



# World Water Assessment Programme (WWAP) Mid-Term Report

WWAP Secretariat  
July 25, 2008

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## Executive Summary

This report has been prepared to provide an overview of the organization and of the activities of the Third Phase of the World Water Assessment Programme (WWAP-3), from February 2007 to June 2008.

Compared to the previous two phases, WWAP-3 has undergone a number of changes. While the first two phases (WWAP-1 from 2000 to 2003 and WWAP-2 from 2003 to 2006) were funded principally with generous project-based funds from the Government of Japan, the third phase has been secured, by a generous 7.5 million Euro grant from the Government of Italy for the 2007-2010 triennium, allowing for the institutionalization of the Program Secretariat in addition to the production of the WWDR-3. In addition, the Government of Region of Umbria, Italy has provided premises located in Perugia for the use of the WWAP Secretariat. Relocation of the WWAP Secretariat to the Perugia site has been planned for autumn of 2008. Moreover, in response to inputs from the External Review and decisions taken at the UN-Water meeting in Stockholm in August 2007, the third phase of WWAP will see a number of differences compared to the previous two phases, namely in terms of the format of its main product, the World Water Development Report, or WWDR-3; the development of a series of side publications; and the establishment of external advisory bodies such as a WWAP Technical Advisory Committee (TAC) and seven specialized expert groups which allow WWAP to explore specific themes in depth and over time. Furthermore, the WWAP Secretariat has itself been restructured to better implement and serve these new features.

This report gives account of these changes, reporting on the following topics:

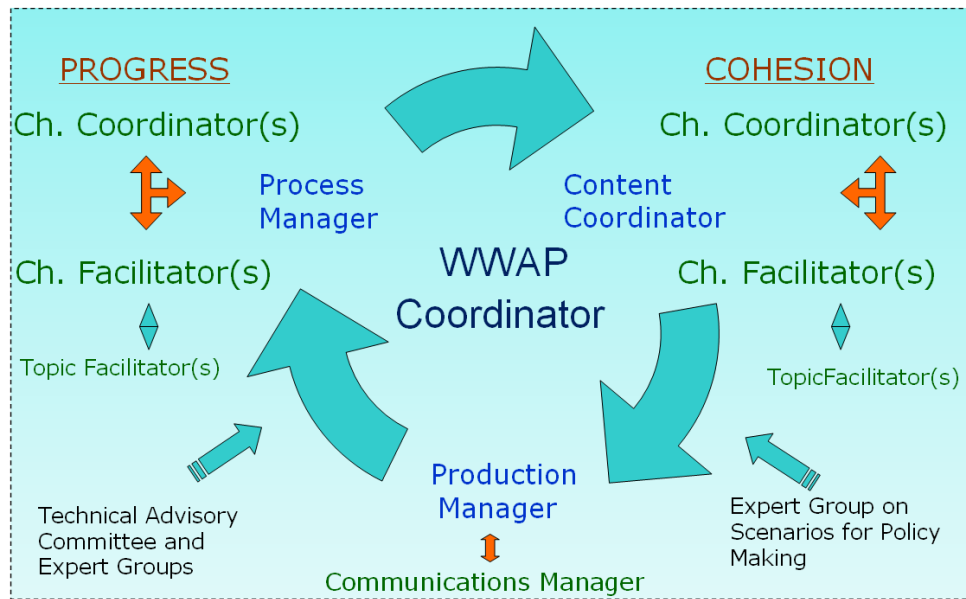
- ☞ WWAP internal structure and transfer to Perugia
- ☞ World Water Development Report- Third Phase (WWDR-3)
- ☞ External Inputs to WWAP
- ☞ Other Activities
- ☞ Communication Strategy

### WWAP Secretariat's internal structure

WWAP-3 formally initiated the new phase activities on 2 February 2007, when UNESCO signed the Funds-in-Trust agreement with the Italian Government. The new coordinator, Mr. Olcay Ünver, joined UNESCO on 22 May 2007 and started the activities with a staff of three. In nine months' time, the staff has grown to include eleven individuals, which will soon expand to sixteen, when the Deputy Coordinator, the Administrative Officer and the General Staff will join the team in late Summer 2008.

A delay of some 14 months in the preparation of the WWDR-3 necessitated speed and measures to govern all processes with redundancies built in. The WWAP's organization has also been redesigned, introducing new positions and roles such as a WWDR-3 Content Coordinator and a Process Manager, as well as chapter and topic facilitators and professional writers. The overall structure aims to facilitate all of the processes with minimal slack in the development of the WWDR-3 (Figure 1). The work of the Secretariat is principally driven by

the 16 March 2009 deadline the Report is to be launched. Each role has been designed to accommodate the evolving nature of the work during the third phase of WWAP, as well as contribute to the longer-term vision of WWAP extending beyond the present phase. Details on WWAP's new structure can be found in Chapter 1.



**Figure 1. WWAP's Organizational Diagram**

### **Transfer of WWAP Secretariat to Perugia, Italy**

The WWAP Secretariat will relocate its operations by the Autumn of 2008, to the new UNESCO Programme Office in Villa La Colombella near Perugia, Italy. The new premises, located 20 km north of Perugia on a property of the University for Foreigners of Perugia, have been offered to UNESCO by the Italian Region of Umbria. The Region is also providing for the running and maintenance costs of the premises. With its five meeting rooms, computer lab, two conference rooms and a 50-person guesthouse, the location was chosen because it offers ideal facilities for capacity-building and training activities. Details and pictures of the new premises can be found in Chapter 2.

### **The World Water Development Report-Third Edition (WWDR-3)**

WWAP's main product in the third phase is the Third Edition of the World Water Development Report, or WWDR-3. The World Water Development Report is a periodic, comprehensive review giving an authoritative picture of the state of the world's freshwater resources, and aims to provide decision-makers with the tools for sustainable use of our water. The Report is the result of collaboration of twenty-four UN agencies and convention secretariats that make up UN-Water. It lays the foundations for regular, system-wide monitoring and reporting by the UN, together with development of standardized methodologies, indicators and data. The first edition of this report, *Water for People, Water for Life*, was launched on World Water Day, 22 March, 2003 at the occasion of the 3<sup>rd</sup> World Water Forum in Kyoto, Japan. The second edition, *Water: A Shared Responsibility*, was launched in Mexico City at the 4<sup>th</sup> World Water Forum, on 22 March 2006. The third edition of the Report, entitled *Water in a Changing World*, is currently under preparation and will be

presented at the 5<sup>th</sup> World Water Forum in Istanbul, Turkey, on 16 March 2009, following the Opening Session of the Forum.

The WWDR-3 presents several changes compared to the previous two editions, from both the content and the process points of view. It now has a new, holistic format, radically different from the earlier reports which were structured after challenge areas and along UN agency lines. The WWDR-3 also takes a broader view on policy options, and new mechanisms have been created to support the development of this report.

#### *New Structure for the World Water Development Report*

A new Table of Contents (ToC) has been developed, following the endorsement of UN-Water during its Stockholm meeting in August 2007. The ToC was further developed through a wider, more inclusive consultative process which has included feedback and input from members of UN-Water, professional organizations, non-governmental organizations, and WWDR-3 contributors, as well as the general public (eg. an on-line consultation open to the public). Furthermore, discussion and contributions coming out of the WWAP Inception Meeting in November 2007 and at the Integration Meeting, held in Perugia in April 2008 have provided the WWDR-3 critical direction and content oversight. The structure of the WWDR-3 has now four main parts:

#### **Preface**

#### **Part 1 Understanding What Drives the Pressure on Water**

- Chapter 1 Water for Sustainable Socio-Economic Development
- Chapter 2 Demographic, Economic, and Social Drivers
- Chapter 3 Technological Innovation
- Chapter 4 Governance
- Chapter 5 Climate Change and Possible Futures

#### **Part 2 Using Water**

- Chapter 6 Water's Many Benefits
- Chapter 7 Old and New Challenges for Managing Water Use
- Chapter 8 Impacts of Use on Water and the Environment
- Chapter 9 Why Stepped-up Societal Responses Are Needed to Manage Competition and the Pressure on Ecosystems

#### **Part 3 State of the Resource**

- Chapter 10 The Natural Water Cycles of the Earth
- Chapter 11 Changes in the Global Water Cycle
- Chapter 12 Changing Hazards and Opportunities
- Chapter 13 Bridging the Observational Gap

#### **Part 4 Responses and Choices**

- Chapter 14 Options in the Water Domain
- Chapter 15 Tested Options Outside the Box
- Chapter 16 The Way Forward with Water

Each Chapter has a Coordinator, assigned by UN-Water, and a Facilitator, provided by the WWAP Secretariat.

Chapter 1, Chapter 14\*, and Chapters 15 and 16  
Coordinator: Olcay Unver, WWAP Secretariat  
Facilitator: William Cosgrove

Chapters 2 through 5  
Coordinator: Tim KASTEN, UNEP  
Facilitator: Richard CONNOR and Walter RAST (provided by UNEP)

Chapters 6 through 9  
Coordinator: Jean-Marc FAURES, FAO  
Facilitator: Domitille VALLEE

Chapters 10 through 13  
Coordinator: Andras SZOLLOSI-NAGY, UNESCO  
Associate Coordinators: Wolfgang GRABS (WMO), Siegfried DEMUTH and Anil MISHRA (UNESCO)  
Facilitator: Denis HUGHES

Chapter 14\*  
Coordinator: Hakan TROPP, UNDP  
Facilitator: George de GOIJER

*\*Chapter jointly coordinated*

### ***Use of Technology for the Preparation of the WWDR-3***

To support and manage the increased complexity of the production of WWDR-3, WWAP has created a public on-line workspace on an application called 'Alfresco', which serves as an on-line server for exchange of information, text and other electronic material. The workspace has been tailored to assist the contributors in the preparation of the report and the WWAP Secretariat to efficiently maintain and manage the operations. The tool has been organized into sub-spaces, each with different access rights. This allows users, both internal and external, to have personalized access and store and share their documents as they wish, thus streamlining their communication. The WWAP Secretariat facilitates the organization and ensures its integrity by granting and approving users' permissions.

One of the sub-workspaces on Alfresco has been dedicated solely for the production of the structure of the report. Users of this sub-workspace, namely chapter coordinators, contributors and writers use the space to develop, store and share document such as versions of the ToC, drafts of the text (chapters), indicators sheets, glossaries, etc. Other sub-workspaces have been created to facilitate the work related to case studies, the Technical Advisory Committee, the expert groups and the preparation of WWAP events. A private sub-workspace is used by the WWAP Secretariat and the contributors as an on-line library containing a large number of related reports, electronic documents and other material. Likewise, a work space has been created to store internal documents related to the production of the report, the organisation of preparatory meetings, and WWAP Secretariat



communication (such as a contacts database, calendars, document templates, etc). Also, in order to facilitate the treatment of comments received through the public consultation of the WWDR-3's Table of Content, an extension of the platform was developed.

### ***Preparation of the Third Edition of the UN World Water Development Report***

The preparatory work for the production of WWDR-3 has evolved through two main events: the Inception Meeting and the Integration Meeting. The former was held in Paris in UNESCO from 7 to 11 November 2007. The purpose of the meeting was to finalize the content and organization of the WWDR-3 and discuss possible accompanying publications. Approximately 70 experts and organization representatives came from around the world to attend the five-day workshop. Their inputs constituted the fundamental premises for the outline of the first draft of the WWDR-3. During this five-day workshop, participants worked in plenary and in small groups to draft the Table of Contents for the WWDR-3. Discussion was based on the mandate given to the WWAP Secretariat and the input provided in the UN-Water meeting and the subsequent sub-group meetings during the World Water Week in August 2007.

The second preparatory meeting, or the Integration Meeting, took place in Perugia, Italy at the future premises of the WWAP Secretariat, from 19 to 25 April 2008. At this meeting, the members of the WWAP Technical Advisory Committee (TAC), the co-chairs of Expert Groups, various members of UN-Water, contributors, writers, and other participants discussed the second draft of the chapters and their integration into a coherent document. More than 80 participants from 26 countries attended the meeting, of which 11 were representatives of UN-Water member agencies. During the meeting, the WWDR-3 ToC and its key messages were revised. Theoretical and structural gaps were identified. The Integration Meeting achieved a better coherence of the different parts of the Report and set the stage for the remaining work to be done.

A meeting of the UN-Water members present in the Integration Meeting was also held on April 25, 2008, with the participation of the Chief Technical Advisor to the Chair of UN-Water.

## **The Consultative Process and External Inputs to WWAP**

The experience gained during the first two phases of WWAP and the external evaluation conducted in 2007 have shown that the programme in general, and the WWDR in particular, can benefit from increased input from and involvement of the scientific and expert communities and the stakeholders. This consideration inspired the establishment of a set of five side mechanisms designed to help ensure that the WWAP products would be underpinned by a solid scientific base and possess relevance to the policy- and decision-making processes.

The first mechanism is a body called the **Technical Advisory Committee (TAC)**, comprised of scientists, policy/decision makers and stakeholders. The TAC was formed to serve WWAP

in an advisory capacity, and is composed of members from academia, research institutions, non-governmental organizations, public and professional organizations.

The second mechanism is served by seven interdisciplinary 'expert groups'. Comprised of experts from different countries and specializations, these expert groups, strengthen the scientific basis of the Report by providing input, feedback on an array of emerging and sometimes contentious issues, from indicators, private sector involvement, legal issues, to climate change and storage. The expert groups are also expected to help implement the report and its recommendations. More information on the seven expert groups can be found below.

The third mechanism is the development of scenarios. The WWAP secretariat organized a real-time Delphi consultation in October 2007 which developed a consensus that existing scenarios do not provide a fully satisfactory basis for decision makers to develop policies related to the water sector and its interaction with external drivers. WWAP initiated a scenario exercise to examine possible futures under different policies taking into account the impacts of climate change and the other major drivers such as demographics, economic development, consumption patterns, environmental effects and social/cultural trends. The interim results of the exercise will be presented during the World Water Forum in Istanbul, Turkey in March 2009.

The fourth mechanism is public engagement. The WWDR-3's draft Table of Contents was opened for public comment for the first two weeks of March. The results of this evaluation were analyzed and incorporated into the preparation of the report and used in the deliberations during the Integration Meeting. The public invitation to comment targeted a short, annotated ToC and was distributed through several networks.

The fifth mechanism of the WWDR consultative process is a series of 'ad hoc' expert meetings organized to provide further refining of WWDR development. Meetings, physical and virtual, have been planned and implemented throughout the third phase. Most meetings, such as the one on indicators (18-20 June 2008), take place at the Villa La Colombella. At that meeting, a long term action plan for both WWAP side process on Indicators, Monitoring and Databases (IMD) has been discussed. A meeting on Policy Relevance will take place in Perugia from 28 July to 1 August 2008. Several virtual meetings of the WWAP Expert Groups have taken place, facilitated by the WWAP Secretariat. In addition the TAC Chair and Deputy Chair, as well as the Co-chairs of WWAP Expert Groups have organized numerous consultations.

## **Other Activities**

A number of **side publications** have been planned to accompany the WWDR-3, which are intended to provide more focused, in-depth information, scientific background knowledge, policy guidelines and interface with other, less conventional water-related sectors. This activity is designed to ensure that enough attention is given to issues and themes not covered in depth in the Report. Three thematic lines are to be developed, 'scientific side papers', 'insights' and 'dialogue series'. The scientific side papers will provide with the scientific background some of the topics covered in the report, and will serve as a bridge between the

report's contents and the scientific peer-reviewed publications. The 'insights' will provide more in-depth information on water-related sectors, issues and topics in a stand-alone manner, while the 'Dialogue Series' will cover sectors and topics to which water is cross-cutting or important, such as biodiversity, security, poverty alleviation, and land use. The WWAP Coordinator has submitted a request for 17 side papers to the Chair of UN-Water for endorsement by UN-Water.

## **Communications**

The WWDR-3 will be launched on the first day of the Fifth World Water Forum (WWF5), which allows for exceptional visibility and coverage of the report and its messages. Additionally, the WWF5 and the WWDR-3 will cover similar topics, which allows a number of exciting opportunities for synergizing around shared messages.

WWAP's third phase and the WWDR-3 take a broader view on policy options, include new side processes, solicit broader input from a wide range of stakeholders and have an abbreviated timeline. Given these changes in the approach to the WWDR-3, WWAP is developing both an interim (present – March 2009) and long term (post-March 2009) communications strategy to support these new efforts. The WWAP communications strategy has three primary goals:

- to ensure that participants, stakeholders and the public are involved in the development of the WWDR through outreach and organized consultations;
- to ensure that policy recommendations emanating from the WWDR-3 attract the appropriate attention of policy and decision makers in various sectors and at various levels; and
- to inform and raise public awareness about the WWDR and its messages, as well as the work of WWAP and partner organizations.

Towards these goals, WWAP has adopted a two-track approach to engaging its stakeholders and building momentum towards the launch of the WWDR-3 and the targeted dissemination of its messages. Firstly, WWAP is targeting international water events as platforms for more direct stakeholder engagement. Secondly, WWAP is deploying a well-coordinated media campaign. WWAP is implementing its strategy in cooperation with the UNESCO's Bureau of Public Information media office and in close collaboration with partner organizations such as the members of UN-Water, sister programmes from UN-Water, the Fifth World Water Forum Secretariat, and the World Water Council. Special emphasis will be given to synergetic activities involving the three programs of UN-Water. WWAP's Communication Strategy will be designed in collaboration and for potential joint implementation with the United Nations Office to Support the International Decade for Action. "Water for Life".

# 1 WWAP's organizational structure

WWAP's current organizational structure consists of a core secretariat team and administrative unit, as well as an extended team of professionals responsible for the implementation and development of the WWDR and various side processes. A large part of the secretariat and administrative unit, responsible for coordinating and carrying out the general functions of the programme and various aspects of its third phase, is currently based in UNESCO's headquarters in Paris, France. However, three staff members coordinating the move to UNESCO's Field Office in Perugia, Italy are already located on site. The positions and responsibilities of the team responsible for WWAP's third phase are described below.

**Mr Olcay Ünver** was appointed as WWAP Coordinator and Director of the Global Water Assessment Unit of UNESCO's Division of Water Sciences in May 2007. He is in charge of managing the activities of this United Nations system-wide programme. In particular, he coordinates the production of the WWDR-3. He is temporarily assisted by **Ms Georgette Gobina**, who also provides secretarial support for the rest of the team. Ms Gobina will be replaced by **Ms Adriana Fusco** as soon as the Secretariat transfers to Italy. In addition to Ms Fusco, **two office assistants** are under recruitment.

**Ms Michela Miletto** has been appointed as the Deputy Coordinator by the Director General of UNESCO. She is expected to join the WWAP Secretariat in mid-September.

WWAP Administrative Unit will be composed by an **Administrative Officer** and an **Administrative Assistant**. These two positions are under recruitment.

Two officers are coordinating the transfer of the WWAP secretariat to Perugia, **Mr Daniel Perna and Mr Simone Grego**. Mr Perna, currently based in Perugia, is responsible for monitoring pending works-including those related to the security requirements of the United Nations-, facility infrastructure, local services, and the management of lodging facility at the Villa Colombella in Perugia, Italy. In addition, he is also responsible for liaising with Umbrian stakeholders. Mr Grego is following up WWAP's transfer from Paris, liaising with UNESCO and the relevant Umbrian and Italian Authorities. He has also been WWAP's designated officer to contribute to the drafting and negotiating the agreements needed to establish the new UNESCO Programme Office in Perugia. He also coordinates communications related functions within the Secretariat.

Two new positions have been created as a consequence of the new WWDR structure, namely the Content Coordinator and the Process Manager. **Mr William Cosgrove** is the Content Coordinator in charge of ensuring cohesion and consistency between chapters, working directly with the WWDR chapter coordinators and chapter facilitators, discussing and seeking consensus on the arrangements, changes and modifications necessary to ensure cohesion, integration and consistency of the WWDR. **Mr George de Gooijer**, in his capacity as the Process Manager, ensures that all Chapter coordinators and Facilitators are fully informed of the status of the overall process. He is responsible for ensuring that the overall work plan as well as sub-processes are run as planned, to detect and interfere with delays and unforeseen circumstances and to provide assistance to Chapter coordinators and Chapter facilitators.

Four officers are in charge of WWAP's external relations and external inputs coordination, including **Ms Stéfanie Neno, Ms Abigail Parish, Mr Casey Walther, and Ms Marwa Daoudy**. Ms Neno, as Networking Officer, is responsible for building new relationships or strengthening existing ones with key organizations or individuals. She is in charge of designing and maintaining WWAP's Collaborative Platform and other web-based tools and takes part in projects and activities involving monitoring and databases. She also contributes to the design and updating of the WWAP website and the WWAP newsletter, *Currents*. Ms Parish, the Communications Officer, is responsible for the management of the WWAP website, WWAP's electronic newsletter, *Currents*, as well as informational and promotional material. She is responsible for the planning of WWAP's communication strategy. Mr Walther is WWAP's Liaisons Officer and provides liaison services to WWAP for the WWAP Expert Groups, topics and consultations, and WWAP Side Processes. Finally, Ms Daoudy, as Accompanying Publications Coordinator, supports the WWAP Secretariat in the preparation of the side publications of WWDR-3 by following proposals for these publications from concept to fruition, evaluating the proposed publications and being the focal point for requests regarding these publications.

The case studies process is coordinated by **Mr Engin Koncagul**, who acts as the Liaison and Primary Coordinator for the involvement of country partners in the development of the WWDR-3. In addition, he coordinates the development of indicators for the WWDR-3 and is in charge of the liaison with and the secretariat of the Technical Advisory Committee.

Each chapter of the WWDR-3 is coordinated by an officer designated by UN-Water, as explained earlier. To ensure a timely production of the report, a facilitation function has been added to chapter coordination, in the form of chapter facilitators **Ms Domitille Vallee, Mr Richard Connor and Mr Denis Hughes**). These experts are assisting the chapter coordinators in implementing their task. Mr Cosgrove and Mr de Gooijer also act as chapter facilitators. Finally, a roster of professional writers (**Ms Gunilla Bjorklund, Mr Andy Bullock, Ms Molly Hellmuth, and Mr Jim Winpenny**) has been engaged by the WWAP Secretariat to harmonize the inputs received by the chapter coordinators and facilitators. In addition, **Mr Dennis Lettenmaier, Mr Walter Rast, Mr Charles Vörösmarty, and Mr Wolfgang Grabs** have contributed their time to author parts of the Report. The list of chapters, with respective coordinators and facilitators can be found in paragraph 3.2.

In addition to the above mentioned staff, the Japanese Government plans to second a water expert, upon transfer to Perugia.

Furthermore, the US Army Corps of Engineers Water Resources Institute has been funding the functioning of the WWAP Expert Group on Policy Relevance through direct support for its Co-Chair, **Mr Gerry Galloway**, and a facilitator. Their support will continue in the form of support for another Expert Group Facilitator.

## 2 The Transfer of WWAP Secretariat to Perugia

### *Introduction*

The WWAP Secretariat plans move to its new seat in Perugia, Italy, in the Fall of 2008. The new premises, located in Villa La Colombella, have been put at UNESCO's disposal by the Government of the Region of Umbria, Italy, as a part of a generous package in which the Government of Italy is the main funder for WWAP's third phase (2007-2009).

One of the pre-conditions for the transfer of the WWAP Secretariat is the completion of the security arrangements in compliance with the UN guidelines. UNESCO is working together with FAO, which is the UN agency responsible for security of United Nations offices in Italy. According to the Premises Agreement signed in July 2007, the Region of Umbria is in charge of implementing the related security works. These works are currently underway and are expected to be completed by the Fall of 2008, upon which the WWAP secretariat will move to its new UNESCO Programme Office in Italy.

The transfer of the WWAP Secretariat to Perugia and the third phase of WWAP are stipulated in four legal agreements. Three of the four have been signed and are in effect, with one agreement pending:

**a) Memorandum of Understanding (MoU) between UNESCO and the Government of Italy**

- ☛ The MoU was signed on November 21, 2007 in Rome. This agreement states the general terms for the new UNESCO Program Office in Perugia, Italy, hosting the WWAP Secretariat, including privileges and immunities.

**b) Funds-In-Trust (FIT) agreement between UNESCO and the Italian Ministry for Environment, Sea and Land Protection**

- ☛ The FIT was signed on 2 February 2007. The first installment of funds have been allotted to UNESCO on July 20, 2007. This document is based on the project proposal submitted by UNESCO to the Government of Italy.

**c) Premises Agreement between UNESCO and the Region of Umbria**

- ☛ The Premises Agreement was signed July 26, 2007. This is a rent agreement, at zero cost for UNESCO, that regulates WWAP's secretariat presence in the new premises. It has to be highlighted that Umbria Region is going to cover also all expenses (electricity, heating, maintenance) with the exception of telecommunications.

**d) Protocol between UNESCO and University for Foreigners of Perugia (UFF).**

- ☛ A protocol between UNESCO and University for Foreigners of Perugia is currently pending. The protocol will regulate the use of the Villa La Colombella premises by the UFF's Research Centre on Water, WARREDOC, which is currently located on the premises.

## **2.1 Funding**

The establishment and the operation of WWAP Secretariat during the first six years of the program (2000-2006) have been made possible by generous project-based funds from the Government of Japan..

The support provided by Italy for the third phase of WWAP is different from the earlier two phases, as stated earlier. The support package includes both funding and new premises. The funding consists of a 2.5M Euro/year grant for three years, starting from February 2007, which represents a substantial increase that allows WWAP to institutionalize with own staff and operational ability. It is mutually understood that, before the end of this three-yearly funding period, the Government of Italy will submit to the Parliament, the MoU between UNESCO and the Government of Italy, for ratification, which will install a regular line of allocation within the Italian national budget.

In addition to the Italian funds, the Government of Japan and the Danish Ministry of Foreign Affairs are continuing to support the WWAP Secretariat for its third phase (2007-2009).

In particular, the Memorandum of the Understanding (MoU) signed between UNESCO and the Danish Foreign Ministry sets the budget for two sets of the following activities that amounts to approximately USD 1.1 million:

- General support to the WWAP Secretariat,
- Funding project activities on “Monitoring of progress towards the internationally agreed targets and goals on water”.

## **2.2 Premises**

The Region of Umbria has provided, on a basis of gratuitous rent, the complex called Villa La Colombella. The Villa, situated 20 km north of Perugia, consists of four buildings and gardens, on an approximate surface of two hectares. It offers office space for 40 people, conference and meeting rooms for 250 people and a guesthouse.

These premises have been chosen because the site offers facilities for capacity-building and training activities, with five meeting rooms, a computer lab, two conference rooms and a guesthouse which can accommodate more some 50 guests.

On November 20, 2007, Mr. Koïchiro Matsuura, the Director-General of UNESCO, and Mr. Pecoraro Scanio, the Italian Minister of Environment, made an inaugural visit to the new UNESCO Programme Office for Global Water Assessment in Perugia, Italy.



**Figure 2. Villa La Colombella**



**Figure 3. Villa La Colombella, aerial view**



### **3 WWDR-3**

This chapter provides a detailed update on the content and production process of WWDR-3, from the UN-Water meeting held in August 2007, until the meeting on Indicators and Reporting, which took place 18 to 20 June 2008 in the Villa La Colombella.

#### ***Introduction***

The WWDR-3's holistic approach to addressing the world's water resources is reflected in a new structure and stages for its development. In addition to the WWDR-3's new features, there have been a number of changes to its production process, which is compressed into a period of 18 months.

The structure of the WWDR-3 has four main parts: 'Understanding What Drives the Pressure On Water', 'Using Water', 'The State of the Resource', and 'Responses and Choices'. Each Part is divided into chapters. In total there are 16 chapters. This new structure requires a much deeper level of integration of the content coming from contributing institutions, compared to the earlier reports. A core team of two persons, a coordinator from a UN agency, and a facilitator from WWAP has been assigned to each part in order to ensure integration. Additionally, a number of topics which require specific attention in the process will be addressed by expert groups and specialists.

As a first step, a table of contents (ToC) for each part was prepared through the discussion and contributions of members of UN-Water, professional organizations, non-governmental organizations, and WWDR-3 writers and contributors through two rounds of comments. The first round took place at the UN-Water meeting during the World Water Week in Stockholm in August 2007. Based on the ToC drafted during this first meeting, WWAP, in collaboration with UN partners and other contributors, developed the main messages and storyline of the Report and produced an annotated table of contents on a chapter-by-chapter basis. The second round of contributions and comments were incorporated during the Inception Meeting held in November 2007 to produce the final ToC for each chapter, a list of accompanying publications, and the production schedule for writing the first draft. In order to obtain comments and inputs from stakeholders and informed public, the draft ToC was open for public comment from 28 February to 16 March 2008.

The results of the public consultation were analyzed during the second preparatory meeting, or 'Integration Meeting', which took place in Perugia, Italy at the new WWAP Headquarters from 19 to 25 April 2008. At this meeting, members of the Technical Advisory Committee, Expert Groups, members of UN-Water, contributors, writers, and other participants discussed the drafts of the chapters and their integration. Conclusions and recommendations of the WWDR-3 have also been addressed. The report structure prepared after the Integration Meeting included six long chapters. After consultations with the editor, the WWDR-3 team decided to maintain the original structure of the report, but increase the number of chapters, converting former chapters into parts in order to enhance readability.

Specific topics addressed in greater detail by side processes, such as Policy and Monitoring and Indicators, have been addressed during expert meetings in Perugia (see section 4.3.2).

The production process of the WWDR-3 involves a large number of contributors spread out all over the world. A sophisticated tool in the form of a shared platform dedicated to the production of the Report was needed. After several consultations which analyzed the feasibility of different solutions (emails, wiki-like platforms), a web-based platform, named Alfresco, was chosen.

## **3.1 The WWDR -3 Process**

### **3.1.1 New Features**

The third edition of the WWDR presents several changes compared to the previous two editions. It has a new, holistic format, radically different from the earlier reports which were structured along UN agency lines. New contents have been pursued in the creation of this report, notably fuller treatment of some topics in the WWDR, which include climate change, the Millennium Development Goals, groundwater, biodiversity, water and migration, water and infrastructure, and biofuels, among others. Some of the new features of the report are summarized in the following list:

1) **A new Table of Contents** has been discussed and endorsed during the UN-Water meeting held in Stockholm on 11 and 12 August 2007. It was further developed through the discussion and contributions of members of UN-Water, professional organizations, non-governmental organizations, and WWDR-3 writers and contributors in attendance at the ‘Inception Meeting’ in November 2007 and at the Integration Meeting in April 2008. As mentioned above, the draft Table of Contents was open for public comment through the WWAP website late February and early March.<sup>1</sup>

2) An inclusive, consultative process and external inputs: **Technical Advisory Committee (TAC) and Experts Groups**. The TAC was formed to serve in this advisory capacity, and is composed of eminent members from academia, research institutions, non-governmental organizations, public and professional organizations, and two ex-officio members (Chair of UN-Water and WWAP Coordinator). In order to strengthen the scientific basis as well as possible implementation of the report and its recommendations, interdisciplinary expert groups have been created for a number of topics, including ‘Indicators, Monitoring and Databases’, ‘Business, Trade, Finance and Involvement of the Private Sector’, ‘Policy Relevance’, ‘Scenarios’, ‘Climate Change and Water’, and ‘Legal Issues’ and ‘Storage’ (more on that below).

3) **Accompanying Publications**. A number of side publications will accompany the WWDR-3, which are intended to provide more focused, in-depth information, scientific background knowledge, policy guidelines and interface with other, less conventional water sectors. These publications will include scientific side papers, sector and topic-specific reports, briefs for policy makers and a Dialogue Series.

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<sup>1</sup> <http://www.unesco-wwap.org/wwdr3-comment/>

4) **Side Processes.** A number of side processes are planned to address relevant issues over time within the general framework of WWAP. These include ‘Water Scenarios’; ‘Indicator development, monitoring and data-metadata bases’; and ‘Capacity development.’

### 3.1.2 Timeline for the production of the WWDR-3

Due to late arrival of funds and a delayed mobilization, the production of the WWDR-3 is to be materialized in 18 months, instead of the 36 normally available between two editions. Therefore, the following tight schedule has been proposed by the WWAP Secretariat and approved by UN-Water in its August 2007 and January 2008 meetings.

- ☞ June – July 2008: Technical meetings on the WWDR-3.
- ☞ Early October 2008: Submission of final technical chapter drafts to UN-Water for clearance
- ☞ Early November 2008- January 2009: Integration, copy editing, refining, typesetting, and printing.
- ☞ September 2008 – January 2009: Production of Executive Summary, promotional material and launching web-based campaign.
- ☞ 16 March 2009: Launching of the WWDR-3 at the 5th World Water Forum in Istanbul, Turkey.

### 3.1.3 Collaborative platform (Alfresco)

As mentioned earlier, the production process, significantly more complex than the previous two editions, requires specific tools to be managed. Different alternatives have been studied and compared and the open-source document management tool *Alfresco* was finally chosen. Some of the features of Alfresco are listed below:

- ☞ web-based,
- ☞ tuned administration of user rights,
- ☞ document sharing,
- ☞ document versioning and version history,
- ☞ live discussions on documents,
- ☞ smart working spaces,
- ☞ workflows.

At the same time, a dedicated server has been rented and the domain names [www.unesco-wwap.org](http://www.unesco-wwap.org) and [www.unesco-wwap.net](http://www.unesco-wwap.net) (redirected to the first one) have been purchased. The collaborative platform is hosted on this server and is accessible at: [www.unesco-wwap.org/alfresco](http://www.unesco-wwap.org/alfresco). Registered users only can log on the platform. Depending on their access rights, users can see, modify, make comments on existing content or upload new content.

Alfresco is a very flexible tool. WWAP uses it for the following activities:

- **For the production of the Report:**

A dedicated workspace has been created for the production of the report to develop, store and share documents: tables of contents, drafts of the chapters, indicators sheets, glossaries, etc. This workspace is accessible to chapter teams, who have full rights on it (i.e. create, modify, delete content; invite users, create workflows). Other users have limited rights and are entitled to view and download content not to modify or delete it.

- **For case studies:**  
A dedicated workspace has been created to store documents related to case studies, country by country.
- **By WWAP Secretariat:**  
A private workspace is used by WWAP in other to store important documents, related to the production of the report (background documents, process.), to the organisation of preparatory meetings, to communication (document templates). This allows the staff to share documents and access most updated versions at any time.
- **For the public consultation on the WWDR-3 Table of Contents:**  
In order to facilitate the treatment of comments received through the public consultation of the WWDR-3's Table of Content, an extension of the platform has been developed. Comments submitted through the online form (developed in php) were sent and stored in a database (developed in MySQL). Then comments were displayed in dedicated workspaces (per chapters and sub-chapters) on the collaborative platform, for later treatment by the chapter teams. Chapter teams only have access to this space. Comments are displayed in a friendly way, being directly visible in the workspaces like posts from a discussion forum.
- **To make available monthly reports to UN-Water members:**  
UN-Water members can access reports on WWAP activities and status of the 3<sup>rd</sup> Report. User accounts for UN-Water members have been created for them to access the platform. Reports will be stored there, in a dedicated space called '4. Content and Process Reports'.
- **For Expert Groups and TAC members:**  
Alfresco is used by expert groups and TAC members to store and share their documents and reduce the number of e-mails they may have to exchange.

### **3.1.4 Launch/WWF5**

WWDR3 will be published beyond half way along the timeline from the Millennium Summit to the 2015 target date for attainment of the Millennium Development Goals that currently represent the world's immediate development aspirations. The publication of this report is also closely associated with the 5<sup>th</sup> World Water Forum in Istanbul, Turkey in March, 2009, because the WWDR-3 will be released on this occasion. For the first time, the Report will have an extraordinary visibility during this top event thanks to a dedicated plenary session during the opening day on 16 March. No parallel session is planned to be held during the

WWDR-3 session, which ensures a maximum participation. In addition, the WWDR-3 and the 5th World Water Forum cover very similar topics. Therefore there is a mutual intention to synergise their activities and to multiply their respective impact.

## **3.2 WWDR-3 Content**

### **Content and Report's structure**

In 1999, the United Nations called for the establishment of regular World Water Development Reports to monitor and report on the use of the world's freshwater resources in regards to achieving international development goals. Further recommendations as to the objectives and targeted audience of the report were made by an expert group convened by UN-DESA. As a result of these decisions, the WWDR is now a periodic, comprehensive review giving an authoritative picture of the state of the world's freshwater resources, and aims to provide decision-makers with the tools for sustainable use of our water. First published in 2003, with preparation beginning in 2001, the series of WWDRs now span over eight years.

The Report is the result of collaboration of twenty-four UN agencies and convention secretariats that make up UN-Water. It lays the foundations for regular, system-wide monitoring and reporting by the UN, together with development of standardized methodologies, indicators and data. The third edition presents several changes compared to the previous two editions, from both the content and the process points of view. It now has a new, holistic format consisting of sixteen chapters divided into four main Parts. The result is a Report that is radically different from earlier editions structured along UN agency lines.

The new conceptual framework is presented in Figure 4

#### **Part 1 - Understanding What Drives The Pressure On Water (5 chapters)**

Part 1, which includes five chapters, focuses on understanding what drives the pressures on water. The first Chapter analyzes the links between development and water, and looks at working through partnerships to choose the best options for managing the two. Subsequent Chapters set out the main drivers, with Chapter 2 focusing on demographic, economic, and social drivers. Demographics drivers are represented by population growth in emerging and developing countries (where most of the growth takes place), as well as the rapid process of urbanization around the world and migration from the poor countries to richer ones (a demographic trend affected by gaps in income and living standards). Economic drivers focus on general global economic processes and financial flows. Social drivers include changes in societal values and lifestyles affecting consumption including changing to diets requiring more water for food production. Chapter 3 focuses on technical and science drivers and innovation, with regards to both general technological progress as well as water-related technological trends, such as changes in water productivity and water-use efficiency, specific water pollution, withdrawal efficiency, adoption of new crops (for example, drought-resistant). Chapter 4 focuses on laws, policies, and institutions, including levels of conflict as well as institutional factors such as concentration of power and the pace of the overall globalization process (economic, cultural, in communications, etc). Chapter 5 focuses on climate variability and change, possible futures, and the pressure on water resources and uses.

**Part 2 - Using Water (4 chapters)**

Part 2 is divided in four chapters and focuses on water use. Chapter 6 describes water's many benefits. Chapter 7 explores old and new challenges for managing water's use. Chapter 8 describes the impacts of use on water and the environment, including processes such as changes in the health and quality of ecosystems, water-related diseases affecting humans, soil salinization reducing agricultural land, and depletion of wetlands and groundwater reserves. Chapter 9 explains why stepped up societal responses are needed to manage competition and the pressure on ecosystems.

**Part 3 - State of the Resource (4 chapters)**

An assessment of the quantity and quality of water resources available on the planet is provided in Part 3 of the Report. Chapter 10 describes the natural water cycle, while Chapter 11 describes changes in that cycle. Chapter 12 focuses on hazards and responsibilities. Chapter 13 focuses on information regarding water's quantity, quality, and availability for future use.

**Part 4 - Responses and choices (3 chapters)**

Part 4 of the third report sets out responses and choices, identifying those policy measures or other decisions and practices that could make a positive impact on these drivers and the trends they produce. Options directly related to the water sector include improved legislation and development of the appropriate institutional frameworks and capacity for the integrated management of water resources. This includes the development of integrated policy making and planning capacity at the national and local levels. Other policy options are described in relation to demographics, global economic trends, accelerated technological development, tackling the inequities of access to water, food and energy in our society, legal frameworks and institutions, and mitigating the non-avoidable and adapting to prevent the avoidable impacts on the environment. Chapter 14 describes tested options from inside the box. Chapter 15 describes tested options from outside the box. Chapter 16 focuses on choosing among the options, given the tradeoffs and local conditions, identifying actions that can be taken by each category of decision-makers.

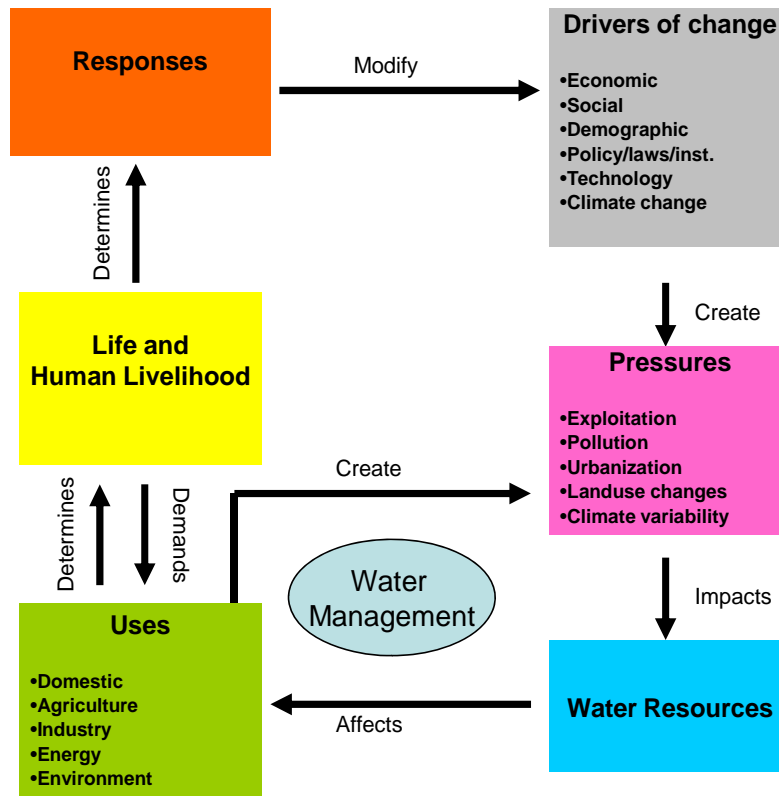


Figure 4. Conceptual Framework of WWDR-3

### 3.2.1 Table of Contents and Chapter Coordinators

The new theoretical approach, described in the previous sections, is reflected in the Table of Content for WWDR-3, which has now sixteen chapters divided in four thematic parts. The original structure, discussed in Stockholm and refined during the inception and integration meetings has been modified. The new chapters, together with the respective Coordinators and Facilitators are listed below.

- **Part 1 - Understanding What Drives The Pressure On Water (5 chapters)**
  - **Chapter 1 Working through partnerships; choosing the best options (15 pages)**
  - Coordinator: Olcay UNVER (WWAP)
  - Facilitator: William COSGROVE
  - **Chapter 2 Demographic, economic, and social drivers 30 pages)**
  - **Chapter 3 Technical, Science and innovation (12 pages)**
  - **Chapter 4 Laws, policies, and institutions (12 pages)**
  - **Chapter 5 Climate change and possible futures (12 pages)**
  - Coordinator: Tim KASTEN (UNEP)
  - Facilitator: Richard CONNOR
- **Part 2 - Using Water (4 chapters)**
  - **Chapter 6 Water's many benefits (10 pages)**

- **Chapter 7 Old and new challenges for managing water’s use (40 pages)**
- **Chapter 8 Impacts of use on water and the environment (20 pages)**
- **Chapter 9 Why stepped up societal responses are needed to manage competition and the pressure on ecosystems (10 pages)**
- Coordinator: Jean-Marc FAURES (FAO)
- Facilitator: Domitille VALLEE
  
- **Part 3 - State Of The Resource (4 chapters)**
  - Chapter 10 The natural water cycle (20 pages)
  - Chapter 11 Changes in the water cycle (15 pages)
  - Chapter 12 Hazards and responsibilities (20 pages)
  - Chapter 13 Information on water’s quantity, quality, and availability for future use (15 pages)
- Coordinators: Andras SZOLLOSI-NAGY (UNESCO)
- Facilitator: Denis HUGHES
  
- **Part 4 - Responses and choices (3 chapters)**
  - Chapter 14 Proven options: inside the box (35 pages)
  - Chapter 15 Proven options: outside the box (15 pages)
  - Chapter 16 Choosing among the options, given the tradeoffs and local conditions (25 pages)
- Coordinators: Hakan TROPP (UNDP) and Olcay UNVER (WWAP)
- Facilitators: George de GOOIJER and William COSGROVE

### **3.3 Case studies**

#### **Introduction**

WWDR, while painting a broad, global picture, also recognizes that many management decisions on water have to be made at the national, sub-national and very local levels. Thus it incorporates a number of case studies reflecting the diversity and commonality of conditions locally. It is the long-term objective of WWAP to achieve global coverage in its case study work. This requires a continuous effort since it would be impossible to cover the entire globe in a few editions of the WWDR.

For the first edition of the WWDR, an agreed methodology was developed with the valuable inputs of several countries and a variety of technical experts. This methodology was utilized for drafting a general template, which has proven to be effective in accommodating differing circumstances and approaches in different countries. The template is updated in every phase based on the revised structure of WWDR as well as the comments of the country partners and the lessons learned by the Secretariat. However, considering the complexity of real world situations, the template for case study merely provides a flexible guideline and countries or regions are expected to take the liberty to tailor the template in order to make it fit their specific needs.



### 3.3.1 Selection Process and Scale

For the first edition of the WWDR, seven pilot case studies involving twelve countries, with differing physical, climatic and socio-economic conditions, were selected in close consultation with the governments concerned. The pilot case studies were conducted at two different scales: within-country regions or basins and international basins. The selections were made with consideration to:

- ☞ Geographical representation
- ☞ Different conditions of water-related stress
- ☞ Different socio-economic circumstances and
- ☞ Different human needs

Case studies serve as basic platforms to observe the effectiveness of different approaches to integrated water resources management as well as to test several indicators suggested in the WWDR for measuring progress towards the globally agreed upon development goals. Country level and regional studies comprise an overall analysis of water resources within the country or region under consideration. International case studies involve examples of transboundary water bodies.

For the second edition of the WWDR, in addition to previously existing case studies, a number of new case study countries were included (overall 16 case studies involving 38 countries). The common strategy adopted for the WWDR-2 was to encourage case study countries to prepare national reports. This has the clear advantage of reflecting the overall state of water resources in the country. Basically, in the second edition of the WWDR, three types of case study were included:

- ☞ **Country-level studies**, because national assessments are vital for many planning purposes;
- ☞ **International basins**, to address the challenges of sharing water between countries;
- ☞ **Within-country regions or basins**, as in the first edition;

In addition to above-mentioned types of case studies, another group that will be considered for case study development in of the WWDR-3 is the island states. Out of 25 potential case studies to be included in WWDR-3 (see table 1 below for details), one case study will focus on the effects of climate change in Tonga and Kiribati islands. Subsequent editions of WWDR series can additionally focus on the **collection of countries** having common characteristics and within the same overall geographic region (e.g., groups of small island states or a group such as the Gulf States).

WWAP case study partners contribute to the development process of WWDR by not only preparing detailed case study reports for inclusion in the case study section of WWDR but also by providing two- to three-page documents on specific topics that can be considered for utilization as boxes in various chapters of WWDR where relevant. Table 2 illustrates the number of 'box material' submitted by WWAP country partners.

For the following editions of the WWDR, the case studies will continue to be one of the priority areas. In every edition, new case studies will be added with a follow up to the existing pilot case studies. Since external donors fund the activities of WWAP, the budget available for conducting case studies varies, as does the number of case studies foreseen for each edition. Given that WWAP puts special emphasis on the water related problems of developing countries, the priority for conducting case studies, naturally, is given to those countries where the majority of the population is exposed to water stress.

The benefit of conducting a case study is mutual to both the country and WWAP. The logical reasoning behind conducting a pilot case study in a country is to increase the level of co-operation and cohesion existing among the institutions responsible for water resources management. WWAP provides the necessary stimulus to promote dialogue among planners and decision makers. This directly complements in-country capacity building that aims to strengthen national capabilities for performing local or national assessments and monitor progress towards achieving targets.

### 3.3.2 Indicators Mark the Way

WWAP, with its capacity-building directive in mind, not only facilitates countries to utilize and test already existing indicators but also assists them to develop their own set of indicators.

These indicators are intended for the decision-makers to benchmark the current situation in order to help them analyze the changes taking place in the water sector in time. The ultimate aim in this exercise is to make societies able to adapt to changing circumstances and manage their water resources in a sustainable manner. Collectively, those efforts help national institutions enhance their existing capacity while contributing to the development of the subsequent editions of the WWDR.

Pilot case studies are also used as a testing ground of new methodologies and indicators for water resources management. Data and information that will be collected by application of these new methodologies and indicators will be made available to other countries for the sustainable use of water resources. This procedure will help the United Nations system build a reliable set of water related indicators that can be used for making accurate comparisons in different parts of the world.

**Table 1** *The status of WWAP case study development as of February 2008*

Region	Case Study	Box Material	Classification
Latin America and Caribbean (2)	Merin Lake Basin (Brazil and Uruguay)	4	International Basin
	La Plata River Basin (5 countries)	3	International Basin
Asia and the Pacific (8)	Bangladesh	6	Country Level
	Sri Lanka	8	Country Level

	Iran	1	Basin Level
	Japan		Country Level
	Rep. of Korea	8	Basin Level
	Pakistan (Cholistan Desert)	2	Basin Level
	Uzbekistan	1	Basin Level
	Pacific Islands (Kiribati and Tonga)	2	Country Level
Europe and North America(7)	Estonia	2	Country Level
	Turkey (Istanbul)	6	Basin Level
	Italy (Po Basin)	3	Basin Level
	Vuoksi River Basin (Russian Federation and Finland)	8	International Basin
	Netherlands (in assoc. with Dutch Waterboards Association)	4	Country Level
	Spain (Basque Country)	2	Local
	Quebec		Basin Level
Africa (8)	Zambia	7	Country Level
	Sudan		SYNOPSIS REPORT
	Cameroon		
	Morocco		
	Congo Rep.		
	Zimbabwe		
	Swaziland		
	Tunisia		Country Level

**Table 2 Box Material submitted by WWAP Case Study Partners (Overall 81 examples are available for the utilization of our UN partners in WWDR3)**

Bangladesh: 6 examples
Basque Country: 2 examples
Estonia: 2 examples
Iran: 1 example
Turkey (Istanbul): 6 examples
Vuoksi Basin (RF/Finland): 6 examples
Lake Merin (Brazil/Uruguay): 4 examples
La Plata River Basin (Argentina, Bolivia, Brazil, Paraguay, Uruguay): 3 examples
Netherlands: 3 examples
Pakistan: 2 examples
Republic of Korea: 8 examples
Sri Lanka: 8 examples
Zambia: 7 examples
Italy (Po River Basin): 3 examples
Uzbekistan: 1 example

Quebec (Canada): 1 example
Pacific Islands: 2 examples
China (Non-case study country) : 20 examples
Vietnam (Non-case study country): 1 example

## **3.4 Side publications**

### **Introduction**

In an effort to provide more focused, in-depth information, scientific background knowledge, policy guidelines and interface with other, less conventional water sectors, a number of side publications are being developed.

#### **3.4.1 Background**

The side publications will be developed along the following lines:

- 1) Scientific side papers. They will give scientific information on aspects covered in the WWDR and serve as bridge between the report's contents and the scientific peer-reviewed publications.
- 2) Insights. These reports and papers will provide more in-depth information on water-related sectors, issues and topics in a standalone manner, such as, for example, groundwater, water supply and sanitation, transboundary issues, technology and others.
- 3) Dialogue Series. This series will cover sectors and topics to which water is cross-cutting or important, such as biodiversity, security, poverty alleviation, and land use.

Based on the agreement during the January 2008 meeting of UN Water in Rome, the WWAP Coordinator submitted a list of potential side publications to the Chair of UN-Water, with a synopsis and a table of contents, to be processed within UN-Water for the members' opinion. WWAP will move ahead with the process following advice from the UN-Water Chair.

#### **3.4.2 Status of the publications**

The side publications process has been initiated later than the WWDR-3 itself, and therefore is still at an early stage of development. The first side publication to which WWAP contributed to is the UNECE publication 'Our Waters: Joining Hands Across Borders, the First Assessment of Transboundary Rivers, Lakes and Groundwaters'. This report has been published in the Summer 2008.

After this, several institutions, organizations and individuals have partnered to provide inputs for the side publications. As of 1 June 2008, WWAP Coordinator has submitted request to UN Water chair to approve the following list of publications:

<b>SOURCE</b>	<b>TOPIC</b>	<b>TYPE OF PUBLICATION</b>
I. UNESCO IHP	IWRM Implementation in Basins, Sub-basins and Aquifers: State of the Art Review	INSIGHT
II. UNESCO IHP	Assessment of Snow Glacier and Water Resources in Asia	SCIENTIFIC PAPER
III. UNESCO & Japan Ministry of I.L.T.	IRBM (Integrated River Basin Management) Guidelines	SCIENTIFIC PAPER
IV. UNESCO PCCP	Climate Change and Water Vulnerability in the Middle East	SCIENTIFIC PAPER
V. UNESCO PCCP	Status of the Cooperation in the Ostua-Metapan Aquifer	SCIENTIFIC PAPER
VI. UNESCO PCCP	Case Study on the Status of the Cooperation in the Mono River	SCIENTIFIC PAPER
VII. UNW-DPC	Institutional Capacity Development and Knowledge Management	INSIGHT
VIII. UNDP WGF	Freshwater in Climate Adaptation Planning and Climate Adaptation in Freshwater Planning	DIALOGUE SERIES
IX. UNEP	Water Security and the Ecosystems Management Approach	DIALOGUE SERIES
X. IFAD	InnoWat: An Overview	SCIENTIFIC PAPER
XI. ICHARM	Trends of Global Water-Related Disasters	INSIGHT
XII. PIANC / ICIWaRM	Inland Water Transport	INSIGHT
XIII. Consortium Ouranos Inc.	Freshwater biodiversity vs. anthropogenic climate change and land use management	DIALOGUE SERIES
XIV. Consortium Ouranos Inc., University of Munich & Centre d'Expertise Hydrique du Québec	A Multi Model Experiment to assess and cope with Climate Change impacts on the Châteauguay watershed in Southern Quebec	SCIENTIFIC PAPER
XV. WWAP Secretariat	Investing in Information, Knowledge and Monitoring	SCIENTIFIC PAPER
XVI. J. XIA Chinese	Screening for Climate Change Adaptation: Managing the Potential Impacts of Climate	SCIENTIFIC PAPER

Academy of Sciences	Change in China	
XVII. DHI-UNEP Collaborating Centre for Water and Environment	IWRM In Action	DIALOGUE SERIES

**Table 3. List of publications submitted to UN Water for approval**

## **4 Consultative Processes and External Input to WWAP**

### ***Introduction***

After the WWDR-2 was published, the evaluation commissioned by the Japanese Government indicated that WWAP in general and WWDR in particular could benefit from an increased scientific basis. This consideration brought the WWAP Secretariat to develop mechanisms to ensure that his products would be underpinned by a solid scientific basis. As a first step, a **Technical Advisory Committee (TAC)** has been established. It is a body comprised of scientists, policy/decision makers, stakeholders and representatives from member states. In addition, **seven interdisciplinary expert groups** were created for a number of topics in order to strengthen the scientific basis as well as possible implementation of the report and its recommendations. Moreover, various types of consultations have been planned and implemented. Two general meetings, the ‘Inception Meeting’ and the ‘Integration Meeting’ have taken place, providing feedback on the ToC of the report and on the general content. In parallel, two technical meetings have been planned, the first dealing with monitoring and indicators and the second one with policy relevance. Finally, the ToC has been posted for public consultation using Alfresco.

### **4.1 Technical Advisory Committee (TAC)**

#### **4.1.1 Background**

The observation that WWAP could benefit from an external technical committee is reflected in the programme document for the current period, ‘*Proposal for the Italian Funds-in-Trust for the Third Phase (2006-2009) of the World Water Assessment Programme (Paris, 29 January 2007)*’, as follows:

‘Creation of a Technical Advisory Committee for WWAP

*In order to improve transparency and respond more meaningfully to the global community, an independent Technical Advisory Committee (TAC) will be created to advise the Secretariat on WWAP’s activities. The Committee will be composed of eminent experts, scientists, representatives of the donors, chair of UN-Water and representatives of the case studies. The independent Committee will meet periodically to monitor and review various activities performed by the secretariat and suggest future directions.’*

#### **4.1.2 Organizational structure and activities**

The TAC is composed of eleven members from academia, research institutions, NGOs and public/professional/non-governmental organizations with ex-officio (Chair of UN Water and WWAP Coordinator) members. In the absence of both the chair and the co-chair, TAC selects the individual(s) to chair its meetings and facilitate physical/virtual discussions.



The Committee aims, to strengthen the scientific, policy and technical foundations of WWDR and its accompanying publications. To this end, it reviews the contents of WWDR in the view of the state of the art, identifies information gaps to be addressed and formulates recommendations for further actions. The overarching aim of the Committee is to make sure that WWDR series provides an analysis and review of the state of the water resources in the light of the best available scientific/technical information and in a manner that can be adapted by policy/decision makers for implementation.

Under normal conditions, the Committee functions in the form of a virtual forum where all the issues are discussed through e-mail exchanges among the members. In addition TAC also meets regularly, on need basis and parallel to major WWAP meetings. Scheduled regular meetings are open to the members of UN Water as well as to the representatives of collaborating agencies taking part in preparation of WWDR. Agenda of the meetings is prepared by the WWAP Secretariat and distributed to the members and interested parties prior to the meeting. Minutes of the Committee meetings are taken and circulated by the WWAP Secretariat.

The first two face to face TAC meetings took place parallel to the inception (8-9 November 2007) and the Integration Meetings (19-20 April 2008). During the Inception Meeting, TAC members unanimously approved Prof. Uri Shamir as chair and Mr. Dipak Gyawali as deputy chair.

#### **4.1.3 TAC Composition**

The members of TAC are identified by the WWAP Coordinator in consultation with the Chair of UN-Water (Mr. Pasquale Steduto), as stipulated in the Terms of Reference for TAC. The composition of TAC will change at every phase (i.e. triennially). Chair of UN Water and WWAP Coordinator are (and will be) ex-officio members. Secretariat services to TAC are provided by WWAP Secretariat.

The current members of WWAP TAC and their qualifications are listed (in random order) in the following table:

Name	Country	Qualifications
Ms. Fatma A. R. ATTIA	Egypt	Ministry of Water Resources and Irrigation
Mr. Anders BERNTELL	Sweden	Swedish International Water Institute
Prof. Elias FERERES	Spain	Director of the Univ. Evaluation of Quality and Accreditation Agency
Mr. M. GOPALAKRISHNAN	India	Secretary General of ICID
Mr. Dipak GYAWALI	Nepal	Former Minister of Water
Prof. Pete LOUCKS	USA	Professor at Cornell Univ.
Prof. Uri SHAMIR	Israel	Former president of IAHS
Prof. Laszlo SOMLYODY	Hungary	Former president of IWA
Prof. Lucio UBERTINI	Italy	President of Italian IHP Committee
Prof. Henk van SCHAIK	The Netherlands	Managing Director, International Secretariat Dialogue on Water and Climate, Coordinator of Network on Climate Change
Prof. Albert WRIGHT	Ghana	Chairman of the Africa Water Task Force

## **4.2 Expert Groups**

### **Background**

Expert Groups bring together external specialists, practitioners and stake-holders whose collective wisdom and expertise on a range of issues will be incorporated into the reporting process. Collectively, the Expert Groups will act as a mechanism through which the Report's scientific integrity and authoritativeness are validated.

To date, WWAP has established seven Expert Groups. Each Group focuses on a specific topic area and assists WWAP in reporting thereon in an objective, comprehensive manner. Topics generally encompass emerging issues where debate is considered ongoing and sometimes contentious, and which need to be acknowledged in the WWDR3. Topics are generally examined both in the context of global change—the thematic focus of WWDR3—and in relation to the drivers for change. All Groups will be making some contribution to the WWDR3 process, whether in the form of text or data, feedback on the Table of Contents or chapters, or just consolidated comments or recommendations. Some groups may be tasked to produce consensus reports or side publications for the WWDR3 process.

Each Group consists of anywhere from 6–30 members and led by two co-chairs. The co-chairs facilitate the discussions within the group and liaise with the WWAP Secretariat. Generally, the co-chairs are responsible for consolidating the list of members, developing the terms of reference (TORs) of their Group and making sure that the work is carried out accordingly. The TORs, drafted in collaboration with WWAP Secretariat, states the Group's purpose and scope, and include expected outcomes and a timetable of actions. Co-chairs maintain communications with members to ensure that members are on-board and informed of their roles. Throughout the duration of the Expert Group, members are encouraged to adopt close consultations by mode of e-mail, telephone, and through WWAP's collaborative workspace on the internet. Members are not expected to travel other than the co-chairs attending organized meetings to discuss the WWDR. In such cases, WWAP will cover expenses incurred. The WWAP Secretariat provides a topic facilitator who will serve on the group as ex-officio and ensure technical support. Members and co-chairs have been selected on the basis of relevant expertise, professional reputation, geographic origin and availability. Generally, a broad representation of known stances and schools-of-thought was sought when contentious issues are concerned.

The duration of the Expert Groups is generally expected to last until the completion of the 3<sup>rd</sup> Phase of WWAP (coinciding with the launch of the WWDR3 on World Water Day, 23 March 2009), unless specified otherwise. All outcomes are expected to be delivered before the end of this period or the deadlines set in the Group's terms of reference.

Below is a summary of each Expert Group and the composition their members.

#### **4.2.1 Expert Group on Indicators, Monitoring and Databases**

Led by two co-chairs, Roland Schulze (University of KwaZulu-Natal, South Africa) and Mike Muller (University of Witwatersrand, GWP, South Africa), and facilitated by the UN-WWAP, the *Expert Group on 'Indicators, Monitoring and Databases'* was established, first

and foremost, to serve as UN-WWAP's advisory body on issues concerning indicators and supporting monitoring systems. One of the Group's key tasks is to develop a comprehensive approach to implementing the '*indicator-monitoring-reporting*' system of the overall WWDR process. The Group will draft a report which articulates the consensus of opinions of the Expert Group members on indicators. This report will help inform the drafting process of a sub-section on indicators in the WWDR3. The Group will also undertake the drafting of a side publication on new indicators and the required monitoring investments needed to sustain these, including capacity-building requirements, with distillations as needed toward WWDR4. Finally, the Group is requested to submit to WWAP a report on the work carried out, with recommendations on initiating the side process (on indicators/monitoring/reporting/data-meta data bases) that WWAP intends to initiate in Perugia. Annexed to the Report should be a draft Terms of Reference for establishing and carrying out the process, which include objectives and an assessment of budgetary and staff requirements.

Comprised of a core group of 10 experts in indicators, statistics and specialists in M&E methodologies, and supported by an extended group of 32 associated experts, the Group contributes to the WWDR3 by reviewing the usefulness, validity and representation capability of the existing indicators and by offering opinion and guidance to WWDR3 Chapter Coordinators and facilitators. The Group also provides a link between WWAP and the UN-Water Task Force on Indicators, Monitoring and Databases.

So far, the Group has held numerous teleconferences to deliberate on its three main outputs and has provided concrete feedback on specific questions related to the indicators being used in the WWDR3 to the chapter coordinators and drafters. The Group will also providing input to the WWAP Working Session on Indicators, Databases, Monitoring and Reporting held in Perugia 18-20 June 2008—the outputs of which will help elaborate the next steps for the Expert Group and delineate its relationship with the UN Water Task Force on Indicators, Monitoring and Databases.

#### **4.2.2 Expert Group on Climate and Water**

Pierre Baril (Sustainable Development, Environment and Parks Ministry of Quebec, Canada) and BertJan Heij (Netherlands Environment Assessment Agency, the Netherlands) head this group of 11 experts in the field of scenarios of climate change and drivers of the water crisis, from various institutions and organizations around the world. The purpose of the group is to advise WWAP on reporting on the climate-related impacts on water resources. The Group is helping to ensure that the latest consensus on climate change science and adaptation policies are reflected throughout the WWDR3. The WWDR3 Chapter coordinators have been invited to send their inquiries to the Group for feedback relevant to climate. The Group has provided feedback to the draft ToC of the WWDR3, and has reviewed and commented on the drafts of the various chapters of the WWDR as these are being produced. The Group is expected to undertake the drafting of a side publication on the progress being made worldwide on downscaling the impacts predicted by IPCC scenarios on precipitation and evapotranspiration. The Group is also expected to play an advisory role to WWAP on its inputs and participation in the new UN Water Task Force on Water and Climate..

### **4.2.3 Expert Group on Scenarios**

Led by Joe Alcamo (University of Kassel, Germany) and Gilberto Gallopin (Argentina), a team of 16 core experts and 17 associated experts will develop an approach to scenario development for WWAP and the WWDR and report to the WWAP secretariat. The Expert Group will develop a proposal on the best and most efficient process to develop scenarios that would meet the declared objectives efficiently. The proposal should include a preliminary work programme, budget, and suggestions as to the institutional support required. Furthermore, the Group has been responding to specific questions sent to it by the WWDR3 Chapter coordinators with reference to drivers and scenarios. It has prepared a section on the limitations of the current scenarios and on the process that will be proposed to develop new scenarios for WWDR4, and for use at basin- and national level. . The Group has reviewed and comment on the drafts of the various chapters of the WWDR as these are produced.

### **4.2.4 Expert Group on Business, Trade, Finance and Private Sector Involvement**

The Group is comprised of 13 experts from different backgrounds and who represent a diverse range of perspectives on private sector issues—from finance to globalization to pricing. Jack Moss (WBCSD) and Ger Bergkamp (IUCN), provide balanced leadership for this Group. The Group seeks to identify ‘breaking issues’, expose inconsistencies and controversies, and shed light on issues that cross over the many traditional sectors of water policy and water management. The Group thus far has been providing feedback to the draft ToC of the WWDR3, and has reviewed and commented on the drafts of the various chapters of the WWDR as these are produced. The Group has been instrumental in pointing out examples for appropriate case studies that can be taken up by the chapter coordinators. Time permitting, the Group expects to develop one or more dialogue papers, written on the basis of collaboration and consensus among Group members, which synthesizes the key issues and positions of the debates; e.g. on the challenges facing the private sector. Should there not be ample time to produce a paper, the Expert Group may advise WWAP on topics for which a side publication may be sought.

### **4.2.5 Expert Group on Policy Relevance**

The Expert Group on Policy Relevance has been established to assist WWAP in ensuring that the WWDR3 and its associated processes achieve a quality of ‘practical relevance’ for its users and target audience. Comprised of a core group of 23 experienced policy experts, the Group is organized to consult a worldwide representation of the policy-making community at the country level in order to extract opinions that can be used to validate the user-friendliness, relevance and practicality of WWAP reporting outputs. The Group will contribute policy advice towards the publication of WWAP policy briefings targeted to policy-makers. More specifically, the Group has been tasked to focus its work on providing statements to WWAP that are based on on-line consultations that target specific questions raised that can be then used to improve and guide the structure and language of the WWDR.

An initial ‘real-time Delphi took place on-line from 13 to 28 March with over 70 experts taking part. Participants were asked to consider a list of 14 topics under consideration for the WWDR3 and consider the priorities among them as well as provide specific comments. Many experts’ comments alluded to their local conditions, allowing a rich set of feedback for

the WWDR3 writers and contributors. Participants were also asked to prioritize the target audience for the report and the policy briefs given the following targets: UN bodies; Major local authorities; Business leaders/funders; Ministers; Water managers and professionals; Leaders of civic movements. See attached summary of results of the RTD for more details.

A second, more expanded and developed, consultation is under preparation and is expected to take place in mid-July. The 2<sup>nd</sup> consultation will entail an on-line survey and targets policy-makers both in and out of the water sector 'box' for their feedback on the key messages being proposed for inclusion into the WWDR3. The co-chairs of the Expert Group, along with its members, have identified an ample pool of over 600 ministers, ministry officials, agency experts, engineers, and other experts from every region of the world that will be invited to participate in this consultation. The feedback from this consultation is expected to inform the structure and priority areas of the WWDR3 and strengthen further its messages. The Expert Group will analyse the results of the consultation which will be used as the basis for discussion at an upcoming WWAP 'policy meeting' at the end of July, where a number of important operational tasks pertaining to the WWAP policy-reporting mechanisms will be examined.

#### **4.2.6 Expert Group on Storage**

The *Expert Group on Storage* has been created to ensure that the work of WWAP builds on the latest insights and experiences regarding the need for and approaches to the issue of storage. The group will assist the WWAP coordinator in reporting on the complex issue of 'storage' in the WWDR3. The Group has three main outputs: to produce a statement, developed by consensus, of the options available for water storage (by 14 March); to provide comments and feedback on the WWDR3 table of contents and chapters; and a possible side publication subject to feasibility.

Luis Berga (International Commission on Large Dams) and Johan Rockström (SEI) lead a core group of 11 experts with an informed opinion on storage and dams. The composition of the group was designed with a balanced representation of the positions on storage.

To generate a baseline on which to base the group's consensus statement, the group underwent a 'real-time Delphi' (RTD) consultation on 15-26 February. The two co-chairs were asked to provide an equal number of additional contacts who could participate in RTD. In total, 26 experts participated. The Group analysed the results of the RTD and produced a consensus statement on the options of storage. The consensus statement is being incorporated into the text of the WWDR3. Please see consensus statement attached in the appendix.

Furthermore, the Group reviewed the annotated table of contents of the WWDR3 and provided its feedback on the issues contained therein pertaining to storage.

#### **4.2.7 Expert Group on Legal Issues**

The Expert Group on Legal Issues has been established to assist WWAP in reporting on the state of water legislation. More specifically, the EG on Legal Issues will provide expert support on legal issues to WWAP at 3 levels: (i) A consensus text on the state of national and international legislations and the various issues and debates concerned, which could possibly

be incorporated into WWDR3 as a sub-section; (ii) propose a set of indicators on legal legislation, eg. Existing legislation frameworks at the national level; extent of compliance; (iii) Produce a two-phase plan with concrete deliverables for the current WWAP cycle and a comprehensive, inclusive process and its deliverables for the next; and (iv) propose a side publication (subject to feasibility). Comprised of seven experts, the Group is led by Patricia Wouters (UNESCO Centre for Water Law, Policy and Science) and Stefano Burchi (FAO) as co-chairs.

The Group has provided concrete feedback on the WWDR3 annotated draft table of contents and has held a number to discuss the Group's deliverables and timetable of action. The Group has submitted to WWAP a text on the state of water legislation that is currently being incorporated into the WWDR3. Collaboration with the WWAP Expert Group on Indicators, Monitoring and Databases on a set of legislation-related indicators is ongoing.

## 4.2.8 Composition of WWAP Expert Groups

### Expert Group on Indicators, Monitoring and Databases

#### *Core Group:*

1.	Schulze, Roland (Co-chair)	South Africa (U. of KwaZulu-Natal)
2.	Muller, Mike (Co-chair)	South Africa (U. of the Witwatersrand)
3.	Alcamo, Joseph	Germany (Centre for Env.Syst Research)
4.	Jayawardena, Amithirigala W.	China (University of Hong Kong and ICHARM, Japan)
5.	LeTitre, Peter C.	The Netherlands (IGRAC)
6.	Salzberg, Aaron	USA (US State Dept.)
7.	Vörösmarty, Charles	USA (U. of New Hampshire)
8.	Jønch-Clausen, Torkil	Denmark (DHI Water & Environment)
9.	Wright, Albert	USA (U. of New Hampshire)
10.	Zimmer, Daniel	France (World Water Council)

#### *Extended Group:*

11.	Bernauer, Thomas	Switzerland
12.	Bjorkland, Gunilla	Telia
13.	Brakenridge, Bob	USA
14.	Brown, Casey	Columbia University
15.	Bunn, Stuart	Griffith University
16.	Corvalan, Carlos	WHO
17.	De Sherbinen, Alex	USA
18.	DeVivo, Michel	France
19.	Gleditsch, Nils Peter	PRIO
20.	Gleick, Peter	USA
21.	Grabs, Wolfgang	WMO
22.	Harlin, Joakim	UNDP
23.	Hellmuth, Molly	Columbia University
24.	Hutton, Guy	Switzerland
25.	Kleinau, Eckhard	WHO/UNICEF
26.	McGranahan, Gordon	IIED
27.	Meybeck, Michel	France
28.	Olden, Julian	USA
29.	Poff, LeRoy	USA
30.	Rockstrom, Johan	SEI
31.	Shiklomanov, Igor	Russian Federation
32.	Stakhiv, Eugene	USA
33.	Struckmeier, Willie	Germany
34.	Sullivan, Caroline	UK
36.	Takeuchi, Kuniyoshi	Japan, ICHARM
37.	Vallee, Domitille	FAO
38.	van der Gun, Jac	Netherlands
39.	Verstraaten, Ingrid	USA
40.	Weiskal, Peter	USA
41.	Winpenny, Jim	UK
42.	Wolff, Aaron	USA

## Expert Group on Climate and Water

1. Baril, Pierre (Co-chair)	Canada (Ministère du Développement durable, de l'Environnement)
2. Heij, Bert Jan (Co-chair)	The Netherlands (Netherlands Environmental Assessment Agency)
3. Bates, Bryson	Australia (CSIRO Marine and Atmospheric Research)
4. Giorgi, Filippo	Italy (Int. Centre for Theoretical Physics, Physics of Weather and Climate Section)
5. Jacob, Daniela	Germany (Max Planck Institute for Meteorology)
6. Kabat, Pavel	The Netherlands (Climate Change & Biosphere Science Support Office)
7. Kavvas, Levent	USA (University of California)
8. Kundzewicz, Zbigniew	Poland (Polish Academy of Sciences)
9. Sen, Zekai	Turkey (Turkish Water Foundation)
10. Shulze, Roland	South Africa (University of KwaZulu)
11. Hassan, Fekri	Egypt (Institute of Archeology, UCL)

## Expert Group on Scenarios

### Core Group:

1. Alcamo, Joe (Co-chair)	Germany (University of Kassel)
2. Gallopin, Gilberto (Co-chair)	Argentina (Independent scholar)
3. Gaponenko, Nadezhda	Russia (Russian Academy of Sciences)
4. Hammond, Allen	United States (World Resources Institute)
5. Rosegrant, Mark	United States (International Food Policy Research Institute)
6. Molden, David	United States (International Water Management Institute, Sri Lanka)
7. Slinger, Jill	South Africa (Council for Scientific and Industrial Research)
8. Sreenath, Sree	India (Case Western Reserve University, United States)
9. Shiklomanov, Igor	Russia (State Hydrology Institute)
10. Strzepek, Ken	United States (University of Colorado)
11. Valencia, Isabel	Venezuela
12. Wang, Rusong	China (Chinese Academy of Sciences)
13. Jiang, Kejun	China
14. Alavian, Vahid	(World Bank)
15. La Rovere, Emilio Lebre	Brazil
16. Martin, Robert	(WBCSD)
17. Muller, Mike	South Africa

### Extended Group:

18. Gyawali, Dipak	Nepal
19. Heij, BertJan	The Netherlands
20. Jacob, Danielle	Germany
21. Kabat, Pavel	The Netherlands
22. Kasten, Tim	UNEP
23. Kundzewicz, Zbigniew	Poland
24. Loucks, Peter	USA
25. Molden, David	CGIAR
26. Sen, Zekai	Turkey
27. Shamir, Uri	Israel
28. Shiklomanov, Igor	Russian Federation
29. Schulze, Roland	South Africa
30. Somlyódy, László	Hungary
31. Ubertini, Lucio	Italy
32. Van Schaik, Henk	UNESCO-IHE
33. Wright, Albert	Ghana

## Expert Group on Business, Trade and Private Sector Involvement

1. Moss, Jack (Co-chair)	WBCSD
2. Bergkamp, Ger (Co-chair)	IUCN
3. Krchnak, Karin	The Nature Conservancy
4. Pelczar, Jeremy	Water Aid
5. Simpson, Robin	Consumers International
6. Oberhansli, Herbert	Nestle
7. Gerber, Jürg	Rio Tinto / Alcan
8. Heredia, Gustavo	Agua Tuya
9. Cramwinckel, Joppe	Shell
10. Franceys, Richard	Cranfield University
11. McLeod, Neil	Municipality of Durban
12. Flor, Mai	Asian Development Bank
13. Carlson-Catley, Margaret	CGIAR



### Expert Group on Policy Relevance

1. Gyawali, Dipak (co-chair)	Nepal
2. Galloway, Gerry (co-chair)	United States
3. Kart, Celalettin	Turkey, Ambassador, Min. Foreign Affairs (WWF5)
4. Braga, Benedito	Brazil
5. Campos, Max	Costa Rica/Central America
6. Gupta, Rajiv	India
7. Gleick, Peter	Pacific Institute
8. Delli Priscoli, Jerome	United States
9. Springer, Cletus	Small islands, Asia-Pacific (OAS)
10. Badran, Adnan	Jordan
11. Ait Kadi, Mohamed	Morocco
12. Bernardini, Antonio	Italy
13. De Villeneuve, Carel	Netherlands
14. Mayr, Juan	Colombia
15. Muller, Mike	South Africa (U. of the Witwatersrand)
16. Biao Koudeoukpo, Juliette	Benin
17. Overmars, Marc	Pacific/SOPAC
18. Moss, Jack	WBCSD (provide names for Delphi ?)
19. Baoxing, Qiu	China (Vice minister of MOC)
20. Pochat, Victor	Argentina
21. Oda, Hideaki	Japan
22. Yong, Jiao;	China (Vice minister of MWR)
23. Xiangwei, Zhang;	China

### Expert Group on Storage

1. Berga, Luis (Co-chair)	Universidad Politécnic de Barcelona (ICOLD)
2. Rockström, Johan (Co-chair)	SEI
3. Walz, Arthur	USSD
4. Bartel, Alison	Hydropower and Dams
5. de Vivo, Michel	ICOLD
6. Chabal, Jean-Pierre	Environmental Committee
7. Hatibu, Nuhu	ASARECA
8. Narain, Sunita	Centre for Science and Environment
9. Oweis, Theib	ICARDA
10. Critchley, William	Vrije Universiteit
11. Wong, Carissa	WWF-US

### Expert Group on Legal Issues

1. Wouters, Pat (Co-chair)	UNESCO Centre for Water Law, Policy and Science
2. Burchi, Stefano (Co-chair)	FAO
3. Solanes, Miguel	ECLAC
4. Bruch, Carl + Troell, Jessica	Environmental Law Institute
5. Stephan, Raya	UNESCO
6. Salman, Salman	World Bank
7. Boelens, Rutgerd	Water Law and Indigenous Rights Programme (WALIR)
8. Clover, Jenny	Natural Resources and Environment

The Figure below shows the geographical distribution of members of the expert groups.



Indicators, Monitoring and Databases



Scenarios

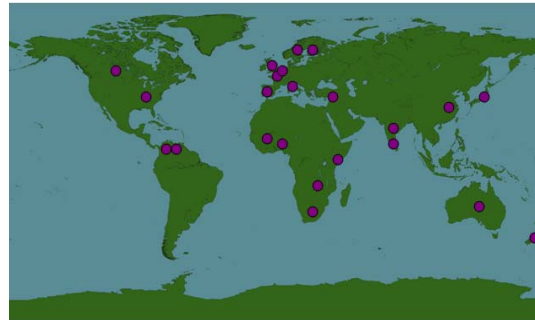


Climate and Water



Legal Issues

10° 15° 20° 25° 30° 35° 40° 45° 50° 55° 60° 65° 70° 75° 80° 85° 90° 95° 100° 105° 110° 115° 120° 125° 130° 135° 140° 145° 150° 155° 160° 165° 170° 175° 180°



Storage

10° 15° 20° 25° 30° 35° 40° 45° 50° 55° 60° 65° 70° 75° 80° 85° 90° 95° 100° 105° 110° 115° 120° 125° 130° 135° 140° 145° 150° 155° 160° 165° 170° 175° 180°



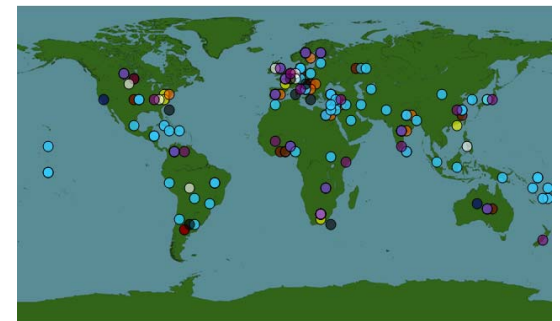
Business, Trade and Private Sector



Policy



Extended Policy Group



All Expert Groups members + Ext. Policy

## 4.3 Consultations

### 4.3.1 Preparatory meetings

#### Inception meeting

From the 7 to 11 November 2007, WWAP hosted the ‘Inception Meeting for the World Water Development Report-3,’ held at UNESCO’s Headquarters in Paris. The purpose of the meeting was to finalize the structure of the Third Edition of the World Water Development Report and its accompanying publications. Approximately 70 experts and organization representatives came from around the world to attend the five-day workshop. Their inputs constituted the fundamental premises to outline the first draft of the WWDR-3. During the five-day workshop, participants worked in plenary and small groups to draft the Table of Content for the WWDR-3. Discussion was based largely on input gathered during a consultative process initiated by WWAP during the World Water Week in August of 2007. Participants also worked to prepare a production schedule for the first draft of the report, propose additional publications, and suggest direction for addressing controversial issues.



**Figure 5. Geographical distribution of Participants for Inception Meeting**

The main outcomes of the Inception Meeting are summarized in the following list:

- ☞ Draft ToC formed,
- ☞ Major indicators selected,
- ☞ Major contributors identified,
- ☞ Professional authors engaged,
- ☞ Obvious overlaps and gaps identified,
- ☞ Contentious and emerging issues selected, and
- ☞ Several side publications identified.

Internal minutes of the Integration meeting, as well as participant and attendance information, are available upon request. The list of participants is attached to this report.

#### Integration meeting

The second preparatory meeting, or ‘Integration Meeting,’ took place in Perugia, Italy at the new WWAP Headquarters from 19 to 25 April 2008. At this meeting, the members of the WWAP Technical Advisory Committee (TAC), the co-chairs of Expert Groups, members of UN-Water, contributors, writers, and other participants discussed the second draft of the chapters and their integration. More than eighty participants from twenty-six countries attended the meeting, of which eleven representatives of UN-Water members. The meeting consisted of three parts: a meeting of the WWAP-TAC in parallel with a meeting of the chapter teams on 19 and 20 April; a consulting part on the chapter drafts and on key topics involving a broader audience on 21 to 24 April, and finally a closing session of the production team on 25 April, to integrate comments and new inputs, revise the table of contents and the

main messages of the chapters and plan the way forward. Conclusions and recommendations of the WWDR-3 were also addressed.

To support the work done during the Integration Meeting, a web-based commenting tool was



developed and various contributors were invited to comment on the second draft of the chapters using an on-line form corresponding to a very detailed ToC. Between 12 April and 30 April, more than two-hundred comments were collected through this tool and processed by the production team.

**Figure 6** Geographical Distribution of participants for the Integration meeting

are summarized in the following list:

The main outcomes of the Integration Meeting

- ☞ Revised table of contents of the chapters
- ☞ Revised key messages of the chapters and of the report
- ☞ Gaps and overlaps identified
- ☞ Better coherence between the various parts of the report
- ☞ Comments and key messages related to specific cross-cutting issues (Financing, climate change, environment, capacity development, sanitation and water supply, business-trade-finance and role of the private sector, governance, technology-innovation-science)
- ☞ Work plan for the final draft of the chapters

Outcomes and material of the Integration Meeting are available upon request and on the collaborative platform. The list of participants is attached to this report.

### 4.3.2 Technical Group Meetings

#### Meeting on Indicators, Monitoring and Databases

As part of the production process for the WWDR3 and of a broader process on indicators, databases and monitoring in the water sector, WWAP organised a working session in Perugia on 18-20 June 2008 involving a limited number of experts to discuss major issues related to this topic.

The purpose of this session was first to propose a long term action plan for both WWAP side process on indicators, monitoring and databases (IMD) towards 2012 (including the terms of reference of the related WWAP Expert Group) and for the UN-Task Force on Indicators-monitoring-reporting (IMR) coordinated by WWAP. For more immediate use, participants also reviewed a statistical annex of key indicators (based on table proposed by FAO) proposed by FAO for inclusion in the WWDR-3, that will be released in March 2009.

In this framework, participants took stock of what information is available, assessed information needs for the different target groups (UN, policy makers, UN member countries,

water managers) and identified which initiatives exist and what the information gaps are. In conducting this work, they identified the main critical issues and subsidiary challenges one needs to report on.

Participants attempted to identify relevant indicators to monitor each subsidiary challenge. This work needs to be compiled and pursued. In particular, the availability of the necessary data and their updatability will need to be checked.

The WWAP Expert Group on IMD will be invited to get involved in the next step of the process commenting and completing the resulting list of issues and challenges along with relevant indicators by 23 July. The revised list will be presented on 21 August on the occasion of the UN-Water meeting.

### **Meeting on Policy Relevance**

As part of its efforts to report to decision makers in a relevant way, WWAP is organizing a meeting on policy end of July 2008 in Perugia, Italy involving water sector leaders and technical experts.

The meeting will last three days, followed by two additional days attended only by a core group of participants, in particular the co-chairs of the two WWAP Expert Groups on '*Policy Relevance*' and on '*Business, Finance, Trade and Role of Private Sector*'.

On the occasion of this meeting, participants will discuss major water issues facing the world and propose possible responses, which WWAP may refer to in follow-up and reporting. Participants will more specifically review WWDR-3 proposed indices, the WWDR-3 chapter on 'Response Options' and the Terms of Reference of its two above-mentioned Expert Groups.

WWAP aims thus to support decision makers in the development, monitoring and evaluation of policies which address major water issues.

### **4.3.3 Table of Contents posted for informed public comment**

The WWAP Secretariat conducted a public consultation for the Table of Contents (ToC) for WWDR-3 from 24 February to 16 March. An on-line comment form was created for this purpose allowing the public to comment on the various sections of the six chapters of the report.



**Figure 7** Geographic distribution of the public consultation participants

The invitation was distributed through a number of networks, including the Water Portal and WWAP newsletter channels, Water-L list-serve, and others. Members of the Technical Advisory Committee and Expert Groups were also asked to comment on a more detailed version of the ToC. In addition to the responses from the Technical

Advisory Committee, the Expert Groups and country partners, WWAP received 167 comments submitted by 40 participants from 25 countries.

All comments received in the consultation were displayed on the collaborative platform (see section 3.1.3) and compiled for use3.1.3) for treatment by the chapter coordinators and contributors during the development of the WWDR-3 chapter drafts.

## 5 New WWAP Programmes and Activities

### **5.1 Process on Indicator, monitoring and data-metadata bases**

The WWDR is tasked to assess the state of the global freshwater system, human water stewardship and critical problems. This requires an indicator-based approach to identify trends and progress. The first edition of the WWDR (WWDR-1) included over 170 indicators. The second edition of WWDR (WWDR-2) made a considerable effort towards utilizing the robust indicators backed by a global dataset. Consequently, many of the 64 indicators mentioned in WWDR-2 came with a detailed indicator profile sheet defining the underlying concepts, the method for utilization/computation, the source of data as well as its interpretation. All this information is accessible either from the CD bundled with the hard copy version of WWDR-2 or from WWAP web-site:

<http://www.unesco.org/water/wwap/wwdr2/indicators/index.shtml>.

During the November 2007 Inception Meeting for the WWDR-3, participants decided to make use of the indicators listed in WWDR-2. In fact, the work-in-progress version of the WWDR-3 Table of Contents includes 54 indicators from WWDR-2 (see Table 4). This is an important step in ensuring the connection between two consecutive editions as well as to correctly follow the trends identified in WWDR-2.

As highlighted above, most of the indicators used in WWDR-2 were robust indicators and can be used with confidence in WWDR-3. However, given that indicator development/refinement is an iterative process, WWDR-3 aims to provide updates as to time series captured over the time span from WWDR-2-to-WWDR-3 (where possible and applicable). Consequently, WWAP requested that all UN agencies go through the profile sheets of those indicators proposed by their respective agencies and make necessary revisions as to definitions, datasets as well as interpretation. WWAP also requested that additional assessment as to the quality of the input data sets and the derived indicator they are presenting is made. In this process, existing or developing new indicators can be proposed for utilization in WWDR3.

The responses gathered from the UN agencies indicated that most of the indicators do not need to be updated for WWDR-3 as the underlying databases remain unchanged since the launching of the WWDR-2. Table 5 shows the update status for the WWDR-2 indicators and data availability.

In the 3rd phase of WWDR, various expert groups are established to provide external input into the production of WWDR-3. One of those expert groups (EG) is on Indicators, datasets and monitoring which is co-chaired by Mr. Mike Muller (GWP South Africa) and Mr. Roland Schultz. The output of the EG will feed into the WWDR-3 process and may appear in a side report(s) and on-line on WWAP website.

From 18 to 20 June 2008, the WWAP Secretariat brought the co-chairs of the EG and a few selected prominent experts together in Perugia to discuss the short (indicator selection/refinement process towards WWDR-3), mid and long term assignments of the

expert group. This resulted in a better understanding of the differentiated responsibilities of different bodies (the Expert Group, the WWAP Secretariat and the UN Task Force on Indicators, Monitoring and Reporting), their terms of references and complementarities. Details of the meeting can be found in section 4.3.2.







Chapter in WWDR3	Indicators listed in WWDR2 (classified by Chapter)	Availability of Profile Sheet
<b>CHANGING WORLD</b>		
3	1- Index of non-sustainable water use	+
3,4	2- Rural and urban population	+
-	3- Relative Water Stress Index	+
-	4- Sources of contemporary nitrogen loading	+
3, 4	5- Domestic and industrial water use	+
2, 3	6- Impact of sediment trapping by large dams and reservoirs	+
2	7- Coefficient of variation for the Climate Moisture Index	+
4	8- Water Reuse Index (WRI)	+
<b>GOVERNANCE</b>		
4	1- Access to information, participation and justice	+
-	2- Assessing progress towards achieving IWRM target	+
<b>HUMAN SETTLEMENTS</b>		
3, 4	1- Index of performance of water utilities	+
3, 4	2- Urban water and sanitation governance index	+
3, 4	3- Slum profile in human settlements	+
<b>WATER RESOURCE</b>		
-	1- Precipitation	0
-	2- Total actual renewable water resources (TARWR)	+
2	3-TARWR per capita	0
2	4- Surface water (SW) % of TARWR	0
2	5- Ground water (GW) development indicator	+
2	6- Overlap (as % TARWR)	0
2	7- Inflow from other nations (as % of TARWR)	0
2	8- Outflow to other nations (as % of TARWR)	0
3	9- Total use (as % TARWR)	0
<b>ECOSYSTEMS</b>		
2, 3, 4	1- Fragmentation and flow regulation of rivers	+
2, 3	2- Dissolved nitrogen (NO <sub>3</sub> + NO <sub>2</sub> -N)	+
2, 3, 4	3- Trends in freshwater habitat protection	+
2, 3, 4	4- Freshwater species population trends index	+
2, 3	5- Biological oxygen demand (BOD)	+
<b>HUMAN HEALTH</b>		
3	1- DALY (Disability-Adjusted-Life Year)	+





3	2- Prevalence of underweight children < 5 yrs of age	+
-	3- Prevalence of stunting among children < 5 yrs of age	+
3	4- Mortality rate of children < 5 yrs of age	+
3, 4	5- Access to safe drinking water	+
3, 4	6- Access to basic sanitation	+
	Challenge Area and Indicators/Indices	+
<b>FOOD, AGRICULTURE AND RURAL LIVELIHOODS</b>		
3, 4	1- Percentage of undernourished people	+
3, 4 (?)	2- Percentage of poor people living in rural areas	+
3, 4	3- Relative importance of agriculture in the economy	+
3, 4	4- Irrigated land as percentage of cultivated land	+
3	5- Relative importance of agricultural water withdrawals	+
3, 4	6- Extent of land salinized by irrigation	+
-	7- Importance of groundwater for irrigation	+
<b>INDUSTRY</b>		
3	1- Trends in industrial water use	+
3	2- Water use by major sector	+
3	3- Organic pollution emissions (BOD) by industrial sector	+
3, 4	4- Industrial water productivity	+
3, 4	5- Trends in ISO 14001 certification	+
<b>ENERGY</b>		
3, 4	1- Electricity generation by energy source	+
3, 4	2- Total primary energy supply by source	+
4	3- Carbon intensity of electricity generation	+
3, 4(?)	4- Volume of desalinated water produced	+
4	5- Access to electricity and water for domestic use	+
3, 4	6- Capability for hydropower generation	+
<b>RISK</b>		
2	1- Disaster Risk Index (DRI)	+
2, 3	2- Risk and policy assessment indicator	+
2, 3	3- Climate Vulnerability Index (CVI)	+
<b>SHARING</b>		
4	1-Water interdependency indicator	0
4	2-Cooperation indicator	0
-	3-Vulnerability indicator	0
-ardo	4- Fragility indicator	0
4	5-Development indicator	0
<b>VALUING AND CHARGING</b>		
4	1- Water sector share in total public spending	+
4	2- Ratio of actual to desired level of public investment in water supply	+

4	3- Rate of recovery	+
3, 4	4- Water charges as a percentage of household income	+
	<b>KNOWLEDGE AND CAPACITY</b>	
-	1- Knowledge Index (KI)	+









**Table 4. Preliminary set of WWDR2 indicators considered for utilization in the WWDR3**





Title of the Indicator	Profile Sheet (WWDR2)	Comments from the chapter facilitators	Availability of Information	Update	Response
6 indicators			<b>For more information contact Dr. Charles Vorosmarty</b>		
Index of non-sustainable water use	+	<b>Used in Ch 3</b>	Can be calculated from Aquastat data sets (once data is updated)	Will not be updated	
Rural and urban population	+	-	<ul style="list-style-type: none"> <li>- Year 2000 population data is available from GRUMP project or Aquastat: <a href="http://sedac.ciesin.columbia.edu/gpw/">http://sedac.ciesin.columbia.edu/gpw/</a> <a href="http://www.fao.org/nr/water/aquastat/dbase/index.stm">http://www.fao.org/nr/water/aquastat/dbase/index.stm</a></li> <li>- GPWv3 population <u>projection</u> grid data ( until 2015) is available at: <a href="http://sedac.ciesin.columbia.edu/gpw/global.jsp">http://sedac.ciesin.columbia.edu/gpw/global.jsp</a></li> <li>- WWDR2 data is available at: <a href="http://wwdrii.sr.unh.edu/download.html">http://wwdrii.sr.unh.edu/download.html</a></li> </ul>	No update is available since WWDR2	
Domestic and industrial water use	+	Used in Ch 3 <b>Possibility to get newer time series?</b>	<ul style="list-style-type: none"> <li>- <u>Extrapolations</u> by Shiklomanov et al (the State Hydrological Institute) based on late 1990's time series can be found at: <a href="http://webworld.unesco.org/water/ihp/db/shiklomanov/">http://webworld.unesco.org/water/ihp/db/shiklomanov/</a></li> <li>- (2000 -2002) available for most of the countries on Aquastat data base</li> </ul>	Will not be updated	
Impact of sediment trapping by large dams and reservoirs	+	Will not be used in Ch 3	Basin trapping of sediment (% land-to-ocean flux trapped upstream)	Will not be updated	
Coefficient of variation for the Climate Moisture Index	+	Will not be used in Ch 3	GPCP data covering 1979-present exists	Will not be updated	
Water Reuse Index (WRI)	+	Proposed to be used in Ch 3	No actual data exists. Calculation of this index is based on the GWP3 & GRUMP <u>extrapolations</u> (ie. Rural and urban population).	Will not be updated	

		Possibility to get newer time series?			
1 indicator			<b>For more information contact Mr. Tropp/UNDP</b>		
Access to information, participation and justice	+			Will not be updated	
3 indicators			<b>For more information contact Mr. Diphorn/Habitat</b>		
Index of performance of water utilities	+	Proposed to be used in Ch 3 (if data is provided by HABITAT)	<b>(Secretariat's note:</b> Contacted HABITAT and waiting for a response)	?	✘
Urban water and sanitation governance index	+	Proposed to be used in Ch 3 (if data is provided by HABITAT)	<b>(Secretariat's note:</b> Contacted HABITAT and waiting for a response)	?	✘
Slum profile in human settlements	+	Proposed to be used in Ch 3 (if data is provided by HABITAT)	<b>(Secretariat's note:</b> Contacted HABITAT and waiting for a response)	?	✘
7 indicator			<b>For more information contact Mr. Jean-Marc Faures/FAO</b>		
TARWR per capita	0	Used to calculate the Total Use indicator (otherwise it will not be	(2003-2007) data available on <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a> and online map <a href="http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm">http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm</a> ; provided in attached sheet but will be updated in June by AQUASTAT	Will be updated (in June by AQUASTAT)	

		used explicitly)			
Surface water (SW) % of TARWR	0	Used to calculate the Total Use indicator (otherwise it will not be used explicitly)	(2003-2007) data available on <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a> and online map <a href="http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm">http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm</a> ; provided in attached sheet but will be updated in June by AQUASTAT	Will be updated (in June by AQUASTAT)	
Ground water (GW) development indicator	+	Will not be used in Ch 3	(2003-2007) data available on <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a>		
Overlap (as % TARWR)	0	Used to calculate the Total Use indicator (otherwise it will not be used explicitly)	(2003-2007) data available on <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a> and online map <a href="http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm">http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm</a> ; provided in attached sheet but will be updated in June by AQUASTAT	Will be updated (in June by AQUASTAT)	
Inflow from other nations (as % of TARWR)	0	Used to calculate the Total Use indicator (otherwise it will not be used explicitly)	(2003-2007) data available on <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a>		
Outflow to other nations (as % of TARWR)	0	Used to calculate the Total Use indicator (otherwise it	(2003-2007) data available on <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a>		

		will not be used explicitly)			
Total use (as % TARWR)	0	<b>Will be used in Ch 3</b>	(around 2001) online map <a href="http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm">http://www.fao.org/nr/water/AQUASTAT/globalmaps/index.stm</a>	table is being updated for chapter 3 figures	✓
5 indicator			<b>For more information contact Mr. Tim Kasten/UNEP</b>		
Fragmentation and flow regulation of rivers	+	WWDR2 version is used in Ch 3 Would like an update from UNEP	No update is available.	Will not be updated	✓
Dissolved nitrogen (NO3 + NO2-N)	+	Can be used in Ch 3 if data is provided by HABITAT	No update is available.	Will not be updated	✓
Trends in freshwater habitat protection	+	WWDR2 version is used in Ch 3 Would like an update from UNEP	No update is available.	Will not be updated	✓
Freshwater species population trends index	+	-	No update is available.	Will not be updated	✓
Biological oxygen demand (BOD)	+	WWDR2 version is used in Ch 3 Would like an update from UNEP	No update is available. (UNEP considers this indicator NOT USEFUL)	Will not be updated	✓
6 indicators			<b>For more information contact Mr. Robert Boss (WHO)</b>		

			<b>Mr. Wim Van der Hoek</b>		
DALY (Disability-Adjusted-Life Year)	+	<b>Will be used in Ch 3</b>	Data available from WHO Global Burden of Disease database: <a href="http://www.who.int/evidence/bod">http://www.who.int/evidence/bod</a>	Will be updated	
Prevalence of underweight children < 5 yrs of age	+	<b>Will be used in Ch 3</b>	Data available from WHO Global Database on Child Growth and Malnutrition: <a href="http://www.who.int/nutgrowthdb/">http://www.who.int/nutgrowthdb/</a> Suggested to be dropped from the list and replaced by the prevalence of stunting	Will be updated	
Prevalence of stunting among children < 5 yrs of age	+	<b>Will be used in Ch 3</b>	Data available from WHO Global Database on Child Growth and Malnutrition : <a href="http://www.who.int/nutgrowthdb/">http://www.who.int/nutgrowthdb/</a> Suggested to replace Prevalence of underweight children < 5 yrs of age indicator	Will be updated	
Mortality rate of children < 5 yrs of age	+	<b>Will be used in Ch 3</b>	Data is available at UNICEF: <a href="http://www.childinfo.org/cmr/revis/db2.htm">http://www.childinfo.org/cmr/revis/db2.htm</a> and the annual publication State of the World's Children.	Will be updated	
Access to safe drinking water	+	<b>Will be used in Ch 3</b>	New JMP data will be available in June	Will be updated (new JMP data has not arrived yet )	
Access to basic sanitation	+	<b>Will be used in Ch 3</b>	New JMP data will be available in June	Will be updated (new JMP data has not arrived yet )	
<b>6 indicators</b>			<b>For more information contact Mr. Jean Marc Faurés (FAO)</b>		
Percentage of undernourished people	+	Map to be added in section 3.1	Data available online <a href="http://www.fao.org/es/ess/faostat/foodsecurity/FSMap/map14.htm">http://www.fao.org/es/ess/faostat/foodsecurity/FSMap/map14.htm</a>	Will be updated	
Percentage of poor people living in rural	+	Map to be added in section 3.2	Data available online <a href="http://www.fao.org/es/ess/faostat/foodsecurity/index_en.htm">http://www.fao.org/es/ess/faostat/foodsecurity/index_en.htm</a>	Will be updated	

areas					
Relative importance of agriculture in the economy	+	Will not be used	1958-2003 data available online at the world Bank		
Irrigated land as percentage of cultivated land	+	<b>Will be used in Ch 3</b>	Used (2003) FAO data on area equipped for irrigation as percentage of cultivated area <a href="http://www.fao.org/nr/water/aquastat/globalmaps/index.stm">http://www.fao.org/nr/water/aquastat/globalmaps/index.stm</a>	Will be updated	
Relative importance of agricultural water withdrawals	+	<b>Will be used in Ch 3</b>	data available online on AQUASTAT <a href="http://www.fao.org/nr/water/aquastat/data/query/index.html">http://www.fao.org/nr/water/aquastat/data/query/index.html</a>	Will be updated	
Extent of land salinized by irrigation	+	Will not be used	Existing data sets on AQUASTAT is incomplete		
<b>5 indicators</b>			<b>For more information contact Mr. Pablo Huidobro (UNIDO)</b>		
Trends in industrial water use	+	<b>Will be used in Ch 3</b>	2002 data available online on AQUASTAT; <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a>	?	<b>RESPONSE FROM FAO</b>
Water use by major sector	+	<b>Will be used in Ch 3</b>	2002 data available online on AQUASTAT; <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a> (2002 data also provided by WB)		<b>RESPONSE FROM FAO&amp;WB</b>
Organic pollution emissions (BOD) by industrial sector	+	<b>Will be used in Ch 3</b>	2002 data provided by WB		<b>RESPONSE FROM WB</b>
Industrial water productivity	+	<b>Will be used in Ch 3</b>	2002 data provided by WB		<b>RESPONSE FROM WB</b>
Trends in ISO 14001 certification	+	<b>Will be used in Ch 3</b>	Updated data available from IFEN 2006 publication: <b>(Secretariat's note:</b> See item #7, Environment in France, under Other Sources of Information)		<b>✘</b>
<b>6 indicators</b>			<b>For more information contact Mr. Huidobro/UNIDO</b>		



Electricity generation by energy source	+	WWDR2 figures will be used in Ch 3 Possibility for an update?	Source for updated data? <b>(Secretariat's note:</b> see fuel mix in World power generation)	?	RESPONSE FROM IEA
Total primary energy supply by source	+	WWDR2 figures will be used in Ch 3 Possibility for an update?	Source for updated data? <b>(Secretariat's note1:</b> 2005 data on Electricity/Heat generation in World by source data exists at: <a href="http://www.iea.org/Textbase/stats/electricitydata.asp?COUNTRY_COD E=29">http://www.iea.org/Textbase/stats/electricitydata.asp?COUNTRY_COD E=29</a> ) <b>(Secretariat's note2:</b> See item #3 under Other Sources of Information)	?	RESPONSE FROM IEA
Carbon intensity of electricity generation	+	-	-	?	✘
Volume of desalinated water produced	+	Will be used in Ch 3	Data available online on AQUASTAT <a href="http://www.fao.org/nr/water/AQUASTAT/data/query/index.html">http://www.fao.org/nr/water/AQUASTAT/data/query/index.html</a>	?	✘
Access to electricity and water for domestic use	+	Will be used in Ch 3	Recent data provided by WB		✓
Capability for hydropower generation	+	Will be used in Ch 3 Possibility for an update?	<b>(Secretariat's note:</b> Contacted International Hydropower Association for the latest edition of hydropower & dams world atlas. Waiting for a response)		✘
3 indicators			<b>For more information contact Mr. Wolfgang Grabs (WMO) Mr. Yoshitani (PWRI)</b>		
Disaster Risk Index (DRI)	+	Ch 3 would like to use it. Data is requested.	No update/Update is not necessary	Will not be updated	✓
Risk and policy assessment indicator	+	-		Updated by PWRI	✓

Climate Vulnerability Index (CVI)	+	Ch 3 would like to use it. Data update is requested.	No update/Update is not necessary	Will not be updated	✓
4 indicators			<b>For more information contact Mr. Aslam Chaudhry (DESA)</b>		
Water sector share in total public spending	+	Ch 3 would like to use it. Data is requested.	<ul style="list-style-type: none"> <li>- introduced some methodological refinements (in terms of definitions of variables) for estimating these indicators,</li> <li>- divided the indicator into water and sanitation,</li> <li>- Rate of recovery indicator has explicitly been linked to recovery of O&amp;M costs.</li> </ul> <p>There is no readymade global data set available, which would allow the calculation of the indicators at a global scale without further research and studies. Thus the data would need to be obtained primarily through national level studies and surveys, including a macroeconomic analysis taking national financial and statistical documents as the basis.</p>	Updated (note that this is a developing indicator)	✓
Ratio of actual to desired level of public investment in water supply	+	Ch 3 would like to use it. Data is requested.		Updated (note that this is a developing indicator)	✓
Rate of recovery	+	Ch 3 would like to use it. Data is requested.		Updated (note that this is a developing indicator)	✓
Water charges as a percentage of household income	+	Ch 3 would like to use it. Data is requested.		<p><b>Proposed classifying household income among three groups</b></p> <p>There is no readymade global data set available</p>	Updated (note that this is a developing indicator)
1 indicator			<b>For more information contact WB</b>		
Knowledge Index (KI)	+		KEI and KI Indexes (KAM 2007)		✓

**Table 5. Update status for the WWDR2 indicators and data availability.**

## **5.2 Water Scenarios**

A real time Delphi process conducted in October 2007 with a group of water sector and scenario specialists developed a consensus that existing scenarios do not provide a fully satisfactory basis for decision makers to develop policies related to the water sector and its interaction with external drivers. For example, scenarios developed for the World Water Vision in 1998 did not take account of the impacts of climate change as we know them to-day. At the same time, the IPCC climate scenarios were developed to determine impacts on the atmosphere and through them on the environment and human systems, not to directly look at impacts on water resources and their uses. The conclusion was that the results of analysis of impacts under the IPCC scenarios with its assumptions of drivers can be utilized as a guide in the preparation of WWDR-3. During the preparatory meeting for the WWDR-3 exercise in Paris in November, there was consensus that the environment was not a driver, but among others a provider of services that suffers the impacts of the other drivers.

WWAP initiated a scenario exercise to examine possible futures under different policies taking into account the impacts of climate change and the other major drivers such as demographics, economic development, consumption patterns, environmental effects and social/cultural trends. The interim results of the exercise will be presented during the World Water Forum in Istanbul.

## **5.3 UN-WATER task force on indicators, monitoring and reporting**

UN-Water endeavours to provide coherent and reliable data and information on key water trends and management issues, based on a sound and reliable set of key indicators and proper monitoring and reporting systems. To address this need, and benefiting from the outcomes of the previous UN Water Task Forces on IWRM and on Monitoring, a Task Force on Indicators, Monitoring and Reporting has been established.

While the **TF on Indicators, Monitoring and Reporting** has scope for a broader mandate, it will undertake the first assignment by addressing specifically the following objectives:

- identify and select a set of basic ‘dimensions’ of the water sector within which key indicators will in turn be identified (e.g. social, economic, environmental, governance, availability, quality, etc.),
- identify and select ‘key indicators’ for each ‘dimension’, with due consideration to the implications of scale in time and space, which will facilitate monitoring of status, trends and progress in water related issues and for coherent, reliable, regular and policy relevant information and decisions,
- suggest how data collection, monitoring and reporting for the selected indicators can be streamlined and made more coherent, including the identification of areas in which there is a critical lack of data and a need for new approaches,

- set standards for data collection, indicators and reporting, including criteria for quality control,
- facilitate the coordination of activities of UN-Water members in monitoring and reporting the indicators as approved by UN-Water,
- provide criteria for harmonization of existing databases and those under development, to ensure that water data held within the UN system is consistent and up-to-date, accessible and meets the needs of member countries, and
- elaborate recommendations for harmonization and synergy in the collection of water-related data and information, while minimizing the reporting burden on member countries (in close liaison with the TF on Country-Level Coherence).

WWAP has been chosen as coordinator of this Task Force. The first meeting of the TF will probably take place during the World Water Week, in Stockholm.

#### ***5.4 Capacity Development***

In addition to the above activities, a capacity building and training program will be developed and implemented geared toward enhancing the assessment and monitoring capabilities, with an emphasis on developing countries. The WWAP Secretariat and UN-Water Programme Office for Capacity Development in Bonn have agreed to collaborate in the design of the activities. It must be highlighted that the facilities provided by the new premises in Perugia provide very suitable infrastructure for conducting workshops, seminars, short courses and the like.

## 6 Communications Strategy

In support of WWAP's new third phase and a WWDR-3 that take a broader view on policy options, include new side processes, solicit broader input from a wide range of stakeholders and an abbreviated timeline, WWAP is developing both an interim (present – March 2009) and long term (post-March 2009) communications strategy. The development and implementation of the communications strategy will be coordinated by UNESCO's Bureau of Public Information and the WWAP Secretariat, drawing on synergies with WWAP's sister programmes under UN-Water, the agencies of UN-Water, the World Water Council and the Fifth World Water Forum Secretariat.

### *Interim strategy*

WWAP's interim communications strategy, which dates from the present to the launch of the WWDR-3 in March 2009, has **three primary aims**: (1) Involvement of participants, stakeholders and the public in the development of the WWDR; (2) Ensure that the content of the WWDR is available and well-placed for use by policy and decision-makers in various sectors and at various levels; and to (3) Inform and educate the public about the WWDR and its messages, as well as the work of WWAP and partner organizations.

In order to include the inputs of participants, stakeholders and the public in the development of the WWDR, WWAP will focus on involving these groups in the WWDR-3 through consultation and outreach, and representation at key and relevant conferences. During the development of the WWDR-3, WWAP has and will share drafts of the table of contents, preliminary messages, and texts for public comment, primarily through on-line tools such as the Alfresco work platform. Further, WWAP and the WWDR will continue to have representation at conferences where members of the targets groups and relevant media and interest groups are likely to be present, and use these opportunities to inform and solicit comment on the development of the report. Please see the section on future and upcoming events for more information on events that WWAP will be targeting and for summaries of involvement in past events.

To ensure that the content of the WWDR is available and well-placed for use by policy and decision-makers during the interim period before the launch of the WWDR-3, WWAP will continue to develop links with the Fifth World Water Forum technical and political processes. WWAP has also been working with the Forum Secretariat to highlight the links between the report and the Forum. WWAP is also working with UNESCO's Bureau of Public Information Office of Publishing and Dissemination to develop targeted products for the distribution of important content and messages.

WWAP has been working closely with UNESCO's Bureau of Public Information Media and Audiovisual departments to develop a strategy for the press launch of the report and to inform and educate the public about the WWDR and its messages, as well as the work of WWAP and partner organizations. These efforts include:

- A Media Campaign: In coordination with the WWAP Secretariat and its partners, UNESCO's Bureau of Public Information Media Division will be responsible for the press launch of the WWDR-3. This includes targeted press materials (both print and broadcast), writing of op-ed articles in key publications, and ensuring that a WWAP spokesperson is interviewed or quoted in relevant broadcasts and publications.
- The WWAP website and newsletter: In coordination with UNESCO's Bureau of Public Information Website Division, WWAP is in the process of creating a new website platform based on a Typo3 content management system. This involves updating the content of the site so that it will function as both a source of public information and a tool for outreach. Also, WWAP has resumed production of its newsletter, and has created a new format for the newsletter which highlights forthcoming work and the work of WWAP's country partners.
- Promotional material: Please see section 1.3, below.

### *Long-term strategy*

WWAP is currently developing a long-term communications strategy, with primary objectives largely focused on the targeted dissemination of the WWDR-3 and its messages to a broad range of stakeholders and support of the new objectives established for the WWDR-4 and WWAP's fourth phase. WWAP is currently in discussion with UNESCO's BPI Publishing Office, Mr Antony Pollock, SMI, and others to develop a coherent dissemination strategy for the third report, and will soon begin work on the fourth phase. WWAP's Communication Strategy will be designed in collaboration and for potential joint implementation with the United Nations Office to Support the International Decade for Action. "Water for Life".

## **6.1 Participation in international water events**

WWAP's presence in and contribution to international water related events has been relevant since the World Water Week in August 2007. This section gives an overview of past events to which WWAP contributed and of those for which WWAP participation is expected.

### **Events planned for June – August 2008:**

<b>Date</b>	<b>Meeting</b>	<b>Host</b>	<b>Location</b>	<b>WWAP Involvement</b>
<b><u>2008</u></b>				
June 14 - September 14	Expo 2008		Zaragoza, Spain	
July (mid)	WWDR-3 Mtg on policy relevance	WWAP	Perugia, Italy	
July 21	(EXPO) Japan Day Symposium on Climate Change	Govt of Japan	Zaragoza, Spain	UN-Water is co-convenor. WWAP may be the 'voice' of UN-Water
July 24	(EXPO) European Parliament Conference – 'Water and the MDGs'	Committee on Development of the European Parliament	Zaragoza, Spain	Olcay has been invited to give a speech
Aug 16-17	UN-Water Meeting	UN-Water	Stockholm	WWAP to attend and

August 17-23	Stockholm Water Week	SIWI WWAP	Stockholm	report WWAP co-host of 1 seminar, 1 side event
August 18	Monday, 12:00-1:30, Preliminary Conclusions of the Third UN World Water Development Report	UN-Water, WWAP, SIWI, DHI, UNEP, UNEP-UCC, Cap-Net, UNESCO-IHE, UNDP Water Programme...		UN-Water Task Force on Climate Change meeting during this week.
August 21	Thursday, 9:00-12:00, Indicators for Action: Reporting on Water Management (EXPO) UN Day			
August 27			Zaragoza, Spain	

### 6.1.1 Events in 2008

*Meetings with the World Water Forum Secretariat and Co-chair of Political Process, Istanbul, Turkey, February 7*

Mr. Olcay Ünver, Coordinator of WWAP met with the Fifth World Water Forum Secretariat (5WWF) in Istanbul to discuss how the two secretariats can synergize towards furthering their respective causes. He also met in Ankara with the officials of the Turkish Foreign Ministry to discuss collaboration in conveying the messages of the World Water Development Report to the political process of the Forum with a view of providing input into the Istanbul Ministerial Declaration during the Forum. He attended as a guest of honor in a national event held by Ankara University on the occasion of the 162nd Anniversary of Agricultural Education in Turkey. Mr. Ünver attended the ceremony and gave a speech on behalf of WWAP.

*International Regional Conference: 'Aral Sea problems, its impact on gene fund, biodiversity and measures by mitigation their consequences', Tashkent, Uzbekistan, March 11*

Mr. Olcay Ünver attended the International Regional Conference on March 11, hosted by the Uzbekistan Government. He provided a presentation to participants called 'An overview of Global Freshwater Problems', which also included information on thematic issues and structure of the WWDR-3.

*First African Water Week held in Tunis, Tunisia March 26-28*

For the First African Water Week, WWAP was honored by an invitation to present a keynote speech on behalf of UNESCO, as well as provide presentations and papers to plenary sessions on 'Meeting Water and Sanitation Millennium Development Goals' and 'Investing in Information, Knowledge and Monitoring.' Hosted by the African Development Bank, the African Water Week is to serve as a platform to prepare for a number of continental and global water events, including the 2008 International Year of Sanitation, the proposed 2008 African Summit of Heads of States and Governments on water and sanitation, and the 5<sup>th</sup> World Water Forum in March 2009, which serves as a stepping-stone towards global collaboration on water problems.

Mr. Ünver used this as an opportunity to share information on the preparations of WWAP and the WWDR-3 in the build up to the Fifth World Water Forum. A number of representatives from the WWAP Secretariat were in attendance, and promotional material in French, English and Arabic was distributed to the participants.

*16th Session of the UN Commission on Sustainable Development, held in New York, New York, May 12-16*

During May 12th and 13th, the CSD reviewed thematic topics from previous years, including 'water'. WWAP co-hosted a session on 'Monitoring Global Freshwater Resources' with UN-Water and the World Water Council on Tuesday the 13th. Additionally, WWAP hosted a session later that evening, on 'Emerging Trends in the WWDR-3, Water in a Changing World'. During the session on Emerging Trends in the WWDR-3, contributors to the WWDR-3, took the opportunity to share a number of preliminary findings of the WWDR-3 and solicit comments and questions on the material from the audience.

### **6.1.2 Summary of events which took place in Fall of 2007**

*First Asia-Pacific Water Summit in Beppu, Oita Prefecture, Japan, December 3-4.*

The Director-General of UNESCO, Mr. Koïchiro Matsuura, UNESCO's Director General, spoke at the Summit, describing WWAP as the first of four main pillars of UNESCO's freshwater action. Mr. Olcay Ünver, attended the summit as a speaker and a panelist and represented WWAP in a number of meetings.

*Global Runoff Data Center Steering Committee Meeting, Koblenz, Germany, September 19-20*

The Global Runoff Data Center (GRDC), based in Koblenz, Germany, invited WWAP to present on the Third World Water Development Report during its Steering Committee Meeting. GRDC operates under the auspices of the World Meteorological Organization within the Federal Institute of Hydrology, and is supported by the Federal Republic of Germany.

*UN Water Meeting, World Water Week in Stockholm, Sweden, August.*

The WWAP Secretariat attended the UN Water meeting that was held prior to the World Water Week in Stockholm. During this meeting, the coordinator of the World Water Assessment Programme Mr. Olcay Ünver, presented a workplan and draft table of contents for the WWDR-3 for discussion. Ultimately, UN Water endorsed both the workplan and a new draft table of contents for the report.

## **6.2 Promotional material**

WWAP has also been working on a number of hard copy promotional materials for use in meetings and conferences. These include, but will not be limited to:

- ☛ A brochure introducing WWAP and its activities, as well as the WWDR-3 and new features to the third phase. (Available in English, Spanish and French and continuously updated.)
- ☛ A detailed booklet on the new WWDR-3 process and content.



- ☛ A flyer containing information on WWAP's new headquarters at La Villa Colombella in Perugia, Italy.
- ☛ More information and promotional materials will be developed in the coming months.

## **7 Annexes**

- Annex I- list\_of\_participants\_integration meeting
- Annex II- List of participants\_Inception Meeting
- Annex III-WWAP\_SuggestedSidePublications\_with synopsis
- Annex IV- Expert Group Policy\_List of contacts
- Annex V- Expert group\_storage\_draft report
- Annex VI- List of RTD participants\_condensed
- Annex VII Focal Points\_Expert Group on Policy