TENDER INVITATION for a KNOWLEDGE PIECE

Opportunities to build climate resilience and advance on sustainable development goals through Integrated Water Resources Management:
the interface between Nationally Determined Contributions and Integrated Water Resources Management as measured through SDG indicator 6.5.1

GLOBAL WATER PARTNERSHIP ORGANISATION

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1. Objective

The overall objective of the assignment is to support GWP in mobilizing its network and partners to encourage greater ambition related to water in the new or updated Nationally Determined Contributions (NDCs) due in 2020, specifically by analysing and articulating national-level opportunities to advance integrated approaches to water management to effectively and efficiently build climate resilience, delivering synergistically on country NDC commitments and SDG targets, in ways that are aligned to the Sendai Disaster Risk Reduction Framework.

1.1. About the Global Water Partnership

The Global Water Partnership vision is for a water secure world. Our mission is to support the sustainable development and management of water resources at all levels.

Global Water Partnership (GWP) is an international network created in 1996 to foster the implementation of Integrated Water Resources Management (IWRM): the coordinated development and management of water, land, and related resources by maximising economic and social welfare without compromising the sustainability of ecosystems and the environment.

The GWP Network currently comprises 13 Regional Water Partnerships and more than 80 Country Water Partnerships, and includes over 3,000 Partners in 180 countries.

The Network. The Global Water Partnership is a non-profit action network with a focus on water resources management and development. It is a multi-donor funded network focused on facilitating and supporting countries in change processes for the sustainable management of their water resources. The GWP Network is open to all organisations which recognise the principles of integrated water resources management endorsed by the network and which are committed to these principles (outlined in the application to be a Partner). It includes states, government institutions (national, regional and local), intergovernmental organisations, international and national non-governmental organisations, academic and research institutions, companies, and service providers in the public sector. GWP provides a mechanism for harmonization across different national actors and internationally across different external support agencies, and a platform for multi-stakeholder dialogue at global, national and local levels.

The Partnership helps countries connect water resources planning and operations at different scales – transboundary, regional, basin, national and local – so that actions are coherent and sustainable. Instead of using the traditional development approach in which projects are often not connected, GWP works with numerous stakeholders to design strategic approaches to improving water management. This builds local capacity in the long term. GWP does not operate alone; indeed its networking approach provides a mechanism for coordinated action and adds value to the work of many other development partners.

The Organisation. The GWP Organisation (GWPO), established as an intergovernmental agency in Sweden, is managed by an Executive Secretary who is answerable to the Steering Committee (SC). The Steering Committee oversees policy and approves the work programme and budget of the GWPO. The SC and its Chair are appointed by the Sponsoring Partners, comprising the ten founding members of the GWPO.

The GWPO Secretariat acts as the 'network hub' for GWP. The Secretariat manages GWP's finances and reports on funding received at the global level. It also helps with the exchange of knowledge, resources, and ensures communication and coherence across the Network. The Secretariat of GWPO is located in Stockholm, Sweden. The Secretariat staff force normally stands at 20-25 staff members recruited from all parts of the world, with around half of the staff being permanent Swedish residents. The staff is composed of both administrative and operational/scientific/technical positions.

The GWP Technical Committee is the 'technical hub' of the network. At the global level, the GWP Technical Committee's mandate is to guide policy makers with clear insights on emerging issues, drawing on the forward thinking of acknowledged world experts. For water resource practitioners at all levels, the GWP Technical Committee aims to provide high quality, peer-reviewed and evidence-based information and background material.

GWP has built up a network of **13 Regional Water Partnerships (RWPs).** These bring together various sectors and interest groups to identify and discuss common water problems and to develop action plans based on integrated water resources management. Each RWP, and the Country Water Partnerships, Area Water Partnerships, City Water Partnerships and River Basin Partnerships that may be established in the regions, has its own operational strategy, work programme and administrative structure. The RWPs are attached to host institutions that administer funds and employ staff on their behalf.

More information can be found at www.gwp.org

2. Instruction to Tenderers

2.1. Procurement Procedure

This is an open competitive procurement procedure. Bidders will submit a tender offer and GWPO will subsequently enter into detailed discussions with one or more of the bidders. One supplier only may be awarded the assignment. It is of the utmost importance that all terms and conditions contained in the tender invitation are fully followed.

NOTE: GWPO as an inter-governmental organisation is not bound by the Swedish procurement act (SFS 2007:1091). Despite this, GWPO may undertake procurement. This tender invitation does not obligate GWP to contract for the supply of any products or services.

2.2. Content of Tender Offers

Bidders should offer services for the complete assignment as defined in the Specification of Requirements. Please note that each requirement in the specification is to be addressed separately, with clear reference to the requirements. For evaluation purposes, the tender offer should follow the same disposition as the Specification of Requirements. The offer will include a technical and financial proposal for the delivery of the following tasks and deliverables:

- *Inception report*
- *Zero-draft of a regional perspectives chapter for the 2020 World Water Development Report*
- *Individual country reports, and accompanying 2-pager country policy briefs*
- *Draft and final synthesis report*
- *Advanced draft and final regional perspectives chapter for the 2020 World Water Development Report*

All costs must be included in the tender offer. The costs are to be specified in Euros, including VAT, in the manner set out in the specification. The GWPO indicative budget ceiling is 60,000 Euros, inclusive of VAT.

The bidder is welcome to enclose brochures and other printed information, although the comments in the offer to the tender requirements should be listed as specified without relying on information in enclosures or elsewhere.

Please also take note of the evaluation criteria described below.

2.3. Submission of Tender Offers

The tender offer is to be

⇒ submitted in English, as a PDF file by email with the subject “Tender for a Knowledge Piece on Opportunities to Build Climate Resilience and Advance on SDGs through

IWRM: the interface between NDCs and IWRM as measured through SDG indicator 6.5.1" to the following address: procurement@gwp.org

⇒ complete with all relevant company names, address, contact persons and e-mail address, VAT-number (or other relevant tax registration number)
⇒ signed by authorised representative of the bidder
⇒ marked as confidential
⇒ specify an e-mail address of the supplier to which potential clarifications may be sent

By submitting a tender, the bidder confirms that the company:

- is registered in the professional and trade registers in the country where the supplier is based (certificate may be requested by GWPO where appropriate).
- has not been convicted of any criminal offence and is, if requested, able to produce an extract from a legal register, or in the absence of such a register, a certificate issued by an authorized legal or administrative authority in the country of origin or in the country where the supplier is based, as means of proof.
- is not in debt with either the tax authority or the enforcement service regarding the payment of any required taxes and/or social security contributions (certificate(s) may be requested by the Buyer where appropriate). VAT-number, if any, should be stated.
- is, if requested, able to present adequate papers proving that they have not been convicted of any crime concerning the exercising of a profession, been the subject of a legal verdict or been found guilty of gross misconduct whilst providing a professional service.
- is not bankrupt or currently the subject of bankruptcy proceeding, compulsory liquidation, compulsory management arrangement or accord. The bidder also confirms that they have not cancelled payments or been made the subject of a trading ban or any other similar arrangement.

The bidder also confirms that the company has the financial capacity, as well as the technical, quality assurance, research and development capacities and abilities for the assignment/fulfilment of the bidder's contractual obligations.

Certificates and other proof as stated above may be requested by the GWPO where appropriate. Note that certificates should only be supplied upon separate request from GWPO. Bidders failing to produce proof if requested by GWPO may be disqualified.

To verify that the exclusion and qualification criteria are fulfilled, GWPO may acquire information from a credit-reporting bureau.

2.3.1. Closing Date for Submission of Tenders

Final date for receipt of tenders is **25 April 2019**. GWPO may extend the final date for submission of tenders for any reason including requests from invited bidders to do so.

Tenders received after the final date of receipt of tenders will be disregarded.

2.3.2. Cost of Tender

Costs for the preparation of tenders will not be reimbursed.

2.3.3. Period of Validity of Tender

The offer outlined in the tender is to be valid for a minimum period of 90 calendar days after the closing date. If necessary, GWPO may ask for the bidder's agreement to an extension of the period of validity (preferably in writing).

2.3.4. Withdrawal of Tenders

A bidder may withdraw its tender at any time prior to the closing date, if notice of the withdrawal is received by GWPO prior to the closing date. Notice of withdrawal is to be sent by an authorized representative to procurement@gwp.org and marked "Tender for a Knowledge Piece on Opportunities to Build Climate Resilience and Advance on SDGs through IWRM: the interface between NDCs and IWRM as measured through SDG indicator 6.5.1".

2.3.5. Opening of Tenders

GWPO will open the tenders on the day following the closing date. Bidders will not be allowed to be present. The names of the tenders will be kept confidential until the contract with the successful bidder has been signed.

2.3.6. Communications During the Procurement Procedure

If the bidder has any questions regarding the invitation to tender, please contact Anjali Lohani via email anjali.lohani@gwp.org. GWPO will respond in writing (via email only) to any request for clarification of the tender invitation that it receives prior to the closing date of the tender.

GWPO's response to all questions (including an explanation of the query but without identifying the source of enquiry) will be posted to the GWP website.

2.4. Tender Evaluation

The evaluation of tenders will be carried out in two steps.

2.4.1. Exclusion and Qualification Criteria

GWPO will examine the tenders to determine whether they are complete, the documents have been properly signed, and the requirements have been addressed. A tender may be rejected if the tender is incomplete, not signed or fails to address the requirements *or if the tender price exceeds the indicative budget ceiling.*

2.4.2. Evaluation Criteria

The second stage consists of an evaluation of the tenders according to the evaluation criteria listed below.

Evaluation Criteria	Relative Importance
Ability to meet the Requirements: Demonstrated experience and capacity in carrying out similar assessments	*40%*
Understanding of the context and scope of the assignment: Opportunities to build climate resilience and advance on SDGs through IWRM – the interface between NDCs and IWRM as measured through SDG indicator 6.5.1	*30%*
Cost	*30%*

GWPO may ask, by email, any bidder for clarification of any part of its proposal to assist in the examination and evaluation. GWPO may also invite any number of bidders to present or otherwise confirm the services, or parts thereof, followed by a question and answer session.

2.4.3. Award of assignment

GWPO will enter detailed discussions with the bidder rated as having submitted the most advantageous bid to arrive at a contract for the assignment. If such discussions are unsuccessful, GWPO may invite the second rated bidder for discussions.

Please note that GWPO is not bound to select any of the tender offers submitted.

3. Specification of Requirements

3.1. Context

During the UNFCCC COP 24, held in Katowice, Poland, in December 2018, GWP launched the results of a new analysis of 80 Nationally Determined Contributions (NDCs) from a water perspective, juxtaposed with the UN's 2018 progress report on country implementation towards the Sustainable Development Goal on Water (SDG 6). The report, "Emerging Insights – Preparing to Adapt: The Untold Story of Water in Climate Change Adaptation Processes" highlighted the following:

- **Water drives climate adaptation action:** while countries prominently highlight the need to climate-proof water supply and build resilient water infrastructure, few are paying attention to critical ingredients that will make these ambitions sustainable in the long-term: strengthening water governance through robust water management institutions.
- **Think before you act:** Many countries (>60%) have prioritized institution building in water but less than a third (26%) embrace integrated water resources management (IWRM) as an approach. There are reasons for concern that with poor or inadequate management approaches, forging ahead with major infrastructure investments can have counterproductive results. Many of the countries prioritizing infrastructure investments fare poorly in the 2018 synthesis assessment on progress towards IWRM (SDG 6.5.1).
- **Mitigation also has a water story:** There are considerable co-benefits from water adaptation actions for mitigation, and vice versa – with access to clean water and sanitation following many of the mitigation-related actions, be they supply side, demand side, or land-use oriented. We know this from the IPCC report – but what we don't know is: are these co-benefits being managed, monitored, used, and maintained as part of integrated water resources management institutions and regulations? This is for the water sector to take on!
- **Don't sell cheap:** Much of the mitigation story contained in the NDCs is a hydropower or land-use change story that involves watersheds. Whether water is valued is an important and un-asked question that the next round of NDC implementation must answer.
- **Most urgent:** Investing time and energy in designing concrete climate action projects. The NDC analysis points clearly to a major disparity between funding requests and the availability of actual project design. GWP has engaged over the past six months in understanding what this gap looks like "on the ground" – and the gap is huge. Working with countries to identify and design specific actions and projects will have to come before "billions can become trillions."

The report makes clear that there is an interface between climate action and water action that countries and development partners can manage more purposefully – while delivering on

their NDCs and making progress towards their SDG targets, in ways that are aligned to disaster risk reduction approaches under the Sendai Framework. The report paves the way for more in-depth analysis, to better understand the drivers behind individual countries' decisions on their climate and sustainable development agenda.

As a follow-up to the "Emerging Insights" report, GWP is commissioning the development of this knowledge piece on the interface between the NDCs and Integrated Water Resources Management (IWRM) as measured under SDG Indicator 6.5.1 Degree of IWRM implementation. This knowledge piece has the overall ambition of articulating the role of IWRM in advancing countries' climate and SDG commitments, as well as further documenting and understanding the extent to which the NDC and SDG agendas are aligned and complementary at the interface of climate resilience and water resources management. The knowledge piece will support GWP in mobilizing its network to encourage greater ambition in the water sectors in the next round of NDCs, due in 2020. Towards this, the knowledge piece will have 'actionable' value at the country-level, in the form of country-tailored policy briefs targeting national focal points for SDG6, UNFCCC, GCF NDA, Ministries of Water, Environment, Planning, Finance, and other key national-level decision makers, communicating to them opportunities to build climate resilience and advance sustainable development goals through Integrated Water Resources Management.

The work proposed will build on the high-level analysis carried out in the "Emerging Insights" report by focusing on an in-depth assessment of the relevant NDC/SDG governance processes and institutions, informed by the history and political economy of water management processes, in 15 pilot countries. The work will include a particular emphasis on financing for implementation, addressing the recognised gap between funding needs and availability.

3.2. Scope of the Assignment

Acknowledging the close links and need for synergies between the climate and SDG agendas, GWP is proposing to conduct a series of in-depth country reviews to document, understand and learn from national level efforts to design and deliver on Nationally Determined Contributions (NDC) and Sustainable Development Goals (SDG) commitments.

The work will address the need to establish a comprehensive understanding of the institutional landscape and planning frameworks at country level in the context of the water-related NDCs, SDGs and associated national development processes. Country-level analysis in 15 geographically diverse countries will be conducted through the application of a consistent analytical framework (to be developed as part of the assignment) covering a review of, inter alia:

- The governance landscape, including existing planning frameworks and institutional roles and responsibilities concerning the NDCs, water-related SDGs and relevant national development processes
- The interlinkages (or lack thereof) between different planning processes and responsible institutions

- The challenges related to political economy, leadership, resources, apetite among national leadership, and other social, environmental, and economic barriers to design, implementation and evaluation of NDCs and SDG interventions
- The investment cycles, sources of funding and existing commitments to finance the implementation of the NDCs, water-related SDGs and relevant national development processes
- The relevant ongoing and planned projects/activities
- The extent to which IWRM principles are shaping the identification, prioritisation and implementation of NDC/SDG interventions
- The current and potential roles of non-state actors, including the relevant GWP national and regional entities, in shaping national planning processes and investments

3.3. Assignment implementation and expected deliverables

The work will be conducted through a combination of desktop study, stakeholder interviews, and analysis of existing data. The work will feed into outputs in 2 packages: (i) A regional perspectives chapter (Chapter 10; 8000 words) in the 2020 World Water Development Report, which has the theme of 'Water and Climate Change,' (See Annex 1 for report annotated outline, and Chapter 2 for report production timeline) and (ii) A standalone, comprehensive GWP synthesis report, supported by individual country reports and accompanying policy briefs. It is envisaged that the following phases will be required to complete the planned deliverables:

- *Inception:* An initial period of approximately 1 week is suggested for the inception phase concluding with the submission of an "inception report". The inception report will include a detailed account of how the review will be carried out, including a description of the assumptions and the methodology that will be applied to achieve the assignment objectives.

    ↳ ***Deliverable: Inception report, incl. a proposed analytical framework for national-level data collection***

- *Preliminary assessment:* Rapid analysis of NDCs and IWRM status in 15 countries across 5 UN regions (as per the UN regional commissions), in the context of region-specific priority climate risks, to broadly determine the current gaps, challenges and opportunities for leveraging IWRM approaches to deliver and raise ambition in the NDC commitments for increased climate resilience.

    ↳ ***Deliverable: Zero-draft of a regional perspectives chapter for the 2020 World Water Development Report***

- *National data collection and analysis:* Data collection will be carried out remotely in 15 countries primarily through electronic means (Skype, email, internet research, etc.), in close collaboration with GWP regional and national entities.

- ↳ ***Deliverable: 15 individual country reports structured according to the analytical framework and key summary messages, and accompanying 2-pager country policy briefs***[1]

- *Report drafting:* Review of the national-level findings to identify salient barriers and leverage points emerging consistently across the international NDC/SDG landscape together with key learning insights and recommendations.
  - ↳ ***Deliverable:*** **Draft and final standalone GWP *synthesis report***[2,3]
  - ↳ ***Deliverable:*** **Advanced draft and final regional perspectives chapter for the 2020 World Water Development Report**

3.4. Timeline

The bulk of this assignment will be carried out over a period of approximately 15 weeks, commencing in May 2019. After the completion of the final synthesis report for GWP, we envisage light engagement on finalization of the WWDR2020 regional perspectives chapter till November 2019, as per UN Water's WWDR2020 development timeline (see Annex 2).

[1] Draft country reports and policy briefs will be reviewed by interviewees and country-level stakeholders. The successful bidder will be in charge of consolidating and addressing feedback received and revising drafts as needed until final GWP signoff. Detailed production schedules with the different steps for these reports and policy briefs will be agreed upon signing of the contract for this assignment.
[2] GWP will hold the copyright for this report. The successful bidder will be duly acknowledged in the report.
[3] The structure and format of this report will be outlined and agreed during the inception phase. A detailed production schedule with all the steps (drafting, review/consultations, rewriting, sign-off etc.) will be agreed upon signing of the contract. The final deliverable from the successful bidder will adhere to the guidelines in GWP's language style guide, to be shared during the inception phase. The successful bidder will gain clearance for any material, including graphics, drawn from third party sources requiring permission to reuse.

Phase	Week															
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*Oct-Nov 2019*
Inception	□															
Preliminary assessment			◊													
Data collection & analysis							♦ ○				● ▫					
Final synthesis											Δ				▪▲	
Finalize WWDR2020 regional chapter															♦	⋆

Deliverables:
□ Inception report
◊ Zero draft of the WWDR 2020 regional perspectives chapter
○ First draft of individual country reports
● Final individual country reports
▫ Draft country policy briefs
▪ Final country policy briefs
Δ Draft synthesis report
▲ Final synthesis report
♦ Advanced draft WWDR2020 regional perspectives chapter
⋆ Final WWDR2020 regional perspectives chapter

Annex 1. WWDR2020 Annotated Table of Contents

WWDR 2020 "Water and Climate Change" (working title)

Annotated Table of Contents

Final Draft – December 2018

Scope of the Report[4]

This is to be a fact-based, unbiased and technically sound report highlighting the critical role that the world's water resources and the essential services they provide play in the broader context of sustainable development in a changing climate. This report will focus on how water resources are managed and used, describing responses and approaches to overcome current and future development challenges related to climate change and maximize benefits and opportunities for all.

Although the theme of this next edition of the WWDR is 'Water and Climate Change', this report is *not* merely meant to be a technical report about the potential impacts of climate change on the hydrological cycle. Rather, the WWDR 2020 will seek to address the critical linkages between water and climate change in the context of the broader sustainable development agenda. The report will focus on the challenges, opportunities and potential responses to climate change – in terms of adaptation, mitigation and improved resilience – that can be addressed through improving how water resources are management and used, while providing water supply and sanitation services for all in a sustainable way. In doing so, the report will address two of the most critical crises the world will continue facing over the next several decades: Water (in)security and climate change.

Purpose of the Annotated Table of Contents

The Annotated Table of Contents (AToC) identifies the main content/points of discussion to be included in each particular chapter. The Lead Agencies and the authors are expected to respect the overall content of the AToC and to work closely with the WWDR production team (i.e. WWAP Secretariat) to ensure coherence across the report and avoid redundancy. It is important to note that, although the AToC informs on the principal content of the chapter, it does not necessarily dictate the chapter's detailed structure – it is often only after the first full draft is produced that the best options for a clear and coherent narrative and structure emerges.

PART 1 – Context: Role of water management for climate change adaptation and mitigation in the context of sustainable development

[4] **OHCHR:** 'Human angle/focus' should be emphasized for all chapters.

PROLOGUE ('Chapter 0'): The state of water resources in the context of climate change
Length: 4,000 words
Lead Agencies: WMO, UNESCO-IHP and WWAP
Contributors: IAH, IAHS, ICHARM, IGRAC, IIASA, RAMSAR, UNDP, UNU-FLORES, UNU-INWEH[5]
Overview of the state of the world's water resources and potential impacts of climate change on the hydrological cycle, and the supply, use and quality of water resources, including ecosystems. The Prologue can be seen as a type of 'fact sheet' that sets out the state of knowledge that the rest of the report can refer back too and build upon.

- Short summary[6] of current empirical evidence of the general trends in climate change (e.g., GHG emissions and atmospheric concentrations, connection carbon cycle and energy, temperature, radiative fluxes, …), including what we know now compared to 15-25 years ago (e.g., anthropogenic impacts, CC effects have been more rapid than expected, possible 'hothouse pathways' …).
- General status of knowledge about CC and water, including climate projections and their impacts on 'trends' in terms of[7]:
    - Water availability
    - Water demand
    - Water quality[8]
    - Water-related disasters and extreme events
    - Water-related ecosystems
    - Risk-sensitive areas – SIDS, semi-arid regions, coastal hinterlands, mountains

    These would each be complimented, when appropriate, with material describing unknowns and uncertainties[9], including shortcomings of current models,

[5] **UNU-INWEH** would like to contribute particularly to subsection on general status of knowledge

[6] Much of this can be based on the October 2018 '1.5 C temperature increase report' (http://www.ipcc.ch/report/sr15/) and the annual 'State of the climate report for COP'

[7] **WHO:** This information is described in detail in WHO's water safety plan climate change document. See chapter 2 which includes climate impacts on water resources, both quantity and quality aspects, with a summary table
http://www.who.int/water_sanitation_health/publications/climate-resilient-water-safety-plans/en/

[8] **UNESCO-IHP** has proposed to allocate a separate chapter for water quality and to contribute the following: Changes in ambient water quality due to climate change (water temperature rise ; depletion of dissolved oxygen, eutrophication, algal blooms, pathogens, nutrients, salinity); higher nutrient content in water bodies due to rainfall and runoff changes, as well as irrigation; impacts of changes in precipitation patterns and of water-related disasters (floods and droughts) on ambient water quality (pollution surges during floods and water quality impairment during droughts); emerging pollutants and antibacterial resistant bacteria (more favorable conditions of bacterial growth in water bodies and certain emerging pollutants transport and pathways in the aquatic environment due to temperature and precipitation changes); impact of water quality impairment on ecosystems and their services and functions; impact on water quality from permafrost melting (in cold climates).

[9] SIWI: The limited usefulness of climate models at the decision-making scale should be acknowledged along with a greater emphasis on solutions that work for a range of possible futures.

likelihoods, tipping points, and other matters pertaining to the range of possible futures.

CHAPTER 1: Climate change, water and sustainable development[10]
Length: 3,000 words
Lead Agencies: WWAP, UNESCO-IHP and WMO
Contributors: AGWA, IAHS, ILO[11], OHCHR, RAMSAR, UNDP, UNHCR (most vulnerable), UNIDO, UNU-FLORES, UNU-INWEH[12], WaterLex (most vulnerable), Water.org, World Youth Parliament for Water
What the report is about (scope and objectives of the report), for whom it has been prepared, why it is important (whom will it help), and where it adds value as part of the global efforts to address the issue of climate change.

- **Objectives and scope**
  Objectives and scope of this report. Societies worldwide are being affected through the hydrological changes induced by CC. There is an urgent need for adaptation and opportunities for mitigation in water management. Defining 'adaptation', 'mitigation' and 'resilience' (including time scales). What this report is not about (or not trying to fix). Broad linkages between water, CC, sustainable development and security.

- **A cross-sectoral challenge and the need for integrated assessments**
  CC impacts sustainable development through water, both across various sectors (agriculture, energy, industry, cities, livelihoods, ecosystems and the environment) but also through sector interlinkages (e.g. water-energy-food-environment nexus). Adapting to CC may require additional trade-offs, but also create opportunities (possible socio-economic and environmental benefits).
  The role of water in mitigation but also the negative feedback of mitigation on water (Interlinkages water-energy-carbon cycle).

- **Who (and where) are the most vulnerable**
  Certain groups are particularly vulnerable to the effects of CC through water. Linking water and CC in the geopolitical context: population growth, consumption patterns, economic crises, conflict and security, migration, … Potential economic impacts[13] (costs and possible benefits) of CC in terms of GDP. Particular needs of developing countries (introduce attribution problems and 'climate justice').

CHAPTER 2: The International Policy Frameworks
Length: 2,500 words
Lead Agencies: SIWI and WWAP

[10] **FIRST DRAFT TO BE DEVELOPED AND SHARED WITH LEAD AGENCIES IN MID-JANUARY 2019**

[11] **ILO** would like to contribute on cross-sectoral challenges

[12] **UNU-INWEH** would like to contribute to the part on 'who and where the most vulnerable are'

[13] See **ECLAC** research on the economics of climate change: https://www.cepal.org/en/topics/climate-change

Contributors: FAO, ICHARM[14], ILO, OHCHR, UNDP, UNECE[15], UNESCO-IHP, WaterLex, WHO[16], WMO
Where this report 'fits' in terms of the international political frameworks and the sustainable development agenda.

- **Overview of the main agreements**
  Paris Agreement/UNFCCC (including NDCs and NAPs), Sendai Agreement, Agenda 2030 and SDGs, and International Water Conventions[17] – specifically relating to adaptation and mitigation through water, and where this reports fits.

- Are these agreements[18] addressing water and sufficiently enabling 'water solutions' (if not, why and what is missing?). How can water support (as a 'connector') implementation of the Paris and other agreements (e.g., are water issues are a main priority for countries in their NDCs?). Reflection on latest trends and developments in Katowice, Poland, COP (focus on implementation of Paris Agreement)

*PART 2 – Challenges and opportunities for adaptation, mitigation and resilience in water management**

What can be done through improved water management to better adapt to CC, to increase the efficiency, effectiveness and robustness of water management infrastructure (including O&M), and to contribute to CC mitigation. Different water use sectors/stakeholders also face different challenges with respect to water and CC – there are opportunities to improve CC adaptation and contribute to CC mitigation (i.e., sectoral 'responses').
*** WWAP** will prepare a short introduction (400 words) on why the structure of Part 2 follows an approach focused on different stakeholder groups (not a 'silo' approach), while recognizing critical interlinkages between these groups (cross-benefits and potential trade-offs). The issue of 'integration' will be further elaborated in Chapter 8.

CHAPTER 3 Water availability/supply, infrastructure and ecosystems
Length: 4,000 words
Lead Agency: UNU-INWEH, UNESCO-IHP

[14] **ICHARM** can contribute on major policy frameworks, such as High Level Panel on Water (HLPW) and High-level Experts and Leaders Panel on Water and Disasters (HELP).

[15] **UNECE** would like to contribute concerning the Water Convention

[16] **WHO** can contribute as they are co-leading some of the relevant water related targets under SDG 6 as well as involved in some of the other SDGs

[17] **SIWI** proposed including other multilateral environmental conventions, (Biodiversity, desertification's), Ramsar, Habitat III…
Reply from WWAP: OK, as long as these are directly related to water and CC (adaptation and mitigation). But we want to avoid a very long exposé on various international frameworks and focus on how the WWDR can contribute to these processes.

[18] **WHO** suggests to refer to article 4.1.f of the UNFCCC which refers to commitments from countries and the need to consider public health impacts for any adaptation or mitigation policy or programme to be implemented by them. This includes health impacts via WASH.
Reply from WWAP: The wording of the article is vague and the implications for water and WASH are not explicit.

Contributors: FAO, IAH, IAHS, IGRAC, IHE, IWMI, RAMSAR, UNU-FLORES, WHO[19], WWC

Establish linkages between CC and various aspects of water management through adaptation, mitigation and resilience. Note that the main 'impacts' on water resources will be covered in the Prologue.[20]

- **Supply management – enhancing resource availability**
  Storage (surface and groundwater, snow and ice, soil moisture); supply augmentation (e.g., rainwater and fog harvesting); energy requirements for pumping, inter-basin transfers and desalination; water recycling/reuse (incl. energy savings) for irrigation, urban/domestic, industrial, recreational and environmental uses; demand management

- **Water supply and sanitation infrastructure[21] [22]**
  Water purification and wastewater treatment – energy requirements and GHG footprint of various treatment methods and opportunities for adaptation, mitigation and building resilience[23] (e.g., turbines in water pipes as a source of clean energy).
  Aging infrastructure and non-revenue water; multipurpose infrastructure (technical optimization); improved use of climate information in the water sector.

- **Ecosystem services, landuse planning and managing ambient water quality[24]**
  Land use planning and other nature-based solutions (NBS) for adaptation, mitigation (GHG emission related to land management) and resilience.

Chapter 4 Water related extreme events and risk management (floods, droughts, disaster risk reduction)[25]

Length: 2,500 words
Lead Agency: UNU-INWEH

[19] **WHO** would also like to contribute or at least review this section given their work on water supply

[20] **GIZ**: Chapter 1 points out that climate projections are constrained by uncertainties. This means water management needs to remain flexible and be able to adapt to various risks. It would be crucial to include the need for climate risks assessments and analysis to any water management planning. See for instance: Climate Risk Informed Decision Analysis (CRIDA)http://unesdoc.unesco.org/images/0026/002658/265895e.pdf

[21] **WHO** suggests to separate Water supply from Sanitation infrastructure since there are useful specificities we can speak to for each in terms of climate vulnerability and emission profile of technologies - since knowledge on sanitation is behind water supply it is at risk of being lost if not mentioned separately.

[22] **UNESCO-IHP** has proposed to contribute the following:
Impact of climate change on wastewater treatment (both in tropical and cold climates) with negative consequences on ambient water quality; higher costs of water purification and treatment due to changes in water quality and climate episodes.

[23] See **WHO**'s WSP climate change document

[24] Note that the main 'impacts' of CC on ambient water quality and ecosystems will be covered in the Prologue.

[25] Note that the main 'impacts' of CC on extreme events will be covered in the Prologue.

Contributors: FAO, GWP, ICHARM[26], IAH (for drought scenarios), **IWMI, UNDP, UNECE[27], UNESCO-IHP, UNISDR, UNU-FLORES[28], WMO**

Establish linkages between CC adaptation and DRR[29]

- Highlight opportunities to build resilience, disaster preparedness and prevention, and (water risk) management systems;
- Risk management options: 'climate-proofing' infrastructure; early-warning systems;
- Soft measures (insurance, land use planning and other NBS, etc.)

CHAPTER 5 Water, climate change and human health
Length: 2,500 words
Lead Agency: WHO
Contributors: IIASA, IHE, ILO, UNESCO IHP, IWMI, OHCHR, UNU-FLORES, UNU-INWEH, Water.org[30]
Establish linkages between CC and various water-related health issues[31].

- Trends in water-related diseases and other health issues linked to CC (e.g., vector-borne diseases, human health issues as a result of CC-related disasters)
- Response options for WaSH[32] (in healthcare centres, schools, the workplace[33], safe reuse in agriculture …) in terms of CC adaptation
- Demonstrate that the WaSH sector needs to adapt to climate change, but improving access to WaSH services also increases the resilience of people and communities to CC

[26] **ICHARM** can contribute on early warning, understanding of uncertainty of phenomena, planning of infrastructure and reconstruction, and improving capacity of communities.

[27] **UNECE** could contribute through their recently published 'Words into action on water and disasters' together with UNISDR

[28] The proposed contribution from **UNU-FLORES** could consist in (1) a box on climate extremes in East Africa, demonstrating the high spatial and temporal variability and (ii) recent research on adaptation measures to climate change within insurance companies. Insurance companies' response to climate change has to take into consideration adaptation, dynamic capabilities and competitive advantage, differentiating between the dynamic capabilities climate knowledge absorption, climate-related operational flexibility and strategic climate integration. Risk is an inherent part of the dynamic capabilities.

[29] Some information on links between DRR, IWRM and water safety planning (management approach for drinking-water) is included in **WHO**'s WSP climate change document

[30] **Water.org** would like to contribute to the section on the need for WaSH sector to adapt to climate change. ***Reply from WWAP***: Depending on the type of contribution Water.org has in mind, it might be more appropriate to contribute to the section on water supply and sanitation infrastructure in Chapter 3.

[31] **WHO** suggest adding a text box on cholera.

[32] The use of WaSH here seems to imply health effects at the tap and toilet. For clarity **WHO** would cover health risk along each step of the water supply (catchment to consumer) and sanitation (toilet to end use/disposal) as well as mitigation measure and potential public health trade-offs off different mitigation and investment options.

[33] **WHO** propose to also include response options for wastewater operators, sanitation and water operators and safe use of wastewater for agriculture
Reply from WWAP: These are all relevant issues, provided the link to CC is explicit.

CHAPTER 6 Agriculture and food security (incl. fisheries, livestock and forestry)
Length: 4,000 words
Lead Agency: FAO
Contributors: CDP-BAFWAC, IAH[34], IAHS, IIASA[35], ILO, IWMI, UNU-FLORES[36], WMO
Establish challenges and opportunities for CC adaptation, mitigation and resilience in agriculture (in both high and low-income countries) through improved water and land management.

- **Adaptation**
  Increasing irrigation efficiency[37] (in terms of both water and energy savings); improving rainfed crop productivity and drought resistant crops[38];
- **Mitigation**
  Agricultural (and forestry) land management (e.g., increasing carbon storage); sustainable livestock husbandry and freshwater fisheries, biofuels (trade-offs w.r.t. land use, water use and food security vs. GHG mitigation),
- **Resilience**
  Reducing food waste; reducing/recycling non-edible or non-revenue crop residues[39]

CHAPTER 7 Energy and industry
Length: 4,000 words
Lead Agency: UNIDO
Contributors: CDP-BAFWAC, FAO (t.b.c.), IAH (for geothermal energy), ILO, UNU-FLORES, WHO
Establish challenges[40] and opportunities[41] for CC adaptation, mitigation and resilience in the energy sector and throughout industry through improved water and land management.

[34] **IAH** can contribute on the subject of groundwater use.

[35] **IIASA** can contribute on the subject of biofuels

[36] **UNU-FLORES** could contribute on the importance of organic waste for soil fertility and biomass production; importance of soil microbial for ecosystem services

[37] **ECLAC**: Measures designed to improve on-farm irrigation efficiency may actually, depending on the institutional framework, decrease water availability and increasingly stress water supplies.

[38] **UNIDO**: … and managing flooding and seasonal changes.

[39] **UNIDO**: These actions sound more like adaptation measures. Resilience implies flexibility and ability to recover.

[40] **UNIDO**: These should be outlined. While they are similar in general for energy and industry as for other sectors or people - uncertainty, unpredictability, extremes, disasters - the effects and responses are likely to be different.

[41] **UNIDO**: The options listed below are not necessarily opportunities, they are largely responses. To some extent, industry, business and the private sector will balance the efforts of government but from a different perspective. In this respect, there will be changes in orientation, such as becoming more a part of civil society, and business cases to be made that hopefully benefit society as well as shareholders. There is a need to go beyond corporate philanthropy.

- Options to improve water use efficiency (and water use reduction) in primary energy production and power generation (i.e., the 'water-energy-climate' nexus[42]). Renewables (solar and wind[43]) are both low-carbon and low-water (mitigation), whereas the use of fossil fuels impacts both the climate and water security.
- Options to improve water use efficiency (and water use reduction) for different industrial sectors (incl. mining, but also other business sectors such as tourism); value chains, water footprints, CSR and the need of long-term commitments, business models, role of industry 4.0 …

CHAPTER 8 Human settlements (incl. water/climate-induced migration)
Length: 3,000 words
Lead Agency: UN-Habitat
Establish challenges and opportunities for CC adaptation, mitigation and resilience through integrated water management and land use planning in urban, peri-urban and rural settlements.[44]
Contributors: CDP-BAFWAC, IOM, IWMI, UNESCO-IHP, UNU-FLORES, UNU-INWEH[45], World Youth Parliament for Water, Water.org[46]

- Building 'resilient' cities[47] (climate smart, water sensitive etc.); 'green cities' provide adaptation, climate change mitigation, and improved water management;…
- Settlements in rural areas: challenges and sustainable pathways in light of climate change
- Climate-induced migration[48] and its effects on rural, peri-urban and urban settlements

CHAPTER 9 Integration/NEXUS section[49]
Length: 2,000 words
Lead Agency: WWAP

[42] **WHO:** There is a clear linkage to health as a reduction in carbon intensive practices will imply important health co-benefits (through a decrease in mortality and morbidity linked to air pollution). WHO can provide references to this

[43] **WWAP**: Biofuels will probably be covered in Chapter 5 and Chapter 8 (as an example of nexus trade-offs). If addressed here we'll need to ensure complementarity and avoid redundancy.

[44] **WWAP**: Note that water supply and sanitation will be covered in Chapter 3. This chapter focuses on the development of sustainable human settlement 'systems'.

[45] **UNU-INWEH** focal point is Nidhi Nagabhatla - Water and migration and other relevant inputs

[46] **Water.org**: Managed water and sanitation leads to stronger cities (as opposed to slums with little/no WaSH access and the increased vulnerability to communicable diseases such as cholera, etc.) Water.org could contribute on this point.

[47] **UNIDO**: This is a large part of what is currently happening with climate adaptation. Many major cities have plans. Perhaps it deserves more attention. Moreover, the recent example of Cape Town is a good example of a crisis situation.

[48] **UNU-INWEH** proposed that the issues of Small Island stats shall come explicitly

[49] It is possible that this will be covered in the introductory text of Part 2, in which case this chapter would be dropped.

Contributors: FAO, GWP, IAH (groundwater role in nexus; groundwater dependent ecosystems), IAHS, IWMI, UNECE[50], UNESCO-IHP, UNIDO, UNU-FLORES, WHO
Highlight that several topics/sectors covered above are interlinked through water and climate, and establish the need to 'work together' to address the challenges and identify opportunities for collective responses. Progress will require concerted action (beyond the 'silo' approach) along several different fronts.

- Multiple opportunities through interlinkages[51] – various 'nexus' (including ecosystems); potential for a matrix of sectors vs. water impacts and response options to demonstrate interlinkages (e.g., how adaptation/mitigation affect water quantity and quality)
- Trade-offs: when mitigation/adaptation measures in one sector can be detrimental to mitigation/adaptation measures in another (e.g., biofuels, other renewables).
- IWRM for CC[52]; impacts of *not* addressing water-related CC impacts on energy, industry, etc.

PART 3 – Regional Perspectives

CHAPTER 10 – Regional Perspectives
Length: 8,000 words
Lead Agencies: GWP, in close cooperation with the RECs (ECE, ECLAC, ESCAP, ESCWA and ECA), WWAP and other regional offices/agencies
Contributors: ICHARM, IHE, UNESCO Field Offices
The five different regions (as defined under the UN Regional Economic Commissions) have different challenges regarding water and climate change and unique responses. However, effective solutions might also (with some adaptations) work elsewhere. These will be highlighted in this chapter, which will focus on a limited number of specific examples (i.e., 'case studies') that will showcase 'learning examples' and inspire transfer and action. Ideally, the description of the case will be more detailed than the references and boxes that will populate the other chapters of the report. They could cover key aspects linking a main water management objective related to climate change, co-benefits (e.g. job creation, carbon sequestration, sustainable livelihoods), lessons learned etc. Could feature case studies beyond specific countries, e.g., Lake Chad which combines a series of water & CC related issues.[53]

PART 4 – An enabling environment for change and progress

[50] **UNECE** can contribute with their work on the water-food-energy ecosystems nexus and the basin assessments

[51] **WHO** would like to add reference to the Health in All Policies approach (HiAPs).

[52] **UNIDO**: This might be better in Chap 10 perhaps as a potential response in the discussion about the attribution problem.

[53] **ECLAC:** This does NOT seem to be a good option: the cases provided by the regional commissions are unlikely to cover all relevant climate change adaptation and mitigation issues and maybe not even regional priorities, and aggregating them is a common chapter could be confusing and not well balanced. It would be much better to use this material to illustrate, and incorporate regional perspectives, in the other chapters. Say if someone presents a case in urban water supply, than put it under "Human settlements", a case on irrigation in Chapter 5, on energy in Chapter 6, and so on.

The call for adaptation to CC in water management has been happening for over 15 years. Why has progress been so slow? The mitigation (GHG) opportunities through improved water management are less well known. Relevant and inspiring cases will be introduced throughout.

CHAPTER 11 Governance (incl. awareness raising, participation, cross-sectoral coordination and political will)
Length: 5,000 words
Lead Agency: UNDP
Contributors: Aquafed, IHE, ILO, UNECE[54], UNESCO IHP, ICHARM, IWMI, OHCHR, RAMSAR, SIWI, UNU-FLORES, WaterLex, Water.org, WHO, World Youth Parliament for Water, WMO, WB (t.b.c.)
This chapter describes the legal, institutional and political mechanisms to support CC adaptation, mitigation and resilience[55] in water management, as well as opportunities to raise the profile/importance of improved water management in climate change policy.[56]

- CC adaptation and mitigation as part of national water policies[57], and vice-versa (via National Determined Contributions (NDC) and National Adaptation Plans (NAPs)
- Roles of legal and regulatory frameworks for water and land use management; transboundary issues; roles of different levels of government (global, regional, national, local) and the importance of bottom-up approaches[58]; importance of accountability and transparency[59]
- Human Rights Based Approach; OECD water governance framework[60];
- Roles and responsibility of different actors (everybody's problem) and International Agreements (Agenda 2030, Paris[61], Sendai, water conventions, etc) implementation gaps and challenges[62] [directly linked to Chapter 2]

[54] **ECE** would like to contribute to the part on roles of regulatory frameworks based on work in the framework of ECE intergovernmental Task Force on Water and Climate and ECE pilot projects on climate change adaptation in transboundary basins

[55] **ECLAC**: It will be better to clearly separate mitigation and adaptation throughout the text.

[56] **SIWI**: The limited usefulness of climate models at the decision-making scale should be acknowledged along with a greater emphasis on solutions that work for a range of possible futures.

[57] **ECLAC:** It will be difficult to separate this from "The International Policy Frameworks".

[58] **SIWI**: Risk assessment yes but also decision making under risk approach. Need to have a no regret vision

[59] **UNESCO-IHP** has proposed to contribute the following: Youth as a priority group and engaging with Indigenous Peoples

[60] **SIWI**: Climate justice

[61] **SIWI:** A big part of COP24 is going to be on enhancements of ambitions in NDC's and rule book to implement the Paris agreement. Even more with alarming IPCC report. Many governing and governance issues will be addressed. We can propose here a way forward with wise water management. Need to have a strong city angle here too since global issue but local solutions. Missing also the solutions with Source to Sea approaches, Shared Waters partnerships, Water-Forest nexus, …

[62] **UNIDO:** Tensions over water use within as well as between countries.

- Attribution problem[63] (what part of the problem is water management, and what part is CC); public (stakeholder) participation; address conflicting interests; consumer awareness and collective action, strengthen political will and follow-up actions.

CHAPTER 12 Financial and economic instruments
Length: 4,000 words
Lead Agency: World Bank
Contributors: AGWA, Aquafed, CDP-BAFWAC, GWP, OHCHR, UNDP, UNECE[64], UNU-FLORES[65], Water.org, WMO, WWC
Water resources management and WaSH are notoriously under-financed. This chapter explores opportunities to improve the situation in the context of CC adaptation, mitigation and resilience.

- Overview of financial risks for water associated with CC; cost of no action and potential savings (avoided costs) associated with preventive measures (e.g. up to 10 times or more in avoided costs[66])
- Opportunities for financing water though international CC funding mechanisms, for both adaptation and mitigation (e.g., CC adaptation fund, Green Climate Fund[67]).
- Most CC funding (at least at national levels) seems to be earmarked for mitigation – are there opportunities for water management to tap into these sources?; Examples(?) of national-level CC financing aimed specifically at water
- Alternative sources of financing: insurance (DRR etc.), PPPs, investment in climate-sensitive water projects, funding for preventive measures, private sector finance, blended finance (project specific utilisation of different funding source), importance of long-term sustainable business models (beyond of short-term CSR actions), what makes a project 'bankable', value water and savings (value of water beyond 'pricing'), no regret investments, …

CHAPTER 13 Technological innovation, knowledge (management) and capacity development, R&D
Length: 3,000 words

[63] **Water.org**: The attribution problem is a separate bullet from the others. There was basically one very vocal person who emphasized the attribution problem; it should not overshadow the other items in this grouping.

[64] **UNECE** is currently finalizing a publication on preparing bankable projects for climate change adaptation and transboundary cooperation together with the World Bank (Christina Leb). ECE would like to mention it in this chapter and include some text.

[65] The contribution of **UNU-FLORES** is based on extensive research on environmental management accounting defined as "the identification, collection, estimation, analysis, internal reporting, and use of physical flow information (i.e., materials, water, and energy flows), environmental cost information, and other monetary information for both conventional and environmental decision-making within an organization" (United Nations Division for Sustainable Development (UNDSD), 2001.

[66] See for example http://www.worldbank.org/en/results/2014/10/01/novel-approach-to-disaster-risk-management-mexico

[67] **SIWI**: GCF has an obligation to fund 50/50 adaptation and mitigation measures. They are having a hard time fulfilling that obligation even if gap is decreasing with more adaptation projects coming in; esp thanks to readiness projects.

Lead Agency: UNESCO and UNU-INWEH[68]
Contributors: Aquafed, IAHS, ICHARM, IHE, UNDP, UNU-FLORES, WMO
This chapter highlights challenges and opportunities in promoting research, innovation and science to support informed decision-making.

- Recognizing knowledge gaps and research needs; obstacles and solutions for flexible/adaptive design and methods
- Benefits of monitoring and evaluation (keeping track of the outputs and outcomes of strategies) for both decision-making and on-the-ground interventions; role of citizen science and other 'innovative' approaches to information gathering (e.g., ICT).
- Bringing the water and climate research communities closer
- Addressing human and institutional capacities to create more resilient societies[69]

CHAPTER 14 Concluding remarks
Length: 1,000 words
Lead Agency: WWAP
Contributors: many...
A summary of the main policy messages, stressing the urgency for immediate action, managing risks, no regret options[70], and measures that support sustainable development in all its facets through water and climate interventions[71].

[68] **UNU-INWEH** Focal point is Hamid Mehmood. INWEH can offer strong contribution to most of the Chapter bullets, particularly ICT and capacity development.

[69] **SIWI:** New perceptions of societies, circular economy paradigm, need a change and innovation in the paradigm.

[70] UNIDO: This is essentially the Precautionary Principle of taking action based on incomplete evidence when risks are high to human health and the environment.

[71] ECLAC: What is lacking in adaptation in water management itself: what are the implications of the climate change for water rights regime, water allocation, priorities, groundwater management, water law, etc.

Annex 2. WWDR2020 Production Calendar

WWDR2020 Production Calendar **(the dates are tentative and fully depend on all chapter leads delivering on time)**		
	Start date	**Due**
Writing phase begins	21-Jan-19	22-Mar-19
WWAP goes through zero draft chapters to identify issues/gaps	25-Mar-19	5-Apr-19
WWAP works one on one with Lead agencies to provide feedback through inter-active process (skype discussions etc)	8-Apr-19	26-Apr-19
Lead agencies/contributors prepare their revised chapters that will go into **Version One (V1)** of the WWDR2020	29-Apr-19	7-Jun-19
WWAP compiles V1 (3 days) and circulates for review to UN-Water	12-Jun-19	28-Jun-19
WWAP compiles comments and finalizes writing instructions to all or specific lead agencies	1-Jul-19	12-Jul-19
WWAP sends lead agencies WWDR2020 V1 with compiled comments and writing instructions (if applies)	15-Jul-19	16-Aug-19
As Chapters arrive, WWAP reviews the Chapters and compiles **Version Two** (V2) of the WWDR2020 for copy editing	19-Aug-19	13-Sep-19
Copy editing	16-Sep-19	4-Oct-19
Consultation with lead agencies prior to preparing the endorsement copy	7-Oct-19	8-Nov-19
Preparation of the endorsement copy	11-Nov-19	22-Nov-19
Circulate endorsement copy	25-Nov-19	6-Dec-19
Finalizing the WWDR2020	9-Dec-19	27-Dec-19
Lay-out and proof reading (5 weeks)	6-Jan-20	7-Feb-20
Printing (2 weeks)	12-Feb-20	21-Feb-20
Shipment to location where the WWD will be celebrated and to other regions for complementary activities	1-Mar-20	10-Mar-20