ground.

f. Integrated Water Resources Management

Water quality is a crucial consideration for efficient water resources management. With increasing pressures on available resource (climate change, population growth, particularly in water-short regions, rural exodus, higher demands for food security and socio-economic well-being, increased competition between users and usages, pollution from industrial, municipal and agricultural sources, etc. (UNESCO 2012)), water quality management is increasingly seen as essential for a more balanced and multidimensional approach to the research, policy-making, governance, operations and management of water resources. In order to improve water security, water quality management must improve.

V. Areas where political guidance by the High-level Political Forum on Sustainable Development is required.

- The High-level Political Forum on Sustainable Development has to keep in mind that water is a connector, not a sector: therefore, it must be considered in every SDG/indicator, including other cross cutting issues like gender and minority rights.
- Political guidance is required to assess performance of organizations in charge of basin management and of water and sanitation utilities, to assess the benefits of training water professionals, to increase

funds dedicated to training of water professionals (e.g. in development aid, percentage of total expenditures of organizations in charge of water services and basin management).

- Tackling the challenges and meeting the objectives of goal SDG 6.2 is an essential precondition to achieve the objectives of eliminating poverty and ensuring sustainable development at the heart of the 2030 Sustainable Development Agenda. A much higher level of political commitment to sanitation and hygiene is therefore essential.
- Countries in water-scarce regions will increasingly need to devise food security strategies that explicitly consider structural food supply deficit and trade arrangements to protect them from food price volatility. This will require political vision, guidance and cooperation. Policies and investments that enhance opportunities for off-farm employment. In rural areas are needed to increase incomes, reduce poverty and enhance food security, particularly where land and water resources are inadequate to support higher population densities. Higher incomes are essential for achieving food security, and in many rural areas, higher incomes will need to come from new opportunities in off-farm employment. How this can be done needs to be further explored. Many rural households lack secure title to the land and water they use to produce crops and raise livestock, as part of their essential livelihood activities. It will be important to provide guidance on how to clarify tenure arrangements and at the same time, to offer practical solutions – such as small reservoirs and water harvesting.
- Financing is the area where the political guidance by the High-level Political Forum on Sustainable Development is most needed. Technical solutions exist and the methodologies and tools to establish good water governance are also well identified. But the issue of financing remains unsolved. For Agenda 2030, the objective should be to mobilize financial resources of development aid for the establishment of sustainable financing mechanisms providing financial autonomy to the institutional and legal arrangements made for IWRM and transboundary cooperation. The HLPF on Sustainable Development is a position to provide donors this political guidance.
- Traditionally, water and energy issues are treated in isolation. Therefore, it is significant to recognise the network of inter-linkages between water and energy. The water-energy nexus pushes us to establish cross-sectoral cooperation and enhance communication and data sharing, so as to maximize the synergies and avoid trade-offs between the two sectors, which will help us find ways to provide accessible, affordable and acceptable water and energy resources for all (for instance, multi-purpose hydropower infrastructure) and make contributions to sustainable economic development, poverty reduction and the social and individual well-being.
- The Hi-level Political Forum could be very effective in strengthening the role of water in achieving economic development, the protection and revitalization of ecosystems, and social equity in order to drive behaviour change of individuals, organizations, local and central government.
- The High-level Political Forum on Sustainable Development can contribute to set-up the institutional landscape within which the water-related SDGs can be achieved. It can play a critical role to translate the water targets into national policy frameworks and agendas, mobilise dedicated funding and set incentives to hit the targets. However, it will depend, in a large part, on the ability of the High-level Forum to engage the wide range of stakeholders concerned with the SDGs, and to provide them with opportunity to be part of the solution. Identifying “who can do what” is an important step to capture

the contribution that each category of actors can make, and how they can develop mutually-supportive initiatives to hit the water-related targets in the different themes. The private sector can support investments in infrastructures and innovative technologies to improve water efficiency and better manage water-related risks; civil society can contribute to advocacy, information-sharing on local realities and needs, social mobilisation, and local development through capacity building, awareness-raising; and academia can produce and share technical and scientific information and evidence to build a sound knowledge-base.

- Based on the aforementioned lessons for water-related decision-making and policy-making, the High-level Political Forum on Sustainable Development may wish to support the systematic integration of stakeholders representing a wide range of water cultures in these processes, reaching from indigenous community leaders to social and legal specialists, and including specific focus on the representation of women and the safeguarding of traditional water management techniques and related heritage. Most particularly, existing UN guidance such as the 2007 Declaration on the Rights of Indigenous Peoples, e.g., "to determine and develop priorities and strategies for the development or use of their lands or territories or other resources" (Article 32) should be explicitly incorporated into water policies and development plans. We can only hope to reach the SDG and induce lasting change if the SDG implementation is based on the mutual understanding and cooperation among diverse cultures, within or across communities or boundaries. Policy choices and legislation on water must take into account values and ideals, traditional and institutionalized formal and informal social practices.

VI. Policy recommendations on ways to accelerate progress for those at risk of being left behind

a. Access to drinking water and sanitation:

Universal access to sanitation is now an undisputed objective (SDG target 6.2). To deliver on this sustainability requires the community as a whole, (settlement or town) to provide and pay for the infrastructure and operations of the services with predictable cost recovery through service charges or taxes. Some short-term support from national budgets or international aid should be allocated to assist meeting the initial costs where this is possible. Those people who are unable to pay their full share of the charges or taxes need to be identified and provided support from the rest of the community to ensure they have access.

b. Water for Food

- Investments and programmes that enhance agricultural risk management, particularly for smallholders, will be critical in enabling farm households to adopt new technologies, diversify their activities, and sustain food security during periods of high input prices, low crop yields and major weather events.
- With increasing competition for water in agriculture and other sectors, national and provincial governments will need to effectively communicate water scarcity conditions, and allocate water with the right mix of concern for equity and efficiency, and motivate all farmers, companies and consumers to use water wisely. Just as security of land tenure is essential for encouraging efficient use of land, secure water rights and allocations can motivate farmers to invest in their land and improve returns generated from irrigated agriculture.

c. Water and energy:

Policies need to require and incentivise the implementation of efficient technologies, good governance models, and creative investment instruments to enable water and energy efficiency.

d. Green Growth, Water Stewardship and Industry

Water is an engine for growth. Improved water supply and sanitation and sustainable water resources management enhance countries' economic growth and contributes greatly to poverty eradication. Indeed, through Water Green Growth (WGG), economic growth will enable the improvement of the environment, and the improved environment will be a driving force for sustainable economic growth and an improved quality of life. Indicative planning and tools can be used by governments or basin organizations to promote holistic economic and social development through sustainable management of water resources and maintenance of related infrastructure to improve ecosystems. But strong political leadership and commitment are essential. Moreover, stakeholder participation is valuable in order to reflect the community's interest, building support, and for conserving and protecting water resources. A clear legal framework supports WGG projects in terms of consistency and continuity.

e. Water Governance

The 7th World Water Forum Implementation Roadmap on Governance advocates for the implementation of the OECD Principles on Water Governance, which provide the 12 "must-do" for governments to design and implement effective, efficient, and inclusive water policies in a shared responsibility with the broader range of stakeholders. The OECD Principles can serve as a framework of reference to set the enabling environment for reaching the SDGs and thus alleviate poverty. An effort towards greater measurements of water governance aspects at different levels of governance will help to identify gaps and look for adjustments when needed. The OECD Water Governance Initiative is developing a framework of water governance indicators that can help governments at different levels of government assess where they stand in terms of managing water, and whether their governance structures are well-equipped to achieve the water-related targets.

f. From the Integrated Water Resources Management perspective

- Strengthen the place of water in the public and private funding mechanisms, including those supporting adaptation to climate change.
- Strengthen civil society consultation mechanisms in the decision-making process.
- Promote multi-stakeholder structures such as basin organisations to strengthen the exchange of knowledge and experience, without acting to the detriment of a population or category of stakeholders.
- An overarching control tower or any task force team at a national level should be established together with a guideline to encourage all levels' participation. It may be possible to constitute a task force team at each goal level or several integrated goal level.

g. Transboundary cooperation of rivers, lakes and aquifers

- Implement the two transboundary water conventions in a coherent and synergetic manner,
- Promote and finance globally capacity building on international water law,
- Promote and finance globally capacity building on Water Diplomacy,
- Promote and finance globally the institutional capacity building of transboundary basin organizations (mandates, structures, means),
- Provide financial support to emerging transboundary basin organizations,
- Promote sustainable, self-financing of transboundary basin organizations through contributions from riparian countries and regional economic commissions,

- Provide technical support for water monitoring networks development in transboundary basins and promote the exchange of data/information between riparian States,
- Promote and finance training programs on integrated water resources management in a transboundary context for diplomats, negotiators and professionals of basin organizations,
- Carry out awareness campaign targeting the stakeholders and the general public on the benefits of cooperation and transboundary basin organizations.

h. Water cultures, justice and equity

The discussion platform on Water Cultures, Justice and Equity that took place during the 7th World Water Forum in 2015 issued the following recommendations:

- to promote social learning to better understand the role of human behaviour and cultural beliefs and attitudes toward water and its management;
- to raise awareness among water professionals and decision-makers about the intricate but yet often ignored relevance of heritage for water management and development;
- to foster involvement at all levels in management and implementation of water policies and programs, especially the involvement of women and indigenous communities;
- to foster the recognition and understanding of diverse perspectives on water, water rights and legal frameworks for them to be better understood and embedded in cooperative mechanisms;
- to present the concept of water ethics as a practical tool for setting higher standards for the water sector, and to build the capacity of civil society groups, local governments, and national water agencies to develop water ethics charters which can guide local water policies and programs;
- to integrate complex cultural, spiritual, economic and environmental functions of water to improve water management and reach water security and sustainable development for all;
- to include and ensure participation of grassroots organizations in planning, implementation and monitoring of 2030 Agenda at local and national level;
- to finance and foster capacity building for women water groups, incl. Indigenous Peoples;
- to guarantee accessibility of gender disaggregated data and ensuring all SDG indicators, plans, budgets and monitoring programs for gender-responsive implementation of Agenda 2030;
- Develop pilot case studies on sacred river basins, e.g. Amazone, Ganges, White Brotherhood sacred 7 Rila Lakes, etc.
- to enshrine in national constitutions the UNDRIP;
- to create educational programs regarding the implementation of UNDRIP and traditional laws about water.

i. Education, capacities and training

➤ Capacity building and development of vocational training in the water sector:

- Reinforce awareness of the importance of vocational water training in development strategies and programmes.
- Integrate vocational training into investments.
- Encourage the widespread use of good practices and innovative, appropriate solutions in vocational training.
- Support the creation of new water training centres throughout the world and strengthen existing ones.
- Devise common training tools and improve educational practices.

- Develop skills and increase the number of human resources in the fields of basin management, water supply and sanitation.
- Backing vocational training with sustainable financial mechanisms:
 - Fund training by making investments in relation with new or rehabilitated works.
 - Create “Earmarked Funds” at national level for developing vocational training; this could be funded by taxes, by contributions pro-portional to companies’ total wage bill, or by a percentage of the water sale price.
 - Promote (through standards, certifications, requirements of tenders and call for proposals) sustainable self-financing strategy for staff training of water and sanitation utilities,
 - Promote (through standards, certifications, requirements of tenders and call for proposals) the dissemination and use of existing performance indicators for water and sanitation utilities and their staff (e.g. Aquafed indicators), ultimately in order to assess the benefits of professional training,
 - Promote (through standards, certifications, requirements of tenders and call for proposals, lobbying) the inclusion of staff training in water operators budgets at a minimum of 2% of the total wage bill,
 - Encourage international donors to dedicate 5% of their water and wastewater investments to training,
 - Support existing networks dedicated to training of water professionals (International Network of Water Training Centers, Cap-Net, etc.), and promote the development of regional components.
- Incorporating vocational training into human resource development strategies:
 - Consider training as an essential component of human resource management.
 - Develop skills in line with career progression.
 - Systematically draw up long-term training plans both nationally and within water companies.
 - Training bodies are vital partners for human resource managers in implementing this strategy. For this reason, it is important to instigate collaborations between training centres and water companies to spread and share experiences on the field and transfer practical knowledge.
- Making use of specialized bodies with the appropriate capacities and educational tools:
 - Define terms of reference for training, with quantifiable requirements on quality, professionalism and efficiency.
 - Define performance indicators that make it possible to assess the impact of training and the actual return on investment.
 - Adopt a genuine training development approach.