Format for Biennial Reports by UNESCO's Water-related Centres on activities related to the IHP in the period (June 2014 – May 2016)

1. Basic information on the centre

Name of the Centre		International Centre for Water Resources and Global Change (ICWRGC)
Name of Director		Prof. Dr. Siegfried Demuth
Name and title of contact person (for cooperation)		Prof. Dr. Siegfried Demuth
E-mail		Demuth@bafg.de
Address		P.O. Box 200253, 56002 Koblenz, Germany
Website		waterandchange.org
Location of centre		city/town _Koblenz____ country _Germany
Geographic orientation *		☒ global ☐ regional
Region(s) (for regional centres)		
Year of establishment		2014
Year of renewal assessment		
Signature date of most recent Agreement		
Themes Of activities during reporting period	Focal Areas ♦	☐ groundwater ☐ urban water management ☐ rural water management ☐ arid / semi-arid zones ☐ humid tropics ☐ cryosphere (snow, ice, glaciers) ☒ water related disasters (drought/floods) ☐ Erosion/sedimentation, and landslides ☐ ecohydrology/ecosystems ☐ water law and policy ☐ social/cultural/gender dimension of water ☒ transboundary river basins/ aquifers ☐ mathematical modelling ☒ hydroinformatics ☒ remote sensing/GIS ☒ IWRM ☒ Watershed processes/management ☒ global and change and impact assessment ☐ mathematical modelling ☒ water education ☒ water quality ☐ nano-technology ☐ waste water management/re-use ☐ water/energy/food nexus ☐ water systems and infrastructure ☒ other: (please specify) Water diplomacy
	Scope of Activities ♦	☒ vocational training ☒ postgraduate education ☒ continuing education ☒ public outreach ☒ research ☒ institutional capacity-building ☐ advising/ consulting ☒ software development ☒ data-sets/data-bases development ☐ other: (please specify) _____

* check on appropriate box
♦ check all that apply

Support bodies [1]	Federal Ministry of Foreign Affairs, Federal Ministry of Transport and Digital Infrastructure, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
Hosting organization [2]	Federal Institute of Hydrology
Sources of financial support [3]	Federal Ministry of Foreign Affairs, Federal Ministry of Transport and Digital Infrastructure, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
Existing networks and cooperation [4]	WMO, UNEP; IAHS, IAH; 2C2
Governance	☒ director and governing board ☐ other: (please specify) _____ Link to election of board members to the IHP Intergovernmental Council (IGC) and hosting country IHP National Committee _____ Frequency of meetings: once every 1 year ☒ Existence of UNESCO presence at meetings
Institutional affiliation of director	Federal Institute of Hydrology
Number of staff and types of staff	total number of staff (full-time, or equivalent) : 10_____ number of staff who are water experts: 6_____ number of visiting scientists and postgraduate students: 1_____
Annual turnover budget in USD	Ca. 500,000.00 Euro inclusive staff costs, ca. 70,000.00 Euro project funds

[1] please specify bodies that cover the operational costs of the centre, and other essential costs such as salaries and utility bills, and that provide institutional support to ensure centre's sustainability
[2] if different from support bodies
[3] please specify sources of main budgetary and extrabudgetary funds to implement projects
[4] please write international networks, consortiums or projects that the centre is part of, or any other close links that the centre has with international organizations or programmes, which are not already mentioned above

2. Activities undertaken in the framework of IHP in the period June 2014 – May 2016

2.1 Educational activities (i.e., those with accreditation) that directly contributed to the IHP-VIII (Appendix 1) and WWAP
Please include here those activities which led to accreditation of degrees, or those held in formal school settings.

2014

8. "International German Summer School on Hydrology (IGSH) 2014 - Rural Hydrogeology"
17 – 30 August 2014, Bochum, Germany

2015

9. "International German Summer School on Hydrology (IGSH) 2015 – Groundwater and Urbanization"
16 - 29 August 2015, Bochum, Germany

2.2 Research activities that directly contributed to the IHP-VIII activities
Please include research/applied projects outputs such as publications that directly contributed to the IHP-VIII and WWAP objectives

Improved operational prediction of river stages and flows through error correction in model outputs (in cooperation with WMO)

The aim of the project is the better consideration and the reduction of the manifold uncertainties in operational predictions of river stages and flows on all scales of relevance for inland navigation and water management.

An intelligent coupling of ARIMA-, VARX-, and artificial-neuronal-network models should make it possible to build a comprehensive model that may well approximate the error difference between measurement and computation in the majority of cases and thus improve the simulation result afterwards.

Development of a Global Water Information System - Global Water Portal (in cooperation with UN organisations)

The IHP/HWRP Secretariat is developing the global water information system **"Global Water Portal"** to provide scientists, decision-makers and the interested public with a direct access to this information via one single portal. The portal design is service-oriented, i.e. the data remain with their providers but can be retrieved and displayed via internet services.

Copula as a means of analysing historical flow data

This research project aims at assessing the possibility of using copula functions for analysing hydrological data series. This cooperation with Professor Bardossy from Stuttgart University will give a young Japanese scientist the opportunity to acquire a PhD. The research aims at supplementing and providing alternatives to standard time series analysis by means of trend analysis, wavelet analysis etc. The resulting project report will be available in English.

Land use and climate change interactions in central Vietnam's Tam Ky Province

First model outputs show that near the coasts annual precipitation has significantly increased in the period from 1980 to 2009. The changes were particularly pronounced in the winter months with increases up to 30 %.

The same period showed also the greatest changes in the variability of precipitation. These results are in good agreement with the data from the few precipitation stations in this study area. Model runs suggest that these phenomena will intensify in the future. However, the calculations are based on the assumption that land uses and vegetation cover will not change (static approach). In a new, dynamic approach land uses and vegetation covers will be adapted to changing climate conditions. This will then allow to make more realistic predictions on the future hydrological situation in this catchment.

2.3 Training activities that directly contributed to the IHP-VIII and WWAP objectives

2014-2016

E-Learning Module on Integrated Water Resources Management

2015

Train the Trainer Course – Blended Learning in Hydrology
31 August – 3 September 2015, Aachen, Germany

3. Collaboration and linkages

3.1 Participation in major international networks, programmes, partnerships with other UN or other International Agencies, media and professional bodies

2014-2016

Contribution to the UNEP GEMS/Water Programme through the implementation of the data related activities in the GEMS/Water Data Centre operated by the ICWRGC

Contributions to the hydrology and water resources programme of WMO

3.2 Participation in meetings related to the IHP and UNESCO (e.g. the UNESCO General Conference, the UNESCO Executive Board, the IHP Intergovernmental Council and/or other meetings organized by IHP)

2014

21st session of the IHP Intergovernmental Council, Paris, 18-20 June 2014

51st session of the IHP Bureau, Paris, 20 June 2014

2015

52nd session of the IHP Bureau, Paris, 1 - 2 June 2015

Organization of UNESCO IIWQ Regional Workshop: Water Quality Challenges in Europe, Koblenz, Germany, 1 – 4 December 2015

Co-convenor together with IHP/HWRP Committees of The Netherlands and Belgium of the Workshop “Exploring new data for SMART monitoring of water SDG targets”, Maastricht, The Netherlands, 30 November – 1 December 2015

2016

53rd session of the IHP Bureau, Paris, 19 - 21 April 2016

3.3 Collaboration and networking with other UNESCO category 1 or 2 institutes/ centres

3.3.1 cross-appointment of directors of the category 1 or 2 institutes or centres on the governing board

Ms. Therese Sjömander Magnusson,
Stockholm International Water Institute (SIWI), Stockholm, Sweden,
Mr. Maciej Zalewski,
European Regional Centre for Ecohydrology, Lodz, Poland,
Prof. Toshio Koike,
Inter. Centre for Water Hazard and Risk Management (ICHARM), Tsukuba, Japan
Dr. Seyed Ali Chavoshian,
Regional Centre on Urban Water Management (RCUWM), Tehran,Iran
Mr. Robert A. Pietrowsky,
Inter. Center for Integrated Water Resources Management (ICIWaRM), Alexandria, USA

3.3.2 exchange of information on activities such as training/educational materials, and funding opportunities

none

3.3.3 exchange of staff, most notably professionals and students

none

3.3.4 implementation of joint activities, such as workshops, conferences, training programmes, joint projects, field visits, software and data sharing, knowledge exchange and publications

2014
Organisation of Meeting of water related UNESCO Category 2 Centres, Koblenz, Germany, 15 - 17 December 2014

2016
Financial support of UNESCO Science Centres Coordination Meeting, Peking, China, 16 - 18 Mai 2016

Regional I meeting, Koblenz, 24 -25 May 2016 including 2C2 and Water Chairs

3.4 Relationships with the UNESCO field and regional office whose jurisdiction covers the country of location

UNESCO Venice Office, Danube cooperation

3.5 Relationship with the UNESCO National Commission and the IHP National Committee in the country of location and with other organizations of other countries

The German Commission for UNESCO is a non-voting observer of the Governing Board.

The German IHP/HWRP National Committee is member of the German Commission for UNESCO

3.6 Relationship with other UNESCO-related networks, such as UNESCO Clubs, ASPnet, and UNESCO chairs

Cooperation with the UNESCO Chair in Hydrological Change and Water Resources Management at the RWTH Aachen University (Germany) in the field of education and capacity building especially in blended learning

4. Communication

4.1 Communication and knowledge dissemination activities undertaken in the framework of IHP

Website of centre:

http://www.waterandchange.org

E-Learning Module on Integrated Water Resources Management:

http://www.iwrm-education.de

Capacity Building in Hydrology and Water Resources Management in Germany, Austria and Switzerland:

http://www.hydroforum.de/en/?noredirect=en_US

4.2 Policy documents and advice

Yes: Water Diplomacy – Means of Developing Good Neighborhood Relations (see attached document)

5. Update on Centre Operations

5.1 Membership of the Board of Governors between designated period

none

5.2 Key decisions made (attach minutes of meetings)

See attached minutes

6. Evidence of the Centre's Impacts

6.1 Science Impacts (Major contributions to the science, technology, education, and regional and/or international cooperation in the field of water)

Difficult to monitor, no attempts have been made yet

6.2 Knowledge Transfer Impacts (Major achievements in the dissemination of knowledge and technology transfer)

Difficult to monitor, feedback from participants awaited

6.3 Policy Impacts (advice sought by government and other bodies and evidence of inputs into policy arena)

With respect to water diplomacy the Foreign Ministry of Germany uses the Centre as advisory body.

7. Future activities that will contribute directly to IHP and/or to WWAP

7.1 Operational Plan (attach if available)

1. Contribution to the international initiative on water quality through the data base on water quality (GEMStat)

2. Contribution to water related hazards (flood and droughts, IFI, IDI)

3. Contribution to FRIEND Water

4. Contribution to the ERB (European research basins)

5. Contribution to transboundary rivers (World Large River Initiative (WLRI))

6. Contribution to education and capacity building

7. Contribution to WWAP 2017 through GEMStat

7.2 Strategic Plan linked with IHP-VIII (Appendix 1). Focal areas within IHP-VIII the centre plans to contribute to and specific actions the centre will undertake to align its activities with the strategic plan for IHP-VIII

THEME 1: WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE
THEME 3: ADDRESSING WATER SCARCITY AND QUALITY
THEME 6: WATER EDUCATION, KEY FOR WATER SECURITY

8. Annexes

8.1 List of publications released by the centre (there can be overlap with those listed in 2.3 above)

Training Guidelines on Integrated Flood and Drought Management, 2015

Training course on flood risk assessment, 2016

8.2 List of training courses conducted (there can be overlap with those listed in 2.1 above)

2014

- *Title of the training*

8. "International German Summer School on Hydrology (IGSH) 2014 - Rural Hydrogeology"
17 – 30 August 2014, Bochum, Germany

- *Target audience (education level /technical/professional etc.)*

Young scientists and young professionals

- *Relation to which theme of IHP-VIII (1 to 6 themes)*

THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT
THEME 4: WATER AND HUMAN SETTLEMENTS OF THE FUTURE

- *Number of participants*

11 participants from 11 different contries

- *Number of women among the participants*

6 women

2015

- *Title of the training*

9. "International German Summer School on Hydrology (IGSH) 2015 – Groundwater and Urbanization"
16 -29 August 2015, Bochum, Germany

- *Target audience (education level /technical/professional etc.)*

Young scientists and young professionals

- *Relation to which theme of IHP-VIII (1 to 6 themes)*

THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT
THEME 4: WATER AND HUMAN SETTLEMENTS OF THE FUTURE

- *Number of participants*

23 participants from 19 different contries

- *Number of women among the participants*

5 women

- *Title of the training*

Train the Trainer Course – Blended Learning in Hydrology
31 August – 3 September 2015, Aachen, Germany

- *Target audience (education level /technical/professional etc.)*

Specialists and experts working in technical and scientific training in the field of water resources management

- *Relation to which theme of IHP-VIII (1 to 6 themes)*

THEME 6: WATER EDUCATION, KEY FOR WATER SECURITY

- *Number of participants*

9 participants from 9 different countries

- *Number of women among the participants*

4 women

2014-2016

- *Title of the training*

E-Learning Module on Integrated Water Resources Management

- *Target audience (education level /technical/professional etc.)*

Young scientists and young professionals in developing countries with focus on Africa

- *Relation to which theme of IHP-VIII (1 to 6 themes)*

THEME 3: ADDRESSING WATER SCARCITY AND QUALITY

- *Number of participants*

50 participants online per month

- *Number of women among the participants*

unknown

Appendix 1

Overview of the Core Programme Themes of the Eighth Phase of the IHP (2014-2021)
WATER SECURITY: ADDRESSING LOCAL, REGIONAL, AND GLOBAL CHALLENGES

THEME 1: WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE

- Focal area 1.1 - Risk management as adaptation to global changes
- Focal area 1.2 - Understanding coupled human and natural processes
- Focal area 1.3 - Benefiting from global and local Earth observation systems
- Focal area 1.4 - Addressing uncertainty and improving its communication
- Focal area 1.5 - Improve scientific basis for hydrology and water sciences for preparation and response to extreme hydrological events

THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT

- Focal area 2.1 - Enhancing sustainable groundwater resources management
- Focal area 2.2 - Addressing strategies for management of aquifers recharge
- Focal area 2.3 - Adapting to the impacts of climate change on aquifer systems
- Focal area 2.4 - Promoting groundwater quality protection
- Focal area 2.5 - Promoting management of transboundary aquifers

THEME 3: ADDRESSING WATER SCARCITY AND QUALITY

- Focal area 3.1 - Improving governance, planning, management, allocation, and efficient use of water resources
- Focal area 3.2 - Dealing with present water scarcity and developing foresight to prevent undesirable trends
- Focal area 3.3 - Promoting tools for stakeholders involvement and awareness and conflict resolution
- Focal area 3.4 - Addressing water quality and pollution issues within an IWRM framework - improving legal, policy, institutional, and human capacity
- Focal area 3.5 - Promoting innovative tools for safety of water supplies and controlling pollution

THEME 4: WATER AND HUMAN SETTLEMENTS OF THE FUTURE

- Focal area 4.1 - Game changing approaches and technologies
- Focal area 4.2 - System wide changes for integrated management approaches
- Focal area 4.3 - Institution and leadership for beneficiation and integration
- Focal area 4.4 - Opportunities in emerging cities in developing countries
- Focal area 4.5 - Integrated development in rural human settlement

THEME 5: ECOHYDROLOGY, ENGINEERING HARMONY FOR A SUSTAINABLE WORLD

- Focal area 5.1 - Hydrological dimension of a catchment– identification of potential threats and opportunities for a sustainable development
- Focal area 5.2 - Shaping of the catchment ecological structure for ecosystem potential enhancement ─ biological productivity and biodiversity
- Focal area 5.3 - Ecohydrology system solution and ecological engineering for the enhancement of water and ecosystem resilience and ecosystem services
- Focal area 5.4 - Urban Ecohydrology – storm water purification and retention in the city landscape, potential for improvement of health and quality of life
- Focal area 5.5 - Ecohydrological regulation for sustaining and restoring continental to coastal connectivity and ecosystem functioning

THEME 6: WATER EDUCATION, KEY FOR WATER SECURITY

- Focal area 6.1 - Enhancing tertiary water education and professional capabilities in the water sector
- Focal area 6.2 - Addressing vocational education and training of water technicians
- Focal area 6.3 - Water education for children and youth
- Focal area 6.4 - Promoting awareness of water issues through informal water education
- Focal area 6.5 - Education for transboundary water cooperation and governance

Minutes of the first Governing Board Meeting of the International Centre for Water Resources and Global Change under the auspices of UNESCO

Date: 09.07.2014

Venue: Federal Foreign Office, Berlin, Germany

List of Participants:

- Mr Michael Behrendt, Director of the Federal Institute of Hydrology, Koblenz, Germany
- Mr Johannes Cullmann, Head of the German IHP/HWRP Secretariat, Koblenz, Germany
- Ms Birgit Esser, Federal Ministry of Transportation and Digital Infrastructure, Bonn, Germany
- Ms Verena Klinger-Dering, Federal Ministry of Environment, Nature Conservation, Building and Nuclear Safety, Bonn, Germany
- Mr Lutz Möller, German UNESCO Commission, Bonn, Germany
- Mr Hinrich Thölken, Federal Foreign Office, Berlin, Germany, (President)
- Ms Wendy Watson-Wright, Assistant Director-General of UNESCO, Paris, France
- Mr Michael Worbs, Permanent Representative of Germany to UNESCO, Paris, France

German IHP/HWRP Secretariat:

- Mr Philipp Saile, Koblenz, Germany
- Mr Ulrich Schröder, Koblenz, Germany
- Mr Thomas Vetter, Berlin, Germany

1. Welcome

The President of the Governing Board Mr Thölken opens the meeting and welcomes the participants of the meeting.

2. Adoption of agenda

Mr Thölken proposes the following agenda:

- Discussion and adoption of the rules of procedure of the Governing Board
- Composition of the Governing Board
- Date for the next meeting
- Miscellaneous

The proposed agenda is adopted by the participants.

3. Discussion and adoption of the rules of procedure of the Governing Board

Mr Thölken suggests to go through the rules of procedure article by article for adoption.

This procedure has been accepted by the participants.

The term *Chairperson* is changed to *President* in all relevant Articles.

- Article 1:
  Adopted without modification

- Article 2:
  Adopted without further modification

Ms Watson-Wright suggests not to change all members of the Governing Board at one time in order to maintain continuity.

Article 3

Paragraph 3)
Rephrase: The majority agreement of all attendees shall be necessary for the adoption *of decisions*.

Paragraph 4)
New: The Chairperson can ask for electronic votes when urgent issues relevant to the Rules arise between meetings. The decisions in such cases shall be made within 24 hours by consent of the majority of the members who have voted by deadlines.

Paragraph 5)
New: The official language of the Governing Board meeting shall be English.

Paragraph 6)
New: The secretariat of the Governing Board (referred to in Article 9 *of the Agreement*) shall take minutes of the Governing Board meetings.

Adopted with the above modifications

- Article 4:
  Adopted without modification

- Article 5:
  New: *The Rules may be amended during a Governing Board meeting by consent of the majority of members.*
  Adopted with the above modifications

- Article 6:
  New: Miscellaneous provisions necessary for the management of the Governing Board but not included in the Rules *shall be decided by the president with the consent of the majority of the Governing Board members.*
  Adopted with the above modifications

  Stated examples for "Miscellaneous provisions" are new forms of communications between Governing Board members or financial issues.

The revised version of the Rules of Procedure is enclosed.

4. Composition of the Governing Board

The agreement between UNESCO and Germany concerning the Establishment and Operation of an International Centre for Water Resources and Global Change under the Auspices of UNESCO Germany specifies in Article 7, paragraph 1, section (a) to (e) the composition of the Governing Board.

Section (a):

Mr Thölken informs about the decision of the German Government that the President of the Governing Board is appointed by the Federal Foreign Office and that he has been selected to serve as the boards first President.

Section (b):

Mr Cullmann stated that transparency in process of election is important and a broad regional coverage is advantageous for the selection of up to four representatives of Member States. He reports that three member states have informally indicated interest during the IHP Council in June 2014. Mr. Thölken asks the Secretariat to provide names from interested member states. He suggests electing the representatives in the next meeting.

Section (c)
Ms Watson-Wright stated that it is up to UNESCO Director General to appoint a representative for UNESCO. She recommends sending a letter to the Director General with request to nominate a representative.

Section (d)
Mr Thölken suggests Mr Behrendt as representative of the German National Committee for IHP of UNESCO. Mrs Watson-Wright asked for another member of the German National Committee from the Scientific Advisory Board.

Section (e)
Three representatives from funding ministries are nominated.

Mr Hinrich Thölken, Federal Foreign Office
Ms Birgit Esser, Federal Ministry of Transportation and Digital Infrastructure
Mr. Thomas Stratenwerth, Federal Ministry of Environment, Nature Conservation, Building and Nuclear Safety

From non-funding ministries, a representative of the Federal Ministry of Education and Research will be included as non-voting observer.

All representatives of the Governing Board are nominated ad personam. A delegation of their tasks to others is generally not foreseen. An early invitation four to six months in advance is necessary to make sure members can participate in the Governing Board meeting

5. Date for next meeting

The next meeting will be held in Berlin in the last week of October or first week in November 2014.

6. Miscellaneous

No comments or questions

7. Closing

The President closes the first Governing Board meeting.

Minutes of the second Governing Board Meeting of the International Centre for Water Resources and Global Change under the auspices of UNESCO

Date: 4 November 2014

Venue: Federal Foreign Office, Berlin, Germany

List of Participants:

- Mr Michael Behrendt, Director of the Federal Institute of Hydrology, Koblenz, Germany
- Mr Johannes Cullmann, Head of the German IHP/HWRP Secretariat, Koblenz, Germany
- Ms Birgit Esser, Federal Ministry of Transportation and Digital Infrastructure, Bonn, Germany
- Ms Verena Klinger-Dering, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Bonn, Germany
- Ms Ines Margraff, German UNESCO Commission, Bonn, Germany (guest)
- Mr Hinrich Thölken, Federal Foreign Office, Berlin, Germany, (President)
- Mr Siegfried Demuth, UNESCO, Paris

German IHP/HWRP Secretariat:

- Mr Ulrich Schröder, Koblenz, Germany
- Mr Thomas Vetter, Berlin, Germany

Excused:

- Mr Dietrich Borchardt, Helmholtz Centre for Environmental Research - UFZ, Magdeburg, Germany
- Ms Therese Sjömander Magnusson, Stockholm International Water Institute (SIWI), Stockholm, Sweden
- Mr Thomas Stratenwerth, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Bonn, Germany
- Mr Maciej Zalewski, European Regional Centre for Ecohydrology Lodz, Poland

Agenda

1. Adoption of agenda
2. Adoption of the minutes of the first Governing Board meeting
3. Modification of the Rules of Procedure of the Governing Board
4. Working programme
   4.1 Monitoring of the future UN Sustainable Development Goal (SDG) regarding water
   4.2 Working programme of the Centre
5. Networking of the International Centre for Water Resources and Global Change
6. Organizational issues
7. Miscellaneous, next meeting

1. Welcome

The President of the Governing Board, Mr Thölken, opens the meeting and welcomes the participants of the meeting.

2. Adoption of agenda

The agenda issued along with the letter of 24 October 2014 is adopted to include the extension of the item 4 by the working programme of the Centre.

3. Modification of the Rules of Procedure of the Governing Board

Mr. Thölken outlines the modifications of the rules of procedure suggested in the letter of 24 October 2014. He refers to the advantage of the optional designation of a personal representative for participation and voting on behalf of the designated member. This measure increases the Governing Board's capability of acting.

This modification is combined with the wish that each member of the Governing Board will have appointed a permanent representative by 19.12.2014. The same applies to the Vice-Chairman of the Governing Boards, who is represented by the member of the Governing Board from the Federal Ministry of Transport and Digital Infrastructure. In this case, the Federal Foreign Office delegates the Deputy Head of the department 404 as a member of the Governing Board.

Mr. THÖLKEN requests the German IHP/HWRP National Committee to discuss during its next session, which representatives should be additionally admitted to the Governing Board to cover all aspects.

This modification of the Rules of Procedure has been accepted by the participants.

4. Working programme

4.1 Monitoring of the future UN Sustainable Development Goal (SDG) regarding water

Mr. THÖLKEN reports that the final report of the Open Working Group on the Sustainable Development Goals (SDG) was submitted in late July 2014. Notably the objectives summarized in goal 6 deal with water issues. Any further handling of the subject areas is continued within the scope of working groups.

Mr. CULLMANN explains that six working groups deal with water issues within the scope of the Expanded Monitoring Initiative. These working groups are financed by the Swiss Development Cooperation. A meeting to this end will be held in Nairobi in December 2014 in and in Geneva in late January 2015. The Federal Institute of Hydrology (BfG) is to be actively involved in the work. WHO has requested Mr. Cullmann to act as reviewer in the synthesis of the sub-reports and to take on the role of moderator within the scope of the Expanded Monitoring Initiative. The Centre is to participate in designing and attend the "Water Quality Monitoring" section of the initiative.

Ms. KLINGER-DERING supports the proposal. She also outlines that the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has already expressed its support by locating the international database GEMStat at the BfG premises in Koblenz/Germany. She suggests involving the Centre into the work. The application submitted by the Centre to the BMUB can be supported. Pertaining funds can be provided in 2014 and 2015 for travel costs and preparing brief reports. Support on a larger scale cannot be determined unless the objectives are identified and a decision on a stronger commitment of Germany is taken.

In this context, Mr. CULLMANN refers to the inter agency meeting on Water in January 2015 (13.01.2015, 14-16 hrs, video conference between Berlin and Bonn). The first steps into this venture can be prepared in order to decide on further activities after having identified the objectives.

The Governing Board requests Mr. Cullmann to contribute to the synthesis of the existing parts of the Expanded Monitoring Initiative. It directs its request to the attendees of the departmental meeting, to implement a procedure and assignment of activities in coordination with the departments further to the German preliminary work for the SDGs in the field of water and to agree upon possible activities.

4.2 Working programme of the Centre

Mr. CULLMANN presents the Centre's working programme.

To begin with, he reports on the activities in 2014.

1) Cooperation with ICHARM in Japan (flood risk)

2) Colloquium "Seasonal Forecasting – current challenges and potential benefits for decision-making in the water sector", 15-16.10.2014, Koblenz

3) International Workshop "Climate Change Impacts on Snow, Glacier and Water Resources: Multidisciplinary Network for Adaptation Strategies", 6.-7.11.2014, Koblenz

4) Capacity Development: planned submission of application to DAAD (German Academic Exchange Service), cooperation with universities & Ireland in the field of data networking

5) IHP Coordination meeting of water-related Centres under the auspices of UNESCO - Global Meeting 15-17.12.2014, Koblenz

Mr. DEMUTH highlights the commendable integration of the topics dealt with so far by the Centre into the VIII. stage of the IHP working programme. He notably points to the issue Cryospheric Environments, that is both funded by UNESCO and by Belgium, the latter contributing 500.000 US$. The issue Seasonal Prediction is addressed by IHP, e.g. in drought forecasting in Africa.

Ms. KLINGER-DERING stresses that the work of the Centre fits in well with the processes initiated by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

Ms. MARGRAFF promises support by the German UNESCO Commission.

Mr. BEHRENDT notes that the topics of the Centre are well-chosen. BfG is able to perform excellent preliminary work in all fields. He suggests that greater account should be taken of groundwater in the Centre's future programme.

Subsequently, Mr. CULLMANN illustrates the preliminary work of the Centre within the scope of the SDGs.

Mr. DEMUTH requests the Centre to join forces with the UN indicator group as regards the water indicator issue.

Eventually, Mr. CULLMANN gives a survey of the future activities of the Centre.

1) Fostering better regional networking
2) Promoting exchange of knowledge and experience
3) Investigations on the optimization of water distribution in riverine catchments – benefits for all parties involved
4) Establishing common standards and terms

The Governing Board agrees to the presented working programme of the Centre.

5. Networking of the Cat-II-Centre

Mr. THÖLKEN welcomes the suggestion by the Centre to convene a meeting of the IHP Cat-II-Water-Centres in Koblenz.

Mr. CULLMANN reports that it is one of UNESCO's longstanding demands to promote cooperation among the Centres. For the first time, the Centre has taken the initiative of inviting all Centres to Koblenz from 15.-17.12.2014. The meeting aims at

- Presenting the work and goals of the Centres
- Improve communication among the Centres
- Establish and coordinate the contributions for IHP VIII
- Clarifying the understanding of the roles of the Centres in the Post-2015 process
- Establishing working groups to jointly develop projects

At present, 19 Centres plan to attend the meeting. The members of the Governing Board are also invited to attend the meeting.

The Governing Board welcomes the initiative made by the Centre and wishes the organizers success.

6. Organizational issues

Mr. CULLMANN states that the efforts incurred for administrating external funds solicited by the Centre is becoming ever larger for the BfG. This is due to the fact that each new project has to be established in terms of contents and financing each time, absorbing substantial resources in the administration of the BfG. To simplify the procedure he suggests to provide just one budget line for projects based on external funds for the Centre, that will combine all funds. Accounting of the funds will be implemented sponsor-specifically as in the past.

The Governing Board requests the BfG to consider such a proposal in order to achieve a simplification for all parties concerned and to utilise personnel resources sensibly. In case the BfG cannot decide on its own, the Governing Board requests the support of the Foreign Office and the Federal Ministry of Transportation and Digital Infrastructure.

Mr. THÖLKEN requests the Centre to submit a budgetary statement. It is to be established in a way that provides a transparent overview of financial means. The funds for the Centre, projects (e.g. GemStat) and the IHP/HWRP Secretariat are to be listed. A suggestion to be submitted to the Governing Board only is to be developed in cooperation with the BfG.

The Governing Board requests the Centre to develop such a proposal by the end of November 2014 and to submit it to the Governing Board for information.

7. Miscellaneous, next meeting

The Governing Board requests the Centre to communicate a working programme.

The next meeting of the Governing Board is to be held in Berlin on 9 June 2015.

The President closes the second Governing Board meeting.

Minutes of the third Governing Board Meeting of the International Centre for Water Resources and Global Change under the auspices of UNESCO

Date: 9 June 2015

Venue: Federal Foreign Office, Berlin, Germany

Agenda

0. Welcome
1. Adoption of the agenda
2. Adoption of the minutes of the second Governing Board meeting (4 November 2014, file attached)
3. Thematic highlights of WRGC 2015/2016
4. Short contributions (5') of other Centres (JPN, POL, SWE, USA) on priority action 2015/2016
5. Regional Water Cooperation, Project Development as agreed on in Dec. 2015
6. Cooperation and Networking among Centres, Report of Dec. 2015 Meeting (WRGC), further steps and activities (WRGC proposals and plenary discussion)
7. WRGC funding, third party funding and support by BfG administration
8. Miscellaneous: Forthcoming events, staff changes, next meeting

INTERNATIONAL CONFERENCE

WATER RESOURCES ASSESSMENT AND SEASONAL PREDICTION

KOBLENZ, 13 to 16 October 2015

Water Diplomacy - Means of Developing Good Neighborhood Relations

Session outcomes

Final Document

Status: 26.11. 2015

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Rational for including "*Water Diplomacy – means of developing good neighborhood relations"* as a conference theme

The German Federal Foreign Office is hosting the "Berlin Process", catalysing peaceful regional policy development in Central Asia and has started to cooperate with various international partners in the field of preventive water diplomacy including outside of Central Asia. The Center for Water Resources and Global Change (CWRGC) hosted at the Federal Institute of Hydrology in Koblenz, Germany is a partner in this endeavour. Focussing on transboundary river basins, the geopolitical importance of water diplomacy in managing our water resources wisely is the reason why the conference organizers had included a session "*Water Diplomacy – means of developing good neighborhood relations"* in the conference. In this manner, the organizers wish to create the policy nexus of water resources assessment, seasonal prediction and peaceful cooperation in transboundary basins. Under different aspects, the utility of scientific, technical and political approaches as prerequisites for effective water diplomacy measures were presented with examples from the Orontes, Nile, Euphrates, Murray-Darling and Mekong basins. Following the conference session, a side session on the topic triggered additional ideas how improved means of cooperation, technical systems and scientific advancement can be meaningfully applied for water policy development and diplomacy in the context of water resources assessment and seasonal prediction.

Setting the Scene

Peaceful transboundary water cooperation is based on technical, educational, institutional and political aspects. Water diplomacy is a relatively new approach in water cooperation. Its aim is to catalyse technical water cooperation and, at the same time, use technical water cooperation as a means to develop good neighbourly relations in politically sensitive areas. "The Water Diplomacy approach diagnoses water problems, identifies intervention points, and proposes sustainable solutions that are sensitive to diverse viewpoints and values, ambiguity and uncertainty as well as changing and competing needs" (source: www.waterdiplomacy.org). Water diplomacy is about building trust. Trust can be built if water is relevant in the political context and if transparent rules and procedures apply to a shared water resource. Water resources assessments are needed to define scientifically based foundations for transboundary water management and how to achieve it through means of water diplomacy. Seasonal prediction helps optimising transboundary water resources management and thus provides a practical tool for water diplomacy. In a conceptual manner, the "The Berlin Process" consists of an approach at three levels:

1. **Political-institutional:** supporting institutions in establishing effective water management and coherent policies
2. **Scientific-technical:** establishing reliable data bases, supporting measures designed to enhance efficiency and developing new technical solutions
3. **Capacity building:** developing professional capacities necessary for integrated water resources management

Principal guiding questions in the context of the conference had been:

- Which kind of political support is needed by scientists and water managers in transboundary water resources management and prediction?
- What can up to date operational systems offer in terms of generating trust and peaceful cooperation?
- Which cooperative arrangements can be used to effectively enhance basin-wide water management and prediction services?

Results of discussions

In an international diplomatic environment, basically five principles of peaceful co-existence are recognized (Ministry of Foreign Affairs of the People´s Republic of China and numerous citations since the "5 five principles of peaceful co-existence" were incorporated into the China-India joint statement in 1954; see: http://www.fmprc.gov.cn/mfa_eng/ziliao_665539/3602_665543/3604_665547/t18053.shtml):

- Mutual respect for each other's territorial integrity and sovereignty
- Mutual non-aggression against any country
- Mutual non-interference in each other's internal affairs
- Equality and mutual benefit
- Peaceful co-existence.

Translated in the context of water diplomacy, especially the items “mutual non-interference” and “equality and mutual benefit” are areas of potential conflict in transboundary basins and subject to water-diplomatic activities.

Political and diplomatic framework

In a simplified view, water diplomacy occurs at the stakeholder level, the technical level, the policy level and the political level and all need to be engaged.
Water diplomacy can be viewed as a strategic approach for basin socio-economic development. However, there are a number of challenges that impede efficient water diplomacy. Exemplary, this is spelled out in the Draft Strategic Plan of the Mekong River Commission 2016-2020: *“The MRC has proven skills in facilitating discussion and debate at the technical level but faces* challenges to engage political decision makers in the process”. Starting points for water diplomacy efforts prior to a potential conflict situation include the establishment of a strategic basin development plan along its development opportunities and actions guided by a cooperative procedural framework, as is the case in the Mekong River Basin.

An overall important approach to assist water diplomacy is to move away from “sharing the water” to “sharing the benefits”. To quantify these benefits requires appropriate data. In many countries there is not only a lack of quantitative water data but also a lack of quantitative socio-economic data. The Mekong Basin Development Plan moves in that direction and includes the notion “to seek options for sharing the potential benefits and risks of development (in all water and related sectors)”. Lessons learned from the formulation of the Murray-Darling Basin Darling Basin Plan demonstrate that science-based results from water resources assessment and seasonal prediction strongly influenced Australian Water Management decisions, based on water diplomatic efforts between the states of Australia and virtually all stakeholders. The Orontes Basin is a good example for post-conflict recovery planning, the need to consider the impacts of conflict on the hydrosystem in the basin as well as its consequences on transboundary relations. In the Euphrates Basin, it is shown that the Bankruptcy Theory as a branch of cooperative game theory can be used in dispute resolution and resource allocation when demands surpass the available resources. The example for the Nile River Basin demonstrates the beneficial use of a modelling framework as a water-diplomatic tool to foster transboundary cooperation with the aim to regional climate adaptation in the basin and is being implemented in a decision-support system.

Water diplomacy – like other fields of diplomacy - takes place in an environment that involves risks and uncertainties. Risks need to be identified, spelled out and put into a pragmatic framework, supported by trustworthy data and information. Mentioning uncertainty in this context is a very valid point that influences water diplomacy and policy decision-making. For example, uncertainty can play a key role when policy makers attempt to justify one policy direction over another, particularly when both the level of uncertainty and the political stakes are high. Uncertainty may be considered normal for scientists but for policy makers uncertainty can raise doubt. Accordingly, policy makers need to feel confident that hydrological data will provide a sound platform to support their decisions. Accordingly, stakeholders in water diplomacy need to be confident that hydrological data will provide a sound platform to support their efforts.

To integrate water diplomacy in a political framework, several suggestions were made. It was recognized that communication and flow of information are key to success to water diplomacy. Suggestions include:

- Develop and implement twinning arrangements between basin partners and nationally mandated institutions to share best practices in water management in providing the scientific basis for policy development. This includes using the mechanism of seconded experts and knowledge.
- Consideration of existing international agreements and establish enabling mechanisms to review those agreements according to the evolution of the environmental, social, economic and institutional context
- Establish a legal framework for cooperation that is binding in a transboundary basin based on mandated institutions such as a river basin commissions or regional institutions. Support of the legal framework through by-laws that are anchored in national institutions of the riparians to enable enforcement of the legal framework based on a common political will of all stakeholders.
- Enable environment for multiple-tiers of cooperation and consultations including through commerce and business, recognized NGOs and INGOs.
- Ensure continuity of institutional memory at all levels (national and regional) for seamless communication and consultations
- Firmly anchor decision-making at basin-level in high-level governmental institutions mandated for political decision-making
- Institutional capacity building with regards to communication – learn how to communicate information in a politically meaningful way.

Sharing of data

Based on documented national interests and development plans and – in particular – on the basis of documented shared interests between nations, building of mutual trust and confidence is essential in water diplomacy. An indispensable pre-requisite to create mutual trust and confidence is the political willingness to share data and information. On the technical level, data sharing agreements along set data sharing policies and institutionalized arrangements may include:

- Identification of incentives and obstacles for sharing of data, including national security issues and the emerging privatization of hydrological data such as through the hydropower industry/energy trading markets
- Sharing of hydro-meteorological data at national level, between different institutions, among regions, and between riparian countries.
- Sharing of hydrological data with a socio-economic context (water demand, use, consumption, water quality…).
- Addressing insufficient observation networks, sharing of resources in the light of common interests (such as flood and drought management), recognition of data scarce regions, identifying regions with political conflicts and risks of data losses.
- Recognition of the economic value of data – shifting data to a common good domain rather than a private domain

- Recognition that data collection on its own has no value but that it is the purpose that it serves and the information products generated from data collection exercises.

Sharing of information

In general, transparent information provides a better basis for negotiation. Here technical tools such as Information Management Systems and Decision Support Systems can support this. See for example the Nile DSS (example: http://nilebasin.org/index.php/news/5-nbi-embarks-on-training-users-of-the-nile-basin-decision-support-system).

Even when under certain circumstances such as national security considerations, sharing of data is difficult to be achieved, such data can be aggregated to an information product that nonetheless is of high value in a transboundary context. Observations and suggestions include:

- Prerequisite for information sharing and water cooperation is to identify water goals in the countries as a basis to sharing data, information, knowledge and best practice.
- Trust building through sharing information by establishing appropriate dialogue mechanisms and communicate and sharing the benefits of sharing information.
- Establish a communication stream with identified institutional focal points for communication between technical communities (across-disciplines) and policy makers and the political level.
- Establish improved mechanisms for improved cooperation – sharing of information (vertical and horizontal/technical experts, technical people and others involved.
- Establish national consensus building mechanisms within in a country with different stakeholders at technical, policy and political levels and migrate these consensus findings in a transboundary context.
- Establish an institutionalized workflow of institutionalized information sharing between institutions at all levels, including regional and transboundary.
- Identify fragmentations of information holdings due to different institutions involved
- Strengthen the generation of institutional services through institutional capacity building, organizational capacity building and establishment of communication mechanisms.

Way forward

Best efforts to achieve success in water diplomacy build on a multi-tiered approach using multiple pathways to engage in water diplomacy, including import/export of virtual water (such as food for water energy marketing etc.), policy reform, organisational reforms, and building trust through joint projects. Several more pathways are listed below:

1. Governance at national levels through diplomacy
2. Shared water management or sharing the benefits of water rather than allocation of water only
3. Non-government/professional or facilitation through conflict resolution
4. Business or promotion of cooperation through commerce
5. Private citizens or networking through personal involvement
6. Research, training and education or cooperation through learning

7. “Bartering” such as exchange of water for food/energy
8. Activism through advocacy
9. Religion through faith in action
10. Funding or fostering development through providing resources
11. Communications and the media or diplomacy through information

(*Adapted and revised from: Keo Sovannarith, Transboundary Water Conflict: A case study of the Mekong River Basin)*

Recommendation and next steps

Participants of the conference found merit in demonstrating the benefits of water diplomatic measures in managing water resources in transboundary basins with the paradigm to “share benefits”. Based on the presentations and subsequent discussions as well as the outcomes of the side-event there was a recommendation to select a river basin with existing advanced cooperative mechanisms to further develop the concept and application of water diplomacy through scientific-technical, educational and political/decision-making approaches. The Mekong River Basins appeared as a good candidate in this regard for further consideration. Consequently, the next step would aim at consultations with the Mekong River Commission and gauge its interest in water diplomacy issues across its programs.

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