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PROGRAMME IMPLEMENTATION

Item 4 of the provisional agenda.

This document provides a summary of the implementation of the Programme, in particular:

- 4.1 Implementation of IHP VIII.
- 4.2 Regional perspectives on IHP
- 4.3 Report on the implementation of the resolutions and decisions adopted at the 22nd session of the IHP Intergovernmental Council
- 4.4 Report on the implementation of the decisions adopted at the 55th session of the IHP Bureau
- 4.5 Report on the IHP Flagship Initiative
- 4.6 IHP-Water Information Network System
- 4.7 Cooperation with other UNESCO programmes

Actions expected from the Bureau:

4.3 To take note of the implementation of previous resolutions adopted during the last 22nd IHP Council and provide advice on the next steps, suggesting as well possible contributions from Member States.
4.4 To communicate with the Member States of their region on expressions of interest and experts on water and climate change; urge category 2 centres in their region to report to the Secretariat upon request; follow the discussions in New York related to the New Global Water Architecture and raise the visibility of IHP.

The Bureau may wish to provide its appreciation to the Secretariat, provide advice on next steps on the implementation of IHP-VIII and to take any resolutions regarding the implementation of the programme

4.1 IMPLEMENTATION OF IHP-VIII

Theme 1: Water-related disasters and hydrological change

1. The theme aims at supporting institutions at national and regional level to develop research and training programmes on floods and drought risk management related to climate extremes towards strengthening countries adaptation capacity. It also provides Member States with data, methodologies and other tools and, as well as policy advice, for improved water-related disaster management. Since the 55th session of the bureau, the following results have been achieved.

2. **Water extremes, floods and droughts and climate risk management** - A technical regional workshop was organized on Climate Change Risk, Vulnerability Assessment and Early Warning for Africa in June 2017 at the AGRHYMET Regional Centre in Niamey, Niger. The workshop identified the gaps and needs on climate risk management in African countries and presented available tools and methodologies, as provided through IHP related programmes. The workshop capacitated more than 40 participants (15% of women) from 17 countries in Africa. A needs assessment for hydro-climate services for improved water resources management in vulnerable regions within Zambezi basin focusing on Malawi, Mozambique, Zambia and Zimbabwe has been conducted and will be discussed during a planned workshop in January 2018 in Harare with the aim to prepare a full project proposal for addressing the gaps in the region.

3. A significant effort was realized to characterize the Canicula or midsummer drought frequency in the Latin America and Caribbean (LAC) countries with the Midsummer Drought Atlas developed and discussed during a regional workshop, held in Guatemala in July 2017 and attended by 25 participants from 11 countries, of which 7 women. The methodology to define and monitor the Midsummer Drought was widely discussed and improvements suggested.

4. Institutional capacities of 14 officials from 10 countries on hydrological maxima were enhanced through the workshop “Tools for Management of Hydrological Maximum in a Changing World”, delivered by International Flood Initiative (IFI)-LAC and Flow Regimes from International Experimental and Network Data (FRIEND), Montevideo, Uruguay, June 2017. A second session on flood modeling took place to share experiences, best practices and compare models used across the region. Both sessions were organized in collaboration with the Disaster Risk Management unit of UNESCO Montevideo.

5. A draft publication on “Hydrological Maxima” was prepared by the IFI-LAC Working Group, in collaboration with the Flanders/UNESCO Science Trust Fund (FUST) and FRIEND/AMIGO. The publication aims to disseminate knowledge on the impacts of climate change and variability, as well as on adaptation measures.

6. An international training course on “Application of Remote sensing to support the management of hydrographic watersheds in Latin America and the Caribbean” was held in Foz do Iguaçu, Brazil in November 2017. The training capacitated 58 water professionals and researchers (15 women) from 16 countries of LAC (Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Uruguay and Venezuela), on the use of different remote sensing data to study the characteristics of water basins to support policy and decision-making.

7. The understanding of the climate change impact on water resources and water-related disasters was improved as Integrated Water Resources Management (IWRM) and regional cooperation were promoted during a workshop on “Building Resilience to Climate Change Risk and Vulnerability to Meet Water Security Challenges” organized in July 2017 in

Langkawi, Malaysia. The workshop brought together a total of 34 participants including 16 women, from 12 countries in Asia Pacific and Africa, consisting of policy makers, UNESCO water centres and chairs, authorities in river basins of the Hydrology for the Environment, Life and Policy initiative (HELP), local partners, as well as experts, universities, and other stakeholders. UNESCO Office Jakarta is contributing three pilot river basins and assisting national coordination for national platform establishment for the implementation of IFI new strategy namely: Indus river basin in Pakistan, Davao HELP River basin in the Philippines, Langat HELP river basin in Malaysia.

8. Capacity of 34 local communities (47% women) including farmers was enhanced on watershed Management for Floods and Droughts during a community based training held in August 2017 in Sindh Province, Pakistan. As a result of this training, the locals improved their knowledge on accessible good practices for flood and drought field control. The training was given based on a developed training manual on "Community based watershed management to control floods and drought" and translated into the four local languages of Pakistan namely Urdu, Sindhi, Punjabi and Pashto.

9. Twenty one (21) Pakistani engineers were capacitated on precision measurements of river discharges by Acoustic Doppler Current Profiler equipment handed over to Pakistan Council for Research on Water Resources (PCRWR) during an intensive 5 days hands-on training in August 2017. (For para 8. & 9. see: http://www.unesco.org/new/en/jakarta/about-this-office/single view/news/river_survey_equipment_and_training_for_pakistani_institutio/)

10. The capacity of Arab climate change negotiators was enhanced on water governance and climate change with emphasis on the impact of climate change on groundwater following a training session held during the 9th Capacity Building Workshop for Arab Climate Change Negotiators Egypt, 9-12 September 2017.

11. **Knowledge exchange** - In October 2017, the Knowledge Forum on Water Security and Climate Change was held at UNESCO in Paris, bringing together 124 participants (of which 44 women) of more than 25 countries. As outcomes of the meeting the scientific frontiers, opportunities, gaps in research and scientific uncertainties were identified, but also the knowledge and best practices were shared to address the most pressing water challenges under global change, highlighting the contribution from young researchers and professionals. As an outcome of the meeting, several activities were discussed with the partners present and integrated in work plans for 2018-2019.

12. Key messages on how to best promote citizen science as an integral element to achieving and monitoring the SDGs were discussed during a workshop held on "Leveraging Science in Water and Climate Information Services to Achieve the Sustainable Development Goals" in Addis Ababa, Ethiopia in May 2017 and attended by 23 participants (7 women).

13. **Snow and Ice**: Capacity strengthening of 40 (15% women) experts of 14 countries in adaptation strategies to counteract impacts of glacier retreat in the Andean region at the "Glacier Retreat in the Andes" synthesis meeting (Mendoza, Argentina, August 2017). Achievements of the project and products related to current diagnosis of glaciers in the Andean countries and their vulnerability to climate change were presented. Information on the on-going activities carried out by the Working Group (WG) on Snow and Ice was disseminated. This occasion coincided with a meeting of the International Sediment Initiative (ISI)-LAC Working Group, in which the Group activities were reported and its Terms of Reference were discussed along with a work plan for 2017-18.

14. **Conclusion and way forward**: Human and institutional capacities were strengthened in Member States in the areas of water extremes (floods, droughts), glacier melting, sediment and river basin management by the provision of tools, trainings and

platform for knowledge sharing and science-policy discussion. Various events (workshops, trainings, conferences and experts meetings) were organized with more than 230 people trained (30% women). IHP will build on the achievements so far and will further strengthen its networks and initiatives to continue reinforcing capacity of Member States in addressing the impacts of water extremes and hydrological changes under global change with a focus on management under hydrological risk and related socio-economic losses.

Theme 2: Groundwater in a changing environment

Enhancing sustainable groundwater resources management

15. The World Hydrogeological Map (WHYMAP) Programme published the World Map of Karst Aquifers, which was launched during the 45th IAH Congress (Dubrovnik, September 2017). The map was prepared in partnership with the Karlsruhe Institute of Technology, the International Association of Hydrogeologist's (IAH) Commission on karst and the German Federal Institute for Geosciences and Natural Resources (BGR). The map is a visual tool for decision-making and research.
(https://www.whymap.org/whymap/EN/Maps_Data/Wokam/wokam_node_en.html)

16. The guidelines prepared as a result of the Groundwater Governance project, executed by UNESCO IHP together with FAO and World Bank, are shaping regional initiatives. A workshop was organized in Montevideo, Uruguay in June 2017; that was attended by LAC countries representatives to identify pilot studies and consider the preparation of project proposals for the application of the principles to specific aquifers in the region. The UNESCO Cairo Office organized a workshop was in Bahrain in October 2017 to prepare a roadmap for capacity building on groundwater governance in the Arab Region. The guidelines on groundwater governance are available in English and French at http://www.groundwatergovernance.org/home/en.

17. UNESCO assisted the UNICEF to identify high-probability-deep-ground-water drilling sites in Ethiopia's hyper-arid Afar Regional State, based on geo-hydrological studies and utilizing GIS. Three locations were pin-pointed and UNICEF conducted deep drilling, and, in each of the three locations they found large amounts of fresh-water of drinking water quality. A follow-up study on the aquifer re-charge capacities to enable sustainable well-management is being discussed.

Strategies for aquifers recharge

18. Managed Aquifer Recharge (MAR) is a promising adaptation measure to reduce vulnerability to climate change and can contribute to the achievement of the SDGs. UNESCO-IHP and UNESCO IGRAC Centre have been continuously updating the MAR portal (http://marportal.un-igrac.org), which is the first global inventory of MAR schemes. The UNESCO IGRAC Centre has updated the MAR portal that is now presenting 1,200 case studies from over 50 countries.

19. The topic of MAR is also covered under the activities on the topic of "Conjunctive Management of surface water and groundwater", which are undertaken in the framework of the UNESCO IHP IW:LEARN project (groundwater component) financed by the GEF. A dedicated workshop was organized by UNESCO and partners (GEF, AECID and others) in October 2017 in Montevideo, Uruguay, aimed to strengthening capacities at national and regional level on the integration of groundwater in river and lake basin management plans and governance, and on conjunctive surface water and groundwater management (49 participants, 29 women).

Adapting to the impacts of climate change on aquifer systems

20. The LAC component of the UNESCO GRAPHIC (climate change and human impacts on groundwater resources) network is contributing to define appropriate indicators and identify relevant cases studies. A coordination GRAPHIC-LAC seminar was held in Bahamas in September 2017 (15 participants, 4 women).

Promoting groundwater quality protection

21. IHP started the preparation phase of a new project funded by the Global Environment Facility (GEF) aimed at applying the tools developed for the protection of coastal aquifers and groundwater-related ecosystems of the Mediterranean Sea. UNESCO is contributing and organizing the consultations needed to reach agreement in countries on the priority aquifers and related ecosystems where project activities will concentrate. A sub-regional workshop was organized in Rabat the 12-13 December 2017 with the representatives of the Ministries of Water Resources and of Environment of Morocco, Tunisia, Libya, Egypt, Lebanon to identify the priority aquifers and related ecosystems where the new phase of project activities will concentrate.

Promoting management of transboundary aquifers

22. As a result of the IHP work in the global assessment of transboundary aquifers (TBAs) and Small Island Development States (SIDS) groundwater systems, the final report is now available and provides recommendations for the management of these resources. Translation into all UN official languages is on-going. (English version: http://unesdoc.unesco.org/images/0025/002592/259254e.pdf). The *Summary for policy-makers* is now available into all UN official languages (http://www.geftwap.org/publications).

23. UNESCO IHP, as co-custodian agency for SDG indicator 6.5.2 on transboundary water cooperation has invited Member States to report on this indicator in 2017; and IHP is working on the validation, compilation and reporting of results to UN-Water and United Nations Statistics Division (UNSD) (see sub item 7.1).

24. IHP continues its efforts in the setting up of multi-countries cooperation mechanisms for the governance and management of transboundary aquifers located in Central America, Central Asia, North Africa, Southern Africa and the Sahel region. The establishment of the first mechanism for the governance and management of a transboundary aquifer in Southern Africa (i.e. the Stampriet Aquifer shared by Botswana, Namibia and South Africa) has been agreed by the countries in August 2017. A training on International Water Law aimed at fostering cross-border dialogues in Central Asia was organized in September 2017 (30 participants, 10 women).

25. A session to present the achievements of the Protection and Sustainable use of the Dinaric Karst Aquifer System (DIKTAS) was organized during the 45th Congress of the International Association of Hydrogeologists (IAH) in Dubrovnik (September 2017) with the participation of experts from Croatia, Bosnia-Herzegovina, Montenegro and Albania. The concept for a new project proposal for the implementation of the Strategic Action Plan of the Dinaric Aquifer has been approved by the GEF in November 2017.

26. IHP together with the four riparian countries of the Nubian Sandstone Aquifer System (NSAS) Chad, Egypt, Libya and Sudan, carried out in 2017 the preparations of a 4-year UN Development Programme (UNDP)/GEF funded Full-Sized Project and submitted it to the GEF for its endorsement. The objective of the Project is to promote a rational and equitable management of the NSAS to the benefit of the ecosystems, economies and the population of the region, strengthening the legal, policy and institutional frameworks at national and regional levels, and enhancing the countries groundwater governance capacities. The implementation of the Project is foreseen to start in 2018.

Conclusion and way forward

27. A major achievement during the reporting period was the facilitation by IHP of the establishment of the first mechanism for the governance and cooperative management mechanism of a transboundary aquifer in Southern Africa region (i.e. the Stampriet Aquifer shared by Botswana, Namibia and South Africa) in August 2017. The mechanism will be hosted by the Orange-Senqu River Commission (ORASECOM) highlighting the importance of the conjunctive management of surface water and groundwater. This comes as a follow up on UNGA A/RES/71/150 on the "Law of Transboundary Aquifers" that encourages IHP to continue its contribution through offering further scientific and technical assistance to the States concerned. IHP continued its efforts to assist Member States in improving the scientific knowledge on groundwater as well as in strengthening groundwater governance frameworks at domestic and transboundary level by organizing workshops that trained more than 150 people (35% women) and by developing relevant tools such as the World Map of Karst Aquifers (WHYMAP).

Theme 3: Addressing water scarcity and quality

28. The theme contributes to addressing water scarcity and quality challenges. On water scarcity, the objective is to support member states to improve water governance by forecasting and planning for lack of water availability based on sound scientific information and appropriate tools and methodologies. For water quality, the objective is to support countries to improve water quality and wastewater management by strengthening knowledge and capacity on technical and policy approaches.

29. A national dialogue on water security was conducted by UNESCO in October 2017 in Timor Leste. The dialogue identified four key areas as main issues, which are groundwater, integrated catchment management, water education and wastewater. This dialogue was attended by 64 participants from 7 countries.[1]

30. Knowledge and coordination enhanced on water quality of 12 decision-makers and technicians integrating the Conference of Ibero-American Water Directors (CODIA) via a training session (Cartagena, Colombia, June 2017), in connection with preparations for EUROCLIMA+. Legal aspects and indicators of water quality were discussed, along experiences applied in the region.

31. UNESCO participated in several events to highlight the importance of water diplomacy and its role in fostering peace in the management of shared water resources. UNESCO convened a session at the International Association of Hydrological Sciences (IAHS) Scientific Assembly in July 2017 in Port Elizabeth in South Africa on "Facilitating scientific contributions in water diplomacy and cooperation processes" which brought together scientists to share experiences working on transboundary water in the global South (25 participants including 7 women). In September 2017, UNESCO presented at a panel session on "Transboundary Water Governance and Benefit Sharing" at the Water Security and Climate Change Conference in Cologne to underline the past and ongoing work of IHP and the UNESCO Water Family in promoting transboundary cooperation. There was also strong participation of the UNESCO Water Family at the Knowledge Forum on Water Security on Climate Change hosted by UNESCO in October 2017, where UNESCO convened a panel of experts on transboundary water to share innovations, best practices

[1] See also: http://mucp-mfit.org/national-dialogue-on-water-security-implementing-water-goals-in-timor-leste/; http://www.unesco.org/new/en/member-states/single-view/news/timor_leste_national_dialogue_identifies_action_for_water_su/

and lessons learned in strengthening water diplomacy. These events served to promote dialogue among scientists and policy-makers on the importance of considering water as an instrument of peace, and to share ideas and experiences on how to address challenges going forward.

32. The International Initiative on Water Quality (IIWQ) implemented a range of activities in the framework of Focal Area 3.4 “Addressing water quality and pollution issues within an IWRM framework” and Focal Area 3.5 “Promoting innovative tools for safety of water supplies and controlling pollution”. These activities contributed to: the strengthening of Member States capacities in addressing water quality challenges for the achievement of the SDGs; the promotion of best practices in wastewater management and water reuse; the dissemination of knowledge and innovation in water quality management, such as satellite-based water quality monitoring; and the enhancement of scientific cooperation and research on new challenges such as emerging pollutants and the climate change impact on water quality.

33. The IIWQ Regional Consultation on Water Quality in the Pacific SIDS was organized in Nadi, Fiji, in October 2017, in conjunction with the UNESCO meeting on “Bringing the IHP in the Pacific” in collaboration with UNESCO Offices in Apia and Jakarta. The meeting was hosted by the Ministry of Infrastructure of Fiji. The IIWQ consultation meeting identified key water quality priorities and challenges faced by the Pacific SIDS. The need to support the Pacific SIDS in building human and technical capacity for water quality monitoring and putting in place an effective, practical water quality monitoring and regulatory framework was highlighted as a key water priority by the Pacific SIDS in the Statement, containing the meeting conclusions. The meeting was attended by over 40 participants (13 women, 33%), including senior water officials from water-related ministries and public authorities from 12 Pacific Island Countries and representatives of key development stakeholders such as UN, international and regional organizations, such as UN Children’s Fund (UNICEF), World Meteorological Organization (WMO), Secretariat of the Pacific Community (SPC), Philippine Water Works Association (PWWA), etc.

34. IHP through its IIWQ and thes “International Centre on Water Resources and Global Change”, category 2 centre (C2C) under the auspices of UNESCO in Koblenz, Germany, co-organized with the German Federal Institute of Hydrology (BfG) a Summer School on “Plastics in Marine and Freshwater Environments”, from 16 to 21 July 2017. The Summer School focused on “State-of-the-art overview”, “Plastics and Policy”, “Plastics and Science” and “Plastics and Society”. It also included a field trip to Rhine River water quality monitoring and control station. The summer School was attended by 48 participants (42% women) from 20 countries (Austria, Bosnia and Herzegovina, Brazil, Egypt, France, Germany, India, Indonesia, Italy, Liberia, Mexico, Nigeria, Philippines, Romania, Russian Federation, Serbia, Slovenia, South Africa, UK, USA).

35. New innovative approaches to water quality monitoring were promoted through the IIWQ project on “Use of earth observation (EO) and satellite data for water quality monitoring”. The project completed a demonstration of water quality monitoring using satellite based data for selected river basins and surface water resources in five different regions. The demonstration basins are: Lake Sevan in the Caucasus highlands, Armenia; Itaipu and Parana River Basins, Argentina, Brazil and Paraguay; the Mecklenburg Lake Plateau, Germany; River Nile and Aswan Reservoir, Egypt and Sudan; the Mekong Delta, Vietnam; Florida Lakes, USA; and Zambezi River, Zambia and Zimbabwe.

36. The IIWQ flagship extrabudgetary project “Emerging Pollutants in Wastewater Reuse in Developing Countries”, funded by Sweden, implemented many activities aimed at enhancing the knowledge base scientific cooperation and policies on emerging pollutants. The results of the 16 IIWQ technical and policy case studies on emerging pollutants are

published in the new UNESCO Emerging Pollutants in Water Series. The first two volumes in the Series were published: “Pharmaceuticals in the aquatic environment of the Baltic Sea region – A status report” (volume 1), published jointly by UNESCO and Baltic Marine Environment Protection Commission (HELCOM); and “Microplastics in Freshwater Environments” (volume 2). The former publication “is a regional status report on the occurrence of pharmaceuticals in the Baltic Sea freshwater and marine environment and their main sources and pathways to the Baltic Sea. The report is the first regional comprehensive assessment and compilation of available data and information, collected through national reporting by the HELCOM Contracting Parties (Denmark, Estonia, Finland, Germany, Poland, Russian and Sweden) and includes policy recommendations to address the knowledge and information gaps and to reduce the discharge of pharmaceuticals with wastewater into the aquatic environment. The latter publication provides a preliminary assessment on the presence of microplastics in wastewater and freshwater systems. The assessment covers 17 countries in all regions of the world, based on available research and literature data. These new IIWQ publications were presented at dedicated awareness raising interview sessions at the 2017 Stockholm World Water Week (August-September 2017).

37. The IIWQ continued to facilitate scientific discussion and knowledge dissemination on emerging pollutants through technical and experts meetings organized in the framework of the above-mentioned project. The IIWQ convened Technical Event on “Emerging pollutants in water reuse: Addressing knowledge and policy gaps” at the 2017 Stockholm World Water Week. The event was co-convened jointly with Sida (Sweden) and with experts from the UNESCO (cat. 2) Centre for Water Law, Policy and Science at University of Dundee (UK), WaterLex (Switzerland) and Cap-Net UNDP. Key findings and results of the IIWQ case studies on emerging pollutants were presented, along with some countries’ leading examples of policy and technology approaches to address emerging pollutants. The IIWQ expanded knowledge dissemination and scientific discussion on emerging pollutants to wider stakeholders by providing technical contributions to: Technical Event on “Solving the plastic waste crisis in urban waterways” and Seminar on “Opportunities and limits to water pollution regulations”, which included a special session on regulations on emerging pollutants. These technical meetings were attended by large numbers of (70-100) researchers, policy-makers, water professionals, NGOs and other sector stakeholders, with representations of women participants between 30-50%.

Theme 4: Water and human settlements of the future

38. The thematic area aims at supporting cities and rural settlements facing climate change, population growth, deterioration of urban infrastructure systems and other global challenges in understanding the issues and in adopting an approach based on the interdependence of the different water systems. The activities carried out since the 55th IHP Bureau (June 2017) addressed the issue of knowledge production and exchange, disseminating UNESCO’s work and the importance of Smart Water Systems and the exchange of good practices through conferences, workshops, and the establishment of new initiatives.

39. IHP through its Urban Water Management Programme (https://en.unesco.org/uwmp) is cooperating with the utilities of The Smart Water for Europe (SW4EU) consortium (Thames Water, Lille University, Acciona and Vitens), as well as those in Boston (USA), PUB (Singapore), K-Water (Republic of Korea), MEKOROT (Israel), SIAAP (France), EPAL (Portugal), Canal Isabel II (Spain), and Veolia to share experience, business model and lessons learnt in a book on “Smart Water Systems” to be co-published with UNESCO-IHP. Other contacts for providing more inputs have been established with Japan and China. It has to be noted that some of the utilities mentioned operate water supply in developing countries

and will therefore report on what is going on concerning Smart Water Networks in these countries.

40. The Secretariat presented on the “Resilience of Water Systems as Seen in IHP Activities” at the 5th Annual Seminar of the UNESCO Chair in Sustainable Water Services on “Resilience in Water Services” that took place at Tampere University of Technology, in August 2017. 65 people attended, of which 25 women.

41. IHP carried out demonstration site activities for drinking water supply issues and water resources management in Medan, the fourth largest city in Indonesia. It furthermore conducted studies on water provision for policy recommendations for future expansion on clean water supply in partnership with PDAM2 Tirtanadi and Universitas Sumatera Utara (USU). The policy proposals took into account the estimated population growth from 2019 to 2034, issues of water quality, quantity and a cost-benefit analysis. These activities were financially assisted by Indonesian Funds-in-Trust (FIT) and disseminated through several national and regional workshops.

42. A concept note detailing the objective, agenda and budget of the Megacities Alliance project has been published (IHP/Bur-LV/Ref.4) and approved in February 2017 by the founding members of the Megacities’ Alliance, allowing for complementarity with other COP initiatives; in particular with the Global Alliance for Water and Climate (GAfWAC) created during COP22 in Marrakech with the support of France and Morocco. Communication materials were developed to inform interested parties on the objectives and activities of the Megacities’ Alliance for Water and Climate (MAWaC), and explain the advances of joining the Megacities Alliance.

43. The Secretariat sent in September 2017 nominal letters to UNESCO Permanent Delegations asking for their support in identifying technical experts to act as focal points for the Megacities Alliance. At present, four countries (France, Mexico, Nigeria, and Turkey) have designated such focal points. Theme 4 Secretariat co-organized during COP 23 (November 217) in Bonn, Germany, a UN side event on Human Settlements, promoting its work on its DANURBIS initiative and a parallel session on “Resilient cities” during the Water Action Day. More than 300 people attended the sessions 20% of which women.

44. The first edition of the Asian International Water Week (AIWW) was organized at the initiative of the Asian Water Council in Gyeongju, Republic of Korea, from 20 to 22 September 2017, in parallel with the 2nd Korean International Water Week as well as other related events, such as the Business Forum and the Asian Water Council’s meeting on the implementation roadmap to World Water Forum 8. IHP organized a session on “Efficient Water Management for Human Settlements of the future” and had a keynote speech on wastewater’s potential role on “Ensuring sustainable withdrawals of water resources” in a session co-organized with United Nations Environment (UNEP) and the United Nations University (UNU). 40 participants, 10 of which women attended the sessions. Furthermore, the Secretariat was requested to provide the opening speech at the Business Forum and participated at the Asia to World Statement Session receiving high visibility.

45. The Workshop on Strengthening Science-Policy-Society Interface for Implementing Sustainability Science for Biodiversity Conservation in ASEAN and Asia Pacific Region, June 2017 capacitated 55 participants from 11 countries in Asia Pacific (Australia, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Republic of Korea, Thailand, Vietnam), among them 36% women. As a result of the activities, multi-dimensional Rehabilitation and Restoration Plan, and an Urban Stormwater Management Plan were developed in the region

2 Perusahaan Daerah Air Minum, local government owned water utilities in Indonesia

46. IHP and the Council of Danube Regions and Cities are working together on transboundary cooperation in the Danube river basin for sustainable urban water management under the "DANURBIS" project. DANURBIS aims to provide a platform for efficient collaboration where cities from the Danube river basin will learn from each other's experience and exchange best practices on urban water management as well as design and implement their individual responses to the regional challenges of climate change.

47. A research project on Climate Change and water security, aiming to provide MS with engineering work that will fortify their defense from climate related effects has been approved and signed by IHP and the Republic of Korea, and will aid two countries per year, one in Asia and one in Africa, for 10 years.

Conclusion and way forward

48. Overall, under theme 4 of IHP-VIII there were knowledge exchange sessions supported benefiting more than 450 people, in at least 20 countries, 23% of which female. A platform for cooperation among Megacities is being pursued and research was conducted to inform policy for investments in urban water settings in Asia.

49. The main focus of the Urban Water Management Programme is the development of new knowledge through publications and knowledge exchange. The climate change related project will provide a new opportunity for more tangible and policy related work. Efforts need to be made to address the rural component of the Theme that has not yet been addressed.

Theme 5: Ecohydrology, engineering harmony for a sustainable world

50. Ecohydrology creates green solutions for increasing challenges in the sustainable management of water ecosystems. It combines hydrology, biota and engineering for water security, to enhance both water quality and quantity. IHP-VIII encourages Member States to adopt ecohydrological, solution-oriented best practices in natural resources master plans as an important component of the integrated water resources management approach. With the inclusion of a new Ecohydrology demonstration site in Indonesia (Sagulin), best practices and solutions are currently applied in 21 sites in 16 countries around the globe, which form the growing Ecohydrology Demonstration Sites IHP Network.

51. The International Symposium on Ecohydrology for the Circular Economy and Nature Based Solutions (Lodz, Poland, September 2017) brought together top experts from scientific institutions and international organizations, and provided an open floor for the discussion about integration of ecohydrological biotechnologies and systemic solutions with a circular economy development towards mitigation/adaptation to climate instability. One hundred and forty-seven participants (close to 50% women) from 20 countries (all continents including Africa) attended the symposium. The participants agreed that every successful strategy must be founded with two elements: amplification of opportunities and elimination of risks. Circular Economy, the rising issue of our times, focuses on "closing the loop" approach, contributes to increasing resources productivity (and decreasing of disposals), energy use and pollutants emission. To achieve the sustainability with adaptation to climate change it is necessary to implement the second element of the strategy, which is the enhancement of catchment carrying capacity (sustainability potential) with profound understanding of ecosystem processes and their dynamics. Ecohydrology, based on change from mechanistic to evolutionary approach, creates potential for the synergy effect between both Circular Economy and Nature-Based Solutions.

52. Steps have been taken recently (October 2017) in order to establish a Biosphere Reserve of the UNESCO Man and the Biosphere Programme (MAB) covering part of the Basin and the Delta of the River Nestos, in close cooperation with the UNESCO Chair on Conservation and Ecotourism of Riparian and Deltaic Ecosystems in Greece (Con-E-Ect) which was established in 2016 in the Department of Forestry and Natural Environment Management of the Eastern Macedonia and Thrace Institute of Technology (EMATTECH), in Greece. This Biosphere Reserve would be developed with the effective involvement of the Fisheries Research Institute in Kavala, Greece, and this opens for interesting scenarios for the establishment of an additional ecohydrology demonstration site in the Nestos river basin and delta.

53. Improved capacities of four Caribbean countries were enhanced during the workshop on “Determination of environmental and ecological flows” (Santo Domingo, Dominican Republic, April 2017). The workshop was organized by the UNESCO Havana Office, the Centre for the Sustainable Management of Water Resources in the Caribbean Island States (CEHICA), the Dominican Institute for Water Resources (INDRHI) the UNESCO Chair on Water, Gender and Governance (IGlobal) in collaboration with the IHP-LAC at Montevideo Office with the support of the Technological Water Institute of Mexico (IMTA) and the Regional Coordination of the IHP Programme on Ecohydrology as instructors for the course. Improved capacities of 25 professionals and technicians in the field of water management, water operators and decision-makers from Member States of the Caribbean (Dominican Republic, Cuba, Haiti and Aruba, 3 women and 22 men) on environmental flow concepts and its application for water conservation management under demand pressure, was provided.

54. Capacities of five central America Member States on sustainable development related to environmental flows were improved, via the workshop on “Environmental Flows in Central America: Towards Water Security and Sustainable Water Management” (San Jose, Costa Rica, May 2017). The workshop was organised by UNESCO San Jose in collaboration with the IHP-LAC at UNESCO Montevideo Office and IHE Delft, establishing linkages with both Committees of the Central American Integration System (SICA) for Hydraulic Resources (CRRH) and Disaster Risk Reduction (DRR), as a contribution to the Regional Strategy for the Integrated Management of Hydrological Resources. The workshop was attended by 30 participants (9 women and 21 men)) of which 23 were officials from Member States from Central America countries (El Salvador, Honduras, Nicaragua, Panama and Costa Rica). Included were also local institutions such as the Vice ministry of Waters, Coasts, Seas and Wetlands of the Ministry of Energy, the UNESCO National Commission for UNESCO, SICA and DRR. A draft document on environmental flow legislation in Central America was prepared, and will be updated for a thorough analysis in other countries, as the model set up in the document is for Costa Rica. The UNESCO San Jose work on this theme has motivated the Costa Rican Ministry of Environment’ Working Group on Hydrological Flows to adopt holistic methodologies and to be incorporated in new legislation.

55. Capacities of Cuban water management experts in the field of ecological and environmental flows were enhanced at the 1st National Workshop on the Determination of Ecological and Environmental Flows (Havana, Cuba, July 2017). The workshop was organized as a follow-up of the one that took place in Dominican Republic in April at the initiative of the UNESCO Havana Office, IHP National Committee (CoNaPHI of Cuba), the National Institute of Hydraulic Resources (INRH), the Center for Hydraulic Research (CIH) of the Technological University of Havana "José Antonio Echeverría", with the participation of the Cuban National Commission of UNESCO. The workshop on theory and practice in the multiple dimensions related to the determination of the ecological and environmental flows, was attended by 18 Cuban professionals (7 women and 11 men). A multidisciplinary working group that will address this working area in the country under the coordination of the CoNaPHI of Cuba was established together with an agenda to follow-up the research project "Ecological and Environmental Flows in Cuba".

56. Capacities of 27 Latin American professionals in the area of water management were improved at the Course on Methodologies for the Determination of Environmental Flows in Latin America (Santa Cruz de la Sierra, Bolivia, August 2017). The workshop was organized in the framework of the Conference of Iberoamerican Water Directors (CODIA) capacity building courses together with IHP-LAC, the Latin American Network of Knowledge Centers for Water Resources Management (RALCEA), the Latin American Network for Capacity Development for Integrated Water Management (LA-WETnet), the International Capacity Development Network for Sustainable Water Management (Cap. Net UNDP), the European Union, the UNESCO Chair: Water and Education for Sustainable Development of the Faculty of Engineering and Water Sciences (FICH) of the National University of the Litoral (UNL) and CODIA. The course addressed water technicians and professionals from different institutions integrating CODIA, such as water management institutions, and monitoring agencies. As a result, 27 participants (11 women and 16 men) from 15 Latin America countries attended (Argentina, Bolivia, Chile, Colombia, Ecuador, Venezuela, Peru, Paraguay, Uruguay, Dominican Republic, México, El Salvador, Panama, Costa Rica, Guatemala). A network was established aiming at sensitizing decision-makers on the case studies presented at the workshop, as well as strengthening capacities and networking among professionals responsible/supporting the management of water resources to promote synergy among decision-makers towards the implementation of environmental flows at country level. A commitment was expressed by the participants to elaborate a publication on case studies that systematizes and serves as instrument for the aforementioned actions and to concretize the next milestone in the line of work: the organization of a Regional Workshop on Environmental Flows.

57. Conclusion and way forward: Overall, 1119 participants (425 women) attended the events in the period 2016-2017. More than 100 men and 40 women were trained in ecohydrology, ecology and environmental flows. The events and the brochure “Ecohydrology as an integrative science from molecular to basin scale”, distributed in 500 hardcopies from January 2016 to date, raised awareness and shared knowledge. The brochure, in English and Spanish, is available online: unesdoc.unesco.org/images/0024/002455/245512e.pdf (English). The Chinese version of the brochure will be available soon. The Ecohydrology Web Platform ecohydrology-ihp.org, contains a “Demosite Card” for each of the 21 site, a harmonized/normalized and simplified visualization of the main characteristics, achievements and results obtained by each site, presented on a single page. As of October 2017, almost 4,000 demosite cards were downloaded from the web platform. Looking ahead, Theme 5 will continue its work to disseminate the ecohydrology concept and provide solution-oriented approaches for the enhancement of ecosystem services for the benefit of society in new demonstration sites. It will also provide the most appropriate and cost-effective ecohydrological engineering solutions for each ecosystem as management tools for Integrated Water Resources Management (IWRM) and will contribute to the achievement of the SDG 6 and other water related goals.

Theme 6: Water education, key for Water Security

58. Water Education at IHP is guiding and providing technical support through demonstration projects and development of prototype materials and tools at national, regional and global level. Activities have been focusing on Africa and Latin America where over half of the population is under the age of 19 and the need to create job combined with the great opportunity based on unprecedented potential economic and social development, enabled by a youthful population. Addressing youth unemployment, mismatch of skills and gender gap in the water sector can improve the Water Education contribution to achieving water security.

59. IHP trusts that promoting equal access to technologies can improve the quality of education in the water sector. This includes the use of Free and Open Source Software (FOSS) and E-Learning Open Solutions for Inclusive Knowledge Societies. The sound use of Information and Communication Technology (ICT) and water efficiency are key policy issues with potential for new research areas, including decision support systems for the measurement of water quality and quantity, water recycling and reuse. Increased interoperability between water information systems and water resources management is crucial for enhanced efficiency.

60. **HOPE-Initiative:** Since its launch in 2013, the Hydro free and/or Open-source software Platform for Experts (HOPE) initiative brings together experts from several fields of water resources to engage in capacity development and training based on the use of FOSS. Indeed, FOSS provide a sustainable basis for scientific decision-making, essential for the sound governance of water resources. With decreased software costs, FOSS contribute to improve access to technologies, especially in the developing world. HOPE also intends to stimulate cooperation in research and development and to enhance FOSS' dissemination. Since education continues to be ever more linked to technologies, it is essential to promote and foster equal access to ICTs in order to improve the quality of education in the water sector. HOPE contributes to this by providing trainings on FOSS and e-Learning open solutions Towards Inclusive Knowledge Societies and by reinforcing the capacities of youth and young professionals in the water sector: https://en.unesco.org/hope.

61. **FREEWAT**: In partnership with 18 universities, centres and other organizations, IHP is part of the project FREE and open source tools for WATer resource management (FREEWAT), an HORIZON 2020 project financed by the European Commission (EC). FREEWAT is an innovative participatory approach gathering technical staff and relevant stakeholders, including policy and decision makers, to design scenarios for the proper application of conjunctive water policies. The consortium organized also capacity development workshops and seminars and provided training to 700 participants. FREEWAT is part of ICT4WATER cluster, which is a cluster of ICT and water management projects, all EC co-funded. Their common goal is to increase efficiency in water management and enable greater cooperation among water regulators, operators and users by deploying solutions provided by Information and Communication. The FREEWAT platform is based on groundwater and solute transport numerical models (from the MODFLOW USGS family). It includes also modules for solute transport in the unsaturated zone; water management and planning; Observations Analysis Tools (OAT); calibration, uncertainty and sensitivity analysis; management of water in agriculture; tools for groundwater quality issues; tools for the analysis, interpretation and visualization of hydrogeological data. The FREEWAT project is being applied to 14 case studies within the EU, 3 case studies in neighbouring countries (Switzerland, Turkey and Ukraine) and to a large transboundary aquifer in Africa (UNESCO GGRETA project) The FREEWAT project is being applied to 14 case studies within the EU, 3 case studies in neighbouring countries (Switzerland, Turkey and Ukraine) and to a large transboundary aquifer in Africa (UNESCO GGRETA project). A total of 890 individuals were trained on the tools. About 650 people needed to be directly trained to the use of the platform within the EU, 60 in Switzerland, 100 in neighboring countries (Ukraine and Turkey) and another 80 in Africa (in South Africa, Namibia and Botswana). At the national level (national trainings), 1.076 participants attended 44 national courses and 2 remote courses. These courses were performed in 53 countries spread out over the 5 continents (see http://www.freewat.eu/).

62. **IHP-WINS:** The IHP Water Information Network System (IHP-WINS) online platform (launched January 2017, available at http://ihp-wins.unesco.org/) incorporates GIS data on water resources into a cooperative and open-access participatory database to foster knowledge sharing and access to information. IHP-WINS is freely available to Member States, water stakeholders and partners, with the aim of encouraging contributors to share

data on water. IHP-WINS offers different sets of spatial information that can be overlaid to create tailored maps. Transparency and respect of authorship is guaranteed as all information provided benefit from metadata in a standardized format and from a Digital Object Identifier (DOI). This allows for an accurate identification and crediting of any contribution, and easy later sharing. The platform is contributing to close the gap between North and South in terms of access and the sharing of knowledge. So far, 32 Member States have expressed their support and appointed Focal Points: Andorra, Armenia, Brazil, Botswana, Burkina Faso, Cameroun, China, Djibouti, Dominica, Ecuador, Egypt, Equatorial Guinea, Honduras, Hungary, Ireland, Kenya, Kuwait, Latvia, Libya, Lithuania, Malaysia, Mali, Montenegro, Namibia, Norway, Panama, Poland, Saudi Arabia, Sudan, Togo, Turkey, and Uzbekistan. Two category 2 centres also appointed Focal Points: the Regional Centre on Urban Water Management (RCUWM), in Tehran, Iran; and the Centre for Arid and Semi-arid Zones of Latin America and the Caribbean (CAZALAC), in La Serena, Chile. Finally, two water-related Chairs also appointed Focal Points: the UNESCO Chair in Water Management, in Bangui, Central African Republic; and the UNESCO Chair/International Network of Water-Environment Centres for the Balkans on Sustainable Management on Water and Conflict Resolution, in Thessaloniki, Greece.
IHP Thematic Area 6 is contributing to IHP-WINS by updating information and gathering new data related to water supply and sanitation in schools. To do so, a global, online survey (https://www.surveymonkey.com/r/schoolwaterandsanitation) was launched with the aim of supplementing the existing data existing on the platform.

63. **Survey on Youth Employment and Unemployment in the Water Sector:** IHP is also continuing its online survey on *"Youth employment and unemployment in the water sector"*. The results shall help formulating policy recommendations and dedicated IHP activities. The survey, in English and French, is open to anyone aged 15 to 40 in the water sector. Up to now, we received 855 responses (49,5% female) from 124 countries: https://fr.surveymonkey.com/r/waterandjobs; https://fr.surveymonkey.com/r/eauetemploi

64. The "Water Education Training for Teachers" promotes responsible water use, culture of water conservation, best management and practices, improving awareness and understanding of water challenges in the Arab region. The program activities comprise the development of general guidelines for teachers, development of supportive illustrative water educational tools (8-12 years students) and development of interactive educational activities (13-18 years students). Regional and national training workshops for more than 50 teachers' trainers (26 women, 24 men) were organized in Sharm El Shiekh, Egypt and Luxor, Egypt. Currently, the developed UCO water educational tools, mainly the illustrative booklet and Cartoons, are being disseminated to the main stakeholders in Egypt, Oman, Jordan, Lebanon and Sudan. More than 80 schools are involved and 250 teachers (half of them are women) are using UCO WET tools and implementing the program. Large number of school students are being involved in the program. The number of involved schools is increasing.

65. **Conclusion and way forward:** IHP through its Theme 6 on Water Education will continue to seek support from Member States in order to support the dissemination of science and technology into the water sector, and keep rising awareness on the use of Free and Open Source Software (FOSS) and E-Learning Open Solutions for Inclusive Knowledge Societies. This aims to improve traditional teaching and learning methods at all levels, but also to close the different learning gaps existing between South and North, between urban areas and remote localities, between generations, or even between gender. The use of ICT encourages collaborative work, creates an ability to generate more knowledge, and the capacity to cope with a changing and complex environment. Water education will keep working to harmonize learning chances and outcomes at all levels of society.

4.2 REGIONAL PERSPECTIVES ON IHP

66. In **Africa,** the main challenges are among others the access to safe drinking water and sanitation, recurrent water-related disasters both floods and droughts and lack of human capacity. IHP activities related to all the 6 Themes of IHP-VIII have been implemented by the different offices in Africa in partnership with national IHP committees, UNESCO chairs, centres and scientific networks and regional organizations in the region.

67. In partnership with the UNESCO Category 2 Regional Center for Integrated River Basin Management and National Water Resources Institute (NWRI) of Kaduna, Nigeria national capacities and institutional frameworks were reinforced to strengthen water governance and to address water quality and pollution in West Africa.

68. Dedicated to human capacity development in the water sector in Africa through the New Partnerships for Africa's Development (NEPAD) African Network of Centres of Excellence in Water Sciences and Technology (CoE) in addressing sustainably the lack of water professionals, the implementation of this NEPAD project will be expanded to the countries hosting the new selected NEPAD centres. These additional countries are: Kenya, Uganda, Ethiopia and Sudan in addition to the nine countries (Botswana, Burkina, Ghana, Malawi, Mozambique, Nigeria, Senegal, South Africa and Zambia).

69. Mobilization of partners and donors have been ongoing for the other regional initiatives including: the regional programme on transboundary water management in Sahel region; the programme on the review of hydrological norms in West and Central Africa and the Integrated Water Resources Management Initiative of the Southern African Development Community project (SADC-WIN).

70. The 6th IHP regional meeting of the IHP national committees and focal points in sub-saharan Africa took place from 12-13 July 2017 in Port Elizabeth, South Africa. The meeting gathered over 50 representatives (20% women) from 25 countries from Sub-Saharan Africa (Benin, Botswana, Burkina Faso, Burundi, Cabo-Verde, Chad, Côte d'Ivoire, Gambia, Ethiopia, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Senegal, South Africa, Swaziland, Togo, Uganda, Zambia and Zimbabwe). Five UNESCO Regional Offices from Africa jointly with the IHP Secretariat supported this meeting, hosted by the Department of Water and Sanitation (DWS), Government of South Africa. The regional platform provides IHP National Committees in Africa the opportunity to discuss and share the progress achieved by countries in addressing Africa's water challenges. All participating countries presented their IHP national activities. UNESCO experts presented an overview of IHP, activities implemented during the biennium 2016-17 and planning for 2018-19. The UNESCO experts informed the meeting that IHP had developed the Water Information Network System (IHP-WINS), an open source and open access platform that combines geo-localized data.

71. At this 6th African IHP meeting, Participants emphasized the importance of having UNESCO-IHP National Committees and requested UNESCO to help African Member States to establish IHP and make the existing IHP Committees fully functional, create awareness among Member States on several existing platforms under IHP to share knowledge and capacity among countries in Africa. The main results of the meeting included an agreement to establish a communication and information exchange e-platform within African Member States with a focus on knowledge sharing, resource materials dissemination, capacity development and partnerships including, among others, civil society organizations, African economic communities, higher education institutions, UNESCO institutes, sister UN agencies and other partners and a communiqué addressed to Member States and UNESCO.

72. The communiqué issued and signed by all the participants, called upon UNESCO to reinstate “Freshwater Security through IHP” as a Main Line of Action in its programming so as to retain the strategic focus on freshwater for mobilizing the necessary resources to develop the capacity of IHP especially in Africa and Small Island States for the attainment of the crucial SDG 6 and other SDGs that are reliant on achieving freshwater security. The Communiqué also addressed to the United Nations with regard to the need for success in implementing SDG 6, which currently has no single UN Agency mandate for coordination, proposed that UNESCO as the sole UN Agency for the Natural Sciences under which freshwater is a natural component, be mandated to take lead in the coordination and monitoring of this crucial SDG 6.

73. In the **Arab States,** UNESCO Cairo office (UCO) continues to implement IHP-VIII with focus on the priorities of the Arab Region. Due to continuing engagement with regional partners including the secretariat of Arab Ministerial Council on Water at the League of Arab States, UNESCO Cairo has actively engaged in the implementation of the Arab Water Security Strategy. UCO is also a member of the UN-LAS coordination group on water and has participated in the drafting of the terms of reference for the regional coordination mechanism on water, intending to support the UN regional coordination mechanism in the Arab region.

74. UCO, in cooperation with the Ministry of Regional Municipalities and Water Resources of Oman, organized the 16th Session of the regional meeting of Arab IHP national committees (Muscat, Oman, 17-18 September, 2017). The thematic focus of the session was “towards empowerment of the national committees of IHP in the Arab Region. Representatives of 15 Arab countries attended the meeting, namely Algeria, Egypt, Iraq, Jordan, Kuwait, Lebanon, United Arab Emirates, Oman, Yemen, Syria, Tunisia, Morocco, Mauritania, Palestine and Sudan. The meeting issued a resolution calling on Member States to support the establishment of national committees/focal points for IHP. The resolution also invites on the National Commission for UNESCO in the Arab Region to utilize the participation programme to support activities of national IHP committees. The participants invited the IHP Secretariat with support from UCO to extend technical and advisory support to Member States concerning the establishment of IHP Committees. The participants also presented the national water strategies and highlighted areas of intersection with IHP strategic plan in those strategies. Observers representing the Arab G-WADI network also attended the meeting and the network of water related chairs and centres in the Arab region.

75. In coordination with the IHP Secretariat, UCO has extended support to the Joint authority of the Nubian Sandstone Aquifer (Egypt, Libya, Sudan, and Chad) to organize a technical meeting on the UNESCO UNDP-GEF proposal “Enabling implementation of the Regional SAP for the rational and equitable management of the Nubian Sandstone Aquifer System (NSAS)”. The meeting was held in July 2017 in Cairo, Egypt and was attended by all members of the Joint Authority (JA), the JA secretariat and national technical experts.

76. UCO presented a proposed new vision of a major science/water diplomacy programme in the Arab region and neighbouring countries during a special session on “Science Diplomacy: Lessons Learnt and Future Prospects for Management of Shared/Transboundary Water Resources in the Arab Region”, dat the World Science Forum 2017 (7-11 November 2017, Dead Sea, Jordan). The initiative builds on previous experiences, and envisages a “developmental bottom-up science diplomacy approach” with achievement of the globally endorsed SDGs providing the overall umbrella. The panellist included the President of the Arab Council of Ministers on Water (Iraq), the Chair of the IHP Bureau of the Council and UNESCO Chair for Water Resources at the Islamic University of Um Darman, Sudan. More than 100 forum participants attended the session and deliberated over the proposed initiative.

77. In partnership with the Ministry of Regional Municipalities and Water Resources of Oman, and the Secretariat of the Arab G-WADI, UNESCO Cairo office organized the third (3rd) General Assembly of the Arab G-WADI on Sept 19, 2017 in Muscat, Oman. The main objective of the meeting was to address the activation of the Arab G-WADI network and to identify capacity building priorities for the 2nd half of IHP-VIII (2018-2021). The meeting emphasized the role of network members in supporting its activities and highlighted the importance of continuing and enhancing the cooperation with the African G-WADI as well as with the global network, It was decided to define G-WADI priorities in tandem with IHP-VIII thematic areas. In addition, the assembly requested the secretariat to prepare a workplan emphasizing not only capacity building but also knowledge and exchange of expertise and best practices. UNESCO and United Nations University co-published a book on *The water, energy, food-security nexus in the Arab Region*.

78. In **Asia and the Pacific** main regional actions include 1) Enhancing regional network for "Shared Aquifer Management for Greater Mekong Subregion (GMS)": In an effort to enhance hydrogeological information and promote regional cooperation for shared aquifer management in GMS, a regional workshop was organized in July 2017 at Cambodia with 25 participants from six countries (Cambodia, Malaysia, Lao PDR, Republic of Korea, Thailand, Vietnam). The participants shared information and best practices among Mekong countries for shared aquifer resources management and discussed how to enhance sub-regional collaboration. Consensus was made among the regional experts to establish shared aquifer monitoring network; as a result, the first monitoring well was installed in the downstream area of Mekong (Leuk Daek District of Cambodia). The households in this village collect drinking water directly from polluted surface water sources. Given the low quality of the surface water, groundwater can be considered as an alternative freshwater source. The first pumping test of the well confirmed groundwater quality and quantity. Moreover, continued monitoring of groundwater is expected to provide valuable information on the status and quality of shared groundwater in the region. Improved access to clean and safe groundwater could benefit women and girls with a particular need for improved access to clean water for hygiene, childcare, etc.

79. Sediment: Under IHP's ISI, Bangkok office jointly with the Stockholm Environment Institute (SEI) has commenced regional initiative for identifying key issues on sustainable sediment management for the Mekong River Basin. It is expected that this information will be useful to policy-makers in the region and beyond as well as external donors in better targeting their support towards sediment management efforts in the Mekong Basin.

80. In **Eastern and Central Europe,** main regional actions include the continuous cooperation with the International Sava River Basin Commission (ISRBC) involving Bosnia and Herzegovina, Croatia, Montenegro, Serbia and Slovenia. From 13 to 15 June 2017, Slovenia hosted the meeting on "Improvement of joint Actions in Flood Management in the Sava River", during which UNESCO, ISMB (I-REACT project leader) and the International Sava River Commission discussed how to join forces in the new Early Warning system for floods funded by the World Bank. The purpose was to build a transboundary-shared regime for floods and drought risks in the entire Sava area where hydraulic models, data and methods are harmonized in a common platform at the service of the riparian member states. Different opportunities of collaboration were explored, including the possibility to integrate modular solutions of I-REACT, in particular geolocalised crowdsourcing services into the Sava River flood forecasting and Warning System (Sava FFWS).

81. A joint Transboundary Training Workshop on "Governance and Technology for Flood Risk Reduction: Linking early warning to emergency management in the Sava River Basin" was held in Zagreb (Croatia) 5-7 December 2017, with the ambition to help bond early warning alerts triggered by the responsible national hydro-meteorological services and/or

water agencies as flood forecasting operators, through the Sava FFWS, with monitoring, response and flood protection actions performed by all responsible institution including the civil protection sector as emergency responders using historical flood event cases as a simulating scenarios. Expected 40 participating experts and managers.

82. In **Latin America and the Caribbean** (LAC), IHP governance in LAC strengthened at the XIIth Meeting of the National Committees and Focal Points of IHP-LAC (Nassau, Bahamas, September 2017), which adopted various decisions concerning the implementation of the programme in the region, support to disaster affected SIDS, work on water quality, and the strengthening of IHP National Committees in LAC. The meeting attracted record participation (with the presence of focal points from Aruba and Guyana, the first time in the case of the first and the first time in 20 years in the case of the latter), as well as the presence of the coordinators of the 11 IHP-LAC Working Groups, 12 directors of water-related centres and UNESCO Chairs in the region, and numerous observers.

83. Aruba's needs on water resources management and water security and sustainability were identified for the development of the UNESCO Country Strategy for Aruba following a mission carried out by the Director and Representative of the UNESCO Regional Office for Culture in June 2017.

84. Enhanced coordination and cooperation of UNESCO Water Family in LAC, through trimestral virtual meetings organized by UNESCO Montevideo with the water-related UNESCO Chairs in July and November 2016 and in February, May, June and August 2017 and with water-related Centers under the auspices of UNESCO in August and November 2016 and in February, May and August 2017. Among the different interchanges, chairs and Centers are preparing special issues of AQUA-LAC (2nd half of 2017 and 1st half of 2018) and a joint virtual course on water security. Water-related research and scientific knowledge promoted via the publishing of 3 numbers of AQUA-LAC, IHP's scientific journal, comprising a total of 25 papers. An estimate of 25 professional participated in the AQUA-LAC seminar (Port-au-Price, Haiti, August 2017), in which the special issue on Haiti was presented; the next issue is ready for release on October 2017 with 9 articles. The Executive Board of AQUA-LAC met in 2016 and decided several measures to enhance the visibility and impact of the journal; the process of indexation and DOI of the journal is advancing, with several changes implemented.

85. The IHP LAC webpages, hosted by UNESCO Montevideo were restructured and updated, including featured events, news, publications and reference materials. Contacts details of IHP National Committees and Focal Points were revised; the information on Centres and Chairs was incorporated. Over one hundred documents were uploaded to UNESDOC and made available on-line, including the reports of all previous sessions of the regional meetings of the LAC IHP national comittees (CoNaPHIs), as part of a communications strategy that also included the production of updated IHP LAC brochures and USB cards with information about the programme.

86. In **Western Europe and North America**, the "XXVIIth Conference of the Danubian Countries on Hydrological Forecasting and Hydrological Bases of Water Management" was held 26-28 September 2017, Golden Sands, Bulgaria. Continuing the tradition of cooperation of the Danube Countries under the IHP, 68 scientists in the broad field of hydrology were involved in presentations and discussions on 8 main topics: Basis of hydrology; Hydrological data management; Hydrological modelling and forecasting; Disaster events; Administrative structures for water management; River Basin and Water Management; Water quality and pollutants and Eco-hydrology. The conference brings together 187 authors from 19 countries from the Danube River Basin. In plenary session the colleagues from National Committees for IHP addressed topics that could strengthen the cooperation of Danube countries. The scientists participating at the recent XXVIIth conference have agreed to adopt a common

statement in respect on the urgent needs for further systematic and broadly integrated research in the Danube River Basin with the aim of comprehensive further water management research including climate change and anthropogenic impacts that have been emerging for the last centuries.

4.3 REPORT ON THE IMPLEMENTATION OF THE RESOLUTONS AND DECISIONS ADOPTED AT THE 22ND SESSION OF THE IHP INTERGOVERNMENTAL COUNCIL (Agenda sub-item 4.3)

Resolution XXII-1: "Proposal for a procedure to update the IHP statutes and the rules of procedure of the IHP Council"

Requests the IHP Secretariat to carry out a consultation process with all the IHP National Committees and UNESCO Member States following that the Bureau is to review the Statutes and Rules of Procedure of the IHP Council and to present proposals to the 23rd Session of the IHP Council regarding the areas of the Statutes, which should be updated to improve the functioning of the IHP Council and its Bureau;

Further requests the IHP Bureau to consult closely with their electoral groups and all IHP National Committees and Focal Points in developing their proposals so as to ensure a wide range of opinions are taken into account;

Requests the assistance of the IHP Secretariat to prepare the necessary documentation to be submitted at least three months prior to the 23rd session of the IHP Intergovernmental Council, so that the proposed revisions of the Statutes and Rules of Procedure can be discussed and decided upon at the meeting.

Asks that this process also includes an update and review of the procedures, working methods and statutes, as well as a clarification on the interpretation of the Statutes and Rules of Procedure regarding, among others: 1) whether members of the IHP Bureau are elected on personal capacity or as representatives of Member States, and 2) to propose scenarios that could ensure that all regions are represented in a specific IHP Bureau session if a Bureau member is unable to attend;

Requests the assistance of the IHP Secretariat to prepare the necessary documentation to be submitted at least three months prior to the 23rd session of the IHP Intergovernmental Council, so that the proposed revisions of the Statutes and Rules of Procedure can be discussed and decided upon at the meeting

RESULTS / ACTIONS TAKEN

87. A consultation process inviting Member States to send their consolidated comments and suggestions on how to update and improve the Statutes and Rules of Procedure of the IHP Council took place from 1 August 2016 to 31 December 2016. At the closing of the consultations, three regional responses were received from Regions I, Va and Vb. Additional

to the group response of Region I, that represents 27 countries, five individual responses from Member States were received. Similarly in Region Va (47 countries) and Vb (19 countries), one individual response per region was received. Five (5) responses were received from Group II, three (3) from Group III and four (4) from Group IV.

88. On the question on whether Bureau Members should be elected in their personal capacity or as a representatives of their country, there is a clear preference of Member States to have Bureau Members elected as a representative and not in personal capacity.

89. On examining scenarios to ensure that all regions are represented in a specific IHP Bureau session if a Bureau member is unable to attend, Member States clearly requested that the replacement should be from the same country.

90. The Secretariat synthetized the input received from the Member States along with results of the work of the open-ended working group on governance, procedures and working methods of the governing bodies of UNESCO (established by the General Conference at its 18th session as per 38 C/Resolution 101 (cf. http://unesdoc.unesco.org/images/0025/002590/259083e.pdf), preparing two documents for the Bureau's comments (cf Ref Doc), with a view to submitting them to the 23rd session of the Intergovernmental Council.

Resolution XXII-2: "Financing of the International Hydrological Programme"

Requests the IHP Secretariat to provide to the future IHP Council sessions:

i. updated versions of the IHP Implementation Matrix, based on inputs to be provided by the UNESCO Water Family

ii. a comprehensive financing plan showing how the updated IHP Implementation Matrix is financed

iii. a comprehensive overview, as in Table 1 of document IHP/IC-XXII/6, of how IHP's activities are financed from both Regular Budget and Extrabudgetary resources, including an analysis of the financial needs of underfunded themes and a fundraising proposal to accommodate those needs.

RESULTS / ACTIONS TAKEN

91. The update of the IHP Implementation Matrix is ongoing, as well as the preparation of the comprehensive financing plan, and the comprehensive overview of how IHP's activities are financed. For the current situation, please refer to the "Report of the IHP Finance Committee" (Inf. Doc 6 "Institutional developments at UNESCO", Item 3.6). The complete documents will be submitted to the 23rd Session of the IHP Council in June 2018.

Resolution XXII-3: "Implementation of the proposed IHP communication and outreach strategy"

Requests the IHP Secretariat to further strengthen the implementation of the most important outreach and communication activities, such as updating the IHP website and

i. to send, at least on a quarterly basis, an update on relevant activities of the UNESCO Water Family to its network, and

ii. to prepare, jointly with the Committee, reviewed and updated Terms of Reference for the Committee and present them to the 23rd session of IHP Council;

[…]

Requests the IHP Secretariat to consult with UNESCO Water Family in order to improve IHP's visibility, to appropriately reflect on its holistic and important role in the whole matter of water.

RESULTS / ACTIONS TAKEN

92. The Secretariat acted upon the Council's requests and continued the implementation of the Communication and Outreach Strategy as reported in IHP/BUR-LVI/x on Institutional developments at UNESCO, under sub-item 3.7.

Resolution XXII-4: "Implementation of the initiative Groundwater Governance: A global framework for action"

Requests the IHP Secretariat to support and provide technical assistance to Members States interested in using the project tools to improve their groundwater governance;

RESULTS / ACTIONS TAKEN

93. As a follow up of this Resolution, the IHP organizes regional expert meetings to identify and agree upon the process to be used for the implementation of the tools developed. The first working meeting was organized in Montevideo, Uruguay in June 2017 in partnership with the Category 2 Centre CeReGAS. Official representatives from LAC countries identified possible pilot aquifers in which the guidelines produced by the project can be applied and the preparation of a project proposal to GEF was discussed. In the Arab region, an Expert meeting held in Manama, Bahrain in October 2017 organized by the UNESCO Cairo Office in cooperation with FAO led to the preparation of a regional plan for capacity building on groundwater governance.

Resolution XXII-5: "The creation of a working group for the establishment of the Megacities Alliance for water under climate change"

Decides to establish an IHP Working Group for helping the establishment of the Megacities Alliance for water under climate change; and for proposing mechanisms to promote international synergies between megacities at the local level and Member States at the national level;

Endorses the terms of reference of the IHP Working Group included in the reference document IHP/Bur-LIII/Ref. 4

RESULTS / ACTIONS TAKEN

94. A concept note detailing the objective, agenda and budget of the Megacities Alliance project has been published (IHP/Bur-LV/Ref.4) and approved in February 2017 by the founding members of the Megacities' Alliance, allowing for complementarity with other COP initiatives, in particular for the Global Alliance for Water and Climate (GAfWAC) created during COP22 in Marrakech with the support of France and Morocco. Communication materials were developed to inform interested parties on the objectives and activities of the MAWaC, and explain the advances of joining the Megacities Alliance; a Registration Form to

apply for joining the Megacities Alliance for Water and Climate (MAWaC) was developed and is available on the MAWaC website.

95. The Secretariat sent in September 2017 nominal letters to UNESCO Permanent Delegations asking for their support in identifying technical experts to act as focal points for the Megacities Alliance. At present, four countries (France, Mexico, Nigeria, and Turkey) have designated such focal points.

Resolution XXII-6: "The monitoring and review of IHP programmes and major initiatives"

Asks the IHP Secretariat to enhance and standardise the information requested based on UNESCO's management systems, so it can be utilised in the monitoring of the Programme's implementation;

Decides to adopt the proposed approach for the evaluation of IHP's programmes and major initiatives outlined in IHP/IC-XXII/Ref.4 and requests the IHP Secretariat to prepare and commission such a review and to report the findings to the 23rd session of the IHP Council;

Requests the IHP Secretariat, based on the results of the evaluation, to propose to the 23rd session of the IHP Council, relying on a consultation process with the IHP National Committees, a new mechanism for the ongoing, routine collection and reporting of monitoring information on the outputs, impacts and governance for all IHP Programmes and major initiatives and a defined set of criteria, against which the IHP Council can periodically assess their progress and potential future road maps.

RESULTS / ACTIONS TAKEN

96. The IHP Secretariat in cooperation with the Science Sector's Executive Office and the UNESCO Internal Oversight Service (IOS) launched an international call for proposals for the evaluation of IHP's initiatives. Desk top studies for each of the initiatives have been conducted and will formulate the baseline for the future assessment work. A consultant has been identified and contracted. A draft of the evaluation is envisioned to be available for the 23rd session of the IGC of IHP.

Resolution XXII-7: "IHP support to Member States for a sound science based implementation of the Sustainable Development Goal No 6 and of water related goals

Requests the IHP Secretariat to provide support to Member States to build their institutional capacities, human resources and a sound basis in science capacity for the monitoring and implementation of SDG 6 targets and those of other water related goals;

Invites the Director-General of UNESCO to open a separate special account for IHP, designated "IHP Fund for the Implementation of SDG 6", to receive financial support to take actions at the request of the Member States for capacity building activities in support of Member States for the implementation of the SDG 6 targets and those of other water related goals, and to present its financial regulations to the 39th session of the General Conference;

Requests the IHP Secretariat to establish the draft financial regulations for the special account and to mobilize the UNESCO's Water Family to voluntarily contribute proactively to the implementation and reporting process on SDG 6 targets and those of other water related goals;

Decides to include on the agenda of the 23rd session of the IHP Council an item related to this special account.

RESULTS / ACTIONS TAKEN

97. The IHP Water Information Network System (IHP-WINS; http://ihp-wins.unesco.org) was launched in January 2017 as a tool for the implementation and monitoring of the eighth phase of the IHP (IHP-VIII), and to address the request of the IHP's 22nd Intergovernmental Council to "provide support to Member States to build their institutional capacities, human resources and a sound basis in science capacity for the monitoring and implementation of Sustainable Development Goal 6 (SDG 6) to 'ensure availability and sustainable management of water and sanitation for all' targets, and those of other water related goals".

98. The establishment of a special account was approved by the 22nd session of the General Conference and will enable IHP to receive the financial assistance it needs to meet the demands of Member States, mainly in the field of capacity development in support of Member States and the major initiatives approved under the strategic plan IHP-VIII (cf. enter the reference document of the IHP Special Account).

99. IHP has led the development of the step-by-step methodology to calculate the SDG target indicator 6.5.2. on transboundary cooperation, together with UNECE (http://www.unwater.org/publications/publications-detail/ar/c/428764/). During the first quarter of 2017, IHP and UNECE invited all countries with transboundary basins (surface water and groundwater) on their territory to report on their national value of the SDG 6.5.2 indicator. In order to enable the establishment of a global baseline for 2018, supporting activities include the realization of technical webinars, tutorials, and virtual and physical (missions) support to strengthen national monitoring and reporting capacities of Member States. (Additional information: http://www.sdg6monitoring.org/news/2017/1/11/global-implementation-of-sdg-6-monitoring-the-2017-integrated-baseline-process. IHP and UNECE are reviewing and analyzing the data contained in national reports in cooperation with Member States and will prepare a report on indicator 6.5.2.

Resolution XXII-8: "Proposals for the establishment of water-related category 2 centres under the auspices of UNESCO"

Requests the assistance of the IHP Secretariat to prepare the necessary documentation to be submitted to the governing bodies of UNESCO toward the creation of a centre in conformity with the IHP strategy for UNESCO category 2 water-related centres and the Integrated Comprehensive Strategy for Category 2 Institutes and Centres (document 37 C/18 Part I and Annexes), as approved by the 37th session of the General Conference (37 C/Resolution 93)."

RESULTS / ACTIONS TAKEN

100. On 6 December 2016, UNESCO received a revised proposal for the establishment of an International Centre on Water and Transdisciplinarity (CIRAT) in the Federative Republic of Brazil, as a Category 2 Institute under the auspices of UNESCO. On 16 November 2016, it received a second proposal for the establishment of an 'Institute for Water Education' (IHE Delft), in the Netherlands, as a Category 2 Institute under the auspices of UNESCO.

101. After a special consultation with the IHP Bureau members in December 2016, and in compliance with Article XII paragraph 28 of the Rules of Procedure of the IHP IGC on special consultation by correspondence, the IHP Council Members were invited on 15 February 2017 to review the revised proposal for CIRAT in Brazil, and for the establishment of IHE Delft in the Netherlands. The IHP Council Members responded positively to the proposals and agreed to conduct feasibility studies, in compliance with the guidelines for the creation of Category 2 Institutes and Centres under the auspices of UNESCO.

102. The feasibility study for the establishment of CIRAT in Brazil was delayed on the decision of Brazil to the end of March 2018, after the 8th World Water Forum. The two feasibility studies for the Regional Centre on Water Security (CERSHI) in Mexico and IHE Delft, in January and May 2017 respectively, confirmed the reliability of the proposalsand concluded that the centres will make relevant contributions to UNESCO and to IHP, and that their establishment would be in line with the integrated comprehensive strategy for category 2 institutes and centres.

103. Consequently, the IHP Secretariat prepared the two related feasibility study reports and submitted these documents to the governing bodies of UNESCO in fall 2017. The Executive Board of UNESCO, at its 202th Session in October 2017, and the 39th UNESCO General Conference in November 2017, approved the proposals for the establishment of CERSHI in Mexico and IHE Delft in the Netherlands, and authorized the signature of the corresponding agreements by the UNESCO Director-General.

Resolution XXII-9: "Contribution of the IHP to the preparation and follow-up of the 22nd Conference of Parties (COP 22) of the United Nations Framework Convention on Climate Change (UNFCCC) to be held in Marrakesh, Morocco, in November 2016"

Calls upon the IHP Secretariat to prepare a working document with a view to eventual submission towards the 201st session of the Executive Board of UNESCO with:

i. a strategy to raise the issue of water at the appropriate level of importance within COP 22 process;

ii. concrete proposals concerning the contribution of IHP to the implementation of decisions made at COP 21 and COP 22, as well as to the implementation of the IHP itself, in response to the needs of Member States in the coming years.

RESULTS / ACTIONS TAKEN

104. As a follow-up to Decision 30 of the 200th Executive Board of UNESCO (200 EX/Decision 30), the IHP Secretariat has prepared and submitted a document on IHP's contribution to the implementation of the outcomes of COP 21 and COP 22 (201 EX/5 Part I (D) (FR, SP, RU, AR, CH).

105. In April 2017, this document was presented by the Director-General to the 201st Executive Board of UNESCO, which acknowledged the contribution of IHP to COP 21, COP 22 and UNFCCC and invited Member States to make voluntary financial and in-kind contributions to support IHP's work on climate change and water resources management.

106. The 201st Executive Board of UNESCO requested the Director-General (201 EX/Decisions) to report on future contribution of the IHP to the Conference of Parties of

UNFCCC as part of the reporting on the implementation of the UNESCO Strategy for Action on Climate Change (2018-2021).

Actions expected from the Bureau:
To take note of the implementation of previous resolutions adopted during the last 22nd IHP Council and provide advice on the next steps, suggesting as well possible contributions from Member States.

4.4 REPORT ON THE IMPLEMENTATION OF THE DECISIONS ADOPTED AT THE 55TH SESSION OF THE IHP BUREAU (Agenda Sub-item 4.4)

Sub-item 3.1 of the Final Report of the 55th IHP Bureau (para. 10)
The Bureau took note of the institutional developments related to the Division of Water Sciences and decided to prepare and send a letter to the Director-General and the Secretariat raising its concerns about the current structure of the 39C/5 and requesting the assignment of a standalone MLA for the Water Sciences' Division allocating the same budget currently considered. The Bureau requested the Secretariat to initiate and coordinate the process of rebranding the Water activities of UNESCO under "UNESCO-Water" and develop a revitalized mission statement and presentation of concrete actions, outcomes and results and to report back at the 56th Bureau session.

RESULTS / ACTIONS TAKEN
107. A letter was sent by the Bureau to the Office of the Director General. Subsequent actions by the Permanent Delegations of the Bureau Members and other PDs, resulted in acquiring a stand alone MLA for water.

108. The Secretariat has been working on the re-branding of the Water Activities and a presentation on the option will be provided to the Bureau Members during the examination of the progress on Agenda item 3.7 on the report of the IHP Communication and Outreach Committee.

109. Sub-item 3.2 of the Final Report of the 55th session of the IHP Bureau (para. 16): The Bureau requested the Secretariat to report on the final report of the open-ended working group on the governance, procedures and working methods of the governing bodies of UNESCO at its 56th Bureau session.

RESULTS / ACTIONS TAKEN
110. A report is made under sub-item 3.2 of document 6, on Institutional Developments

Sub-item 3.3 of the Final Report of the 55th IHP Bureau (para. 19)
The Bureau requested the Secretariat to prepare a revised draft of the IHP Statutes and Rules of procedures that includes the comments from the surveys, regional consultations, including the recommendations of the open-ended working group on the governance, procedures and working methods of the governing bodies of UNESCO. The draft is to be circulated to the Bureau and presented subsequently at the 56th Bureau session.

RESULTS / ACTIONS TAKEN
111. A report is made under sub-item 4.3 of document 4, on Programme Implementation

Sub-item 3.4 of the Final Report of the 55th IHP Bureau (para. 22)

To draw attention to the challenges faced by IHP, the Bureau's Chairperson will request an appointment with the newly appointed Director-General, through the Permanent Delegations and coordinated by the Secretariat, during the 56th Bureau session. Written briefing notes of the meeting shall be prepared by the Secretariat and circulated among the Bureau members.

RESULTS / ACTIONS TAKEN

112. A written request has been sent to the ODG requesting an appointment for the Bureau's Chairperson.

Sub-item 3.5 of the Final Report of the 55th IHP Bureau (para. 31)

The Bureau will address a written request to ADG/SC and SC/AO to provide the aforementioned financial information. In order to reflect the Bureau's discussion on the under-budgeting of the IHP regular funds, the Chairperson is requested to urgently put forward to ADG/SC the issue of respecting the budget priorities. The Secretariat shall report to the next session of the Bureau the outcomes of the discussion. The Bureau requests the C2C and Chairs to disclose the financial information collected by the IHP Secretariat in a timely manner.

RESULTS / ACTIONS TAKEN

113. The Chairperson of the IHP Council sent a letter addressed to ADG/SC, requesting detailed financial information on both operational and staff budget allocated to the Water Division for 2016-2017.

114. On 27 July 2017, the Secretariat consulted all C2C and Chairs, requesting their financial information in contribution to IHP: out of 36 C2C, 10 responded, out of 48 Chairs, 7 responded.

Sub-item 3.6 of the Final Report of the 55th IHP Bureau (para. 34)

The Bureau requested that the Secretariat present an IHP Communication and Outreach Strategy to the next IHP Bureau and Council sessions in 2018.

RESULTS / ACTIONS TAKEN

115. The Communication and Outreach Strategy will be presented at the next IHP Bureau for comments and subsequently at the next Council session

Sub-item 4.2 of the Final Report of the 55th IHP Bureau (para. 45)

Considering the importance of improving groundwater governance capacity in Sub-Saharan Africa, the Vice-Chairperson of Region Va requested the Secretariat to organize during the biennium 2018-2019 a regional workshop on the topic for the experts of the Region and suggested that the Secretariat should inform and coordinate with the IHP National Committees of the Region.

RESULTS / ACTIONS TAKENs
116. A regional workshop on Groundwater Governance for Sub-Saharan Africa will be organized the second half of 2018 in coordination with the IHP National Committees of the Region, the UNESCO Regional office for Southern Africa and UNESCO Regional Office for Eastern Africa.

Sub-item 4.2 of the Final Report of the 55th IHP Bureau (para. 45)
The Bureau expressed its concern for the lack of full time dedicated Regional Hydrologists working for IHP and requested ADG/SC to remedy this situation. The Bureau will place this item on the agenda of the next IHP Council.

RESULTS / ACTIONS TAKEN
117. An agenda item will be added to the agenda of the 23rd IHP Council.

Sub-item 4.3 of the Final Report of the 55th session of the IHP Bureau (para. 50)
The Bureau decided to set up a Task Force, composed of one member per region, to prepare a publication compiling all IHP activities on Water and Climate Change. The publication should also include activities from the UNESCO Water Family and inputs from the World Water Development Reports. The Bureau suggests discussing this issue of climate change and water at the next IHP Council session. The financial support required for this publication should be borne by the Member States.

The Bureau requested the Secretariat to keep all Member States duly informed of the Bureau's decision to prepare a White Paper.

RESULTS / ACTIONS TAKEN
118. It is suggested that the Bureau Members communicate with the Member States of their region to request for expression of interest and the identification of experts. The experts then could draft their own Terms of Reference and proceed with the work.

Sub-item 4.4 of the Final Report of the 55th IHP Bureau (para. 54)
The Bureau requested the IHP Secretariat to prepare the Terms of Reference of an Advisory Board with equitably distributed regional and gender representation that would provide support and guidance to IHPWINS. The ToR will be reviewed and eventually approved electronically by the Bureau, so as to enable the Secretariat to report its progress at the next IHP Council session.

RESULTS / ACTIONS TAKEN
119. Draft ToRs have been authored and will be presented at the Bureau meeting.

Sub-item 5.2 of the Final Report of the 55th IHP Bureau (para. 67)
The Bureau requested the IHP Secretariat to proceed with a mapping process of the aims, actions to be presented at the next IHP Bureau, and contributions of the category 2 centres. In this exercise, the Bureau stressed that the example of the UK National Commission for UNESCO could be used as a guideline (two Policy Briefs in 2012 and 2015 on how to improve UNESCO's C2C network, and how to map the capacity and impact of its C2Cs).

Taking into consideration that currently, 20 out of the 36 water centres are not yet aligned with UNESCO Rules and Strategy, the Bureau requested the Secretariat to contact the concerned Permanent Delegations in order to obtain information on the internal steps necessary for the alignment of each C2C with UNESCO's requirements.

RESULTS / ACTIONS TAKEN

120. The Secretariat is currently preparing a mapping, which will be presented to the next IHP Council in 2018, after reception of the Biennial Reports by the Centres on their activities related to IHP in the period 2016-2017. As reported above, the Secretariat consulted all Centres and Chairs, requesting their financial information in contribution to IHP: out of 36 C2C, 10 responded.

121. Concerning the efforts towards the alignment of each C2C with UNESCO's requirements, the Secretariat consulted the Permanent Delegations on 18 September 2017 on the status of their unaligned water-related C2C. Amongst the 15 Permanent Delegations contacted, 7 have responded (3 provided explanations on the status of their Centre, and 4 resumed negotiations on their draft Agreement).

Sub-item 5.5 of the Final Report of the 55th IHP Bureau (para. 78)

The Bureau acknowledged the strong financial support of Italy to WWAP and noted with appreciation the policy support that WWAP provides to Member States. The Bureau invited the secondment of experts to the WWAP Secretariat and financial contributions to the WWAP multi-donor platform that is being created. The Bureau requested Member States to convey this message to their respective delegations. The Bureau requested that the IHP logo should be added to the publication on the front page. The Bureau requested the DG to communicate to the UN Water Chair the recommendation of the Bureau of the IHP Intergovernmental Council to replace every 5th edition of the Thematic WWDR with a comprehensive report evaluating the state of freshwater resources at the global level, as this would be beneficial to the international water agenda.

RESULTS / ACTIONS TAKEN

122. In line with the decision of the 55th Bureau, WWAP Secretariat will replace UNESCO logo with IHP logo in the WWDR2018 Report that will be launched in March 2018 during the World Water Forum in Brazil. The same logo will be used in the forthcoming editions of the WWDR to which IHP contributes significantly as Lead Agency.

123. Concerning the replacement of every 5th edition of the Thematic WWDR with a comprehensive report evaluating the state of freshwater resources at the global level, the decision of the Bureau coincided with the time when the second draft of the WWDR2018 (the fifth edition in annual series) was being prepared. This Report is now finalized for the launch in March 2018. Similarly, UN-Water Senior Programme Managers decided on the themes of the 2019 (Leaving no one behind) and 2020 (Water and Climate Change) of the WWDR. The WWAP Secretariat has already started the process for the 2019 Report. While there is undoubtedly demand in the water domain for a comprehensive report on freshwater resources, the current funding level is the major limiting factor for the WWAP Secretariat to attempt to produce such a volume. However, WWAP is actively participating in high profile initiatives such as COMPASS (comprehensive assessment of water resource systems) that can produce on-demand state of the art assessments, if the necessary resources are raised.

Sub-item 6.2 of the Final Report of the 55th IHP Bureau (para. 88)

The Bureau recommended that IHP also participate in this initiative [Sustainable Water Future Programme] *particularly through WINS. In response, the Vice-Chairperson of*

Region I raised the question whether WINS has sufficient resources to support additional responsibilities and proposed that a joint concept note be developed to elaborate the collaboration. The IHP Secretariat noted that it would then first explore how this collaboration could take place.

RESULTS / ACTIONS TAKEN

124. A first consultation was done through a Skype call to explore the possibilities of cooperation and information was shared. In the meantime, an improved version of WINS was publicized.

Sub-item 6.4 of the Final Report of the 55th IHP Bureau (para. 99)

The Bureau took note of the various initiatives on a proposed new global water architecture and stated that IHP stands ready to contribute to the discussions. It also urged the members of the Bureau and the Council to follow and be involved in the discussions through their delegations in New York and requested the Secretariat to enhance the visibility of IHP and facilitate the active involvement and contribution of IHP and the UNESCO Water Family to this process.

RESULTS / ACTIONS TAKEN

125. An information session to raise the awareness of Member States on the New Global Water Architecture took place on 20 September at UNESCO's HQ.

Sub-item 7.1 of the Final Report of the 55th IHP Bureau (para. 103)

The Bureau requested that the Secretariat organize a scientific workshop aimed at bringing together water experts and statisticians to discuss and analyse the SDG 6 Indicators.

RESULTS / ACTIONS TAKEN

126. It was not possible yet to organize the meeting with UNESCO's Member States to discuss the methodology of the SDG 6 indicator 6.5.2 requested by the Bureau at its 55th Session due to lack of financial resources. The meeting will be held on the second half of 2018 depending on availability of funds

Sub-item 7.2 of the Final Report of the 55th Bureau (para. 107)

The Bureau requested the Secretariat to pursue becoming a co-custodian of Target 6.a and prepare a resolution for the endorsement by the IHP IGC at its 23rd session as well as by the UNESCO Member States to support the process.

RESULTS / ACTIONS TAKEN

127. In order to become a co-custodian of Target 6.a, demonstration of having related data at hand is necessary. Thus, a first assessment on the availability of data was done in order to proceed with a gap analysis. The Secretariat is also currently conducting an online survey on "Youth employment and unemployment in the water sector" in French (www.surveymonkey.com/r/eauetemploi) and English (fr.surveymonkey.com/r/waterandjobs). Up to date 856 persons (48% female) responded to the survey from 124 countries. But the few data is available per country to make the conclusion statistically valid. This approach needs to be strengthen to get a valid baseline which will need substantial funding. As an example the IWA study on 15 countries had a cost of USD 1 million. IHP needs to make sure the funding is available before engaging is the 6.a with a new target.

Sub-item 8.2 of the Final Report of the 55th IHP Bureau (para. 110)
The Bureau took note of the progress [on the preparations for the 13th Kovacs Colloquium *and requested the Secretariat to report on the item at its 56th session.*

RESULTS / ACTIONS TAKEN
128. A report is presented in sub-item 6.2.

Sub-item 8.3 of the Final Report of the 55th session of the IHP Bureau (para. 111)
The Bureau endorsed the proposal of the Global Network of Water Museums and the use of an online registration system for IHP Council sessions. The Bureau requested the Secretariat to distribute the draft ToRs for the IHP-IX Task Force to IHP Council members, and prepare the endorsement of the WWAP toolkit for mainstreaming gender in water, prior to its 56th session and to prepare a resolution for the approval of Global Network of Water Museums by the next IHP Council session.

RESULTS / ACTIONS TAKEN
129. The ToR of the IHP-IX Task Force and a draft resolution for 23rd IGC for endorsement of WWAP toolkit for mainstreaming gender in water have been prepared for the Bureau's approval and subsequent endorsement of the IHP Council. Following the International Workshop **"Towards a Global Network of Water Museums"** held in Venice, Italy, on 2-4 May 2017 the next International Conference of Water Museums will be organized in May 2018 in the Netherlands, by the 's-Hertogenbosch Fortress and Water Museum, in close cooperation with the Dutch IHP National Committee. On this occasion, the structure and activities of the network will be discussed, and the Draft Resolution to be submitted to the next IHP council further elaborated.

Actions expected from the Bureau:
- **To communicate with the MS of their region to request for expression of interest and the identification of experts on water and climate change. The experts then could draft their own Terms of Reference and proceed with the work.**
- **To urge C2Cs in their region to align themselves and report to the Secretariat's request**
- **To follow and be involved in the discussions through their delegations in New York related to the New Global Water Architecture and raise the visibility of IHP**

4.5 REPORT ON THE IHP FLAGSHIP INITIATIVES (Agenda Sub-item 4.5)

130. In accordance with the Resolution XXII-6 "The monitoring and review of IHP programmes and major initiatives" of the 22nd Intergovernmental Council of the International Hydrological Programme (IHP) of UNESCO, the IHP Secretariat is organizing an evaluation of the 15 IHP flagship initiatives.

131. The IHP Secretariat developed the Terms of Reference (ToRs) for the evaluation of the project "Flagships Initiatives under the UNESCO International Hydrological Programme" in collaboration with the Internal Oversight Service and the Executive Office of the Natural Sciences Sector. Valuable inputs were provided by the Bureau of Financial Management.

132. An international call for tenders (SC/HYD/17/181) for the evaluation was launched on 19 July 2017. Due to the very low interest in the proposal, the call was subsequently

extended to 18 September 2017. As a result one technical proposal was received, which did not reflect a sufficient methodological approach to respond to the criteria set in the ToRs.

133. A second call for tenders was launched on 11 October 2017 setting the application deadline on 1 November 2017 and extending the timeline to reflect realistic deliverables' deadlines. Two offers were received and evaluated on 24 November 2017.

134. The evaluation team agreed to grant the Hydroconseil consultancy company the task to carry out the evaluation of the project "Flagships Initiatives under the UNESCO International Hydrological Programme".

135. An introductory meeting with the Managing Director of Hydroconseil took place on 5 December 2017 to present the 15 (fifteen) IHP flagship initiatives as well as provide feedback on the technical proposal, discuss the evaluation timeline and methodology, and further contractual arrangements.

136. Due to the current contingency plan and the freezing of an estimated 80% of the available funds for the Hydrology Division as of June 2017, it was decided to initiate the contractual agreement with the chosen consulting firm in January 2018.

4.6 UNESCO-WINS

137. To implement / operationalize IHP-WINS, UNESCO-IHP have invited Member States to appoint three focal points. Requests for appointing 3 Focal Points for WINS were sent to the IHP National committees through Member States delegations to UNESCO, and to the water-related Centers and Chairs.

138. As of November 2017, 30 Member States have expressed their support and appointed Focal Points: Andorra, Armenia, Brazil, Botswana, Burkina Faso, Cameroun, China, Djibouti, Dominica, Ecuador, Egypt, Equatorial Guinea, Honduras, Hungary, Ireland, Kuwait, Latvia, Lithuania, Malaysia, Mali, Montenegro, Namibia, Norway, Panama, Poland, Saudi Arabia, Sudan, Togo, Turkey, and Uzbekistan. Two Category 2 Centers also appointed Focal Points: the Regional Centre on Urban Water Management, in Tehran, Iran; and the Centre for Arid and Semi-arid Zones of Latin America and the Caribbean, in La Serena, Chile. Finally, two water-related Chairs also appointed Focal Points: the UNESCO Chair in Water Management, in Bangui, Central African Republic; and the UNESCO Chair/International Network of Water-Environment Centres for the Balkans on Sustainable Management on Water and Conflict Resolution, in Thessaloniki, Greece.

139. Various institutions and research centres have already demonstrated interest in the platform and agreed on sharing their data on IHP-WINS, including the Institute for Health Metrics and Evaluation, the Water Points Data Exchange, the British Geological Survey, NOAA/NESDIS/Center for Satellite Applications and Research, NASA MODIS, the International Water Association.

140. All information provided benefit from metadata in a standardized format and from a **Digital Object Identifier (DOI).** This allows for an accurate identification and crediting of any contribution, and easy later sharing. Inter-disciplinary collaboration, professional networking and mentoring is also stimulated through working groups where users can exchange and provide feedbacks on their ongoing work. This involvement and participation contribute to the building of an online community.

4.7 COOPERATION WITH OTHER UNESCO PROGRAMMES

141. The IHP-MAB joint publication “Mountain Ecosystem Services and Climate Change. A Global Overview of Potential Threats and Strategies for Adaptation” was launched in October 2017 during the Knowledge Forum on Water Security and Climate Change held in UNESCO Headquarters.

142. Networking and cooperation between IHP and MAB in both Arab region and Africa has been further enhanced during the 2nd Arab/African IHP/MAB meeting, Aghadir, Morocco (17-19 October, 2017). The UNESCO Office in Rabat organized the meeting, in cooperation with UNESCO Cairo, Islamic Educational, Scientific and Cultural Organization (ISESCO), and the Government of Morocco. The second Joint IHP-MAB meeting focused on the implementation of the recommendation of the first joint meeting (Tanger, Morocco 18-20 October, 2016) concerning the establishment Arab African Biosphere Reserve Initiative (AABRI) addressing the deployment of biosphere reserves as laboratories for monitoring climate change and SDG with water being a primary focus. The Aghadir meeting identified a framework for the initiative and developed a proposal for its governing structure.