WATER and CLIMATE

Blue Book

- 2017 EDITION -

ROYAUME DU MAROC

WORLD WATER COUNCIL

WATER and CLIMATE

Blue Book

- 2017 EDITION -

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Foreword

The aim of the Water and Climate Blue Book is to raise awareness among the international water community of the vulnerability of water resources to climate change and the urgency with which we need to take action, by merging the water and climate agendas and promoting the means required to ensure that water becomes a central focus in climate change negotiations.

The first edition of the "Water and Climate Blue Book" was presented during COP22, held in Marrakech in November 2016, by the Ministry Delegate in charge of Water, Kingdom of Morocco, the World Water Council and the Ministry of Environment, Energy and the Sea, France, in collaboration with the World Bank, the African Development Bank, the German Corporation for International Cooperation (GIZ), the French Partnership for Water, and the International Network of Basin Organizations.

The 2016 edition of the Blue Book sets out the recommendations and conclusions resulting from the First International Conference on Water and Climate held in Rabat in July 2016 and organized by the Kingdom of Morocco in cooperation with the World Water Council. The recommendations aim to support implementation of commitments relative to water and climate, proposing concrete solutions that can be applied to act in favor of adaptation and resilience to climate change.

The Blue Book summarizes the discussions held within the international water community, and therefore needs to be continually updated and added to in light of new developments in the debate on water issues. It is to this end that this second edition has been drawn up by the Kingdom of Morocco, in its position as current holder of the presidency of COP22 and the World Water Council.

The 2017 edition of the Blue Book, which will be presented during COP23 in Bonn, covers progress made in implementing the "Water" agenda since COP22 and the discussions, debates and recommendations made at the 2nd International Conference on Water and Climate held in Marseille on 3 and 4 October 2017. It also highlights the priority actions launched as part of the Marrakech Partnership for Global Climate Action, focusing in particular on the actions related to SDG2 (Zero Hunger) and SDG11 (Sustainable cities and communities).

The 2017 Blue Book also reviews progress made on water and climate-related initiatives, which were examined during the Global Climate Action Day for Water held during COP22, including the “Water for Africa” initiative, the “Global Alliances for Water and Climate” and the “#ClimateIsWater” initiative. These initiatives were launched to create synergy between actions undertaken on water and climate issues and to integrate water in programs developed to address climate change adaptation, mitigation and resilience.

The 2017 Blue Book also contains key messages for decision-makers in the areas of water security and food security in the context of climate change; water’s resilience to climate change; cities’ resilience through water management and funding for projects aimed at mitigating and adapting to climate change.

Summary

The main objective of the Blue Book is to support political, institutional, technical and scientific players in their efforts to mobilize and continue working towards ensuring that water remains a key focus in discussions relating to climate change.

In this 2017 edition, we present the results of debates held during the 2nd International Conference on Water and Climate held in Marseille in October 2017, organized by the World Water Council and the COP22 Presidency, represented by Morocco's State Secretariat for Water. This edition also contains the results of events organized in the area of water and climate since COP22, and reports on the state of progress of various initiatives launched since then, including "Water for Africa" and the Global Alliances for Water and Climate.

The 2nd International Conference on Water and Climate was divided into four sessions, two of which focused on links with the Sustainable Development Goals: SDG 2 "Zero Hunger" and SDG11 "Sustainable Cities and Communities". The debates also addressed other subjects related to the issue of water and climate change, such as water management. Another focus was water and climate change in the context of Africa.

The key conclusions drawn from the debates held during the 2nd International Conference on Water and Climate demonstrate that climate change is having a direct impact on the availability of water resources and leads to increased uncertainty with regard to these resources. It also impacts on other sectors related to water, including energy, food and health. It is only through sustained and integrated water management that we will be able to rise to the challenges implicated in water and food availability, and thereby ensure water and food security and achieve the Sustainable Development Goals, including SDG2, SDG6 and SDG11.

One solution to climate change may be good water governance, given that water plays a central role, it is fundamental to and interrelated with almost every sector directly or indirectly impacted by climate change: energy, food, health and education. If we can ensure water security, we can ensure security in all these other sectors.

The centrality of water in all sectors means that, since COP21 and COP22, it is a key focus in the debates and dialogue on climate change launched by the international water community. It also means that many countries have identified water as a key factor in adapting to climate change in their Intended Nationally Determined Contributions (INDCs).

Ensuring food security and an end to hunger will depend on the options available to increase food production. That, however, largely depends on one crucial factor: water. Water plays an important role in developing a high-growth and productive agricultural sector which can underpin food security.

The findings of the UN Food and Agriculture Organization (FAO) in its 2017 report on the State of Food and Agriculture are more alarming, showing that malnutrition and famine worldwide have increased in many regions of the world and the conditions required for food security have deteriorated in the sub-Saharan region and in Southern Asia.

I.
Water and Climate Change

Climate change directly impacts on the availability of water resources due to the increased frequency of drought and heavy rainfall. Climate change alters the frequency and intensity of extreme weather events, which will occur more often and be more violent. Climate change will put a huge strain on freshwater resources and on water quality, as well as on water safety and security, and thereby on food security. Such weather events will cause damage to water supplies and put economic development and human health at risk. Demographic growth and industrial expansion will also imply increased demand for water and exacerbate the impact of climate change.

To deal with such consequences, the international community must take action to ensure that water resources are resilient to climate change, especially in Africa, where 25% of today's population is exposed to water stress and where a third of the population lives in regions at risk of and vulnerable to drought.

Sub-Saharan Africa has plentiful rainfall, but it is seasonal and unevenly distributed, thereby resulting in frequent periods of drought or flooding. In many African countries, the key challenges related to water seem rather to be connected to the ways in which available resources are managed. What is needed is an appropriate environment in which water resources are managed at local, national and international levels.

Climate change exacerbates water stress and puts economic development on the African continent at risk. The arid and subtropical regions in Africa will be the regions most affected by climate change between now and 2100. Regions already affected by extreme aridity, such as the Sahel, are expected to experience increased drought, at a time when the population of Africa is likely to increase by 50% between 2010 and 2040, and the percentage of people living in cities will rise from 44% to 57%. The percentage of the population of Africa that will experience water stress is expected to rise from 47% in 2000 to 65% in 2025. The global water crisis will therefore have a very specific dimension in the context of Africa.

African nations, which emit the lowest levels of greenhouse gases, are thus the victims of climate change; they have higher levels of poverty and are lagging far behind in terms of access to water and sanitation. According to current estimates, the negative effects of climate change have already reduced Africa's GDP by 3%.

II.
Good water governance: a solution to climate change

Consistent and integrated water policies can strengthen resilience to climate change, by integrating adaptation to climate change in water resource management plans. Better governance of groundwater, which is less vulnerable to the impact of climate change than surface water, also needs to be a priority on the agenda for adaptation. It is a strategic resource when it comes to managing periods of drought and water shortages.

Improving knowledge of water resources and Water Information Systems

Governments and the agencies responsible for managing water resources are often little inclined to invest in water resource monitoring systems at water basin level, nor in information systems dedicated to water. In fact, such systems are crucial for regular assessment of the state of water resources, as well as for monitoring and assessing the impact climate change has on these resources. They are also therefore important tools for assessing measures taken to adapt to the impact of climate change on water resources at water basin level.

Collecting and sharing information on water resources is essential for good water resource management. It is therefore important to improve water resources monitoring systems, information systems dedicated to water and modeling tools, with a view to reducing uncertainties related to climate change and supporting decision-making in the area of water management.

The water sector's central and interrelated role in other sectors

Water plays a central role, it is fundamental to and interrelated with almost every sector directly or indirectly impacted by climate change: energy, food, health and education. If we can ensure water security, we can ensure security in all these other sectors.

The centrality of water in all sectors means that, since COP21 and COP22, it is a key focus in debates and dialogue on climate change launched by the international water community. These efforts must be sustained with a view to COP23 and beyond.

The centrality of water also means that many countries have identified water as a key factor in adapting to climate change. Actions related to water are included in 93% of Nationally Determined Contributions (NDCs).

The need for dialogue and cooperation at water basin level

Integrated water resource management at water basin level is key to ensuring the sustainability of water resources, within the context of climate change. Nationally Determined Contributions (NDCs) and adaptation and mitigation plans must be developed at the level of national or cross-border basins, in consultation with all the stakeholders involved both upstream and downstream of the basin.

Strategies agreed at basin level for the development of plans in adapting to climate change can facilitate the sustainable management of water resources at basin level.

Recommended solutions for improving water's resilience to climate change

To improve water resources' resilience to climate change, it is important to implement an integrated management approach based on:

(i) a more efficient use of water, especially in the farming sector, which uses over 85% of the water available in certain arid and semi-arid regions of sub-Saharan Africa and North Africa;
(ii) the development of hydraulic infrastructure to draw on new resources;
(iii) the development of unconventional resources, including water desalination.

III.
Water and the Sustainable Development Goals

Climate change has a direct impact on the availability of water resources and increases uncertainty relative to such resources. It also impacts on other sectors related to water, including energy, food and health. It is only through sustained and integrated water management that we will be able to rise to the challenges implicated in water and food availability, and thereby ensure water and food security, and achieve the Sustainable Development Goals (SDGs).

Challenges in achieving the Sustainable Development Goals (SDGs)

The UN's 2017 Annual Report on the 2030 SDGs reports on progress in achieving these goals. Regarding the water-related development goals, access to drinking water and sanitation (SDG2); reducing famine (SDG6) and the resilience of cities (SDG11), the report mentions that, although progress has been made in these areas in the last decade, it is not being made fast enough to achieve the goals set in the 2030 Agenda. Achieving the SDGs thus risks being compromised by the impact of climate change on water resources.

Significant progress has been made with regard to supplies of drinking water, but **sanitation is still lagging far behind**. The overall figures for this sector confirm this:

→ In 2015, 5.2 billion people (71% of the world population) used a safely-managed drinking water supply service, i.e. with improved running water, available as required and free of contamination;

→ In 2015, 2.9 billion people (39% of the world population) used a safely-managed sanitation service;

→ In 2015, nearly 892 million people (12% of the world population) did not have sanitation facilities.

Achieving SDG11 is also compromised since nearly 850 million people are still affected by malnutrition.

Focus on SDG2: Water security and food security in the context of climate change

SDG2: "End hunger, achieve food security and improved nutrition and promote sustainable agriculture", to meet a fundamental human need: access to nutritious, healthy food, and the means to achieve this sustainably for all. Ensuring food security and an end to hunger will depend on the options available to increase food production. That, however, largely depends on one crucial factor: water. Water plays an important role in developing a high-growth and productive agricultural sector which can underpin food security.

Over 70% of exploitable global water resources are used in agriculture, and this figure can be as high as 90% in many arid and semi-arid areas in the Mediterranean and sub-Saharan regions. Other factors do, obviously, have a role to play in increasing food production, including higher incomes for smallholder farmers, access to land and production technology, and investment. Nonetheless, water is a limiting factor in food production.

The most recent UN report (2017) on the state of progress in achieving the SDGs set out in the 2030 Agenda for Sustainable Development indicates that, in spite of the progress made over the last ten years in tackling famine, several regions of the world will not achieve "zero hunger" by 2030, especially in certain regions of Southern Asia and sub-Saharan Africa. The main obstacles to the efforts to end famine are often related to the scarcity of water resources, which is exacerbated by climate change, as well as to conflict in these regions. The report on SDG2 achievements shows that:

→ The percentage of undernourished people worldwide has decreased, from 15% in 2000-2002 to nearly 11% in 2014-2016. Globally, around 793 million people were undernourished in 2014-2016, compared to 930 million in 2000-2002;

→ In 2014-2016, 63% of the world's undernourished people lived in Southern Asia and sub-Saharan Africa.

Food security

In many parts of the world, and particularly in countries in arid and semi-arid regions, in the Mediterranean region and in sub-Saharan Africa, water is scarce and water shortages occur with increasing frequency. This situation is in danger of becoming even worse due to climate change, with more frequent periods of drought, extreme variability in rainfall and more severe flooding.

The findings of the UN Food and Agriculture Organization (FAO) in its 2017 report on the State of Food and Agriculture are more alarming, showing that malnutrition and famine worldwide have increased in many regions of the world and the conditions required for food security have deteriorated in the sub-Saharan region and in Southern Asia.

Globally, a total of nearly 850 million people are affected by malnutrition, and conflict and water shortages have exacerbated this situation in many regions of the world.

The FAO estimates that, to meet the population's food needs, food production will have to increase by 50% between 2030 and 2050, through more intensive farming methods and more extensive irrigation. This implies increased used of water resources, which will in turn put increased pressure on those resources already threatened by the impact of climate change.

Food loss and food waste

The FAO estimates that, worldwide, one third of the food produced for human consumption, i.e. 1.3 billion metric tons a year, is either lost or goes to waste, and that 50% of fruit crops are lost. This implies enormous financial losses, wastes natural resources (water, energy and farmland), and exacerbates water and food insecurity.

The FAO estimates that food loss and food waste account for the following total estimated water and energy losses:
→ Total water loss: equivalent to 3 times the amount of blue water in the USA;
→ Energy loss: 40% of the energy used in food production.

In addition, this food loss and waste is the third major source of greenhouse gas emissions. CO2 emissions generated by food loss and waste are estimated to be nearly four billion metric tons of CO2.

Recommended solutions for achieving food security

Efficient use of water in agriculture

More efficient and effective use of water in agriculture can help save significant quantities of water and improve intensive farming and productivity. More efficient use of water means reducing water losses, promoting water-saving techniques, wider adoption of good practices and introducing water tariffs as an incentive to more efficient water use.

Reducing food losses

Reducing food loss and food waste will help save significant quantities of water and improve the conditions needed for food security in many parts of the world. To this end, the FAO has recently launched a number of initiatives aiming to reduce food waste by 50% by 2030.

The Initiative for the Adaptation of African Agriculture (AAA)

In Africa, there is huge potential to develop irrigation, since only 2% of arable land is currently irrigated (compared to 42% in Asia), but this could increase to 25% if irrigable areas and water availability are taken into account. The initiative for the Adaptation of African Agriculture to Climate Change (AAA), launched during COP22, highlights the importance of sustainable water resources management to ensure food security.

The key actions identified under the AAA for improving food security in the context of climate change are:

→ Improving the infrastructure required to draw on water resources, and renovating existing infrastructure;
→ Developing large-scale irrigation networks, and developing small-scale farm irrigation and individual irrigation;
→ Promoting the Integrated Water Resources Management (IWRM) approach, particularly for cross-border water basin management;
→ Developing farming and production techniques and more water-efficient irrigation techniques;
→ Developing irrigation through capacity building, as well as improving institutional and legislative structures.

The FAO's Near East and North Africa's Water Scarcity Initiative

The Near East and North Africa are faced with the two-fold challenge of managing water scarcity and achieving food security for a rapidly growing population. To help rise to these challenges, the FAO recently launched this initiative for dealing with water scarcity in the region.

Focus on SDG11: Strengthening the resilience of cities through water management in the context of climate change

Water plays a vital role in strengthening the resilience of cities to climate change. Rapid urban growth brings with it huge problems, including problems relating to drinking water supplies and sanitation, as well as flood management. It is within this context that SDG11 is included in the 2030 Agenda for Sustainable Development, to ensure that cities are resilient and sustainable.

Major challenges in urban resilience

The rate of worldwide urban growth is at unprecedented levels. At the end of the twentieth century, the number of people living in urban areas was higher than the number living in rural areas for the first time in history. In 2015, nearly 4 billion people, i.e. 54% of the world population, lived in cities. This number is set to rise to 5 billion by 2030.

Many cities in developing countries have problems with drinking water supplies, and with inadequate sanitation and flood protection infrastructure. The situation risks getting worse due to the impact of climate change.

The Carbon Disclosure Project (CDP), which envisages achieving sustainable and safe drinking water supplies in urban areas by 2030, in line with the SDGs, highlights three main challenges:

→ Urban population growth: the number of new inhabitants in urban areas will be nearly 2.5 billion by 2030. 90% of this population will be concentrated in Asia and Africa.
→ The decline of water resources available for drinking water supplies. Global forecasts estimate a drop in supply of 40% by 2030;
→ Demand for water in cities, for household, industrial and tourism needs, will increase by nearly 55% by 2030.

These factors are placing increasing pressure on water security in urban areas, which risks becoming even worse due to climate change and the increased risk of water shortages and flooding and the degradation in urban water quality.

Local communities that manage drinking water and sanitation services often lack resources, and need technical assistance to improve management in this sector and to draw up appropriate climate adaptation plans to strengthen urban resilience. The difficulties experienced by local communities in accessing the funds needed to finance water and sanitation infrastructure projects make management in the sector even more difficult.

Possible solutions for strengthening urban resilience

Improving urban infrastructure

Urban resilience necessarily depends on improving drinking water and sanitation infrastructure, as well as on diversifying the sources of drinking water supplies, opting, if possible, for a system that draws on a combination of surface water and groundwater.

Promoting the participation of local communities

The consequences of climate change are, above all, felt at local level. Local communities must therefore play a key role in implementing adaptation initiatives. To ensure good urban governance and make urban water services more resilient to climate change, the Carbon Disclosure Project's 2030 agenda emphasizes the importance of involving all key players, including local authorities, national authorities, industry and civil society.

The initiatives undertaken in some African countries to involve local communities in managing drinking water and sanitation services have improved services in the sector, and saved significant quantities of water. Some other African nations have developed communal development strategies based on a participative approach aimed at strengthening urban resilience to climate change.

Promoting experience-sharing and cooperation between cities

The Global Network of Major Cities provides substantial assistance to the major member cities in assessing the impact of climate change on major cities and developing climate adaptation plans. The network has developed a platform through which member cities can share information on the impact of climate change on urban water services. The development of regional initiatives like this network aims to promote experience-sharing and cooperation between urban agglomerations.

Action at the level of river basins encompassing urban agglomerations

A city's resilience to flooding often operates at the level of the river basin in which the city is located. This implies a need to draw up plans for adapting to the impact of climate change at the level of the basin. Building flood retention basins upstream of the river basin in which a city is at risk of flooding can significantly reduce the risk and strengthen the city's resilience to flooding. Integrated water resource management at river basin level can secure a city's water supply and strengthen its resilience to climate change.

IV.
Financing and cooperation for ensuring water resources are resilient to climate change

Adapting to and mitigating the impact of climate change implies undertaking structuring action and making heavy investment in water infrastructure. That means that the funding organizations and Climate Funds in charge of providing financial support to states and local authorities in developing nations must set up the appropriate mechanisms to implement plans for mitigating and adapting to the impacts of climate change on water resources and services.

Funding gaps and opportunities in the water sector

The funding rules required by Climate Funds often make it difficult to access funding for projects aimed at adapting water management to climate change. These Funds consider that some of the projects submitted for funding are rather development projects, and often require that the projects submitted by developing countries should be aligned with their Intended Nationally Determined Contributions (INDCs).

Funding intermediation is needed to arrange finance packages for bankable projects

Projects developed to make water resources and services resilient to climate change, especially in the drinking water and sanitation sector in developing countries, need some form of funding intermediation to help plan local projects, arrange finance packages and find new sources of funding, since such projects are not generally bankable.

In Africa, the African Development Bank (AfDB) is beginning to provide this kind of assistance to many countries in sub-Saharan Africa to promote projects in the water sector. To this end, the AfDB is backed by action initiated by the "African Water Facility", within the framework of the "Africa Water Vision" with a view to achieving the SDGs. The AfDB's current funding support for the NDCs of African countries covers 70% of funding for mitigation projects and 20% for adaptation projects.

One of the problems that hampers funding for climate change adaptation projects in many African countries is the high interest rates imposed by some funding organizations on loans for projects to adapt water resources and services to climate change. Current interest rates are restrictive and out of bounds for many countries with moderate economies. Such a restriction creates difficulties in funding the Nationally Determined Contributions (NDCs) and achieving SDGs related to water. These countries therefore need flexible funding mechanisms at preferential interest rates designed for projects to mitigate and adapt to climate change.

The need to encourage private investment and promote Public-Private Partnerships (PPP)

The private sector's involvement in the water and sanitation sector in developing countries remains very limited. Projects related to water account for only about 3% of private investment, and indeed, private investment in this sector has fallen by 30% to a limited number of countries such as Brazil, Turkey and India.

Initiatives set up to develop Public-Private Partnerships to provide flexible funding mechanisms in this sector are still very few and far between in many developing countries. Involving local authorities and the State in funding water-related projects by means of Public-Private Partnerships (PPP) is one way to ensure flexible funding.


MARRAKECH 2016
COP22 | CMP12 | CMA1
Global Climate
Global Climate Action

V.
Progress since COP22

The Global Climate Action Day for Water held during COP22 raised awareness and mobilized the international water community, and many other meetings dedicated to water, and aimed at putting water at the heart of climate negotiations have been held since COP22.

Outcomes of the COP22 Global Climate Action Day for Water

The Global Climate Action Day for Water held on 9 November 2016 during COP22 provided the occasion for the international water community to commit to taking action on water and climate in both the short term (2017) and the medium term (up to 2020).

In the short term (2017), commitments have been, or are in the process of being met with the support of the entire community:

→ **confirmation that the Global Climate Action Day for Water** will become part of the COP's Global Climate Action Agenda (GCAA): during COP23, the GCAA includes an Action Day for Water to be held on 10 November 2017;

→ **the creation**, within the overall framework of the global climate action program, of an officially-recognized **multipartite dialogue space** for the international water community to keep up the momentum between COPs and plan the Action Day for Water: this space has been set up, as the International Conference on Water and Climate, with the first conference held in Rabat in July 2016. This commitment has also been upheld, and the second mid-term conference between COPs took place in October 2017 in Marseille thanks to the work of the World Water Council, the Kingdom of Morocco and the international water community;

→ **providing support to countries**, especially in Africa, **to include ambitious, credible and robust water-related programs in their Nationally Determined Contributions** (NDCs) to mitigate and adapt to the impacts of climate change, and to promote the connection between water in the NDCs with the Sustainable Development Goals (SDGs);

→ **the creation of a Water and Energy Hub** to assist developing countries, especially in Africa;

→ **the launch of two pilot schemes relating to national information systems on water;**

→ **the establishment of multipartite dialogue in pilot water basins**, to identify water-related challenges and opportunities for local players to collaborate and also propose adaptation projects in the water sector.

Implementing Water and Climate initiatives

During the COP22 Global Action Day for Water, initiatives relating to water and the climate were examined and actions recommended with a view to creating synergy between the actions undertaken on water and climate issues and to integrate water in programs developed to address adaptation to, mitigation of and resilience to climate change. Below we present a brief review of some of the initiatives examined during the COP22 Global Action Day for Water:

The "Water for Africa" Initiative

In response to the call to action launched in Rabat during the 1st International Conference on Water and Climate, the Kingdom of Morocco launched the "Water for Africa" Initiative in collaboration with the World Water Council, the African Development Bank and the World Bank during COP22 in Marrakech in November 2016.

An inter-institutional Working Group was set up to facilitate implementation of this initiative. This group, made up of Morocco's State Secretariat for Water, the African Ministers' Council on Water (AMCOW), the African Development Bank Group, the World Bank Group and the World Water Council, held a meeting in Morocco in July 2017 during which a roadmap was adopted for drawing up the basic document regarding the initiative and a Priority Action Plan to be presented at COP23 in Bonn in Germany.

The "Water for Africa" Initiative aims to achieve the following goals:

→ Develop synergy between ongoing regional initiatives in the water sector with a view to achieving maximum impact and optimizing stakeholders' actions;
→ Draw up and adopt a Priority Action Plan (PAP) for the "Water for Africa" Initiative to enable achievement of the Sustainable Development Goals for 2030, the "Africa Water Vision" for 2025, and the African Union's Agenda 2063;
→ Mobilize the international community involved in water and climate issues to implement the Priority Action Plan that will be linked to Strategy 2030 of the African Ministers' Council on Water (AMCOW) currently being developed;

→ Improve access to existing climate change funds for African projects to set up a mechanism aligned to financing instruments which link water and climate change;
→ Build capacity and South-South cooperation regarding sharing and disseminating knowledge, skills and good practices.

The #ClimateIsWater Initiative

This international initiative brings together organizations involved in water and climate issues, and aims to strengthen the position of water in climate change negotiations. It is coordinated by the World Water Council. The Initiative continues its work to develop a platform through which members of the water community can share information within their respective networks, and to give a unified voice to the water community to ensure that water will be given a more central place in climate change negotiations at the UNFCCC. This initiative continues to grow, and now has over 62 members.

International Network of Parliamentarians for Water

This initiative was launched, within the framework of SDG implementation, during the Global Action Day for Water during COP22 in Marrakech in 2016.

The aims of the network are to:
→ Facilitate the sharing of best legislative practices in the water sector;
→ Organize debates, share information on legislative practice, and share knowledge on this subject;
→ Provide technical assistance;
→ Produce reports on water and sanitation policies.

The Network is currently pursuing coordination with existing regional parliamentary networks (in Africa, Europe, etc.) with a view to implementing the measures on its agenda.

Global Alliances for Water and Climate (GAWC)

At COP22, the four alliances launched in Paris in 2015 came together to form the "Global Alliances for Water and Climate", a global collaborative platform for joint action on Water and Climate; they now have a total of 450 members from 94 countries. These alliances have undertaken to provide technical assistance for the development of new adaptation and mitigation projects in water-related sectors, and to share experience, best practices and the best technology available.

They have also undertaken to foster closer links between donors and project leads via a platform set up to this end. These Alliances aim to build bridges between donors (looking for good climate-related projects) and project leads (seeking access to funding).

The alliances have provided technical assistance for six pilot projects: improving Water Information Systems for adaptation in Burkina Faso and in the cross-border basin of the Senegal River; developing adaptation strategies for the cross-border basin of the Sava River, and the Zarqa River in Jordan; reducing releases of pollutants into the waterways in Fès, in Morocco; and developing an e-learning and collective action platform for businesses to share best practices and the best available technology. Funding these projects could benefit nearly 33 million people who live in the five pilot basins.

Three new Water Information Systems have been launched in Europe and Central Asia: one for the Mediterranean and two in the pilot basins of Chu-Talas and Syr-Daria in Asia.

The initiatives brought together under the Global Alliances for Water and Climate include:

The "Paris Pact" on water and adaptation to climate change in the basins of rivers, lakes and aquifers

This initiative was launched during COP21 by the International Network of Basin Organizations; it aims to launch concrete projects in the area of water and adaptation to climate change at the level of river basins. It now boasts a community of over 358 members from the basin organizations and nations.

The Alliance has made concrete commitments to 7 flagship projects launched during COP21: 3 projects to integrate adaptation to climate change in management of the Hai He river basin in China, the Valley of Mexico basin and the Senegal River basin; 2 projects to improve Water Information Systems at regional and national level in the Mediterranean basin and the Congo basin; 1 project to develop funding mechanisms to support measures to strengthen resilience to climate change in 4 Latin American countries, and an investment plan for resilience to climate change in the Niger River basin. Since COP21, all these flagship projects have received funding and been implemented.

Megacities Alliance for Water and Climate

This initiative was launched in 2015. It aims to build up the capacity of megacities to better adapt to climate change. It now includes 16 major cities worldwide, representing a population of over 300 million people (Beijing, Buenos Aires, Chicago, Ho Chi Minh City, Istanbul, Kinshasa, Lagos, London, Los Angeles, Manila, Mexico, New York, Mumbai, Paris, Seoul and Tokyo).

In 2017, the initiative set up an international working group under the International Hydrological Programme of UNESCO (UNESCO-IHP) to define the prerequisites for the development of a global cooperation platform, to foster productive dialogue on the subject of adapting to and mitigating the water-related impact of climate change in megacities.

The Alliance published a new book entitled “Water, Megacities and Global Change”, which includes monographs on water management and climate change, and recommends solutions for 16 megacities. A public GIS database, containing information on megacities, water (resources, services, policy, etc.), urban data (population, policy, land use, etc.), climate and other issues relevant to the urban environment is being developed and will be deployed on the UNESCO-IHP platform: the Water Information Network System.

Business Alliance for Water and Climate (BAFWAC)

The Business Alliance continues to grow. It now has 64 member companies, with a combined annual income of nearly USD 649 million (September 2017). The BAFWAC has committed to develop and maintain, for the coming five years, its e-learning and collective action platform. The Alliance hopes to have 100 signatories by 2018.

Global Clean Water Desalination Alliance (GCWDA)

The Alliance brings together key players in the energy and water desalination industries to develop water desalination processes with low carbon emissions. The Alliance has pledged to invest an additional USD 100 million a year to develop innovative energy-saving solutions and the use of renewable energy, as well as to promote the development of new desalination technology.

Alliance for Global Water Adaptation (AGWA)

This Alliance, hosted at the Stockholm International Water Institute (SIWI), now has over 1,000 members. It strives to strengthen links at political and technical levels between the water community and the climate community. During World Water Week in Stockholm in 2017, high-level dialogue sessions were held to promote opportunities to see water as a connector in fulfilling the SDG agenda and implementing the Paris Climate Agreement.

Global Network on Water and Development Information for Arid Lands

The Network approved its 2016 Strategy, which aims to contribute to improving water resource management in arid and semi-arid regions of the world.

International Flood Initiative (IFI)

The Initiative launched its new strategy for 2016-2022 to promote an integrated flood management approach, reducing the social, environmental and economic risks of flooding and emergency situations due to flooding.

VI.
Recommendations and key messages for decision-makers

The international water community made a series of recommendations during the 2nd International Conference on Water and Climate. These recommendations, together with those made during the COP22 Global Action Day for Water, contain key messages for decision-makers.

→ **The international water community must renew its efforts to align** and communicate with the climate community within the framework of the various processes and programs related to climate change issues. The climate community must try to understand the concerns of the water community and acknowledge the key role of water as a potential solution and connecting factor between Water, Energy, Food, Health and Education.

→ **The upcoming COP23 and COP24 must focus more attention on the** role of water in climate negotiations. It is therefore recommended that a subsidiary body of the UNFCCC be tasked with drawing up a report on water, similar to the report on oceans, with a view to convincing decision-makers that water is a key element in the negotiation process on climate change as well as in the programs implemented to comply with the Paris Agreement.

→ **Water plays a central role, it is fundamental to and interrelated with** almost every sector (energy, food, health, etc.) directly or indirectly impacted by climate change. Within the framework of the "Water for Africa" Initiative, it is recommended that a "Water and Energy Hub" be set up to support African nations in planning bankable climate change mitigation and adaptation projects that integrate a focus on water and energy.

→ **Ensuring food security and ending hunger will largely depend on** the options available to increase food production, which in turn depends on water. Food waste and food loss worldwide are huge problems, and account for almost one third of all food produced. Such waste is the third major source of greenhouse gas emissions. Adaptation plans must therefore integrate measures to tackle food waste and food loss. Reducing food waste/loss will save significant quantities of water and improve the conditions required for food security.

→ **Within the "Water for Africa" Initiative, a hub should be set up** for the African continent, for organizing regular meetings between African nations and donor and funding nations with a view to improving access to funds available for development and for mitigating and adapting to climate change. Within this framework, it is recommended that loans at preferential interest rates should be available for developing nations with weak or moderate economies, especially African nations.

→ **The water community must provide assistance to improve access** by developing nations to funds to finance water-related projects for mitigating and adapting to climate change.

→ **The Global Network of Major Cities Initiative and the launch of the** Global Fund for Cities will strengthen cooperation and experience-sharing, but careful attention should also be given to rural areas that generate poverty in cities due to migration.

→ **National Adaptation Plans (NAPs) must be developed based on** National Water Plans which set sector-specific priorities. Water should be treated as a priority in NAPs to ensure resilience to climate change.

→ **Encourage the implementation of the principles of good governance** and integrated water resource management at basin level, aligning resources to achieve the Sustainable Development Goals.

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