

## **International Hydrological Programme**

58<sup>th</sup> Session of the IHP Bureau  
(Paris, 10-12 September 2019)

### **PROGRAMME IMPLEMENTATION**

Item 4 of the provisional agenda.

#### **SUMMARY**

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 UNESCO International Water Conference (May 2019)
- 4.4 Report on the implementation of the resolutions adopted at the 23<sup>rd</sup> session of the IHP Intergovernmental Council
- 4.5 Report on the implementation of the recommendations of the Technical meeting of the IHP Bureau members (16-17 January 2019) and past Bureau sessions
- 4.6 Mid-term evaluation of the eighth phase of IHP (IHP-VIII)
- 4.7 IHP Flagship Initiatives
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## IMPLEMENTATION OF IHP-VIII (Agenda sub-item 4.1)

### 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 key tools, as well as policy advice, for improved water-related disaster management. The **knowledge production** efforts resulted in series of co-publications: **Climate Risk Informed Decision Analysis (CRIDA): Water Resources Planning & Design for an Uncertain Future** co-published with the International Center for Integrated Water Resources Management (ICIWaRM); and **Andean Glacier and Water Atlas**, co-published with the Grid Arendal. Since the 23<sup>rd</sup> session of the Intergovernmental Council of the IHP, the following results have been achieved.

2. 8<sup>th</sup> Global Flow Regimes from International Experimental and Network Data (FRIEND)-Water Conference took place in November 2018 in Beijing, China. It focused on the theme of hydrological processes and water security in a changing world. More than 200 scientific papers were presented during the conference including from UNESCO Category II Centres, Chairs and IHP networks across the world covering various hydrology and water related topics. As an outcome of the conference a proceeding is planned to be published based on the submitted papers in the series of the International Association of Hydrological Sciences (IAHS). Furthermore the FRIEND associated 3<sup>rd</sup> International conference on the hydrology of Africa Large River Basins took place in Algiers in May 2018 with 230 participants (87 women and 143 men).

3. A regional LAC workshop on Citizen Science for Drought and Water Resources Management promoted community based early warning systems. It was held in September 2018 in collaboration with the Chilean Ministry of Agriculture and the C2C on Water for Arid and Semiarid Regions (CAZALAC). 25 participants (13 women and 12 men) from 10 LAC countries attended the seminar.

4. Capacity building on the Drought Atlas for pilot African Countries was organized from 22-26 October 2018 in UNESCO Headquarters, Paris. 17 participants (1 woman and 16 men) from 15 countries attended the training course.

5. The ISI International Training Workshop on "Integrated Sediment Management in River Basins" was held in Beijing, China in November, 2018. In total 26 trainees, from China, Egypt, Indonesia, Iran, Kenya, Malaysia, Mongolia, Morocco, Sudan and Uganda (12 women and 14 men) received training. Furthermore ISI Advisory Group Meeting was also held during the meeting.

6. The Andean Glacier and Water Vulnerability Atlas, and the Collaborative Risk Informed Decision Analysis (CRIDA), Latin American and Caribbean drought Atlas was launched in October 2018 with more than 60 participants from various countries.

7. Improved Flood and Drought Monitoring system has been developed for Lake Chad Basin countries (Cameroon, Central Africa Republic, Chad Niger, and Nigeria) and in Chile. A new flood and drought monitoring and forecasting system for Chile was developed with a high 0.05° (~5 km) resolution to provide advance warning of impending floods and droughts. A demonstration regional flood and drought monitoring system for the Lake Chad Basin (CHAD-FDM) have been updated developed based on the continental African Flood and Drought Monitor (AFDM). The system provided historic surface water conditions and associated flood and drought indices at 5km, daily resolution for the

period 1979-2016 using a combination of existing datasets used in the operational AFDM and newly available datasets, such as the Multi-Source Weighted-Ensemble Precipitation (MSWEP) precipitation dataset.

8. The training workshop on 'Climate Risk Informed Decision Analysis' or CRIDA was organized in Cape Town from 27 to 31 May 2019 in collaboration with various partners. The workshop engaged 47 participants (18 women and 29 men) from seven Southern African Countries (Botswana, Eswatini, Lesotho, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe).

9. The Andean Glacier and Water Atlas was compiled as part of the multidisciplinary project: "The Impact of Glacier Retreat in the Andes: International Multidisciplinary Network for Adaptation Strategies" (UNESCO-Flanders) aimed at improving understanding of vulnerabilities, opportunities and potential for adaptation to change, particularly climate change ([https://unesdoc.unesco.org/ark:/48223/pf0000265810\\_eng](https://unesdoc.unesco.org/ark:/48223/pf0000265810_eng)). The atlas was launched in Santiago de Chile, 24-25 January 2019.

10. The Latin American and the Caribbean Drought Atlas showcases a characterization of droughts and floods as a critical step to better manage them in the respective region as well as their impacts on water resources (<https://unesdoc.unesco.org/ark:/48223/pf0000265894>). This work was developed by the UNESCO Category 2 Centre CAZALAC in the framework of the UNESCO project 'Enhancing Climate Services for Improved Water Management' (ClimWaR). The atlas was launched in Santiago de Chile on 28-29 January 2019.

11. UNESCO SJO participated during the capacity training Central American and Caribbean Workshop on Subseasonal-to-Seasonal Predictability of the Mid-Summer Drought, organised in the framework of the UNESCO ClimWAR project (Guatemala, 3-7 December) and UNESCO-IHP.

12. Almost all the events are co-organized in partnership with key partners who provided valuable technical and financial support. These efficient collaborations made our different interventions highly cost-effective.

## **Theme 2: Groundwater in a changing environment**

13. The objective of Theme 2 is to contribute to water security by ensuring groundwater resources management and governance sustainability. The main results achieved in each of its five Focal areas since the 23<sup>rd</sup> IHP Council (June 2018) are set forth below, including reporting on the following initiatives: to the Groundwater Resources and Climate (GRAPHIC), Internationally Shared Aquifer Resources Management (ISARM), Managing Aquifer Recharge (MAR) and World Hydrogeological Map (WHYMAP). A close cooperation has taken place with International Groundwater Resources Assessment Centre (IGRAC, Netherlands) and the Regional Centre for Groundwater Management (CeReGAS, Uruguay).

14. ***Focal area 2.1. Enhancing sustainable groundwater resources management*** – In the framework of the "World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP) a new map on the "[Groundwater Resources of Africa](#)" was prepared in October 2018 as a special edition to be presented at the 7<sup>th</sup> African Water Week (Libreville, Gabon, November 2018).. The IHP has started the preparation of a new groundwater regional map for the Economic Community of West African States (ECOWAS) region at scale 1:5M together with the British, German and French Geological Surveys (BGS, BGR and BRGM) and IGRAC that have agreed to cooperate in a meeting organized by IHP at the UNESCO HQs

23-24 May 2019. It is foreseen to present the map at the 9th World Water Forum. A new IHP activity was initiated in June 2018 to improve capacity of the African River Basin Organizations on groundwater governance and management, through the project "Strengthening the institutional capacities of ANBO contributing to the improvement of transboundary water governance in Africa", financed by GEF-UNDP and executed in cooperation with the Senegal River Commission (OMVS). The project will organize capacity building activities to train Africa experts on the application of the UNESCO IHP-FAO principles on Groundwater Governance. In this framework the UNESCO regional office in Nairobi has organized a 'Regional Training on Integrating Groundwater Management within River Basins in Sub-Saharan Africa' in Nairobi, Kenya, from 15 to 17 January 2019 (49 experts have participated 18 of which women experts). The national institutions of Belarus, Ukraine, Lithuania and Poland agreed to cooperate on a joint project to achieve conjunctive surface and groundwater management in the Bug and Neman Transboundary River Basins. The project proposal (USD 2.7 million) was submitted to the GEF Secretariat in June 2019 for approval. To contribute to the preparation of the book "[Research Handbook on Freshwater Law and International Relations](#)" coordinated by the Chair on Hydropolitics at the University of Geneva, IHP prepared a chapter presenting evidence on how the science of hydrogeology provides the foundations for developing sound management, policy, and governance practices for groundwater resources.

15. **Focal area 2.2. Strategies for aquifers recharge** - IHP in cooperation with the International Association of Hydrogeologists (IAH) and IGRAC have established an international experts group on the Management of Aquifer Recharge (MAR) that started the preparation of a new publication to update on new MAR best practices. The Steering Committee of the MAR experts Group met for the first time at the 10<sup>th</sup> conference on Management of Aquifer recharge ISMAR10 ISMAR10 co-organized by IAH and UNESCO IHP that was hosted by the Spanish national authorities the 20-24 May 2019, in Madrid, Spain.. Within the framework of the cooperation established between IHP, IGRAC and the IAH MAR commission updates of MAR case studies are continuously made available in the [IGRAC MAR portal](#).

16. **Focal area 2.3. Adapting to the impacts of climate change on aquifer systems** - The result of the work of a UNESCO experts group in the framework of the GRAPHIC initiative was an assessment of the impact of climate variability on the total water storage across nine large aquifer basins of the African continent. The main results were published in the [Hydrogeology Journal Vol 27, issue 2](#). An exemplary cooperative effort to build capacities on groundwater and adaptation to climate change within the framework of GRAPHIC in Latin America and Africa was initiated.

17. **Focal area 2.4 Promoting groundwater quality protection** – Studies on coastal groundwater quality protections are foreseen in 5 pilot aquifers in five Mediterranean countries as component of the "MedProgramme". The MedProgramme project proposal was approved by national authorities of nine Mediterranean countries (Albania, Algeria, Bosnia and Herzegovina, Egypt, Lebanon, Libya, Montenegro, Morocco, and Tunisia) convened at UNESCO HQs Paris in 20-21 September 2018. The proposal was presented to the Global Environment Facility (GEF) for approval in June 2019. With the aim of improving attention to groundwater quality challenges and discuss innovative approaches and prepare recommendations UNESCO IHP is organizing a special session in coordination with IAH at the 10<sup>th</sup> Groundwater Quality Conference that will be held on 9-12 September 2019 in Liège, Belgium.

18. **Focal area 2.5 Promoting management of transboundary aquifers** - More than 30 Latin American and Caribbean experts (50% women and 50% men) met during a Regional Course about "Integrated Groundwater Management and Transboundary Cooperation to Achieve the SDGs" (Montevideo, Uruguay, November 2018) to work on sustainable management of groundwater in the region. The course was organized in cooperation with the Regional Centre for Groundwater Management in Latin America and the Caribbean (Uruguay) and the UNESCO Chair on "Water and Education for Sustainable Development" (Argentina) and with support of the Spanish Agency for International Development Cooperation. In order to promote cooperation for the management of transboundary aquifers, a booklet was prepared (available in [English](#), [French](#) and [Spanish](#)) presenting the successful experience of 40 years of cooperation on the Genevese Aquifer, shared by France and Switzerland.

19. Under the coordination of the IHP secretariat, Albania, Bosnia-Herzegovina, Croatia and Montenegro, having agreed to implement the strategic action plan for the Dinaric Karst Aquifer System (DIKTAS), approved the document of a 5-year project at a meeting organized in 4-6 April 2019, in Sarajevo, Bosnia-Herzegovina. The project proposal, with a 5.1 million USD budget was submitted to the GEF Secretariat in June 2019. The IHP as the co-executing agency in cooperation with the Observatory of Sahara and Sahel has initiated the preparation of the activities for the implementation of the project aiming at "Improving IWRM, Knowledge-based Management and Governance of the Niger Basin and the Lullemeden-Taoudeni/Tanezrouft Aquifer System (NB-ITTAS)" financed by GEF/UNDP with whom UNESCO IHP has signed a letter of agreement the 24 April 2019. As recommended by the Chair of the UNESCO IHP Council in order to follow-up with the considerations of roundtable on transboundary collaboration on the Senegalese-Mauritanian Aquifer" organized in February 2019 in Geneva, Switzerland, the UNESCO-IHP is providing technical support in the preparation of a project proposal for the study and the management of the Senegalo-Mauritanian Aquifer.

20. Within the framework of the phase two of the project "Governance of Transboundary Groundwater Resources in Transboundary Aquifers (GGRETA) financed by the Swiss Development Cooperation Agency (SDC) the UNESCO-IHP has cooperated with several universities (Oregon State University, University of Strathclyde, German-Kazakh University, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers) to organize training courses on transboundary waters governance including components on international and domestic water law and hydrodiplomacy for Central Asian countries. In this context it has been started the translation in Spanish and Russian of the English version of the training manual [http://old.unesco.kz/files/102\\_GGRETA%20Hydrodiplomacy%20manual.pdf](http://old.unesco.kz/files/102_GGRETA%20Hydrodiplomacy%20manual.pdf).

21. Jointly organized by the UNESCO Jakarta, Bangkok and Hanoi Offices the *Validation Workshop for the finalization of the UNESCO proposal "Groundwater resources in the Greater Mekong Subregion: Collaborative management to increase resilience"* took place in March 2019 in Hanoi, Vietnam. The workshop reviewed the ongoing efforts towards the finalization of the proposal in preparation for the proposal's re-submission to the Adaptation Fund. With participation from representatives of the Adaptation Fund Designated Authority in each of the five participating countries – Cambodia, Lao PDR, Myanmar, Thailand and Vietnam - the workshop served both as an opportunity to brief country representatives on the latest developments in terms of the finalization of the proposal, as well as an opportunity to collect and reflect recommendations, suggestions and comments from each delegation.

22. **Conclusion and way forward:** In the current reporting period, UNESCO-IHP has continued assisting Member States in fostering their cooperation for the management of transboundary aquifers and shared water resources systems, increased the groundwater related portfolio of extrabudgetary projects, set up a close partnership with two main Donors the Swiss Cooperation Agency and the GEF (GEF/UNDP and GEF/UNEP) and enlarged its

intervention in all regions. One of the main achievements is the operationalization of the cooperative mechanism for the management and governance of the Stampriet Aquifer. This is the first example in Southern Africa of a multi-countries coordination mechanism nested in a River Basin Commission. The mapping and assessment of groundwater in Africa has been improved. Looking ahead, IHP will continue its work in strengthening local capacities on groundwater governance, national and international water law, hydrodiplomacy and gender aspects through tailored capacity-building modules, collecting data, expanding inventories and assessing global groundwater resources as well as continuing to support countries in the establishment of cooperation mechanisms for the governance of transboundary aquifers. During the reporting period, under Theme 2 more than 400 experts were trained out of which focus was given to youth (120 young experts) and women (150 women).

### **Theme 3: Addressing water scarcity and quality**

23. Water security in arid-semi-arid regions is a challenge; food production relies on irrigation and the competition for water among different sectors is high. To strengthen the capacity to manage water resources in arid and semi-arid areas, IHP works with MS to develop methodologies, guidelines and policy advices to enhance the management of water resources in water stressed regions towards the achievement of water-related SDGs and other water related international agendas including the Sendai framework and Paris agreement.

24. UNESCO in collaboration with the Regional Centre on Urban Water Management (RCUWM) under auspices of UNESCO, Khorasan Razavi Regional Water Authority and Ferdowsi University of Mashhad organized the 8th Asian G-WADI meeting and the 2nd International Drought Initiative (IDI) expert group meeting in Mashhad in December 2018. Over 25 experts from the Asian G-WADI network and the International Drought Initiative (IDI) shared their knowledge and experience in adaptation to water scarcity and new advances in drought management. The three-day event brought together around 200 participants (66 women and 134 men) from Iran as well as other countries of the world such as Afghanistan, China, France, India, Mongolia, Oman, Thailand, Slovenia, Uzbekistan and Vietnam.

25. A regional workshop held in Jan 2018 in Harare, Zimbabwe, involving 72 experts (19 women and 53 men) from Botswana, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe provided a platform to discuss the needs assessment on Climate Services for Improved Water Resources Management in Vulnerable Regions in Southern Africa.

26. UNESCO IHP, G-WADI Secretariat in cooperation with Khartoum Office and UNESCO Centre for Water Harvesting organized a G-Wadi Advisory Group Meeting and the International Seminar on “Water Harvesting Techniques - Towards Effective Adaptation Strategies” was organized in September, in Khartoum, Sudan. The seminar brought together more than 62 participants across the world (12 women and 50 men). The activity promoted global cooperation, knowledge transfer and exchange, and contributed to expanding Water Harvesting networking.

27. A position paper on IHP and water diplomacy, prepared in April 2018, assess IHP’s past, ongoing and current work on water diplomacy and examine its strengths, weaknesses and opportunities for future work in this area. Key feedback and refinement on the position paper on IHP was provided by a meeting of experts on water diplomacy convened in April. The meeting was attended by 9 external experts (5 women and 4 men), including representatives from 2 C2Cs: IHE Delft, the Stockholm International Water Institute (SIWI) and 1 UNESCO Chair in Hydropolitics. The outputs of the meeting were consolidated into the updated position paper and timeline of events prepared to draft a strategy prepared.

28. At AWW7, UNESCO-IHP also convened a session on Integrating Gender Equality and Female Empowerment in IWRM as a Strategy to Achieving Water Security to highlight UNESCO's work globally in this area. The event, was attended by 40 participants (20 women and 20 men), and included as panelists, representatives from the Ivory Coast-based UNESCO Chair in Water Women and Decision-making, the IHP National Committee for Gabon, and WWAP.

29. UNESCO co-organised a workshop on Water Cooperation and Diplomacy in the Nile Basin: "Towards Cooperative Water Management; Legal and Developmental Approaches" with the National Water Research Centre of Sudan and IHE Delft Institute for Water Education in Khartoum, Sudan, in January 2019. The training raised awareness and scientific understanding of the importance and benefits of water cooperation, networking and exchange of experiences in transboundary water resource management in the Nile Basin. The training brought together more than 61 participants (17 women and 44 men) from several Nile Basin countries, including Sudan, South Sudan, Tanzania, Kenya, Uganda, Egypt and Ethiopia, as well as international students from Germany and Brazil.

30. 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, through IHP's International Initiative on Water Quality (IIWQ), to improve water quality and wastewater management, including safe water reuse for agricultural, industrial and municipal uses, by strengthening knowledge and capacity on technical and policy approaches.

31. In the framework of the implementation of **Focal Area 3.4** "Addressing water quality and pollution issues within an IWRM framework – Improving legal, policy, institutional, and human capacity", the International Initiative on Water Quality promoted innovative approaches to water quality monitoring through the satellite Earth Observation-based UNESCO World Water Quality Portal, to support science-based informed policy development. It provides monitoring data on five water quality indicators: turbidity and sedimentation distribution, chlorophyll-a, Harmful Algal Blooms (HAB), organic absorption and surface temperature in seven river basins in five regions. The Portal is an innovative tool to help Member States manage water resources sustainably and support the SDGs implementation and monitoring.

32. Best practices on nature-based solutions to water quality were promoted through training and knowledge dissemination activities. The UNESCO and UN Environmental Programme co-led Chapter "Nature-based solutions to managing water quality" of the World Water Development Report 2018 "Nature-based solutions to water".

33. Capacity building of youth on water quality was enhanced by training 22 young environmental specialists and leaders (11 women and 11 men), from 20 developing countries and emerging economies at the International Course on "Nature-Based Water Resource Management: Quantity, Quality and Health", organized by IHP's International Initiative on Water Quality in collaboration with the TU Dresden - Centre for International Postgraduate Studies of Environmental Management in Dresden, Germany, from 30 August to 26 September 2018. The IIWQ led the course's component on Water Quality (13-14 September).

34. Science-policy dialogues on water quality and water reuse were promoted by the IIWQ-led the Action Panel on “Water Quality and Ecosystems” of the High-level International Conference on UN International Decade for Action “Water for Sustainable Development” 2018-2028, held in Dushanbe, Tajikistan, from 19-22 June 2018. The IIWQ also contributed to Conference’s Action Panel on “Water, Food, Energy and Environment Nexus” with best practices on water reuse.

35. The Asia and the Pacific Training Workshop on Water Quality and Emerging Pollutants was organized by the UNESCO-IHP International Initiative on Water Quality (IIWQ), UNESCO Jakarta, the APCE (Asia Pacific Centre for Ecohydrology) Category 2 Centre in Jakarta, Indonesia, in November 2018. Comprising lectures, interactive sessions and field activity, the event brought together 41 expert participants (19 women) from 15 countries across the region and beyond, raising regional capacity in addressing emerging pollutants in the region and establishing a regional technical water quality network.

36. The implementation of **Focal Area 3.5** “Promoting innovative tools for safety of water supplies and controlling pollution” contributed to the capacity development of water professionals, researchers and policy makers through a series of thematic and regional training workshops on emerging pollutants and water reuse both in the framework of regular budget activities and the UNESO extrabudgetary project on Emerging Pollutants in Wastewater Reuse in Developing countries.

37. In total, over 300 water professional and policy makers from 67 developing countries in four regions were trained on addressing emerging pollutants by the UNESCO-IHP IIWQ Regional Training Workshops on Emerging Pollutants and Water Quality: Sub-Saharan Africa - 68 participants (20 women and 48 men) from 27 countries; Arab States - 35 participants (18 women and 17 men) from 14 countries; Asia and the Pacific - 55 participants (24 women and 31 men) from 13 countries; and Latin America and the Caribbean - 145 participants, including 27 professionals, researchers and policy makers and 118 students/young professionals, from 13 countries.

38. Based on the results and recommendations of the joint UNESCO and HELCOM assessment on pharmaceuticals in the aquatic environment in the Baltic Sea region, the HELCOM Ministerial Meeting adopted in 2018 a new indicator (diclofenac) for monitoring emerging pollutants in freshwater and marine environments of the Baltic Sea region. The assessment was one of the 16 IIWQ case studies on emerging pollutants and showcases the added value of the IIWQ’s work in the development of a concrete policy Member States.

39. The knowledge base and research capabilities on emerging pollutants was strengthened by disseminating the findings of the UNESCO case studies to both researchers and water professionals through major international scientific conferences and workshops. The UNESCO case study findings were presented at the 2<sup>nd</sup> Water JPI Conference "Emerging pollutants in freshwater ecosystems". The IIWQ co-organized the International Workshop “Assessment and Management of Indirect Potable Reuse”, jointly with the EU Water-JPI FRAME project, the International Centre on Water Resources and Global Change (Category 2 Centre) and the Federal Institute for Hydrology of Germany, in Koblenz, Germany, from 6-8 March 2018.

40. The implementation of the theme will continue with focus on the key topics related to water quality: promoting innovative tools to water quality monitoring such as the use of satellite EO data; strengthening the knowledge base and research capabilities on emerging pollutants; facilitating science-policy dialogues on water quality and climate change; disseminating best practices on safe water reuse and nature-based solutions to water quality management

#### Theme 4: Water and human settlements of the future

41. The **knowledge production** efforts resulted in co-publishing with the International Water Security and Sustainable Management (iWSSM) Centre in the Republic of Korea, the first Volume of the **Global Water Security Issues** and with the Regional Centre on Urban Water Management RCUWM at the Islamic Republic of Iran, on **Urban Water Management in Arid Zones**.

42. The work on **Focal Area 4.1- Game changing approaches and technologies** was initiated via the launching the Water Security and Climate Change project financed by the Republic of Korea to support the country achieving SDG 6. A planning session was co-organized successfully with the Ministry of Water and Sanitation of the Kenyan Government and it brought together 21 experts (6 women and 15 men). Nairobi was identified as the city for intervention and the adaptation strategies to be focused will be in identifying the potential of groundwater as an alternate and / or complementary source of water for the city as well as the possibility of wastewater reuse via Managed Aquifer Recharge.

43. **Focal area 4.2 System-wide changes for integrated management approaches:** After receiving written expressions of interest at Ministerial level, UNESCO-IHP organized two meetings in Paris (November 2018 and April 2019) with officials and key actors from Egypt, Israel, Jordan, Lebanon, and Palestine to promote coastal ecosystems preservation and monitoring measures for alleviating public health risks and environmental hazards due to the spilling of untreated wastewater along the East Mediterranean Coast, ECOMED. The meetings decided to pursue one technical meeting to co-design transboundary nature projects that could be pursued in December 2019 and a donors conference immediately after, in early 2020. The meetings had 25 participants (5 women and 5 men).

44. A session on Smart Water Management systems was co-organized successfully at the 7<sup>th</sup> African Water Week in Libreville, Gabon (October 2018) with the Korean Category 2 Centre on Water Security and Sustainable Management (iWSSM) and it attracted 40 experts (4 women and 36 men). Smart water management systems were presented as a tool to reach water security and their application in Early Warning Systems, Water Services provision, both quantity and quality as well as for agriculture. The session also provided an opportunity to showcase the expertise of UNESCO and to bring higher visibility to the Centre.

45. 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. Data have been received and entered into IHP-WINS to this extent and cooperation is being sought with IAWD, the International Association of Water Supply Companies in the Danube River Catchment Area

46. Within the framework of activities that **Focal area 4.3 Institution and leadership for beneficitation and integration Opportunities in emerging cities**, a project concept note for "**UNESCO Certification on Water**" (see reference document IHP/Bur-LVIII/3) has been developed and presented with the participation of K-water, a Republic of Korea public utility as a technical advisor. Seoul and Daegu have been identified as the first ever cities to pilot the project and calibrate the framework prior to launching it officially. The purpose of the project is to contribute to **Member States** (MS) efforts in achieving their target of SDG6 by **eliminating the vague distrust** of citizens and tourists alike on tap water by certifying through appropriate tools and via a process of evaluation, and to **provide a platform for**

**balanced improvement** among member cities by sharing best practices and trouble-shooting cases. Cities receiving the certification will have to twin with another city of a **developing MS** and **support its capacity** to also achieve certification. Furthermore, the project will contribute in the **elimination of plastic waste and its disposal** to the oceans.

47. Due to time limitations, the Intergovernmental Council of IHP at its 23<sup>rd</sup> session was not able to request to the Secretariat to set up a working group (WG) and its terms of reference to pursue this proposal of a new UNESCO label. It is thus presented to the IHP Bureau at its 58<sup>th</sup> session in order to pursue the pilot and receive approval on the ToRs of the Working Group (see reference document IHP/Bur-LVIII/4), as well as representatives of the regions/Council. It is envisaged that the results will be able to be presented at the 24<sup>th</sup> Council session for its approval.

48. Invited at the International Forum for SDG 6: "Sustainable Urban Water and Sanitation: Public goods in the service of Society", organized by UNESCO's C2C on Integrated and Multi-Disciplinary Water Resources Management Centre, UNESCO-IHP was able to sensitize more than 243 experts (107 women and 103 men) on SDG 6 and its current implementation at the Balkan Region and compare it to the one in Europe and the World.

49. The Secretariat presented on the "Views of Water Education and Related Issues in UNESCO," at the 6<sup>th</sup> Annual Seminar of the UNESCO Chair in Sustainable Water Services on "Resilience in Water Services" that took place at Tampere University of Technology, in June 2018. 70 people attended, of which 30 women.

50. With multiple partners including the i-WSSM (International Center for Water Security and Sustainable Management) - a Category 2 Centre, UNESCO Jakarta organized a series of regional and global technical discussions and public events during the Korea International Water Week (KIWW), the 45th Congress of the International Association of Hydrogeologists, and the Board of Council meeting of the Asia Water Council Korea in the Republic of Korea during September 2018. UNESCO Office Jakarta noted with satisfaction the contributions made by the i-WSSM towards the Asia Water Council's (AWC) engagement in joint work in the region.

51. Within the framework of activities that **Focal area 4.4 Opportunities in emerging cities in developing countries sets**, and within the framework of establishing a **Megacities Alliance for Water and Climate**, a number of raising awareness sessions have taken place (WWW 2018, COP 24, etc.) in International fora. In the meantime, the Working Group formulated by Resolution XXII-5 of the Council has provided feedback on the proposed International Cooperation Platform, to facilitate the dialogue on adapting to or mitigating the effects of climate change related to water. New templates for reviewing or drafting new Megacities' water monographies have been developed and will be pursued to publish a new version of the Megacities, Water and Climate Change book in 2020.

52. The regionalization of the Alliance started with a raising awareness session at the WATERLINKS Forum in Manila, Philippines (September 2018). UNESCO and the Alliance received very good visibility and there is potential for active participation to MAWAC by Dhaka and for cooperation with ADB on Calcutta. The session was attended by 136 experts (42 women and 94 men). More than 100 representatives (38 women and 62 men), from Latin American megacities (Bogotá, Buenos Aires, Mexico City, Rio de Janeiro, São Paulo, Lima and Santiago), from water and sanitation operators, and from the academia gathered in São Paulo, Brazil (May 2019) to address issues and solutions related to water management in the face of climate change, as well as to discuss about the establishment of a regional chapter of the Megacities Alliance for Water and Climate (MAWAC). Terms of Reference were also discussed and approved in principle.

53. UNESCO supports the Government of Gabon in the framework of the Project entitled “PIAEPAL” (Projet Intégré d’Alimentation en Eau Potable et Assainissement de Libreville) funded by the AfDB through capacity building of actors in water management and knowledge generation.

54. The implementation of activities within **Focal Area 4.5 – Integrated development in rural human settlement** was initiated with the launching of the Water Security for Turkana, Kenya project, financed by the Republic of Slovakia. The project focuses on maintaining the water provision services in remote populations of the Turkana region, who lead a nomadic life and rely on groundwater resources for their needs.

55. Overall, under theme 4 of IHP-VIII there were knowledge exchange sessions supported benefiting more than 635 people (237 women and 398 men), in at least 30 countries. A number of baselines are being pursued in order to be able to monitor at outcome level the results of our activities. Following up on the demand of Member States, a number of projects on water security and climate change are being implemented, focusing on Africa as one of the two priorities of the Organization. Knowledge production and exchange is being done via the publication of books and journals.

#### **Theme 5: Ecohydrology, engineering harmony for a sustainable world**

56. 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. With the inclusion of new Ecohydrology demonstration sites in Indonesia (Sagulin, 2017), Ecuador (Paltas, 2018) and France (Lyon, 2018), best practices and solutions are currently applied in 23 sites (ecohydrology-ihp.org/demosites) in 18 countries around the globe, which form the growing Ecohydrology Demonstration Sites IHP Network. The activities carried out since the 23rd IHP Council (June 2018) addressed the issue of disseminating the ecohydrological concept in Member States, with particular reference to Africa, among other regions, through conferences, workshops, dedicated training courses and participation of the Water Family in international events. The programme benefits of a Scientific Advisory Committee, composed of representatives of Category 2 Centres under the auspices of UNESCO (C2C) and water-related UNESCO Chairs, namely the European Regional Centre for Ecohydrology (ERCE, Poland), the International Centre for Coastal Ecohydrology (ICCE, Portugal), the African Regional Centre for Ecohydrology (ARCE, Ethiopia) the Asia Pacific Centre for Ecohydrology (APCE, Indonesia), the IHE-Delft Chair in Ecohydrology, the Netherlands, the UNESCO Water Chair in Ecohydrology and Hydroinformatics, China, the UNESCO Water Chair in Ecohydrology Water Ecosystem for Societies, in Portugal and the UNESCO Water Chair in Ecohydrology and applied Ecology in Poland. Examples of the activities carried out worldwide follow.

57. The International Symposium of Ecohydrology and Water Security (ISEWS), October 2018, was organised in Xi’an, China, together with the Chinese Academy of Sciences, Northwest University in Xi’an and IHP. The symposium served as an international forum, inviting researchers in the areas of ecohydrology and emerging water research, with a focus on interactions among water and ecosystems, water resources, and water security. In particular, the related new opportunities and challenges from developing countries were discussed together with representatives, policymakers, and stakeholders. It was attended by 142 participants (42 women and 100 men) from 18 countries.

58. Participation at the the “Great Rivers forum- high quality development for a sustainable world”, October 2018 in Wuhan, China and at the Global UNESCO FRIEND network meeting in Beijing in November, where a dedicated Ecohydrology session and

workshop were organized, gave dissemination opportunities for the EH IHP Programme to be linked to other existing network.

59. IHP Co-organized a session on, 'Ecohydrology for the mitigation of Climate Change effects on water-related ecosystems - Youth Perspective' during the Conference of Youth (COY) - Global COY 14 in November 2018. The main objective was to sensitize youth about Ecohydrology and promote its solutions, which contribute to achieving water security and addressing CC. The session looked at the research efforts of young scientists and researchers in Ecohydrology. 27 participants (16 women and 11 men) from Kenya, Indonesia, Hungary and Italy attended.

60. National capacities were strengthened at the Seminar-Workshop on Environmental Flows: input for the sustainability of the provision of ecosystem services (Bogotá, Colombia, 18-21 March 2019) focused on concepts, methodologies and application of the environmental flow and the integration of the ecohydrological approach as a tool for management of water resources for decision making and the sustainability of ecosystems. The workshop was organized with the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) and the Ministry of Environment and Sustainable Development (MADS) of Colombia. The audience was composed by 105 participants (48 women).

61. The translation of the Book "Practical Experiments Guide for Ecohydrology" (by Prof. Chicharo et al.) from English to Mongolian has paved the way to the development of Ecohydrology in Mongolia. The Mongolian National Commission for UNESCO, in collaboration with the Ministry of Environment and Tourism and the Administration office of the Khuvsgul Lake – and UNESCO Office Beijing - are planning an international IHP-MAB workshop at Khuvsgul Lake, to be focused on both the IHP-Ecohydrology approach and the MAB Biosphere Reserve concepts. International and national experts will explore how - within the proposed Biosphere Reserve scheme of zonation and functions - an Ecohydrology demonstration site and project could be developed for the Lake Khuvsgul (BEJ).

62. Seven training courses were organized between August 2018 and April 2019 on Ecohydrology, Coastal Ecohydrology and Economic Value of Ecosystem Services in Indonesia, Dominican Republic, China, Brazil (2), Colombia and Tanzania, by UNESCO Offices in Jakarta, Montevideo, Nairobi and Paris together with the Ecohydrology C2Cs and chairs of the UNESCO Water Family.

63. UNESCO SJO celebrated the World Water Day in 2018 and 2019 jointly with the launch of the World Water Development Report. The topics were Nature-Based Solutions for Water in 2018 and Leaving no One Behind in 2019. The Ministry of Environment and Energy organised the event in collaboration with UNESCO SJO, the Regional Committee of Hydraulic Resources- SICA and the CONAPHI institutions in Costa Rica (CONAHyME). The Federated College of Engineers and Architects of Costa Rica provided the facilities in 2018. The Engineering Faculty of the University of Costa Rica hosted the event in 2019.

64. In the biennium 2018-2019, UNESCO SJO continues to support a regional dialogue to advance the concept and legal consideration of environmental flows. In this context, 4 national seminars have been agreed and organised in 2018 in Costa Rica, El Salvador, Honduras and Panama. This work is jointly undertaken with CONAPHI focal point in the cluster countries, building on previous efforts developed in 2015 and 2017 environmental flows regional seminars. Capacity training was provided to some 250 people, of which approximately 50 % were women.

65. Conclusion and way forward: Overall, 756 participants (320 women attended the events from July 2018 to April 2019. 225 participants (112 women and 113 men) were

trained in Ecohydrology, Coastal Ecohydrology and Economic Value of Ecosystem Services. The brochure “Ecohydrology as an integrative science from molecular to basin scale”, is available in English, Spanish and Chinese. The Ecohydrology Web Platform [www.ecohydrology-ihp.org](http://www.ecohydrology-ihp.org), contains a “Demosite Card” for each of the 23 sites, a harmonized/normalized and simplified visualization of the main characteristics, achievements and results obtained by each site, presented on a single page. As of April 2019, over 8,400 demosite cards were downloaded from the web platform. The International Society for Ecohydrology (ISEH) was established and formally set as a Non-Profit Private association, under the Portuguese law ([www.facebook.com/IntSocEH](https://www.facebook.com/IntSocEH)). Results of reaching of publications in the ISEH Facebook, as middle of May 2019 amount to 3,255 visualizations of page.

## **Theme 6: Water education, key for Water Security**

66. 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 try to focus 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.

67. Twenty-nine South Asian water professionals from Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka, were trained at a two-day Workshop on “Water Security, IWRM, and Climate Change”, held in Roorkee, India, from 15 to 16 November 2018. The workshop provided professionals better understanding of the regional water security issues and science behind water security, integrated water resource management (IWRM), and increased attention on adaptation to climate change. The event, organized by the National Institute of Hydrology (NIH) and UNESCO New Delhi Office, attempted to introduce new approaches, technologies and tools for water security assessment at different scales and discussed comprehensive water resource policies and strategies, in view of changing environment scenarios. It also brought into focus the upcoming issues and agenda for UNESCO’s International Hydrological Programme (IHP), which recognizes Water Security as a key challenge for the 21<sup>st</sup> Century.

68. During the High Level Political Forum in New York (July 2018), UNESCO-IHP, the “Children and Youth”, the Water Youth Network, UN-Water and World Youth Parliament for Water organized a side event “Ensuring Intergenerational Policy dialogues for the achievement of SDG 6”. The event aimed at facilitating intergenerational dialogue between youth and decision makers and followed up to the WWF declaration of the youth forum. There were about 30 participants of which 50% women.

69. The session, “Promoting Youth Engagement in Water Governance through Youth-Led Research and Innovation” which was co-conveyed by UNESCO-IHP and the International Science Council (ISC) Regional Office for Africa (ROA) was held on 30 October, 2018, during the 7th Africa Water Week Conference. Eight young researchers and innovators from the Africa Region participated in the event as speakers. The participation of these eight young water professionals was made possible through the financial support from the UN-Water, the World Water Council, the International Secretariat of Water, UNESCO and ISC ROA. Additionally, the Government of the Gabon, at the request of UNESCO, sponsored the participation of four Gabonese youths who attended the Africa Water Week and participated in the session. The session provided a platform for the young researchers and innovators to present youth-led research and innovation with special focus on improving

the good governance of water in Africa. Fifty three people (30 males and 23 females) attended the session including high level participants of the week. The main recommendations of the session were adopted as the Youth Declaration of the 7th Africa Water Week, and were presented by one of the moderators during the closing ceremony of the Conference. The declaration calls for the strengthening of water education in Africa, improved representation and participation of youth in decision making processes in the water sector and increased support for the use of youth-led research and innovation products in the governance of the water sector. The speakers of the session also visited a high school in Libreville and spoke about the advantages of pursuing a career in the water sector.

70. At the Global Climate Action Events at COP24 Action Hub, December 2018, IHP organized a session on Youth-led efforts and Water, which showcased the different research and innovative youth-led action that addresses water related Climate Change challenges. About 58 experts attended (26 women and 32 men). IHP also co-organized with the Office of the President's Special Envoy for Climate Change a session on Youth-Led Research and Innovation that provide solutions for Water Related Climate Change Challenges, at the Indonesian Pavilion. The objective of the session was to explore the efforts of young innovators and researchers to address current and emerging global water related climate change challenges. The session also looked at the opportunities available to youth for meaningful engagement in climate change negotiations including youth from indigenous communities. The UNESCO Jakarta Office supported the organization of this event. 35 persons attended the event (25 women and 10 men). Around 300 participants (150 women and 150 men) attended the three youth related events at the COP 24.

## **REGIONAL PERSPECTIVES ON IHP (Agenda sub-item 4.2)**

### **In Western Europe and North America**

71. IHP co-convened a session on Human Climate Water Nexus, Climate Change and Water Security during the 8th GEWEX Open Science Conference: "Extremes and Water on the Edge" held in May 2018 in Alberta, Canada. The conference provided the platform for 360 scientists from over 40 countries to showcase issues ranging from mountain and high latitude hydrology to atmospheric and land modelling and observations.

72. The 2018 World Water Week was held in Stockholm, Sweden, from 26 to 31 August 2018. The UNESCO-IHP IIWQ organized three technical and showcase sessions on water quality and emerging pollutants:

- Technical session "Microplastics in freshwater environments" (27 August 2018), with the participation of six experts and attended by 89 participants (42 women and 47 men);
- Showcase session "Monitoring water quality using EO: UNESCO World Water Quality Portal" (28 August), with the participation of experts from ESA, CNES/INBO and GEOSS, and attended by 50 participants (23 women and 27 men);
- Session "Achieving water-related SDGs: Managing emerging pollutants" (29 August), attended by over 30 participants and livestreamed online.

In addition, the IIWQ contributed to the showcase session "UN World Water Development Report 2018: Nature-based solutions for water", organized by UN-Water, and the thematic session "The source-to-sea balancing act: Development needs and ecosystem preservation", organized by SIWI.

73. The 2018 High-level Political Forum (HLPF), 9-18 July 2018 at UN headquarters in NY attracted more than 125 Heads and Deputy Heads of State and Government, Ministers,

Vice-Ministers and other Ministerial level officials, and over two thousand representatives from governments, UN system and other organizations, civil society. UNESCO-IHP raised awareness of high level policy makers, by highlighting the role of various elements including education, human capacity, science technology and innovation as well as hydrological services in building sustainable societies. UNESCO-IHP contributed to the review of SDGs, in particular Goals 6, 7, 11, and 5 by organizing the side-event “Hydrology towards Sustainable Resilient Societies”. Furthermore, IHP also contributed to the high-level policy dialogue on “Ensuring International Policy Dialogues for achieving SDG-6”.

### **In Eastern and Central Europe**

74. IHP organized a side event during the United Nations Climate Change Conference (Conference of Parties, COP-24) in Poland, December 2018, to disseminate lessons learned and to build upon best-practices facilitating climate adaptation; A lecture on “Decision-making under uncertainty for water resources management” was given as part of the Climate Classroom event organized at COP24. The lecture highlighted CRIDA case studies and other citizen sciences approaches which advocate to move away from the ‘one size fits all’ approach, and to pursue locally embedded solutions to the specific threats of water insecurity due to climate and other global changes. Two publications: the project “Climate Risk Informed Decision Analysis (CRIDA)” and Andean Glacier and Water Atlas were presented during the side event

75.

76. The newly established UNESCO Category II Centre for Integrated and Interdisciplinary Water Resources Management (CIIWRM) of Aristotle University of Thessaloniki (AUTH) organized on 21-23 March 2019 a conference to examine how the South East Europe and Mediterranean region is implementing SDG 6. The event was organized in cooperation with the Greek National Commission for UNESCO and the Greek Ministry of Environment and Energy, as well as UNESCO’s Regional Bureau for Science and Culture in Europe and IHP Paris. Participants exchanged on best practices and experiences and discussed key challenges for the region to successfully achieve SDG 6. The event, which also brought together key UNESCO water related C2Cs and Chairs from the region, gave UNESCO an opportunity to display the strength of the UNESCO water family in the region to other national and international participants. The event was multi-sectoral as numerous water companies and local political authorities participated in the meeting, in addition to academic partners, UN system agencies and national authorities.

77. On 29 March 2019, the UNESCO Regional Bureau for Science and Culture in Europe in cooperation with UNESCO’s World Water Assessment Programme (WWAP) and other partners organized a high-level regional symposium on water equity in South East Europe and the Mediterranean following the launch of the 2019 World Water Development Report (WWDR) ‘Leaving No One Behind’.

78. The symposium brought together 42 experts from 13 countries in the region, including IHP National Committees, UNESCO Water Chairs, Water-related UNESCO Category II Centres, universities and research centres, UN agencies, national and local authorities, as well as water organizations and stakeholders from South-East Europe and the Mediterranean. The symposium examined how UNESCO and its partners in the region can promote integrated water resources management that ensures access to safe water and sanitation for all and increases the resiliency of the most vulnerable segments of the region’s populations to climate change and disasters. Key results from the symposium included sharing best practices and tools relating to water supply and climate change adaptation and disseminating to the participating countries in order to promote sustainable and equitable integrated water management at the country, basin and regional levels in South East Europe and the Mediterranean. Additionally, the key messages of WWDR 2019 were discussed and

analysed at the South East Europe and Mediterranean regional level and linked with specific context and problems at the country, basin and regional level. Finally, through the symposium and the Water family meeting held on 28 March with IHP National Committees, UNESCO Water Chairs, Water-related UNESCO Category II Centres, UNESCO's regional network of water stakeholders was strengthened and regional synergies and cooperation among the UNESCO water family enhanced.

79. In Poland, UNESCO participated in a conference organised by the Supreme Administrative Court, together with the Polish National Committee for UNESCO and the IHP National Committee on transboundary water cooperation in promoting SDG 6. 38 persons (26 women and 12 men) participated

### **In Latin America and the Caribbean (LAC)**

80. The Regional Course on Wastewater Reuse (Montevideo, 25-29 March 2019) trained 33 professionals (18 men and 15 women) on sanitation alternatives, in particular water reuse and design criteria. The course was jointly organized with the Regional Experimental Centre for Sanitation Technologies (CERTS) and the Ibero-American Water Directors Conference (CODIA). The publication "Water Quality in the Americas" Risks and Opportunities brings together a unified effort by the Academies of Sciences from 21 countries of the Americas with the objective of analyzing specific challenges of water quality and offering suggestions for better management (<https://www.ianas.org/images/books/wb10d.pdf>) The publication was based on national experts' contributions to the IHP's IIWQ Regional Consultation Meeting on "Water Quality in the Americas" (organized by IHP's IIWQ in September 2015) and developed by IANAS with the support of the IHP and CODIA. At the request of the Government of Mexico, IHP provided technical support regarding the potential impacts on the Cuautla River of the Huexca Combined Cycle Power Plant (Morelos, Mexico; February 2019).

81. Improvement on hydrological resources management through a high level intergovernmental dialogue on "South American experiences: Water as a central resource for sustainable development", took place during the 8th World Water Forum with participation of 4 countries (Brasilia, Brazil, March 2018).

82. Planning management improvement for a more efficient use of water resources through a "Hydrological monitoring networks of the Latin American and Caribbean countries", which was reinforced by the session celebrated at the 8th World Water Forum with expositions and debate of the experiences developed in 10 American countries (Brasilia, Brazil, 2018).

83. In the biennium 2018-2019, UNESCO SJO continues to support a regional dialogue to advance the concept and legal consideration of environmental flows. In this context, 4 national seminars have been agreed and organized in 2018. This work is jointly undertaken with CONAPHI focal point in the cluster countries, building on previous efforts developed in 2015 and 2017 environmental flows regional seminars. The first national seminar took place in Panama, organized in collaboration with National Environmental Authority-CONAPHI and CATHALAC (4-5 July). As an outcome of the seminar, there is a commitment of water authorities to prepare a legal instrument to include a holistic approach to the calculation of environmental flows in compliance with the National Plan for Water Security 2015-2020: Water for all.

84. The Report on Sustainable Development Goal 6 was discussed during the special session at AIDIS- XXXVI Inter-American Congress of Sanitary and Environmental Engineering jointly organized by IHP and WWAP (Guayaquil, 29-31 October 2018).

85. Capacities of national hydrometeorological agencies in Central America and the Caribbean (20 women and 28 men) were strengthened at the Workshop on Subseasonal-to-Seasonal Predictability of the Mid-Summer Drought (Antigua, Guatemala, 3-7 November 2018) coorganized with the Spanish Agency of Cooperation (AECID).
86. Capacities of river basin organizations members from Latin America region during the Course "Strengthening Basin Committees and Water Governance in Latin America" (Cartagena, 26-30 November 2018). The course was jointly organized with CODIA and AECID (16 women and 20 men).
87. Ecuadorean water national capacities on the implementation of SDG 6 were strengthened at the Forum organized in Quito, 28-29 November 2018) together with the IHP Focal Point (SENAMHI) (Quito, Ecuador, 27 November 2018).
88. The High Level Seminar on Planning and Integrated Management of Water Resources within the framework of the 2030 Agenda (San José, Costa Rica, March 2019), was an instance for reflection on legal, institutional and human resources capacities related to IWRM management in Iberoamerica, particularly at basin committees level. The Seminar was jointly organized with CODIA, with the participation of 10 women and 23 men.
89. The Side Event "The Value of Water in the 2030 Agenda: Situation and challenges" in the framework of the Forum of the Countries of Latin America and the Caribbean on Sustainable Development - 2019 (third meeting) in Santiago de Chile, 24 April 2019 resulted in a contribution to the preparation of the High Level Political Forum (HLPF) 2019. It provided a perspective of the key role of water and sanitation (SDG 6) as a transversal component that facilitates the achievement of the other objectives of the Agenda for Sustainable Development. The event was organized jointly with the Natural Resources Division of ECLAC and the World Water Assessment Programme (WWAP) with the support of the UNESCO IHP Chilean National Committee (15 women and 25 men).
90. To support the development of Citizen Science supported Early Warning Systems, a regional LAC workshop was held on Citizen Science for Drought and Water Resources Management on 24-25 September 2018 in collaboration with the Chilean Ministry of Agriculture and the Category 2 Centre on Water for Arid and Semiarid Regions (CAZALAC)
91. Expanded knowledge on successful methods in "Experiences facing droughts in the Americas" through a session held at the 8th World Water Forum with the participation of general speeches and case studies from South America, Central America and the Caribbean, Mexico and North America (Brasilia, Brazil, March 2018).
92. Knowledge was increased on the impacts of erosion and sediment transport in basins, their possible impacts on hydrological processes and possible solutions from ecohydrology and green infrastructure, at the II Congress of Ecology and Sediments (Santiago, Chile, September 2018), organized by ISI-LAC together with the South American chapter of the International Association for the Control of Erosion (IECA). More than 200 experts (around 70 women and 130 men) from 16 countries attended the session at the congress that received a total of around 400 visitors. Capacities for sediment management and erosion control were strengthened through 11 pre-congress courses, 5 lectures, a technical panel discussion of experts and 88 technical sessions. The connection between public policies and research on this issue was promoted in a political panel on the legal system for erosion and sediment control in Chile. The annual meeting of the ISI-LAC group was held at this event and the new book "State of the art on sediment management in 8 countries of Latin America and the Caribbean" was presented.

93. Improvement of capacities for transboundary waters management in the region, in the framework of Agenda2030, through the course "International Water Law: Focus on Groundwater" co-organized with GWP and the CEREAS Centre, and the workshop "Progress in the implementation of SDG 6 in Latin America and the Caribbean" (Montevideo, Uruguay, September 2018). The course included interventions on the Agenda2030, the ISARM Americas Program and its role in transboundary aquifers showing the international challenges and the joint achievements of this management, Indicator 6.5.2 in Latin America and the Caribbean, and the case of monitoring of this indicator in Uruguay as a practical example. 48 experts of which 28 women from 9 countries participated.

94. UNESCO SJO is supporting the "Governance of Groundwater Resources in Transboundary Aquifers (GGRETA) Phase 2, which is working actively in El Salvador and Honduras, to promote transboundary governance of the Ocotepeque-Citala aquifer, located in the Tri-national Trifinio-Fraternidad Biosphere Reserve. The donor of this project is the Swiss Agency for Development and Cooperation, COSUDE. GGRETA project is setting a first example in the region of cooperative management of a transboundary aquifer. GGRETA project was also presented at the First Central American meeting of Biosphere Reserves Reserves in the framework of IberoMAB network took place in Copán, Ruinas, Honduras, from 7 to 9 May 2019, organized by the Institute of Forestry Conservation (ICF, Honduras), MAB Secretariat, IberoMAB network and UNESCO San Jose. The venue is located within the Trifinio-Fraternidad Biosphere Reserve.

95. Water authorities and technicians from South America participated in the "Workshop on the implementation of the SDG 6.5.2 indicator on transboundary groundwater" organized by UNESCO and UNECE (Montevideo, 22-23 November 2018). The activity allowed to share South American experiences in reaching the SDGs and its calculation as well as to discuss on the challenges faced in this area. A total of 16 participants (8 women and 8 men) from 10 countries attended the meeting.

96. Improvement on hydrological resources management through a high level intergovernmental dialogue on "South American experiences: Water as a central resource for sustainable development", in the 8th World Water Forum with participation of 4 countries (Brasilia, Brazil, March 2018).

97. Improving management planning for a more efficient use of water resources through a "Hydrological monitoring networks of the Latin American and Caribbean countries", was reinforced by a session at the 8th World Water Forum with expositions and debate of the experiences developed in 10 American countries (Brasilia, Brazil, 2018).

98. The improvement of wastewater management is closely linked to social, environmental and economic benefits essential for sustainable development. The Regional Course on Wastewater Reuse (Montevideo, 25-29 March 2019) trained 33 professionals (15 women and 18 men) on sanitation alternatives, in particular water reuse and design criteria. The course was jointly organized with the Regional Experimental Centre for Sanitation Technologies (CERTS) and the Ibero-American Water Directors Conference.

99. At the request of the Government of Mexico, IHP provided technical support regarding the potential impacts on the Cuautla river of the Huexca Combined Cycle Power Plant (Morelos, Mexico; February 2019).

100. Two research projects on "Water security and adaptation to climate change in Peruvian watersheds fed by glaciers" (RAHU), and "Energy Production and Risk Prevention of water storage superficial in Peru "(Pegasus) were launched by Peruvian and British universities, in collaboration with IHP, during the Seminar "The impact of the reduction of Andean glaciers in water resources and irrigation related to water" (Cuzco, Peru, 7th May

2019). It was also an instance to discuss on the vulnerability of local populations to climate change associated to glaciers in the Peruvian Andes and interactions at regional level through the IHP Regional Working Group on Snow and Ice. The event was organized jointly with the Imperial College London and National University San Antonio Abad del Cusco, among other institutions.

101. Water professionals from LAC were trained on effective water quality management with particular focus on enhancing scientific and policy capacity on managing emerging pollutants during the training workshop held in Campinas, Brazil, 6- 7 December 2018. The workshop was organized by IHP together with the University of Campinas and the Brazilian Chemical Society.

102. To strengthen the integrated management of water resources, the XI Meeting of CoNaPHIs adopted Resolution PHI/LAC XI-09 by which the countries of the region decided to carry out a "definition and application of principles of integral water management". To this end, and in collaboration with CODIA, a High Level Seminar on Integrated Water Resources Management (Brasilia, Brazil, March 2018) was held, with the case studies of Spain, Uruguay and El Salvador, and contributions from the cases of Costa Rica and the Dominican Republic. 72 people from 19 countries (20 women and 52 men) participated. This seminar served as the basis for the debate on the conception of IWRM in the region, characterized by a strong institutionality and a great diversity of ways of developing it, not always in favor of an agile intra-national and international integration. After the debate of the Seminar, an iterative survey was carried out based on the Delphi methodology to develop through participation an own definition of IWRM for the region. Taking into account the most accepted definition given by GWP and that established in the VIII Phase, changes were made to it through country inputs in three rounds of surveys. Finally, the regional definition was published for dissemination by the LAC IHP team in the Aqua-LAC journal.

103. The Megacities Alliance for Water and Climate (MAWAC) facilitates dialogue on water aimed at exchanging experiences, best practices, partnering with appropriate technical, academic and financial institutions, as well as designing and implementing individual responses to the challenges of climate change. Representatives of the main megacities of Latin America, water and sanitation managers, academics and researchers gathered during the International Conference "Latin America: Megacities, water and climate change". This first regional event organized by MAWAC took place in São Paulo, Brazil, 7- 8 May 2019 with the support of ICLEI, ARCEAU Ile-de-France and SIAAP and the National Agency of Water (ANA) of Brazil.

104. Empowerment of inter-institutional cooperation and regional leadership in the "UNESCO IHP LAC and the Water Family" session at the 8<sup>th</sup> World Water Forum where the most important issues of the family were shared for audience knowledge and to promote integration inside the family (Brasilia, Brazil, March 2018).

105. Institutional cooperation empowerment through the event co-organized with CODIA at the 8<sup>th</sup> World Water Forum "Enhancing water cooperation in the Iberoamerican and Mediterranean regions" (Brasilia, Brazil, March 2018). In this framework partnership between CODIA, with more than 18 years' experience, and the 5+5 Water Strategy for the Occidental Mediterranean region, launched in 2014, was developed.

106. UNESCO SJO participated in the PHI-LAC team during the XIII Latin America and Caribbean meeting of the National Committees of the International Hydrological Program (UNESCO-IHP, Panama City, 23-25 October). The XIII LAC CONAPHI meeting was a tremendous opportunity to meet the LAC Water Family and participate with the MTD, HQ, and SC colleagues in the field, UNESCO Chairs and Working Group coordinators. Dr

Marcelo Gaviño Coordinator of the Ecohydrology Group, acknowledged ongoing work on environmental flows carried out by UNESCO SJO.

107. Knowledge and capacities for implementation of the Environmental Flows concept in the region were strengthened, through the GGRETA Phase II Project (Trifinio area, Lempa River), conducted by the IHP at UNESCO Headquarters and the Central American regional office of the International Union for the Conservation of Nature (IUCN). This project encourages dialogue about environmental flows, recognizing that the health of ecosystems is critical for the water and environmental services they provide. This dialogue is structured within the framework of an Integrated Water Resources Management and in compliance with SDG 6, and was held through 4 Seminars in conjunction with the Focal Points of the IHP. There are good legal opportunities to include the holistic concept of environmental flows in national legislations, for example, in the reforms of the Water Law of Panama and Costa Rica. As a result of the Seminar on Environmental Flows in Panama, organized together with the National Environmental Authority of Panama (CONAPHI) and CATHALAC (Panama City, Panama, July 2018), water authorities accomplished the commitment to prepare a legal instrument with a holistic approach in the calculation of environmental flows in compliance with the National Water Security Plan 2015-2020: Water for all. In Costa Rica, the national working group on environmental flows hosted by the Water Directorate of the Ministry of Environment and Energy has prepared a Methodological Guide for the calculation of environmental flows that was worked throughout the seminar held at the facilities of the Inter-American Cooperation for Agriculture (IICA) (Costa Rica, August 2018). In El Salvador and Honduras, seminars were also held (El Salvador and Honduras, September 2018).

108. National capacities were strengthened at the Seminar-Workshop on Environmental Flows: input for the sustainability of the provision of ecosystem services (Bogotá, Colombia, 18-21 March 2019) focused on concepts, methodologies and application of the environmental flow and the integration of the ecohydrological approach as a tool for management of water resources for decision making and the sustainability of ecosystems. The workshop was organized with the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) and the Ministry of Environment and Sustainable Development (MADS) of Colombia. The audience was composed by 103 participants (51 women and 52 men).

109. The publication “Ecohydrology and its Implementation in Ecuador” provides an innovative approach to achieve sustainability and development of ecological potential in ecosystems in terms of water resources, biodiversity, ecosystem services and resilience to global and anthropogenic change. These tools are applied and in the Paltas-Catacocha Ecohydrology Demonstration Site, recently recognized by the IHP as a ....., and described in the publication.

110. Capacities in planning and definition of public policies according to an integrated management of coastal areas under ecohydrological principles, were strengthened of through the Coastal Ecohydrology Course (Santo Domingo, Dominican Republic, September 2018), with the participation of 22 people from 4 countries (9 women and 13 men). This course highlighted the impact of plastic waves on the coast, which seriously affected the tourism sector on which a large part of the economy of several Caribbean countries depend. The course was organized by the IHP National Committee of the Dominican Republic, together with the Regional Program of Ecohydrology for Latin America and the Caribbean, the Centre for the Sustainable Management of Water Resources in the Caribbean Island States (CEHICA) and the UNESCO Chair on Water, Gender and Governance (IGlobal), with the support of the International Centre for Coastal Ecohydrology (ICCE) and the Chair of Ecohydrology.

111. Empowerment and training of young people at the 8th World Water Forum, through the support of a Youth for Water Forum with participation of some 100 people from the region (approximately 60% women and 40% men) and the IHP Secretariat, together with joint work in the previous year to mobilize their networks (Brasilia, Brazil, March 2018).

112. Empowerment of youth networks for water by sharing their "Challenges and solutions from South America" in the ordinary session of the 8th World Water Forum, with perspectives from representatives of 4 countries and 4 institutions that support the strengthening of these networks (Brasilia, Brazil, March 2018).

113. The massive Open Online Course (MOOC) on "Water Security and Sustainable Development Objectives" (October-December 2018) registered 429 enrolled participants of which 171 completed all the modules. The course developed together with the UNESCO Chair on Sustainable Water Education (Universidad del Litoral, Santa Fe, Argentina) was aimed at developing capacities with a comprehensive vision that contributes to water security as a means to achieve the Sustainable Development Goals in LAC.

114. Promotion of awareness on water and its value from a cultural diversity through the special session held at the 8th World Water Forum "Water Cultures of Indigenous People in Latin America" where 6 representatives of indigenous peoples of the region participated (Brasilia, Brazil, March 2018).

115. Promotion of the "Monitoring of cooperation in transboundary waters" for the improvement of international governance in the session held at the 8th World Water Forum, co-organized with the IHP Secretariat at UNESCO Headquarters (Brasilia, Brazil, March 2018).

### **In Asia and the Pacific**

116. Activities focusing on water quality, implemented by the Field Offices, contributed to this theme. The UNESCO Office in Jakarta and Dili antenna office took part in raising public awareness for safe and accessible water in Timor-Leste on October 24, 2018, at the UN house, as part of its celebration of United Nations Day. Members of the government, embassies, beneficiaries as well as students acknowledged the issues put forward are of universal relevance and showed great support for the work towards achieving these goals. Vice Minister of Health Bonifácio Maukoli dos Reis and Secretary of State for Environment Demétrio de Amaral de Carvalho were among the dignitaries in attendance. The improvement of wastewater management is closely linked to social, environmental and economic benefits essential for sustainable development.

117. The UNESCO Offices in Jakarta and Islamabad, in collaboration with the Centre for Disaster Preparedness and Management (CDPM), University of Peshawar, Pakistan and in close coordination with UNESCO Kabul office, conducted a training workshop in Jakarta on 27-30 April 2019. The training workshop was attended by 20 Government officers (2 women and 18 men) from Afghanistan. This collaboration between Pakistan and Afghanistan will provide a platform for transboundary cooperation, such as transboundary data sharing, increase the capacity of flood management in Afghanistan, and eventually increase community resilience to flood in South Asian region. The activity was supported by the Government of Japan through "Strategic strengthening of flood Warning and Management Capacity of Pakistan" project (JAK)

118. The ICHARM/PWRI Hydraulics Engineering Research Group, with support from UNESCO Office Jakarta, delivered the International training on River Discharge and

Sediment Transport Assessment with ADCP (Acoustic Doppler Current Profile) from 24th - 27th of July 2018 in Banjarmasin, Indonesia. Twenty two river engineers (2 women) from Pakistan, Afghanistan, India and Indonesia were successfully trained to use ADCP for river discharge and water and sediment samplers as well as analysis software from Hydro System Development (HSD). Awareness in Pakistan, India and Afghanistan has been raised on new technics for water discharge, bathymetric measurements and sediment transport rate. The project is supported by the Government of Japan through “Strategic strengthening of flood Warning and Management Capacity of Pakistan” project (JAK).

119. For the first time in its 27-year history, the IHP Asia and the Pacific Regional Steering Committee (RSC) met as a full regional body with representation from 20 countries spanning the full range of the region. Chaired Indonesia and hosted by China and the Chinese IHP National Committee, the formal meeting of the RSC held on 4 November gathered representatives from 20 countries including new members from Afghanistan, Iran and Nepal - as well as the Secretariat of the Pacific Community, representing its Pacific Island member states. Also in attendance were six UNESCO water category 2 centres and chairs from the region as well as from Europe. In association with the event, a dedicated workshop held on 3 November saw presentations on approaches and methods from eight countries, generating lively exchange and interaction. Coordinated by the Secretary of the RSC, Dr. Yasuto Tachikawa of Japan, the workshop took the first steps towards defining the scope, structure and content of the Catalogue of Hydrologic Analysis – as well as devised a work plan for the further development of this regional collaborative, which builds upon a previous collaborative effort of the RSC, the Catalogue of Rivers series (JAK).

120. UNESCO Office Bangkok supported and participated in the THA 2019 conference with a dedicated discussion on ‘The water, food-, and energy-security nexus in Asia Pacific’, Bangkok held on 24 January, in Bangkok, Thailand. An editorial meeting on ‘The water-food-energy-security nexus in Asia Pacific’ publication was held on the same day. The publication has been approved by UNESCO Publication Board, and is in preparation in consultation with Springer Nature (BGK).

121. UNESCO Office Jakarta with its partners marked the World Water Day 2019 with a seminar and public lecture took place in April 2019 in Depok, Indonesia. Held one month after the global launch event in Geneva, the event brought together 190 participants from national government stakeholders, experts, development partners, and students. The event saw the launch of the World Water Development Report 2019, presented to representatives of the Government of Indonesia, private sector stakeholders, and academia, by the United Nations Resident Coordinator and participating staff of UN agencies in Indonesia. Similar event in celebration the World Water Day 2019 took place in Hanoi in March 2019. UNESCO Hanoi Office presented the UN World Water Development Report 2019 on the opening day of the Vietnam International Water Week (VACI 2019) in Hanoi (JAK and HAN).

122. UNESCO Offices in Tashkent and Almaty, and local partners, jointly held a Regional Training Workshop on Water Cooperation in Central Asia in November 2018 with participation of 60 participants (including 17 women) representing relevant ministries and governmental institutions on water resources, international organizations as well as young experts and students from countries in Central Asia. The event served as a kick-off activity of the newly established UNESCO Chair on Water Diplomacy, Water Resources Management and Environmental Protection at the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TAS and ATA).

123. Twenty-nine South Asian water professionals from Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka, were trained in two-days Workshop on “Water Security, IWRM, and Climate Change”, held at Roorkee (India), in November 2018. The workshop provided professionals better understanding of the regional water security issues and science behind water security, integrated water resource management (IWRM), and increased attention on adaptation to climate change. The workshop organized by the National Institute of Hydrology (NIH) and UNESCO New Delhi, attempted to introduce new approaches, technologies and tools for water security assessment at different scales and discussed comprehensive water resource policies and strategies, in view of changing environment scenarios. It also brought into focus the upcoming issues and agenda for UNESCO’s International Hydrological Programme (IHP), which recognizes Water Security as a key challenge for the 21st Century (NDL).

### **In Africa**

124. IHP is promoting capacity development of regional and national authorities as well as educational institutions in Africa on issues related to transboundary aquifers and groundwater governance. Focus has been given to strengthening the capacity of the African Network of Basin Organizations (ANBO) on the consideration of groundwater in River Basin Organizations, and to topics such as groundwater modelling and water and gender issues. This has been done within the framework of several extrabudgetary projects funded by donors such as the GEF and the Swiss Agency for Development and Cooperation. During the reporting period, more than 200 experts were trained (35% women and 65% men), of which approximately 50% were young experts.

125. The UNESCO Regional Office for Eastern Africa organized a first training workshop at the University of Makerere, Kampala, Uganda in July 2018 improving technical capacity across the region in the use of remote sensing technologies for rainfall estimation. 30 participants (16 women and 14 man) from 11 countries representing the Intergovernmental Authority on Development (IGAD), the East African Community (EAC), the Indian Ocean Countries (IOC), and Regional Economic Commissions Member Countries were trained. This ‘training of trainers’ will provides the technology transfer and hands-on experience to generate real time rainfall data from satellite images in the countries of the region. The training is part of the UNESCO G-WADI initiative, which is working with the Centre for Hydrometeorology & Remote Sensing (CHRS) at the University of California, Irvine in developing the PERSIANN System (Precipitation Estimation from Remotely Sensed Information using Artificial Neural Networks).

126. UNESCO promoted transboundary water cooperation through several activities in Africa. In corporation with UNESCO Abuja, UNESCO held 2 training of trainers workshops in Abuja, Nigeria in September and November 2018 under the framework of BIOPALT, to promote water cooperation in Lake Chad. The trainings benefitted 23 participants (12 women and 11 men) from 5 countries of the Lake Chad basin (Nigeria, Chad, CAR, Niger and Cameroon). C2Cs: Regional Centre for Integrated River Basin Management (RC-IRBM) provided organisational support and regional expertise, and IHE Delft facilitated some trainings.

127. UNESCO-IHP also promoted the concept of water and peace at the 7<sup>th</sup> Africa Water Week (AWW7), examining the role of science in building peace and international cooperation in transboundary waters. This event was attended by 38 participants (7 women and 31 men). And brought together the Lake Chad Basin Commission, the *Organisation pour la mise en valeur du fleuve Sénégal* (OMVS), the Okavango River Basin Water Commission (OKACOM), the Commission Internationale du Bassin Congo-Oubangui-

Sangha (CICOS), and the Cheikh Anta Diop University, Dakar, Senegal to discuss what are the needs of Member States in improving transboundary basin management, and how the scientific community could best respond to these needs.

128. UNESCO organized jointly with UNECE and GWP-CAf in July 2018 in Douala-Cameroon, a subregional workshop on water governance and SDG 6.5.2 in Central African Countries. The meeting attended by 35 participants from the 10 countries aimed at building capacity for a better water governance and monitor and assess in-country and transboundary water cooperation.

129. UNESCO Regional Office in Central African countries is contributing to a better governance of the water sector in Cameroon through a National Water Policy document elaboration. This is done with hiring a consultant to finalize the draft document and holding a national workshop of validation (on going).

130. IHP supported AMCOW's communication outreach on groundwater in Africa by actively contributing to the organization of "Groundwater Days" at key international events such as the World Water Week and the Africa Water Week in August and November 2018, respectively.

131. Under G-WADI Programme UNESCO Regional Office for Eastern Africa organized a first training workshop at the University of Makerere, Kampala, Uganda during 23-25 July 2018. The training workshop, supported by Centre for Hydro-meteorology and Remote Sensing, University of California (Irvine) and international Centre for Integrated Water Resources Management (ICIWaRM) under the Auspicious of UNESCO and Makerere University, Kampala, Uganda, saw the presence of 30 participants (17 women and 13 men) from 11 countries representing the Intergovernmental Authority on Development (IGAD), the East African Community (EAC), the Indian Ocean Commission (IOC), Regional Economic Commissions Member Countries. The experts gathered to learn to make real time rainfall measurement for their country and come out with proper flood warning measures.

132. UNESCO, UNESCO Category 2 Regional Centre for Groundwater Resources Education, Training and Research- Kenya, with the support from Kenya Water Institute, the Federal Institute for Geosciences and Natural Resources (BGR)- Germany, International Groundwater Resources Assessment Centre (IGRAC), The Netherlands, African Network for River Basin Organizations (ANBO), organized a Regional Training workshop on Integrating Groundwater management with River Basins, at the Kenya Water Institute, from 15 to 17 January 2019 in Nairobi, Kenya. 40 experts from 13 countries (15 women and 25 men) from Intergovernmental Authority on Development (IGAD), the East African Community (EAC), the Indian Ocean Commission (IOC), Regional Economic Commissions Member Countries undertook this training.

133. UNESCO in partnership with AMCOW, UN Environment, UN Economic Commission for Africa (UNECA), GWP Tanzania and the UNESCO Category 2 centres Regional Centre on Groundwater Education, Training and Research (Nairobi, Kenya), Integrated River Basin Management (Kaduna, Nigeria), Regional Centre on Capacity Development and Research on Water Harvesting (Khartoum, Sudan), developed a smart phone application for Rainwater Harvesting in Africa. Currently this app is available for android OS, there is also a dedicated website for it. This smartphone application available in three languages English/French/Swahili. This application contains rainwater calculator, in an interactive mode by providing necessary details. This application has more than 3500 rainfall records from all countries in African continent. Moreover, UNESCO produced advocacy videos (14 different topics) in animation format, calculator works offline and videos need internet connection.  
<http://rainwaterharvesting.africa/>  
<https://play.google.com/store/apps/details?id=com.abc.rainfallcalculator&hl=en>

134. The Africa Water Week (AWW) was convened by the African Ministers Council on Water (AMCOW) in conjunction with the African Union Commission and organized with other development partners. It represented a political commitment at the highest level with over 1000 participants from governments, regional institutions, international partners, the private sector, the scientific community, civil society, and the media from all over the world. UNESCO-IHP and UNESCO Africa in collaboration with its partners organised the following session during the breakout sessions as well launched Africa Groundwater Map and Rainwater Harvesting Calculator and outreach materials for Pan Africa. 1. Integrating Gender Equality and Female Empowerment in IWRM as a Strategy to Achieving Water Security Convener(s): UNESCO-IHP and UNESCO WWAP; 2. Fostering scientific and technical capacities and competencies in Africa's Water Sector through the AU-NEPAD Water Centres of Excellence Convener: UNESCO IHP Co-Convener(s): European Commission-Joint Research Centre; 3. The Role of Science in building Peace and International Cooperation in Transboundary Waters Convener: UNESCO-IHP; 4. Water Wise: The time is now to apply Smart Water Management Convener: UNESCO i-WSSM, UNESCO-IHP; 5. Promoting Youth Engagement in Water Governance through Youth-Led Research and Innovation Convener(s): UNESCO-IHP & International Science Council Regional Office for Africa; 6. Hydro Climate Services for Water Security Convener: UNESCO IHP; 7. Promote sustainable groundwater resources management within the framework of IWRM in L/RBOs and RECs Convener: UNESCO-IHP Co-Convener(s): ANBO, AMCOW, BGR, UNECE

135. UNESCO-World Water Assessment Programme, UN Economic Commission for Africa, UN-Water, the UNESCO Regional Office for East Africa undertook research interlinkages between Water and Sanitation and the SDGs under review at the HLPF 2019 in Africa. This report was presented at Africa Regional Forum on Sustainable Development 16 April 2019, Marrakech, Morocco. This session deliberated on the African Regional Policy paper on SDG 6 inter-linkages by the delegates and institutional representatives at the 5th African Regional Forum on Sustainable Development. The focus was on the Inter-linkages of SDG 6 (Water) with the SDG 4 (quality education), SDG 8 (decent work and economic growth), SDG 10 (reduced inequalities), SDG 13 (climate action) and SDG 16 (peace, justice and strong institutions), in addition to SDG 17 (partnerships).

136. International Training on Ecohydrology in Tanzania, April 29th April – 3rd May 2019 The aim of training was to equip trainees with detailed knowledge, critical understanding, strategies and the tools required to take an interdisciplinary approach towards Ecohydrology, biotechnology practices and valuation of ecosystem services. The training helped to equip trainees with knowledge on environmental and natural resource economics applied in the valuation of ecosystem services and provide examples of Ecohydrological biotechnology solutions implemented in practical case studies in other parts of the African Continent and Europe. A total number of twenty (20) trainees attended this training which include 10 women and instructors came from Portugal, Malaysia, Ethiopia and Tanzania.

137. IHP organized the final meeting of the GGRETA Phase 2 project on governance of transboundary aquifers on 28-29 March 2019. The meeting was the opportunity to present the main outcomes of the project, among which the establishment of a joint governance mechanism for the Stampriet Aquifer (shared by Botswana, Namibia and South Africa). The meeting also allowed to identify a work plan for the next phase of the project in line with the Regional Office for Southern Africa. Synergies could be identified with the project proposal that was submitted and endorsed by the Adaptation Fund on sustainable groundwater management in Zimbabwe, and the possibilities to work more closely with the SADC Groundwater Management Institute.

138. Following the resolutions of the 6th IHP regional meeting of the IHP national committees and focal points in sub-Saharan Africa which took place from 12-13 July 2017 in

Port Elizabeth, South Africa, assistance to establish National IHP committees and to make the existing ones functional is ongoing. A meeting for the Zimbabwe IHP committee was held on 11 April 2019.

139. Ongoing efforts are under way to develop research and training on floods and drought risk management related to climate extremes particularly in the cyclone Idai affected countries. Tailored national drought and flood monitoring systems will be developed for Mozambique and Zimbabwe as pilots for the region. A fact-finding mission to Mozambique was organised from 21 May 2019 to 23 May 2019 to assess the extent of the damage caused by cyclone Idai and engaging the government of Mozambique in assisting them to enhance climate services in the country to better prepare them for future disasters.

140. The regional training workshop on effective management of water quality and emerging pollutants in water and wastewater in sub-Saharan Africa was held in Accra - Ghana in September 2018. The activity was implemented in partnership with UNESCO Initiative on Water Quality and the Category II Centre on Integrated River Basin Management (RC-IRBM). 71 participants (40 men and 31 women) from 26 African member states attended the workshop, their capacities and skills were strengthened for effective management of water quality and transboundary waters.

#### **In the Arab States**

141. UNESCO Regional Bureau for Science for the Arab States continued to join forces with the United Nations Economic and Social Commission for Western Asia (UN-ESCWA), League of Arab States (LAS), the United Nations Environment, to further develop the interdisciplinary capacities of Arab Climate Change Negotiators. The Bureau co-organized the 10th (3- April 2018, Kuwait) 11th (13-15 November, 2018, Cairo, Egypt) and 12th (7-8 April, 2019, Beirut, Lebanon) Regional Training Workshops on Capacity Development for Climate Change Negotiations for the Arab Countries. The Bureau provided technical contributions aiming to build the capacities of climate change negotiators on climate change impacts on water resources, mainstreaming water issues in climate change policies and in negotiation, and utilizing the water/energy/food nexus approaches in developing and implementing national actions plans pertinent to the Member States obligations under the Paris agreement. Each of the workshops engaged nearly 50 participants from Algeria, Egypt, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Oman, Saudi Arabia, and Sudan along with experts from partner agencies, OAPEC, China, and Egypt.

142. Invited to a partners meeting on March 27 2019, at the ESCWA headquarters (UN-House) in Beirut, Lebanon, UNESCO contributed to the process of identifying key priorities, potential structural revisions, and areas of linkages with the 2030 SDGs as well as linkages to other relevant regional strategies. The Bureau later submitted to the Arab Centre for Studies of Arid Lands (ACSAD), which has been entrusted by the Arab Ministerial Council on Water with coordinating the regional partners' consultation on updating the strategy.

143. The Regional Bureau for Science for the Arab States contributed to the Regional Preparatory Meeting on Water Issues for the 2018 Arab Forum on Sustainable Development and High Level Political Forum was held on 28 and 29 March 2018 at the United Nations House in Beirut, Lebanon. UNESCO participated in the two working groups and advocated the need to mobilize resources for innovative initiatives, especially those addressing shared water resources and the need to highlight the role of science, technology, and localization in the draft statement to the AFSD. Both were included in the outcome statement.

144. . In 2018, the Bureau participated in Phase II RICCAR consultation meeting, which was held between 30 May and 1 June, 2018 at the UN House in Beirut Lebanon. The consultation was attended by representatives of partner agencies and organizations and

representatives from two member states (Egypt and Jordan). The participants took stock of phase I and highlighted lessons learned during its implementation. Subsequent to reviewing the outcome of the evaluation of phase I, the participants, including representatives from the Regional Bureau discussed, in details, the motivation for launching a second phase and developed, based on these motivations an outline of the activities that responds the Member States needs and builds upon developed capacities and competence areas of project partners.

145. In close coordination with UNESCO World Water Assessment Programme (WWAP), The Regional Bureau for Science for the Arab States launched the 2018 edition of the World Water Development Report (WWDR-2018): Nature Based Solution for Water Resources during the plenary session of the 3rd Arab Water Conference which was held in Kuwait City, 2-3 May, 2018. The session outlined the key finding of the report and, which were also discussed during the high-level panel segment of the session. Copies of the report and its executive summary (translated by the Regional Bureau for the Arab States) were also disseminated to conference participants. More than 200 participants representing the water sector from most Arab countries attended the launching.

146. Effective groundwater governance was promoted through a technical session organized by UNESCO regional Bureau for Science for the Arab States, in cooperation with FAO-RNE and the Arabian Gulf University in Bahrain during the 3rd Arab Water Conference (Kuwait City, 2-3 May, 2018). The session on Groundwater Governance in the Arab Region focused on promoting the UN “Groundwater Governance 2030: Global Framework for Action” and highlighting key challenges facing implementation of the global framework in the Arab Region. More than 50 water experts and professional from the Arab Region attended the session.

147. Integrated Management of Water/Food/Energy in the Arab Region was promoted through a technical session on the Water/Energy/Food Nexus organized by the Regional Bureau for Science for the Arab States during the 3rd Arab Water Conference (Kuwait City, 2-3 May, 2018). The session was organized by UNESCO IHP in cooperation GIZ, the League of Arab States, Arabian Gulf University, and the Water Research Centre at the Kuwait Institute for Scientific Research (KISR). More than 60 conference participants attended session.

148. UNESCO co-organized, in partnership with UNESCO Offices in Rabat and Dakar, the Government of Morocco, and with ISESCO, the first meeting of the steering committee of the Arab/African MAB/IHP initiative in Dakar, Senegal. The meeting gathered representatives of the governing bodies of the two UNESCO intergovernmental programmes from both regions to design the initiative’s action plan for 2019-2020. The action plan sets the stage for the deployment of UNESCO’s biosphere reserves in Africa and the Arab region as observatories of climate change with focus on water issues. Along with the action plan, the steering committee identified a preliminary budget requirement for resource mobilization and a phased strategy to introduce the initiative for adoption by the governing bodies of UNESCO.

149. In the aftermath of the flash-flood event of May 1, 2018, and at the request from the Petra Development and Tourism Region Authority (PDTRA), the Regional Bureau for Science for the Arab States and UNESCO office in Amman, Jordan convened a three expert team comprising UNESCO experts in hydrology and culture. Following desk studies performed in parallel at Amman and Cairo office, the team undertook a fact-finding mission to Petra (Sept 2-4, 2018) and met with the PDTRA commissioners and technical experts. The team also undertook a site visit to the core area of the Petra Archaeological Park as well as to the upland areas of the major wadis contributing floodwater to the World Heritage Site (areas of Madras, Jilf and tributaries of Wadi Al Jarra). The team also reviewed the

operational status, data and interface of the existing Wadi Moussa Flood Early Warning System (FEWS) installed in 2014 and met with national experts and representatives from key agencies engaged in flood forecasting, management, and with providing hydrological services to the Government of Jordan. A follow-up mission was also undertaken on 13-14 February, 2019, with the aim of launching the process of identifying the technical requirement of a design study for comprehensive flood control/management system for the world heritage site. A proposal was presented to the World-Heritage Centre jointly by UNESCO Offices in Amman and Cairo representing both UNESCO IHP and UNESCO Culture Sector.

150. The Regional Bureau for Science for the Arab States, in collaboration with UNESCO Office in Ramallah, supported the Palestinian Water Authority in holding the First Palestine International Water Forum (25-28 June, 2018, Ramallah, Palestine). The focus of the Forum was to present real-world experiences in Integrated Water Resources Management (IWRM), planning and implementation. The forum participants also explored challenges and opportunities, discussed "lessons learnt", and share best practices and innovative perspectives beyond current IWRM practices that can help Palestine first, and then the regional and the international community. More than 250 national and international scholars participated in the forum.

151. Capacity of Egyptian water professionals was enhanced in Wastewater Management through a partnership with UNESCO World Water Assessment Programme (WWAP). WWAP and the UNESCO Regional Bureau for Science for the Arab States co-organized National training workshop on Wastewater management. 31 participants from the Ministry of Water Resources and Irrigation, the Egyptian Holding Company for water and wastewater, and various research and training centres in Egypt, received training on state-of-the-art in wastewater treatment technical and economic aspects. The training was based the 2017 edition of the World Water Development Report (WWDR 2017, Wastewater: an Untapped Resource"). In addition, and in collaboration with the Foundation, the Egyptian National Committee for IHP and the Ministry of Water Resources and Irrigation of Egypt. WWAP and the Regional Bureau for Science for the Arab States organized the launching of the Arabic version of the 2017 edition of the World Water Development Report. 50 National and international experts attended the launching.

152. In partnership with the Egyptian National Committee for IHP, the Ministry of Water Resources and Irrigation of Egypt, the League of Arab States and UN-Women, Gender mainstreaming in IWRM was promoted through a technical session during the First International Cairo Water Week 14-18 October, 2018, Cairo, Egypt. The session included a discussion of UNESCO studies on Gender Mainstreaming in IWRM in Egypt, Morocco, Tunisia, and Jordan as well as case-studies from UN-Women and the Ministry of Water Resources in Irrigation in Egypt. Nearly 60 forum participants benefited from the session. In addition, the Regional Bureau supported the organizing of the Children water forum during the week. Children from several governorates in Egypt participated in two days of activities aiming to enhance awareness of water issues in Egypt, water conservation, and the hydrological cycle.

153. UNESCO's Regional Bureau for Science for the Arab States organized an expert meeting on Gender Mainstreaming Towards SDG6 Implementation in the Arab Region: Policies and Practices. Experts from Tunisia, Jordan, Palestine, Morocco, Egypt, and Sudan explored through case studies, including those conducted by the Bureau, and through discussions, the challenges and opportunities in enhancing the participation of women in water-related decision making at various levels in the Arab region..

154. The Fifth Arab Water Week was held (3-7 March, 2019) at the Dead Sea in Jordan. UNESCO Regional Bureau for Science organized three technical sessions during the week.

The first session (4 March, 2019) focussed on the “Water Security for All: Science Diplomacy for Sustainable Development of Water Resources in the Arab Region and Neighbouring Countries. The second session addressed on Gender Mainstreaming in Water Resources Management (5 March, 2019), and explored case national water-sector strategies and approaches towards Gender Mainstreaming in National Water Resources Strategies in Jordan, Tunisia, and Morocco. The third session was dedicated to Groundwater Governance, and it explored, through technical presentations, and panel discussion, innovative regulatory framework for groundwater governance including the California SGMA, the SIWI Integrity framework. UNESCO Cairo sessions were attended by more than 150 conference participants. In addition, UNESCO Cairo participated in the sessions on launching the Arabic version of the 2018 WWDR organized by WWAP, and on SDG6 indicator, organized by UN Water.

155. Capacity of Arab experts from water, agriculture, and energy sectors on quantifying, planning, and managing the water/energy/food (WEF) nexus were enhanced through a regional training workshop on the WEF nexus in the Arab Region (19-20 February, 2019) at the Bureau’s premise in the 6th of October, Egypt. The training workshops, organized in cooperation with the secretariat of the Arab Ministerial Council on Water at the League of Arab States and with ALECSO, aimed to present the water, energy and food nexus different needs, perspectives, priorities and information of sectors and their interlinkages in a participatory and interactive way. The training workshop was attended by 50 participants from academia, executives/practitioners from middle management in the government and/or public institutions working in the water, energy and food/agriculture sectors from Bahrain, Egypt, Morocco, Palestine, Lebanon, Tunisia, Jordan, Sudan, and Oman. Feedback from the participants indicated the need for a concerted capacity building programme on the Nexus in the region. The Bureau also organized a short training (Afternoon Training) on using the nexus model during the 13th WSTA Gulf Water Conference (12-14 March. 2019, Kuwait City, Kuwait). 35 water sector experts and practitioners from the GCC countries attended the training.

156. Capacity Building, Training the Trainers: Capacity of teacher trainers was enhanced (through Training Workshop, in Amman, Jordan; July 2018) for 30 UNESCO associated schools in Jordan (20 schools), Palestine (7 schools) and Iraq (3 schools) on water conservation, sustainable management towards promoting responsible water use and culture of water conservation. Four out of the involved schools in the program have large number of Iraqi and Syrian refugees students in Jordan.

157. Application Session with Syrian Refugees: UCO organized the “Water Education program application sessions for school students at Syrian Refugee at the Zaatari Camp during the period 25-26 July 2018. More than 28 school students/girls (13-18 years) attended the sessions and actively engaged in its activities.

158. Water Education for Community Schools: Capacity of civil society association in Egypt enhanced through cooperation with Misr El Kheir Foundation (Egyptian NGO) in the field of water education and awareness. Capacities of 30 community schools (serving more than 1000 students) in 2 governorates (Minya and Sohag) in Upper Egypt were enhanced on the application of UNESCO Cairo informal water educational tools, (i.e. cartoons, booklets and posters). More than 1500 school dropout and school students (most of them are girls of 10-15 years old) were reached through the programme.

#### **UNESCO INTERNATIONAL WATER CONFERENCE (Agenda sub-item 4.3)**

159. The UNESCO International Water Conference took place at UNESCO’s Headquarters on 13 and 14 May 2019. Overall, more than 1200 participants from 126

countries gathered together with a common goal: embracing a trans-sectoral approach for the sustainable governance and management of our water resources. In total, 35 Ministers (from Armenia, Botswana, Burkina Faso, Cambodia, Cameroon, Congo (Republic of), Cote d'Ivoire, Ecuador, Egypt, Gabon, Ghana, Iraq, Italy, Jordan, Kenya, Korea (Republic of), Kuwait, Liberia, Malta, Mongolia, Morocco, Palestine, Portugal, Senegal, Sri Lanka, Tajikistan, Togo, Tunisia, Turkmenistan, Uzbekistan, Vanuatu) as well as HRH Princess Sumaya Bint El Hassan of Jordan took part in the Conference.

160. The Division of Water Sciences was responsible for coordinating the preparation and implementation of the event, as well as the involvement of all sectors of the Organization. Each of the following sectors successfully organized a thematic panel during the Conference: Education, Social and Human Sciences, Culture, Natural Sciences, Communication and Information, as well as the Intergovernmental Oceanographic Commission and the Division of Gender within the DG's Cabinet.

161. During the Conference, panels included government representatives, policy and decision-makers, corporate executive officers, entrepreneurs, innovators, representatives of international organizations, scientists, donors, and civil society. Discussions about technological innovation, data for decision-making, culture, ethics, education, energy, global change, disasters, gender, and peace, highlighted economically, socially and environmentally sustainable solutions contributing to water security and peace.

#### **REPORT ON THE IMPLEMENTATION OF THE RESOLUTIONS AND DECISIONS ADOPTED AT THE 23<sup>rd</sup> SESSION OF THE IHP INTERGOVERNMENTAL COUNCIL (Agenda sub-item 4.4)**

##### **Resolution XXIII-1: "Revision of the Statutes of the Intergovernmental Council of the International Hydrological Programme"**

**Adopts** the revised Statutes of the IHP Intergovernmental Council taken into account the modifications undergone at the 23rd session of the IHP Intergovernmental Council,

**Requests** the IHP Secretariat to submit the revised Statutes of the IHP Intergovernmental Council to the 205th session of the Executive Board and subsequently to the 40th General Conference for their approval;

#### **RESULTS / ACTIONS TAKEN**

162. Please refer to document IHP/Bur-LVIII/6 (Institutional Developments), sub-item 3.2 (Update on the process towards the approval of the Statutes of the IHP Intergovernmental Council), and to reference document IHP/Bur-LVIII/Ref. 1.

##### **Resolution XXIII-2: "WWAP Toolkit and Gender-Sensitive Indicators for the Collection and Analysis of Sex-Disaggregated Water Data"**

**Encourages** IHP and WWAP Secretariats to facilitate the dissemination of the Toolkit among the Member States where possible through the development and implementation of joint extrabudgetary projects focused, among others, on capacity building, training workshops and field surveys;

**Calls upon** Member States to provide financial and in-kind support to IHP and WWAP to implement the necessary activities for the wide application

of the WWAP Toolkit on Sex-Disaggregated Water Data at different levels.

## **RESULTS / ACTIONS TAKEN**

163. The positive response of the UNESCO Member States through the adoption of the Resolution XXIII-2 at the IHP Inter-Governmental Council, provided impetus and motivation to the WWAP Secretariat for developing the second edition of the Toolkit on Sex-disaggregated Water Data, which has been launched at the session on Water and Gender within the UNESCO International Water Conference in May 2019. From its adoption (June 2018) on, IHP and WWAP Secretariats has further reinforced the application, dissemination and learning of the Toolkit in different countries of Africa, Central America and Central Asia in cooperation with national authorities, within the framework of the GGRETA project funded by the Swiss Agency for Development and Cooperation (SDC) and led by UNESCO-IHP.

164. Based on the lessons learnt in the field during the testing of the toolkit, and taking into consideration the inter-connected nature of the SDGs, the 2019 edition of WWAP Toolkit contains a few additional new gender-responsive indicators aligned with the 2030 Agenda, notably in the categories of human rights-based water resources management, water and education, indigenous knowledge and community water rights, migration, displacement, and climate change.

### **Resolution XXIII-3: “Proposal for the Continuation of the World’s Large Rivers Initiative as Part of IHP’s Workplan”**

- Invites** the Director General to continue the World’s Large Rivers Initiative as part of IHP’s work plan, beyond its 23<sup>rd</sup> session;
- Requests** its alignment with the recommendations of the IHP Flagship Initiatives’ evaluation;
- Further invites** the IHP Secretariat and the UNESCO Chair on Integrated River Research and Management in Vienna, Austria, to continue to collaborate with relevant institutions of Member States for the possible further development of the World’s Large Rivers Initiative.

## **RESULTS / ACTIONS TAKEN**

165. Following the adoptions of the resolution, initial consultations were held with the UNESCO chair on the Integrated River Research and Management in Vienna to continue collaboration within the framework of WLRI. Preliminary discussion was held on the planned International Conference on the Status and Future of World’s Large Rivers to be held in 2020.

166. For more information, please refer to sub-item 4.7 (IHP Flagship Initiatives) within this document.

### **Resolution XXIII-4: “Proposal for the Establishment of a Water-Related Centre under the Auspices of UNESCO (Category 2)”**

- Endorses** after due consideration of the proposal, the establishment of the Regional Experimental Center for Sanitation Technologies (CERTS) in Uruguay, as a category 2 centre under the auspices of UNESCO;

**Requests** the assistance of the Secretariat to prepare the necessary documentation to be submitted to the governing bodies of UNESCO towards the creation of the 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**

167. The Secretariat organized an electronic consultation of the Bureau and the Council, and the majority of the members agreed to conduct the feasibility study of the centre that was subsequently carried out in December 2018 in Uruguay. The study has determined that there is a clear programmatic link between the activities, objectives and functions of CERTS in relation to UNESCO's global priorities, including gender equality. The study has confirmed the relevance of the scope of activities of the proposed Centre and its envisaged ability to achieve its objectives, the relevance and potential impact of the centre at both regional and sub-regional levels, the complementation with other centres and CERTS' unique coverage. At the same time, the contribution that the Centre is expected to make to strengthen the provision of political orientations in order to attain water security and capacity building in the countries of the LAC region has been highlighted.

168. The study team concluded that the designation of CERTS as a category 2 Centre under the auspices of UNESCO is in line with the revised strategy for category 2 institutes and centres, in terms of the centre's potential to contribute to UNESCO's strategic objectives, including those of the International Hydrological Programme.

169. Documents for the 207<sup>th</sup> session of the Executive Board and the 40<sup>th</sup> session of the General conference in October and November 2019 respectively, are been prepared by the IHP Secretariat for the approval of the Centre.

### **Resolution XXIII-5: "Global Network of Water Museums and UNESCO IHP in Support of Water Sustainability Education and Water Awareness Efforts"**

**Decides** to establish the Global Network of Water Museums, for a period of four years renewable based on its performance, as an IHP initiative to create synergies within UNESCO with the aim of better using water museums to improve water management via communication and educational activities;

**Invites** the IHP Secretariat to (1) follow up with water museums at world scale in view of this aim and to present performance indicators to the next Bureau meeting, and to (2) report to the next Bureau meetings and Council meetings on outputs and impact of this activity on the basis of the aforementioned performance indicators;

**Requests** its alignment with the recommendations of the IHP Flagship Initiatives ongoing evaluation, and that the 25th session of the IHP Intergovernmental Council shall review the performance of this initiative and consider its integration in IHP's program;

## RESULTS / ACTIONS TAKEN

170. Please refer to sub-item 4.7 (IHP Flagship Initiatives) within this document.

### **Resolution XXIII-6: “Preparation of IHP-IX”**

**Requests** the IHP Bureau to decide on the timeframe for the production of the Strategic Plan for IHP-IX (2022-2029), to approve the Task Force members, and to regularly review and where necessary redirect the activity of the Task Force;

**Invites** the IHP Secretariat to carry out an all-inclusive consultative process;

**Requests** the IHP Secretariat to conduct an electronic consultation for the endorsement of the draft concept paper for the IHP-IX Strategic Plan by December 2018.

## RESULTS / ACTIONS TAKEN

171. Please refer to document IHP/Bur-LVIII/6 (Institutional Developments), sub-item 3.3 (Progress on the ninth phase of IHP, IHP-IX 2022-2029).

### **Resolution XXIII-7: “Evaluation of IHP-VIII”**

**Requests** the IHP Secretariat and other UNESCO entities to provide the necessary information to the external evaluation team with a view of supporting the preparation of IHP-IX;

**Further requests** the IHP Secretariat to publish a comprehensive report on the IHP-VIII implementation, to carry out an external evaluation of IHP-VIII, taking also into account the discussions at the 23rd session of the Council, and to submit it directly to the IHP Council upon its completion using it as an input to the preparation of IHP-IX;

**Invites** Member States to make voluntary financial and in-kind contributions to the evaluation of IHP-VIII and the publication of the comprehensive report on its implementation.

## RESULTS / ACTIONS TAKEN

172. Please refer to sub-item 4.6 (Mid-term evaluation of the eighth phase of IHP) within this document.

### **Resolution XXIII-8: “IHP Support to Member States towards the Proposal for a New Sustainable Development Goal Indicator 6.a.2 on Water Education”**

**Requests** the IHP Secretariat to start developing a methodology, in cooperation with OECD, WHO, and UNEP, for an effective indicator on water

education, within IHP-VIII Theme 6 “Water Education, Key for Water Security”, in coordination with the UNESCO Water Family, in view of potential submission to the IAEG-SDGs as a new SDG indicator, or as a substantial contribution to the 2030 Agenda.

## **RESULTS / ACTIONS TAKEN**

173. Please refer to document IHP/Bur-LVIII/10 (IHP actions in the implementation and monitoring of the Sustainable Development Goal 6 relating to water and sanitation), sub-item 7.2 (Proposed SDG indicator on Water Education).

### **Resolution XXIII-9: “Enhancing IHP’s visibility”**

**Requests** Requests the Secretariat to raise IHP’s profile in New York UN Headquarters by developing and distributing an information note on UNESCO’s contributions to Members States’ permanent delegations and by organizing sessions during high-level events with the support of permanent delegations and the participation of UNESCO Category 2 Centres and Chairs;

**Further requests** the IHP Secretariat to continue organizing within the framework of its sessions a Science Policy Interface Colloquium on Water.

## **RESULTS / ACTIONS TAKEN**

174. A more coordinated effort is being implemented to ensure that the visibility in New York is higher than the past by ensuring the organization of session during all high visibility events and discussions, like the UNGA, HLPF, etc.

175. A second session of the Science Policy Interface Colloquium on Water is being considered focusing on the implementation of Artificial Intelligence on water resources and supply management.

### **Resolution XXIII-10: “Establishment of the Land Subsidence International Initiative (LaSII)”**

**Requests** the IHP Secretariat to assist in the establishment and implementation of the initiative and to report to its 24<sup>th</sup> session on the progress achieved in this regard;

**Further requests** its alignment with the recommendations of the IHP Flagship Initiatives’ evaluation.

## **RESULTS / ACTIONS TAKEN**

176. The transition from an UNESCO Working Group into the UNESCO Land Subsidence International Initiative has started after its approval by the IHP Intergovernmental Council in June 2018. The first annual meeting was held 5-6 November 2018 in Shanghai, China. The list of members and observers has been updated. A logo was designed and a pilot website will be tested within one year. Guidelines to join LaSII are under preparation. Among several future activities, LaSII members are planning to investigate land subsidence rates in 138 coastal megacities, prepare m develop a project to investigate land subsidence related costs, and to collaborate in the transition of a Key Laboratory into an UNESCO Category 2 Centre on Land Subsidence in Shanghai. Next meeting is planned to take place in Utrecht,

Netherlands, 2-4 September. More details will be provided in the consolidated annual report under preparation.

177. For more information, please refer to document IHP/Bur-LVIII/7 (Programme Implementation), sub-item 4.7 (IHP Flagship Initiatives).

**Resolution XXIII-11: “Presentation of Decisions and Draft Resolutions”**

- Decides** that the Draft Resolutions and their explanations shall be integrated within the relevant working documents;
- Requests** the IHP Secretariat to distribute the working documents for the IHP Intergovernmental Council, including their Draft Resolutions, in the six working languages, at least six weeks before the first day of the Intergovernmental Council;
- Encourages** Member States to carry out informal consultations on draft decisions before the sessions of the IHP Intergovernmental Council, without prejudice to the decision-making prerogatives of the Council at its session;
- Further encourages** Member States to submit the draft resolutions at least two weeks before the session of the IHP Intergovernmental Council with a view towards their distribution by the IHP Secretariat ten days prior to the session.

**RESULTS / ACTIONS TAKEN**

178. As this item is pertinent to the Council, no relevant response could be reported for this session of the Bureau.

**Resolution XXIII-12: “Draft Resolution on the Future Governance of all IHP programmes and Major Initiatives”**

- Requests** the IHP Secretariat to present the results of the evaluation of the fifteen IHP programmes and major initiatives at the 58th IHP Bureau session and to prepare recommendations regarding future continuation for approval at the 24th IHP Intergovernmental Council session;
- Invites** the IHP Intergovernmental Council at its 24th session to, in accordance with Resolution XXI-8, consider which IHP programmes and major initiatives should be continued into IHP-IX;
- Also requests** the IHP Secretariat to present to the 58th IHP Bureau details of the proposed new mechanism, requested in IHP/IC Resolution XXII-6, 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 for periodically assessing their progress and potential future road maps.

**RESULTS / ACTIONS TAKEN**

179. Please refer to sub-item 4.7 (IHP Flagship Initiatives) within this document.

**Resolution XXIII-13: “Proposal for the United Nations international year of snow and ice in 2020”**

**Requests** the assistance of the IHP Secretariat to initiate consultations and formalities for establishing a United Nations International Year of Snow and Ice in 2020 (proposed by Iceland);

**Requests** the IHP Secretariat to transmit this resolution to the 205th session of the Executive Board of UNESCO with a view to having the General Assembly of the United Nations consider declaring the year 2020 as the International Year of Snow and Ice.

**RESULTS / ACTIONS TAKEN**

180. The Secretariat held several consultation with Iceland regarding the way forward and to prepare the process for the UNESCO Executive Board session consideration, however Iceland proposed to postpone the process.

**Actions expected from the Bureau:**

**To take note of the implementation of previous resolutions adopted during the last 23rd IHP Council and provide advice on the next steps, suggesting as well possible contributions from Member States.**

**REPORT ON THE IMPLEMENTATION OF THE RECOMMENDATIONS OF THE TECHNICAL MEETING OF THE IHP BUREAU MEMBERS (16-17 JANUARY 2019) AND PAST BUREAU SESSIONS (Agenda Sub-item 4.5)**

181. Due to the importance of 2019, the Bureau Members decided to hold a technical meeting to examine the progress of numerous items of high importance and provide guidance to the Secretariat. In particular, the Bureau examined the progress of the strategic planning of the ninth phase of IHP (IHP-IX, 2022-2029); of the Statutes of the IHP Intergovernmental Council; of the Mid-term evaluation of IHP-VIII; of the evaluation of the IHP Flagship Initiatives and of the preparation for the 1st International Water Conference.

182. The Members of the Bureau took note of the main outcomes from the 20 September 2018 information meeting; of the efforts vis-à-vis the visibility, communication and outreach of IHP; the progress on the Water Museums Network and for an SDG indicator 6.a.2 related to water education. They supported the proposal of a Comprehensive World Water Development Report, as well as those of the International Center for Interdisciplinary Research on Water Systems Dynamics (France) and the preliminary project proposal from Australia to establish a Category 2 Centre on Ecological Water Management.

183. The Members of the Bureau acknowledged and supported the role of IHP in the preparation of the 9<sup>th</sup> World Water Forum to be held in Senegal in 2021. However, they expressed their concern regarding the latest developments within the WMO reform.

184. For more information please refer to the [final report of the meeting](#).

## **MID-TERM EVALUATION OF THE EIGHTH PHASE OF IHP (IHP-VIII) (Agenda sub-item 4.6)**

185. The mid-term evaluation of IHP-VIII was successfully ended in June 2019 under the leadership of the Internal Oversight Service (IOS). The Secretariat served as a resource for the exercise. The document was presented during a January 2019 special technical session of the Bureau Members and the Members of the IHP-IX TF and received their feedback. The final version of the evaluation proposes 11 recommendations focusing on the development of IHP-IX, on strategically positioning UNESCO within the other UN agencies, strengthening IHP National Committees / focal point, improving communication, role of cross-cutting themes, enhancing the science policy interface and mobilising finances, among others. A management plan has been developed to respond to the recommendation of the evaluation.

186. For more information please refer to the report of the mid-term evaluation of IHP-VIII reference document, IHP/Bur-LVIII/Ref. 5 and the management response.

## **REPORT ON THE IHP FLAGSHIP INITIATIVES (Agenda sub-item 4.7)**

### **4.7.1 Report on the Flagship Initiatives**

187. Following up to the Council resolution, the Secretariat made an international call for proposals to evaluate the 15 IHP Flagship initiatives. A team of consultants was hired and the evaluation report was presented during a January 2019 special technical session of the Bureau Members. Subsequent to the evaluation, guidelines were developed for the discussion of a Working Group to be formulated to discuss them and proceed with a final proposal for the adoption of the 24<sup>th</sup> session of the IGC of IHP.

188. For more information please refer to the report of the mid-term evaluation of IHP-VIII reference document IHP/Bur-LVIII/Ref. 6 and the management response.

### **4.7.2 Presentation of the Guidelines for the Initiatives**

189. For more information please refer to the Power Point presentation related (available on the website of the documents of the 58<sup>th</sup> session of the IHP Bureau) and the First Draft Guidelines for the IHP's Programmes and Major Initiatives presented in reference document, IHP/Bur-LVIII/Ref. 7.

### **4.7.3 New IHP Flagship Initiatives**

197. The Global Network of Water Museums (WAMU-NET) expanded and institutionalized formalized its activities since its establishment as an IHP Flagship Initiative through Resolution XXIII-5 (see agenda sub-item 4.4. above). The initiative's secretariat is hosted by the non-governmental association "Global Network of Water Museums", founded according to Italian national law. The IHP Secretary is honorary member with voting rights in the WAMU-NET management board since 13 June 2019. WAMU-NET's website ([www.watermuseums.net](http://www.watermuseums.net)) displays general information, examples of water heritage and of adhering museums; the site bears the network's visual and the UNESCO-IHP logo as identifiers. The secretariats of IHP and WAMU-NET closely cooperate on communication and branding, as well as on institutional matters, such as the forthcoming application of the guidelines for IHP Flagship Initiatives under development, including of performance indicators, such as, but not limited to, membership and visitor numbers. The third WAMU-NET conference in Valencia, Spain, 12-14 June 2019, gathered over 120 participants (approx. 60 women and 60 men) from 24 countries who showcased some of the reference

models and good practices concerning the role of museums in the protection of endangered water-related heritage, the application of the right to water and the development of the capacities of a large audience to comprehend and act upon water challenges. WAMU-NET now formalized the membership of 41 museums from 24 countries, with 10 more museums in the process of joining and strong regional interest, e.g. in Latin America. The planning and coordination of joint activities, the full integration in the UNESCO Water Family the linking to the network of UNESCO National Commissions are currently underway in cooperation with the IHP Secretariat.

198. The transition from an UNESCO Working Group into the UNESCO Land Subsidence International Initiative has started after its approval by the IHP Intergovernmental Council in June 2018 through Resolution XXII-6 (see agenda sub-item 4.4. above). The first annual meeting was held 5-6 November 2018 in Shanghai, China. The list of members and observers has been updated. A visual was designed and a pilot website will be tested during one year. Guidelines to join LaSII are under preparation. Among several future activities, LaSII members are planning to investigate land subsidence rates in 138 coastal megacities, prepare to develop a project to investigate land subsidence related costs, and to collaborate in the transition of a Key Laboratory into an UNESCO Category 2 Centre on Land Subsidence in Shanghai. Next meeting is planned to take place in Utrecht, Netherlands, 2-4 September. More details will be provided in the consolidated annual report under preparation.

#### **UNESCO-WINS (Agenda sub-item 4.8)**

190. The IHP Water Information Network System (WINS) online platform (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. WINS is freely available to Member States, water stakeholders and partners, with the aim of encouraging contributors to share information and knowledge on water. 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. As such, the platform contributes to close the gap between North and South in terms of access and the sharing of knowledge.

191. 39 Member States have joined the platform: Afghanistan, Andorra, Armenia, Botswana, Brazil, Burkina Faso, Cameroun, China (People's Democratic Republic of), Djibouti, Dominica, Ecuador, Egypt, Equatorial Guinea, France, Honduras, Hungary, Ireland, Japan, Kenya, Kuwait, Latvia, Libya, Lithuania, Malaysia, Mali, Montenegro, Namibia, the Netherlands, Norway, Pakistan, Panama, Poland, Saudi Arabia, Senegal, Sudan, Togo, Turkey, the United Kingdom, and Uzbekistan. Six category 2 Centres (Regional Centre on Urban Water Management (RCUWM) in Tehran, Iran; Centre for Arid and Semi-arid Zones of Latin America and the Caribbean (CAZALAC) in La Serena, Chile; International Groundwater Resources Assessment Centre (IGRAC) in Delft, Netherlands; International Centre for Water Resources and Global Change in Koblenz, Germany; International Center for Hydroinformatics in ITAIPU, Brazil/Paraguay; International Centre for Water Hazard and Risk Management in Tsukuba, Japan) and seven UNESCO Chairs (Chair in Water Management in Bangui, Central African Republic; Chair/International Network of Water-Environment Centres for the Balkans on Sustainable Management on Water and Conflict Resolution in Thessaloniki, Greece; Chair in Water Sciences in Birmingham, UK; Chair in Water And Environment Management For Sustainable Cities in Tehran, Iran; Chair on Water and Education for Sustainable Development in Santa Fe, Argentina; Chair on Capacity Building of the Hydrology and Meteorology in Vientiane, Lao People's Democratic Republic; Chair on Environmental History, Water and Indigenous Peoples in Tucson, USA).

192. Overall, more than 350 persons have joined the platform and over 250 items are now publicly available on WINS (more than 100 contributions are awaiting publication).

**COOPERATION WITH OTHER UNESCO PROGRAMMES (Agenda sub-item 4.9)**

**United Nations World Water Development Report (WWDR) 2019 edition (Theme: Leaving No One Behind)**

193. In WWDR2019, IHP led the content preparation of Chapter 3 (Social Dimensions). The drafting involved coordination with and content integration from UNESCO Sectors for Culture and for Education. The Chapter acknowledges contributing colleagues and WWDR2019 was shared with them.