

AIWW 2011-2030 IS CONNECTING THE DOTS

*The need for integrated solutions,
new coalitions and scaling up*

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■ The Amsterdam International Water Week –IWW- started in 2011 and is a 2-yearly event that wants to integrate solutions implemented locally, providing peace, stability, economic prosperity by valuing water rights. AIWW wants to connect networks and solutions necessary to cope with the global water challenges we have. Why not start to connect the international water weeks?

■ In 2030 there will be no more poverty, there will be enough water and sustainable energy for everyone and cities and human settlements are inclusive, safe, resilient and sustainable. The result of just 3 of the 17 SDG's and a summary of the goals that are supported by the Amsterdam International Water Week (AIWW).

We have a global water crisis. While we are aiming for recent confirmed SDG's the challenges just seems to increase with climate change. *Water ... and 9 billion people* was the theme of AIWW 2017 and refers to one of the other increasing challenges: 9 Billion people in 2050 and its related increase in demand for fresh water.

This article, written by organizers of the AIWW 2017, explains why we need an AIWW community and why we need a global platform that connects leadership with new solutions and funding. A platform that finds out how to support the SDG's, be part of the solution and how to connect global challenges with regional and local solutions.

AIWW: a roadmap to 2030

SENSE OF URGENCY

Droughts, heavy rainfalls, land subsidence and sea-level rising result in lack of drinking water, floodings, drowning land and a shortage of process water for agriculture and industries. Two third of the planet has to deal with a form of

water stress: too much water, shortage of water or polluted water.

The recent droughts in South Africa Cape town ('Day Zero'), the inundation and drowning of Miami, flash floods due to intense rain worldwide (Paris and Singapore, January 2018) and the land subsidence in Jakarta are just a few of the many examples.

Most people understand that a reduction of the CO2 emissions, adaption and smart robust integrated solutions are necessary. Directions for solutions are already there: resources and energy out of the water cycle, climate adaptation in cities, rainwater harvesting, resilient infrastructure, reuse of effluent, long term planning strategies, etc. These solutions 'only' need the right framework and have to be funded, implemented and scaled up. Innovations also from a longer-term perspective need to be part of these solutions.

In 2011 the first AIWW started to combine these issues including governance aspects. How can you learn from each other's great leap forward and the mistakes that already have been made? For instance, waste water and also solid waste will no longer be seen as waste. Treatment will be used to upgrade waste into energy and new resources. Forget the landfilling and start circular. We will not know how it will end but what we do know is that the transition is already going on. Like we started with a landline phone and ending up with a cell phone... for the time being.

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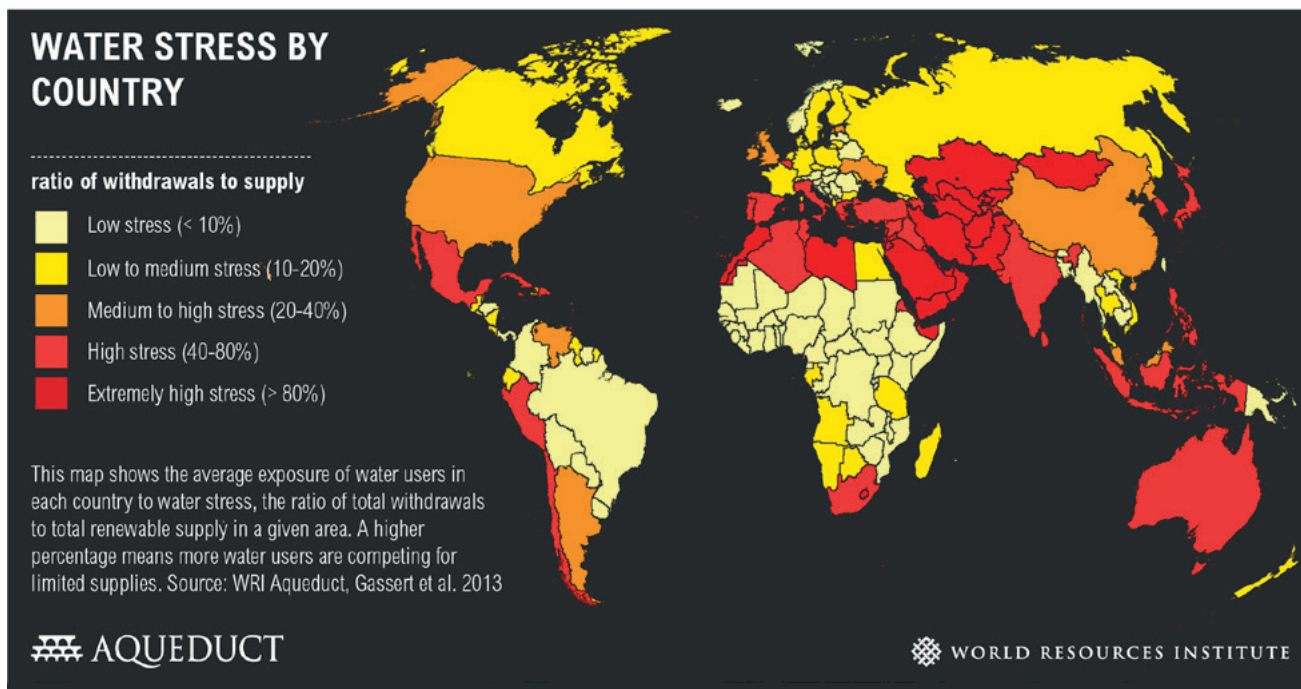


Figure1: **Global Water stress by Country** (WRI, 2013)

The theme of the AIWW 2017 was *Water... and 9 billion people*. In 2050 the world population is estimated around 9.7 billion people. Looking back in time we can see that since 1950, five years after the United Nations were founded, the world population grew dramatically. The world population in 1950 was estimated around 2.6 billion people. The population grew till 5 billion in 1987 and 6 billion in 1999. In 2011 the world population was estimated around 7 billion people and this was marked as an important milestone, which means that in only twelve years, between 1999 and 2011, the world has added around one billion people. From 2011 till the beginning of 2018 the population grew till 7.6 billion.

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Most people, around 60%, live in Asia. Africa is the second largest continent, around 16%, Europe, around 10% and Latin America and the Caribbean, around 9%. Around 5% of the world population live in Northern America and Oceania. The largest countries are China with 1.4 billion people and India where 1.3 people live. Between 2010 and 2015 Africa was the fastest growing continent with a growth of 2.5% per year.

For the coming three decades the population will grow further with 2.5 billion people to almost 10 billion people of which 70% will live in cities.

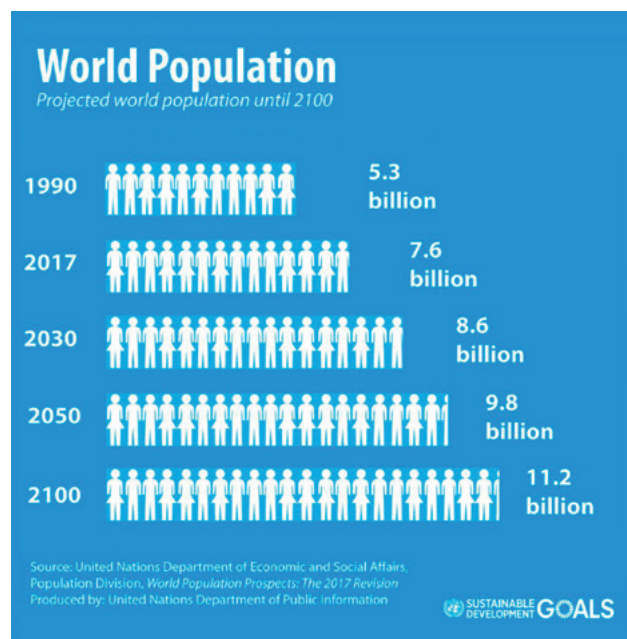


Figure 2. **Projected World Population until 2010**

More people create a bigger need for water services and sanitation. And although 70% of the world is covered with water, only 3% of that water is fresh and 2/3 of that amount of water is in frozen glaciers so cannot be used. Water is scarce: 1.1 billion people do not have access to water and 2.7 billion people have to deal with water scarcity for at least one month a year. Recent examples of water scarcity were in California, Italy, Sao Paulo, Singapore and South Africa. Water scarcity is

also a cause of unimproved and unsafe sanitation facilities. In 2017, almost 4.5 billion people were not able to use improved and safe sanitation facilities. One way to deal with water scarcity is an efficient use of water. The water footprint provides insights in the indirect fresh water use for the production of a product. Analyzing the water footprint of the global population shows that 85% of the global water footprint is related to the consumption of agricultural products. 10% of the global water footprint is related to the industrial products and 5% is related to the domestic water supply (www.waterfootprint.org).

Besides water scarcity there are recent examples of floods in Paris, Bangladesh and Florida. Land subsidence caused by extraction of groundwater can be mentioned as third challenge with examples in Djakarta and Beijing. These facts show and underline the need for a holistic approach to cope with the water challenges and the importance to involve the agricultural use of water with working on long term structural solutions.

EUROPE

Challenges for water and also energy, food and livability don't stop at borders. For the cleaning of the river Rhine 50 years ago there was an important need for international cooperation. Nowadays a river basin management plan is mandatory on a European level.

With 70 % of the regulation coming from Europe an European focus of the AIWW is logical. Agreements and tuning are needed between countries. For countries within the EU most legislation is made on EU-level. One integrated act simplifies the implementation of the European Directives like what is done with the Water Framework Directive.

Research & development is given a strong impulse within the EU-Horizon 2020 program. Extremes in Europe on climate change, approaches on the circular economy differs a lot resulting in a broad scale of innovations and best practices.

An example of the European Union is the ambitious Circular Economy Package from the European

Commission to help European businesses and consumers to make the transition to a stronger and more circular economy. The plans extract the maximum value and use from all raw materials, products and waste, fostering energy savings and reducing Green House Gas emissions.

The European Agenda 2030 for Sustainable Development stated that it will not be able to achieve the ambitious goals and targets without revitalized and enhanced Global Partnerships. Mr. Daniel Crespo, EU Director-General DG Environment, mentioned during the AIWW 2017 – High Level Round Table the example of Iran – European Union, that has established the first steps for cooperation by having meetings at technical level to discuss on joint initiatives by presenting experiences on implementing EU Water policy and its integrated water resources management.

The Netherlands was a logical choice for this first AIWW, because of the challenges this country has to deal with, like defending against the water, land reclamation has resulted in the spin off which created a strong knowledge driven water sector. Building with nature and adaptation started some 800 years ago in the Netherlands. Half of the Netherlands lies several meters below sea level. The Dutch stakeholders started to cooperate with each other and called it “Polderen”. New collaborations were born to organize the water management and made it a-political and autonomous. To give it more impact on a national level a Delta Commissioner has been appointed. This person is responsible for investments in water management for the longer term focused on prevention of damage and failure.

The Netherlands with its long history on water issues, a good accessibility and inspiring visiting delegates and organizations, make it an interesting place for the Amsterdam International Water Week.

And this is not only because of the past but also as an international example of ambitions on a national governmental level, like the program from the Dutch government ‘A circular economy in the Netherlands by 2050’. The first milestone is 50% less raw materials

in 2030 with the five following chains and sectors as highest priorities: biomass and food, plastics, manufacturing, construction, and consumer goods. This program underlines the circle can be closed by collaboration between government, business and citizens. Such cooperation could be instrumental in overcoming such challenges in Iran and befitting at the same time the Middle East region.

FORMAT AIWW

The Amsterdam International Water Week (AIWW) aims to implement integrated solutions locally providing peace, stability, economic prosperity by valuing water in the right way. This can be done by turning the bi-annual event into a global movement and by connecting the leading water hubs.

The AIWW follows the path of the Sustainable Development Goals (SDG's) with a horizon of 2030. The AIWW contributes to:

- acceleration of the transition to a sustainable, circular and resilient (urban) water cycle; scale up innovations; support policy on resilience and circular cities
- connect networks and solutions: water, waste, urban development, energy, finance and other domains necessary to cope with the global water challenges we have
- present and create integrated (un)conventional solutions for implementation and scaling up.
- platform for doing business related to a contribute to SDG's.

The AIWW-evolution from 2011 to 2017

The theme of the first AIWW in 2011 was: *Integrated solutions for a changing world*. Of course, this is still valid today. What happened since 2011? The problems and challenges we have to cope with are still global and complex and need local custom-made solutions with a longer term focus than 4 years.

FROM MDG TO SDG: THE GLOBAL GOALS CHANGED

The United Nations Millennium Development Goals were signed in 2000 by 189 countries. They were focused on elimination of poverty in 2015 and had a huge impact on access to drinking water and sanitation. The goals for access to drinking water supply were achieved. This was not the case for Sanitation. The goal for 2015 was set at 75% of the people need access to improved sanitation. In 2012 only 63% had access to improved sanitation and the goal was not achieved in 2015. More than 2.5 billion people still do not have access to improved sanitation. This has dramatic consequences for the wellbeing of people and it affects mostly the poor. A reason for not achieving the goal of 75% in 2015 could be that sanitation is unpopular, a sensitive subject and has a 'bad businesscase'.

In January 2016 countries officially adopted 17 Sustainable Development Goals (SDG's) to end poverty, protect the planet and ensure prosperity for all part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next years till 2030. All stakeholders need to be involved to realize the goals. This means governments, the private sector, knowledge institutes, civil society and citizens. As part of the 17 SDG's there are 169 sub targets. They are all important and interconnected. SDG on water (nr. 6) also has impact on other themes like poverty (nr. 1) and safe and livable cities (nr. 11) [www.sustainabledevelopment.un.org].

United Nations Secretary-General and the president of the World Bank Group convened a High-Level Panel on Water (HLPW), consisting of 11 sitting Heads of State and Government and one Special Adviser (Sherpa), to provide the leadership required to champion a comprehensive, inclusive and collaborative way for developing and managing water resources, and improving water and sanitation related services. Prime minister Mark Rutte represented the Netherlands and opened the AIWW 2017 as member of the panel. On 21 September 2017, the HLPW called for a fundamental shift in the way the world looks at water. The panel issued an agenda for Water

action 'Making every drop count' for a new approach to water management that will help the world to achieve the 2030 SDG-goals. It gives more practical guidelines that will lead to long term results.

Till 2015 the Millennium Development Goals (MDG) were part of the AIWW strategy. From 2017 the SDG will form the roadmap with a focus on the SDG numbers 6, 7, 9, 11 and 13. (See appendix)

THE SOLUTIONS EVOLVED

The common thread in the period from 2011 till 2017 is the need for knowledge exchange, cooperation, local integrated solutions and the need for leadership.

Approaches and solutions changed and evolved. The sector moved from sectoral to more integrated, inclusive solutions. Urban development and water management for example are combined more often. The urge for adaptation is in general accepted as policy to achieve resilient cities. Stakeholders in the Netherlands and elsewhere move from a sustainable approach to the ambition of the realization of a circular economy. From producing waste and wasting our resources to create value out of our waste, recover ecological systems and contribute to providing peace, stability and economic prosperity which also includes negative externalities. The goal is to achieve a circular region, organization or city. This transition asks for new processes and new business models. Creating platforms – on a global level – can help to realize the big water issues from an integrated perspective and form a longer term perspective. A community of global water conferences can play that role.

THE ROLE OF FINANCE

During the last AIWW it became clear that finance institutes have to take their role more seriously to invest in projects that are ready for implementation and scaling up. And also to invest in basic water services to achieve peace, stability and economic prosperity. A lot of areas in the world as well as the people are waiting for this. The AIWW made it clear that the distance between solution makers and financial institutes has to reduce. New financial

sources and business models need to be developed and be based not only on the monetary value of water but also on ecological, social and cultural value of water. The transition from costs to value of a solution is one of the challenges. Focus on creating value and services instead of the focus on costs and separation of investment costs and operation & maintenance..

THE ROLE OF DATA

We see tech-firms entering the water scene. How can we use all available data in a way Google does and in what way does it help the water sector? Citizens are also entering the scene. Smart sensors used by many citizens for example to track rainfall provides lots of information. What is the effect of more and more smart monitoring and management systems in buildings? The challenge is to use it in an ethical way for the citizen as well as for other stakeholders. This brings in the risk of cyber security. This is a big issue in the IT as well as the banking sector. Experiences from the banking sector can be very valuable for the water sector. . The water sector can use the promising smarter solutions, based on big(ger) data, autonomous learning and awareness of cybersecurity.

VALUING THE QUATRO HELIX

The water sector moved from a triple helix to a quatro helix: cooperation between public, private, knowledge institutes & citizens is necessary to implement the right holistic solutions. People seize opportunities to participate in social projects, take initiatives and want to take their responsibility to realize projects. These initiatives seem promising and the limitations of the present system asks for new roles, responsibilities and shifting level playing fields.

For instance the organizational structure in the water sector in the Netherlands is organized on different levels. On a national level the water challenges are managed by the so called *Rijkswaterstaat* and on regional level by the Regional Water Authorities. Drinking water, sewage and waste water treatment is also managed by public organizations. These organizations focus on long-term quality and use the principle of full cost recovery. A benchmark system

is introduced to be sure inhabitants and industry pay the right price for the best value. To cope with future challenges these public organizations invest in innovations as well.

In the North Western part of Europe strong public organizations are a good breeding ground for innovations and transitions to new systems. They have a solid connection with the society and have a long term focus. The public entities have the possibility to create play grounds, living labs and conditions for innovations

For the industry it is challenging with an interesting business case to invest in solutions which can be the showcase for other places in the world. The Dutch Delta Works after the 1953 flood in the South-Western part of the Netherlands are a famous example.

A lot of research is organized within knowledge institutes like universities / R&D institutes and spread by consultancy firms. More and more private parties are also involved in innovative processes. Smart sensors, smart monitoring combined with a role for the citizen creates useful big data. This gives possibilities for citizen science as a new opportunity for complex problems.

The big challenges combined with the need for very sophisticated solutions give a good foundation for new strong knowledge networks.

INCLUSIVE SOLUTIONS

The evolving ideas about circular economy inspires various disciplines and creates the awareness to realize the so called combined solutions. Combined problems are the starting point for these integrated solutions. The challenge is not to focus only on innovations which solve one problem or one theme but to combine issues. So combine water scarcity with heavy rainfall or flooding and combine water-energy-food with waste. An other example solutions for water problems in dense cities work best if the liveability is taken into account and the whole society benefits from it.

The angles 10 years ago were efficiency and effectiveness per sector or part of the sector. The goal was to realize a more efficient drinking water production system and to be the best drinking water distribution company. Benchmarking came into practice to monitor these drivers. The same counts for robust sewage systems and – separated from this – how to deal with storm water and heavy rains. Some 5 year ago more integrated water solutions were topics on the AIWW agenda as well. The recent years show that a system change is needed to integrate challenges on different fields so water can be combined with the liveability of metropolitan areas. This means that food issues have to be discussed with industrial challenges and related to water. An other issue is that water is a source for energy as well as for new resources which can be integrated and combined with urban development. So one can say there is a movement from efficiency in the sector to integrated approaches and from integrated to inclusive solutions. Inclusive solutions focus on social, ecological and prosperity issues within an equal assessment framework [Gupta, Vegelin ‘Sustainable development goals and inclusive development’, 2016]

Metropolitan areas are very dynamical. In the underground there is an increasing number of assets like pipes, cables, tunnels etc. The operation & maintenance leads in the end to replacement of the assets. For some pipes this can be every 30 years and for others 50 or 100 years. The lot of road breaks give a lot of stress to the city and its citizens. A new smarter approach is needed in which the challenges are combined and give the best chance of success. Climate change, more dense cities, a shortage on raw materials will lead to instable situations and provide migration streams. So inclusive solutions are needed.

BIODIVERSITY AND LIVABILITY

The urgency of climate change gives new challenges for water cycle management and water resource management. A new stage of urgency is entered because of an increasing need for water as source for drinking water, agriculture and industrial processes. It has become a public-private issue that entered the board rooms. With a circular and water cycle

approach sectors are closing the loop again. Building with nature (again) instead of fighting against nature, valuing water and other resources instead of just producing and consuming. Europe started in the year 2000 with the EU-Water Framework Directive including ecological standards on a water system level. This is challenging because it's not about just achieving chemical or physical standards but about improving the ecological system. It is complex but in the end efficient and contributing to more than just chemical and physical improvements and contributing to biodiversity and livability, like building with nature and improving nature. It aligns the economic activities on the ecological capacity of a water system and region.

Roadmap to AIWW 2019

FROM THEMES 2017 TO SDG's

The urgency related to water can be seen every day in the news. The Amsterdam International Water Week 2017 made it clear that the water sector cannot solve the water challenges on its own. Smart inclusive approaches are needed. The challenge for the coming decades will be to speed up and scale up the implementations of the solutions. The concept of connecting cases & solutions was introduced to create and stimulate breakthroughs. A platform and global water agenda is needed for connecting cities, utilities, industry, science, knowledge institutes, urban development, agriculture, young water professionals, consultancy and with an increasing role for the financial sector. The finance gap isn't closed yet. A Leadership program was introduced as well as the Amsterdam Agreements as frontrunners from the roadmap for change, together with cutting edge research & development, living labs and best practices. The roadmap to AIWW 2019 will contain different elements like monitoring SDG's, dialogue & themes and new developments in the field of circular economy and climate adaptation. The challenge is the need for connection and collaboration between the big issues and themes in the world, like for instance a one global water agenda. The Sustainable Development Goals are a useful instrument for framing the themes and show that water in many of the 17 goals are part of the solution. To keep the right focus AIWW intends

to inform their community about the progress for – a number of – SDG's on European and global level. So the gaps can be a guideline for needed solutions and actions.

STAKEHOLDER APPROACH

AIWW goals are focused on circular economy and climate adaptation. Also issues that evolve with new policy and partnerships become more and more relevant. Stakeholders on different levels like governments, cities, industry, utilities, young entrepreneurs, citizens and researchers play a significant role. This will be part of the roadmap to AIWW 2019. As aforementioned the citizens get a stronger role in achieving the goals.

An example of actions from the side of the citizens is the Right2Water initiative, that gathered 1.6 million signatures in support of improving access to safe drinking water for all Europeans. This resulted in a specific principle as presented by the European Commission in February 2018 for the Revised EU Drinking Water Directive that will improve the quality of drinking water and access to it as well as provide better information to citizens. First Vice-President Frans Timmermans said: "Citizens have made their voice loud and clear through the European Citizens' Initiative, calling for action to have a guaranteed access to safe drinking water. We have heard and heeded their call and carried out a thorough analysis of our existing legislation." While Vice-President Jyrki Katainen, responsible for growth, jobs, investment and competitiveness underlines the circular aspect: "With this proposal we facilitate the transition to a circular economy, helping Member States to manage drinking water in a resource-efficient manner. It implies reduction of energy use and unnecessary water loss. Thanks to increased transparency it will also empower consumers and push them towards more sustainable choices, for example using tap water." The proposal seeks to empower consumers ensuring that water suppliers provide consumers with clearer information on water consumption, on the cost structure as well as on the price per liter allowing a comparison with the price of bottled water. This will be contributing to the environmental goals of reducing unnecessary plastic use

and limiting the EU's carbon footprint, as well as to the achievement of the Sustainable Development Goals.

Another example of making connections with other themes is the launch of the Global Centre of Excellence on Climate Adaptation (GCECA) at 14 November 2017, in Bonn, Germany, on the sidelines of the 23rd session of the Conference of the Parties (COP 23) to the UN Framework Convention on Climate Change (UNFCCC). This Global Centre is situated in the Netherlands (Rotterdam and Groningen) and a cooperation of the governments of the Netherlands, UN Environment, Japan and the Republic of the Philippines. GCECA wants to accelerate climate adaptation by recognizing, building and promoting excellence among all relevant stakeholder groups around the world. Knowledge exchange is key.

CONNECTING THE DOTS AT THE AIWW 2019

A more intense cooperation between the World-Wide Events can be a formula to create a more global dialogue creating more pressure and impact. Results of AIWW 2017 are presented at World Water Day March 22 and are part of the dialogue in 2018 in Brasilia, Singapore, Stockholm and Tokyo.

At 15 November 2018 during the AIWW in between Summit 2018 the results of the dialogues will be discussed. The Amsterdam Agreements will be updated and coalitions will be challenged to come up with new ones. Result of the event will be a Position Paper AIWW 2019. This Position paper describes the adjusted focus areas.

Finally the AIWW community will come together again in November 2019. Bringing together and integrating the worlds of cities, industry and utilities, finance & entrepreneurs & young water professionals, global & future leaders, policy makers, scientist, influencers and new-tech. And this will happen all around the global challenges. Building blocks will be to expand the High-Level Round Table, Leaders Fora, Amsterdam Agreements and side events. To meet, mix and match again! Only connection and collaboration on the different stages can facilitate the inclusive approach to create *the* impact needed for scaling up the solutions that cope with the global and local water challenges.

SDG'S

- 1 End poverty in all its forms everywhere
- 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- 3 Ensure healthy lives and promote well-being for all at all ages
- 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- 5 Achieve gender equality and empower all women and girls
- 6 Ensure availability and sustainable management of water and sanitation for all
- 7 Ensure access to an affordable, reliable, sustainable and modern energy for all
- 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- 10 Reduce inequality within and among countries
- 11 Make cities and human settlements inclusive, safe, resilient and sustainable
- 12 Ensure sustainable consumption and production patterns
- 13 Take urgent action to combat climate change and its impacts
- 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development