6th World Water Forum

Target & Solutions Group Report

Target and Solutions Group 1.5.7

"By 2018, develop mechanisms to share and monitor information at the transboundary level especially on (i) scientific and social data for information systems: contribution to an online inventory and establishment of a water observatory, and (ii) indicators and guidelines for programmes monitoring the quality of cooperation and the impact of the lack of access to water on cooperation and peace-building."

Coordinator: EMWIS / SEMIDE

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1. Introduction

Moving towards sustainable management of water resources requires that Water Information Systems are established to allow a wide access to reliable and up-to-date information for decision-makers, practitioners and citizens (Directors of River Basin Organizations and Administrations, Basin Committee members, representatives of Local Authorities and associations of users), at all relevant levels, on:

- The status of surface and ground water resources, from both a quantitative and a qualitative viewpoint, and also the seasonal and yearly fluctuations,
- The situation concerning biotopes and the aquatic environments and their degrees of sensitivity,
- Water uses (withdrawals) and particularly, irrigation and drinking water supply for populations and pollution sources (discharges) whether point or non-point,
- The risks of recurring extreme phenomena such as floods or droughts and accidental pollution,
- Economic indicators, costs, price, taxes, etc.

This information is becoming crucial for the management of shared water resources, including definition of agreements between riparian countries and the monitoring of these agreements.

A Water Information System provides a unique opportunity to improve our overview of quantitative, qualitative and ecological status of water systems, of pressures and causes of water stress, and of water uses. It is a tool to identify trends and evaluate measures implemented.

Developing high-quality water information systems is not an easy process and raises several challenges (technical, organizational, political…).

Information is often dispersed, heterogeneous and incomplete ... It is rarely comparable and adapted to the prerequisites for objective decision making.

Moreover, it is a fact that public, para-public and even private organizations can have access to this information but lack sufficient means for exchanging, gathering, standardizing, summarizing and for capitalizing it among them.

Whereas public action concerns, in the highest degree, the national territory, and sometimes that of local authorities, water issues are global and concern, in most cases, a simultaneous combination of various levels of action: local, basin, regional, national, international, etc.

2. Background and rationale of the target

All organisations working in the water sector need to have access to pertinent and useful data and information for decision making and/or partner information, and this access is often limited.

Moreover, the water sector monitoring and assessment is often considered the weakest link in the roadmap process to the MDGs, international conventions and transnational agreements on shared resources (e.g. UN convention on Non-Navigational Uses of International Watercourses).

The success of cooperation policies in the water sector depends on the use of efficient governance tools where transparency and confidence in access to information on the status of water resources and their use is fundamental.

The 5th World Water Forum emphasized that water data and information exchanges are the basis for cooperation between riparian countries (agencies, ministries, etc.). They allow the countries to work closer together, to develop relationships, and to improve their mutual understanding of the transboundary context.

Essential quantitative and qualitative information has to be collected, validated and shared, in particular regarding resources, resource uses, pollution pressures, related ecosystems, risk assessment, and financial challenges. This information should be used as the objective basis for dialogue, negotiation, decision-making, and evaluation of options between different groups of stakeholders within one country or between two or more countries.

Donor-financing can also benefit from this information for defining priorities, projects identification and monitoring the impact of their programmes.

In addition, the lack of access to water can create tensions between users, alter cooperation and even generate conflict. It can also jeopardize the attainment of MDGs by a country or a group of countries. Monitoring mechanisms are necessary to understand the impact of the lack of access to water on cooperative processes at various levels, whether they are directly or indirectly related to water.

Developing sustainable mechanisms to produce information useful for decision making related to water management and/or partner information at the transboundary level requires to develop institutional agreements between the stakeholders and to build the capacity of each stakeholder to provide reliable and comparable data responding to both their internal management needs as well as the cooperation needs.

In this process, it is necessary:

- to involve the main organisations producing and using data;
- to develop information systems answering to their needs in order to ensure their long term participation; and
- to produce useful outputs such as common indicators to monitor and assess the quality of cooperation over surface and groundwater resources at the technical, political and institutional level.

A set of tools can also facilitate this process, such as methodological and technical guidelines, good practices, tools supporting decision making, international standards, an online inventory, a water observatory, and common reference frameworks. The focus for the development of such tools and guidelines can be related to many crucial areas of interest such as risk management, flood and drought prevention, funding mechanisms, integrated information systems, planning methods, training and capacity development.

The organization of shared water Information Systems (IS) allows the enhancing of existing data and information at the various levels of action with an overall approach which benefits to all the stakeholders. These information systems thus often constitute one of the priority tools to be implemented in order to support transboundary water resources management and the prevention of conflicts.

3. Target action plan and commitments

For this target, one main commitment was taken during the 6th World Water Forum in Marseille. It is related to building shared water information systems harmonized at the regional level to support peace and cooperation in the framework of the Union for the Mediterranean. This commitment has been integrated in the following target action plan.

	IMPLEMENTATION OF THE TARGET **Expected results & Indicators of Success**	**PRACTICAL STEPS** **Activities to be done/**	**RESPONSIBLE PARTIES**		**KEY-REQUIREMENTS/ ASUMPTIONS**	**ESTIMATED BUDGET** **(1k€, 10k€, 100k€, 1m€, 1b€) & potential sources of funding**
			Lead institution	**Main partners**		
Milestone 1: By 2012, reliable knowledge on the status of and the pressures on water resources is recognized as a prerequisite for peace and building cooperation						
End 2011	Inventory of solutions responding to the target At least 10 solutions are identified	Collect solutions from the TSG members Open call for solutions announced on the web and through mailing lists Review of solutions for application in different contexts	EMWIS	TSG members Water authorities NGOs International organisations		

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			Lead institution	**Main partners**		
Milestone 2:	**By 2012, local and national water authorities are committed to building shared water information system allowing the cooperation on transboundary water resources**					
March 2012 (6th World Water Forum)	**Target** is **refined and/or endorsed** at the World Water Forum	- Present and discuss the target challenges and solutions during the break-out session - Commitment international organization and national water authorities during the forum for shared water information systems on transboundary water resources, using the solutions proposed	EMWIS	**Water resources authorities (national agencies and River basins authorities)** **International organizations** **Donors**		

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			Lead institution	**Main partners**		
Milestone 3: By 2018, Transparent indicator-based information systems are adopted for shared water resources						
2012-2015	Developing mechanisms to share and monitor information in Mediterranean countries	For each local / national system: 1/ Preliminary agreements for involvement of the partners 2/ Diagnostic of the situation related to data management including • The inventory of actors involved • Cartography of the existing data flows • Online inventory of data sources (metadata catalogues) • Analyse of the need in data, information and indicators of the various actors 3/ Data management action plan definition, including development of indicators, guidelines on how to monitor 4/ Implementation of the plan Setting up a regional capacity programme on water information management in the Mediterranean	Union for the Mediterranean secretariat	EMWIS National Water authorities	Labelisation (i.e. agreement) by the 43 countries of the Union for the Mediterranean (by the end of 2012)	15 M€ for 5 pilot countries Source of funding: • National budget of pilot countries • International Financial Institutions and bilateral cooperation • EMWIS

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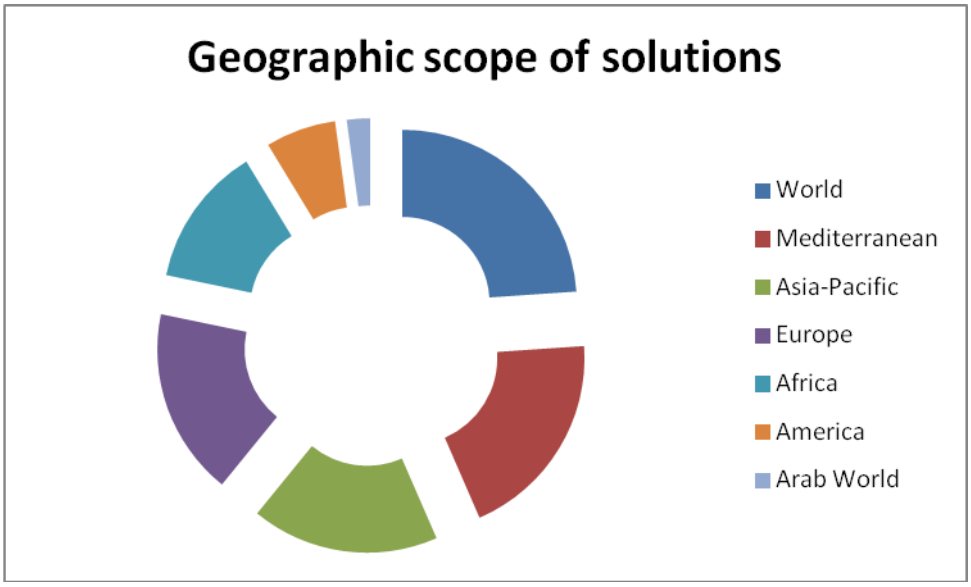
			Lead institution	**Main partners**		
2015	Harmonised water information systems in pilot countries Shared information and indicators	Report at the WWF7 on progress in the Mediterranean	EMWIS Union for the Mediterranean secretariat	National Water authorities of pilot countries Basin agencies in the pilot countries		
2016-2018	Validation of the operation of the mechanisms are in place	At transboundary level: harmonization of indicators definitions, agreements on joint indicators, guidelines and capacity-building resulting in inventory of social and scientific data, water observatory	International programmes transboundary basin organisations and others	Water authorities		
TOTAL :						**15 M €**

4. Solutions

Following the call for contributions launched on various mailing lists, a large number of responses were collected. The solutions collected are outlined in the table on the following pages, when indicated a more in-depth description can be found on the online Platform of Solutions.

The figure below presents the geographical scope of the solutions collected. It must be noticed that some of them are addressing more than one region. The solutions with a global scope are in most of the cases proposed by UN agencies.



The solutions collected focus mainly on the first part of the target i.e. *scientific and social data for information systems: contribution to an online inventory and establishment of a water observatory*. These solutions can be grouped in different categories:

- Observatory and assessment (e.g. dashboards, indicators, thematic maps)
- Integrated information systems supporting the overall information flows from raw data to the final information product
- Approaches and methodologies (incl. standards, reference systems)
- Knowledge sharing systems
- Enhancing, supporting or promoting user participation
- Platforms, tools, technologies
- Capacity building and training

In most of the cases these solutions are addressing the water sector in general, but some solutions a focused on specific topics such as: wetlands, groundwater, water quality, surface water quantities, land and water.

Nevertheless, some activities described in the solutions or case studies proposed allow responding to the second part of the target during the session: *"indicators and guidelines for programmes monitoring the quality of cooperation and the impact of the lack of access to water on cooperation and peace-building."* The main indicators that could be considered for the quality of cooperation are:

- the periodic joint publication a synthesis bulletin enhancing the information and data shared on the status and use of transboundary water resource;
- the use of these joint publications for management purpose by riparian water authorities;
- Yearly meetings of joint management and technical committees.

Organisation	Region/Basin	Solution title	Innovantive"I "/existing "E"
FoEME (Friends of the Earth Middle-East)	Med Middle-East Lower Jordan River	Transboundary Cooperation in the Lower Jordan River Basin	E
German International Cooperation (GIZ)	Asia-Pacific EECCA Amu Darya Basin	Improving Data Management for IWRM in transboundary water courses	E
IWAC / OIEau	Asia-Pacific EECCA countries	Capacity building in data administration for assessing transboundary water resources in the EECCA countries	I
UNU-INWEH	Arab World	KIM-UNU; Knowledge, Integration and Management Platform developed by the United Nations University and being shared with the World	E
UNEP-DHI Centre for Water and Environment	World	The Transboundary Waters Assessment Programme (TWAP)	E
UNU-INWEH	World	IW Science – Enhancing the Use of Science in International Waters (IW) Projects	I
Mediterranean Wetlands Observatory	MED	Mediterranean Wetlands Observatory (MWO)	I
IGRAC - International Groundwater Centre	World	Global Monitoring of Groundwater Resources: Support to assessment, monitoring and management of internationally shared ground waters	E
Laval University, Quebec	America Rio Grande basin (Colorado, New Mexico, Texas & Mexico)	Sustainable responsibility for the water resource (available in French only)	I
United Nations Economic Commission for Europe (UNECE)	Europe Central Asia (EECCA)	Second Assessment of Transboundary Rivers, Lakes and Groundwaters: a comprehensive overview of the status of transboundary waters in the UNECE region	E
Palestinian Water Authority	Med Middle East	Creation Of Water Information Resources Center to empower the Exchange of Data and Know how on Regional context	I
European Commission-Joint Research Center (ISPRA)	Europe	Development and Harmonisation of Ecological Assessment Systems	E

Organisation	Region/Basin	Solution title	Innovantive"I "/existing "E"
FFEM Volta & Niger & Senegal Basins Authorities	Africa	Supporting the development of environment observatories An observatory of water resources and associated environments	E
CEDEX	Europe Spain	Hispagua: water information system, a tool for knowledge	E
WMO	World	World Hydrological Cycle Observing System	E
CRWR - University of Texas at Austin	Med Middle-East / World	Development of a Shared Database: World Water Online	E
SEMIDE / EMWIS	Med	Med Water knowledge hub: harmonizing National water information systems	I
IPEMED	Med	Mutualizing Mediterranean water expertise through a Mediterranean Network of Resources on the water	I
Thales Aliena Space / SOGREAH	Europe World	The "GENESIS" solution: Generic European Sustainable Information Space for Environment	I
Plata basin organisation	America	*Transboundary cooperation on shared aquifers*	E
CIPEL	Europe	Shared dashboard and indicators on water quality of lake Leman and joint action plan between France and Switzerland	E
European Environment Agency	Europe and Neighbourhood countries	Shared Environmental Information System	I
INBO	Global	Handbook for Integrated Water Resources Management in Transboundary Basins of Rivers, Lakes and Aquifers	I
Dauria International Protected Area	upper Amur River basin (Russian Federation, China and Mongolia border)	Upper Amur Basin Transboundary Wetlands Monitoring	I
Autorité du Bassin du Niger	Africa	Process of data acquisition and production of information for an efficient management of the Niger Basin water resources	E
INBO	Africa	Sadieau project: strengthening information management capacity in Africa	E
Oxyo water / UNESCO PCCP	9 transboundary basins	Case study approach on the management of transboundary cooperation water projects	E

Organisation	Region/Basin	Solution title	Innovantive"I "/existing "E"
Scientific-Information Center of Interstate Commission for Water Coordination (SIC ICWC)	Aral Sea basin – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan	Central Asia Regional Water Information Base (CAREWIB)	E
Islamic Republic of Iran Republic of Armenia	Aras river	Based-Collaboration and Common Monitoring Networks of Pollution for Aras Transboundary River Basin	E
Office International de l'Eau, French Ministry of Ecology	Global	Suggestion of the creation of an IPCC of water: the Intergovernmental Panel on Water (IPW)	I
UNESCO PCCP	Africa and Latin America	Case study approach for education & capacity building	E
Universiti Kebangsaan Malaysia	Asia Pacific	Achieving Sustainable Ecosystem through Development of Sustainable Water Resources Management and Planning System for the Langat River Basin of Malaysia	E
AWARE project	Europe	AWARE – bridging the science-policy gap by involving citizen panels to achieve sustainable water ecosystems management	I
University of Bern, Centre for Development and Environment	World	World Overview of Conservation Approaches and Technologies (WOCAT) – knowledge management platform to assess water-related impacts of different land management practices	E
Sahara and Sahel Observatory (OSS)	Med	Promote regional integration and stability through the set-up of joint management frameworks/mechanisms around transboundary groundwater basins	I
UNDESA	World	water policies monitoring framework (SEEA-WATER)	E
University of Bern, Centre for Development and Environment	Africa	Water and Land Resource Centre – improve knowledge sharing and decision support on water and land related topics	I
DSI (Turkey)	Middle-East	Sustainable and Continuous Cooperation and Collaboration for Mesopotamia Region in a Transboundary River Context	E
Scientific Information Center (SIC ICWC)	Asia	Preparation of forecast of future situation in the Central Asian region	E
OIEau	Asia	The French Global Environment Facility support to the Mekong River Commission (MRC): establish a reliable regional hydrological observation system	E
UNESCO – PCCP	World	Short training courses for water professionals Water Conflict Management Graduate Program	E

5. Recommendations for follow-up

Based on the solutions collected the following recommendations have been prepared:

- Raising the awareness of the political and technical people in charge at all levels for a consistent and comprehensive integrated management of the data and information in line with the open data initiative;
- Identifying the global objective and the ad-hoc institutional framework for the implementation/development of the information system
- Defining an overall strategy for the organization and implementation of the information system, based on a consistent assessment of the needs and of what already exists and on the recognition of the central role of data and information producers and managers existing at the various levels;
- Defining and adopting a common semantic language (indicators, reference data sets, spatial data infrastructure, etc.) and implementing rules for allowing the exchange of comparable data;
- Developing guidelines for organizational agreement on water information sharing
- Developing technical guidelines for developing shared and harmonized water information systems allowing to implement various assessment systems (e.g. SEEAW, Ecological Assessment)
- Provision of open-source information management tools compliant with international standards for easy implementation of water or environmental information systems from data collection till assessment and interaction with the citizens

6. TSG members and contributors

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7. Session agenda at the WWF6

During the 6th World Water Forum in Marseille, the session for the target 1.5.7 was held on Thursday March 15th, 14h30 – 16h30 (meeting room Europa 3). All presentations as well as the session synthesis presented on Friday 16 during the wrap-up session related to the Priority for Action: 1.5 Contribute to Cooperation and Peace are available on the following link: http://www.semide.net/documents/meetings/events/wwf6/emwis-wwf6/pfa-1.5.7

Target PfA 1.5.7	**By 2018, develop mechanisms to share and monitor information at the transboundary level especially on (i) scientific and social data for information systems: contribution to an online inventory and establishment of a water observatory, and (ii) indicators and guidelines for programmes monitoring the quality of cooperation and the impact of the lack of access to water on cooperation and peace-building.**
Session title	**Sharing and monitoring information at the transboundary level for sustainable water management**
Session teaser/description	The success of cooperation policies in the water sector depends on the use of efficient governance tools where transparency and confidence in access to information on the status of water resources and their use is fundamental. The establishment of information systems to support sound management of water resources and transboundary cooperation is not easy, data are often widely distributed, of inconsistent quality and collected for a range of different purposes, at different spatial and time scales. This session will demonstrate solutions already implemented and other still emerging to support the cooperation between riparian countries sharing the same water resources. It will also discuss the commitment necessary to move towards an open data behaviour within the water community worldwide.
Duration	2-hour long
Session Coordinator(s)	Walter MAZZITTI – w.mazzitti@semide.org Eric MINO – e.mino@semide.org

Time	Descriptions of items/presentations
10'	*Introduction and setting the scene* Walter MAZZITTI, EMWIS President Eric MINO, EMWIS coordinator
10'	*Towards a Mediterranean Water knowledge Hub: Developing harmonized National Water Information Systems* Shaddad ATTILI, Minister of water, Palestine
	Panel 1 – Practical approaches for sharing and monitoring information
7'	*Support for developing Environment Observatories in Africa* Janique Etienne FFEM secretariat
7'	*Capacity building in data administration for assessing transboundary water resources in the Eastern Europe, Caucasus, and Central Asia –EECC-A countries* Paul Haener, International Office of Water -OIEau
20'	Debate with Panellists and participants Boris Minarik - International Water Assessment Center Jacob Tumbulto – Volta Basin Agency -ABV
	Panel 2 Supporting tools from the International Community
7'	*Support to assessment, monitoring and management internationally shared ground waters* Dr Neno Kukurić UN-IGRAC - International Groundwater Centre
7'	*World Hydrological Cycle Observing System* Tommaso Abrate, WMO
7'	*Transboundary Waters Assessment Programme (TWAP)* Peter Koefoed Bjornsen, Director, UNEP-DHI
15'	Debate with Panellists and participants
	Panel 3 – Empowering local actors
7'	*Transboundary Cooperation on shared river basins, the case of Lower Jordan River Basin* Gidon Bromberg, Friends of the Earth Middle-East
15'	Debate with Panellists and participants
7'	Conclusions

8. Conclusions

It is recommended that concerned Public Authorities and bi- and multilateral cooperation agencies supporting projects related to water resources management and use:

- Consider that setting up comprehensive information systems is a prerequisite,
- Clearly specify which institutional bodies are responsible for the permanent organization and operation of such systems,
- Guarantee not only sufficient resources for corresponding investments, but also the compulsory financial mechanisms which will secure their long-term continuity,
- Promote the development of means and specific engineering proficiency in this field,
- Support the works that aim at defining common standards and nomenclatures for data administration in order to exchange, compare and summarize the information between partners at all relevant observation levels,
- Promote the setting-up of information systems for water resources and their use at river basin level, whether these basins are national or transboundary, and the organization of national information systems consistent with these basin information systems.