

2012 Status Report on the
Application of Integrated Approaches to

Water Resources Management in Africa



African Union
a United and Strong Africa



AFRICAN MINISTERS' COUNCIL ON WATER



Status Report on the Application of
Integrated Approaches to Water Resources
Management in Africa

2012

Acknowledgements

This report is primarily based on invaluable contributions of information from member states of the African Ministers' Council on Water (AMCOW), which serves as the African Union's (AU) technical arm on water and sanitation. Government officials from 40 countries provided detailed responses to the Level 1 survey, and interviewees in 10 countries provided important additional information through the Level 2 survey.

The data was collected as part of a global study led by UNEP on behalf of UN-Water in collaboration with UNDP and GWP, with financial support from UN-Water and Danida. UN-DESA and UN-Water spearheaded the roll-out of the Level 1 survey with support from SIWI and UNEP-DHI on data management. The Regional Water Partnerships of the GWP conducted the Level 2 survey.

Production of the report was made possible by technical and financial facilitation from the African Union Commission (AUC), AMCOW, the German government through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the European Union Water Initiative Africa Working Group (EUWI-AWG). Data analysis and preparation of the report was carried out by a Working Group with the following members: Paul Taylor as lead author, Grégoire Ale and Sylvand Kamugisha as contributing lead authors, and Peter Koefoed Bjørnsen (Coordinator), Paul Glennie (data analysis), and Gareth James Lloyd from the UNEP-DHI Centre.

The Working Group is grateful for reviews from members of the global study team: Alan Hall from the Global Water Partnership; Joakim Harlin from UNDP; and Gordon Young as an independent consultant. All the participating organizations provided in-kind support to the report. The report could not have been produced in the time available without the valuable guidance from Rashid Mbaziira (AUC), Oseloka Obiajulu Zikora (AMCOW), Nora Dietrich (GIZ), and Birgitta Liss Lymer (EUWI-AWG support team).

ISBN Number: 978-87-90634-01-8

Copyright © African Ministers' Council on Water (AMCOW) 2012

Suggested citation: AMCOW 2012. Status report on the application of integrated approaches to water resources management in Africa.

Design and production by Phoenix Design Aid A/S, ISO 9001/14001 and DS 49001 (CSR) certified and approved CO₂ neutral company company – www.phoenixdesignaid.com. This publication is printed on environmentally correct paper using vegetable-based inks. The printed matter is bio-degradable and recyclable.

Editor: Catherine McMullen

Cover photo: Jakob Granit, SIWI.

Status Report on the Application of Integrated Approaches to Water Resources Management in Africa

2012

TABLE OF CONTENTS

Foreword	v
Executive Summary	vii
1. THE SETTING	1
1.1 AMCOW and the Africa Water Vision 2025	3
1.2 Assessment Methodology	5
1.3 Country Categorization and Response to the Survey	5
1.4 Approach to the Analysis	6
1.5 Structure of the Report	8
2. CREATING THE ENABLING ENVIRONMENT	9
2.1 Policies, Laws, and Plans	10
2.2 Water in National Planning	12
2.3 Summary of Progress with the Enabling Environment	13
2.4 Proposals for Action	14
3. ESTABLISHING GOVERNANCE AND INSTITUTIONAL FRAMEWORKS	15
3.1 Institutional Frameworks	16
3.2 Stakeholder Participation	18
3.3 Capacity Building	19
3.4 Summary of Progress with Governance and Institutional Frameworks	20
3.5 Proposals for Action	21
4. APPLYING MANAGEMENT INSTRUMENTS	23
4.1 Understanding the Water Resource	24
4.2 Water Resources Management Programmes	25
4.3 Systems for Knowledge Sharing	27
4.4 Indicators	28
4.5 Summary of Progress on Management Instruments	28
4.6 Proposals for Action	30

1 Status Report on The Application of Integrated Approaches to Water Resources Management,
<http://www.unwater.org/rio2012/report/index.html>

5.	INFRASTRUCTURE DEVELOPMENT AND FINANCING	31
5.1	Investment Plans and Financing	32
5.2	Summary of Progress	34
5.3	Proposals for Action	35
6.	FINANCING WATER RESOURCES MANAGEMENT AND DEVELOPMENT	37
6.1	Sources of Finance	38
6.2	Payment for Water Resources	40
6.3	Summary of Progress on Financing for Development of Water Resources	40
6.4	Proposals for Action	42
7.	DEVELOPMENT OUTCOMES, IMPACTS, AND CONSTRAINTS	43
7.1	Country Outcomes and Impacts Attributed to Water Management	44
7.2	Country Constraints to Progress in Applying Integrated Approaches to Water Resources Management	46
7.3	Summary of Outcomes, Impacts, and Constraints	46
8.	PRIORITY WATER ISSUES IN AFRICA	49
8.1	Priority Issues Arising from the Survey	50
8.2	Transboundary Water Management	51
8.3	Climate Change Adaptation	54
9.	OVERALL PROGRESS ON APPLYING INTEGRATED APPROACHES TO WATER RESOURCES MANAGEMENT	57
9.1	Progress on Applying Integrated Approaches	58
9.2	Summary of Proposed Action Areas	60
9.3	Key Findings and Recommendations	61
	ANNEXES	65
	Annex 1: AMCOW Statement at the World Summit on Sustainable Development in Johannesburg 2002	65
	Annex 2: Data Summary	67
	Annex 3: Level 1 Survey	69
	Annex 4: Level 2 Guidelines and Questionnaire.	79
	LIST OF FIGURES	86
	LIST OF BOXES	88
	LIST OF TABLES	88

Foreword

With immense pride on this auspicious occasion of marking the 10th Anniversary of the Abuja Ministerial Declaration on Water that not only pronounced water as a key to sustainable development in Africa but also established the African Ministers' Council on Water (AMCOW), Africa is distinctively reporting on its progress in implementing Chapter 18 of Agenda 21² for the first time. Coupled with the AMCOW Work Plan 2011-2013 and the ongoing activities to institute a pan-African monitoring, evaluation, and reporting mechanism on both the status of water resources management as a basis for informed decision making within AMCOW and the implementation of relevant political commitments, AMCOW takes a great step forward in fulfilling its resolutions at the World Summit on Sustainable Development (WSSD) in Johannesburg South Africa, August 2002, to:

1. promote action that will translate the goals of AMCOW into reality; and
2. develop a regional programme of action on water to provide a framework for concrete actions in addressing key water-related concerns.

As demonstrated by the responses to the 2012 survey by the United Nations Commission on Sustainable Development (UNCSD) from the 40 AMCOW member states, significant success has been registered particularly in creating an enabling environment and building the relevant institutions at continental, regional, and national levels for holistic management of Africa's freshwater resources.

The express concern in AMCOW's Statement at the WSSD³ that:

More than 50 major watersheds, river basins and lakes in Africa, are shared by two or more countries. Most of are without any agreements on equitable use and/ or environmental protection. Few have effective institutional arrangements for consultation and cooperation. Procedures for avoiding or resolving international disputes over water are largely lacking...

and the recognition that:

National and international shared water resources are instruments for regional cooperation, development and integration. The lack of cooperative arrangements in these basins and the institutional and financial weaknesses of the existing ones undermine the potential benefits to the continent...

have been responded to tremendously, with progress on related issues registered in at least 30 of the 40 participating countries. 36 countries also reported implementing programmes for mobilising finances and developing infrastructure for water related purposes such as irrigation,

2 Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources.

3 See Annex 1.

energy production, groundwater recovery, flood management, water supply, wastewater treatment, desalination, rainwater harvesting, and nature management. There is, therefore, great promise for water and food security in Africa, as well as for reducing the vulnerability of many countries and peoples to climate variability and change.

Major challenges still abound, particularly in mobilising the investment required to meet the targets of the Africa Water Vision 2025 for basic water supply and sanitation; for irrigated agriculture; and for supporting institutional development, capacity building, research, education, and information management. Specifically, it is imperative to develop and/or strengthen programmes for:

- forecasting and early warning of water-related disasters;
- addressing climate change adaptation through water resources management, as well as enhancing disaster risk management and water storage capacity;
- learning through experience and country-to-country knowledge sharing;
- assuring transparency and efficiency in water allocation and use;
- defining the general principles, categorisation, and prioritisation of water uses;
- defining water quality objectives; and,
- sustainable funding.

Also, developing appropriate tools and indicators for measuring the contribution of water to development is particularly important to provide a basis for highlighting the pivotal role of water resources as an essential ingredient in the advent of a green economy in Africa.

AMCOW embodies the collaboration and commitment of African governments, regional institutions, civil society groups, development cooperation partners, and financial institutions towards the Africa Water Vision 2025. It is thus in the same spirit of partnership that the contributions of 40 AMCOW member states; the African Union Commission (AUC); the German Government through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH; the European Union Water Initiative Africa Working Group (EUWI-AWG); the UN-Water Working Group – the UNEP-DHI Centre, UNDP, the Global Water Partnership (GWP), the Stockholm International Water Institute (SIWI); and various individuals have made it possible to give focus to the progress being made in Africa as a basis for directing future action. Their support in this endeavour is acknowledged with appreciation, as is that of AMCOW's numerous partners in driving Africa's Water Agenda.



Bai-Mass Taal
Executive Secretary, AMCOW

Executive Summary

This report is based on data collected from 40 African countries responding to a questionnaire circulated by UN-Water as part of a global survey to determine progress towards sustainable management of water resources using integrated approaches, also known as integrated water resources management (IWRM). This regional report for Africa has been prepared at the request of the African Minister's Council on Water (AMCOW).

Chapter 18 of Agenda 21, agreed at 1992's UN Conference on Environment and Development (UNCED), called for "Protection of the Quality and Supply of Freshwater Resources: Application of Integrated Approaches to the Development, Management and Use of Water Resources". The African region embraced the challenge of an integrated approach to water resources management and in 2000 published its Africa Water Vision 2025. The subsequent development of the African Minister's Council on Water (AMCOW) provided a framework within which action on the Africa Water Vision could be coordinated across the countries and sub-regions of Africa while also taking account of issues arising of specific importance to African development such as transboundary water management, climate change, and water infrastructure for economic growth.

AMCOW, supported by the EU Water Initiative Africa Working Group and the Government of Germany through GIZ, commissioned this analysis of the survey results from responding African countries to highlight the progress being made in Africa as a basis for directing future action.

The report focuses on the status of water resources management in Africa, identifies current barriers to progress, and makes recommendations for future action. Furthermore, the report contributes to the establishment of a permanent monitoring and reporting framework to promote more sustainable development and management of freshwater resources that is an agreed objective of African Water Ministers.

Key messages and recommendations

1. **76 percent of reporting African countries are implementing national water laws and 44 percent are implementing national plans based on the application of integrated approaches as stated in Agenda 21 and described in the Africa Water Vision 2025.**

With due recognition of the unique challenges in each sub-region, targeted action is required to support the promulgation of the relevant political commitments at continental level in those countries still facing challenges in this regard. A key element of these action programmes could be country-to-country experiential learning.

2. **Countries with improved enabling environment for water resources management are more likely to have improved governance and institutions as well as to progress faster with infrastructure development and financing.**

More proof is required that the integrated approach is working and influencing development. Evidence should be collected to demonstrate the benefits and impacts of improved water resources management and good examples used to obtain commitment to action. One approach is to strengthen the regular reporting process and to improve the quality and consistency of indicators used at national to regional levels.

3. **Some countries reported good progress in financing for water resources infrastructure. Generally though, financing of water resources management is poorly addressed and not well appreciated.**

It is necessary to document and disseminate, for possible adaptation and adoption, the various innovative approaches to financing of water resources management that have worked in different countries in Africa. Good experiences should be documented and shared to show the economic benefits accrued from better water resources management and more efficient use. Also, an improved monitoring framework can lead to better data collection and to visibility of the issues.

Scaling up infrastructure development and building sectoral cooperation can emerge from a programme of support to development of basin plans at national and transboundary levels.

4. **Countries reported a diverse range of positive impacts from water resources management and some countries indicated significant impacts on national social and economic objectives.**

One of the most important issues to be addressed is the documentation of economic and social development contributions from water resources. This is essential to prioritise water allocation decisions and to justify government budgets, as well as to gain political commitment.

5. **Progress with development and implementation of transboundary agreements is one of the most advanced elements of water resources management involving 77 percent of reporting African countries.**

Programmes are necessary to address the capacity requirements of governance structures for transboundary water. In particular this relates to the ability of national organisations to contribute at transboundary level. To move beyond conflict resolution to more complex issues of water resources management it is desirable that all basin countries achieve comparable levels of progress with IWRM.

6. **Progress with instituting water resources management instruments has lagged behind compared to the implementation of other elements of IWRM. Progress has been observed primarily in those countries with improved enabling environment and institutions.**

In most sub-regions particular countries stand out with good experiences to share. Regional cooperation programmes designed to share experiences and lessons learned can assist country development and adoption of appropriate water management instruments and tools.

7. **Floods, droughts, and water pollution are the greatest threats to water resources in Africa. The responses also**

indicate a great deal of effort invested in measures to overcome these challenges as well as other climate-related issues at national and subnational levels.

Peer to peer learning should be developed to build upon the very good examples of climate change adaptation actions in most sub-regions, including water-related disaster preparedness and risk management programmes. These actions are specific to climatic or geographic circumstances and so peer to peer learning needs to be customized accordingly.

8. **Concerns over institutional capacity constraints feature prominently in the survey results along with little evidence of responsive capacity development programmes in place.**

There is a need for well-designed capacity development programmes to support institutional development and reform, especially for the management of transboundary water systems, as well as local river basin organisations and national apex bodies. These capacity building programmes should also address inter-sectoral coordination that appears to be very weak in most countries and that has proven to be a challenge to achieve

9. **The high level of country response and the clear value of information for measuring progress and planning future action emphasize the need for a more rigorous, evidence-based, system for reporting progress on water resources development and management in Africa.**

As part of AMCOW's reporting responsibilities, the outcomes of the survey should be utilised as a first step towards development of a permanent reporting mechanism on the status of water resources management to serve as a basis for informed decision-making within AMCOW. To build greater conformity between national data sets, it is imperative that the system is relevant at national, sub-regional, and continental levels.



1.

THE SETTING

1.1	AMCOW AND THE AFRICA WATER VISION 2025	3
1.2	ASSESSMENT METHODOLOGY	5
1.3	COUNTRY CATEGORIZATION AND RESPONSE TO THE SURVEY	5
1.4	APPROACH TO THE ANALYSIS	6
1.5	STRUCTURE OF THE REPORT	8

1. THE SETTING

Among the major international water management events of the past few decades, the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro stands out as an event of major importance. UNCED produced Agenda 21 that emphasized in Chapter 18:

The holistic management of freshwater as a finite and vulnerable resource and the integration of sectoral water plans and programmes within the framework of national economic and social policy are of paramount importance for action in the 1990s and beyond.

Chapter 18 is titled Protection of the Quality and Supply of Freshwater Resources: Application of Integrated Approaches to the Development, Management and Use of Water Resources. This integrated approach, known as integrated water resources management (IWRM), is now being adopted globally. The results of IWRM adoption in Africa is the focus for the current survey.

The African region embraced the challenge of an integrated approach to water resources management and in 2000 published its Africa Water Vision 2025⁴. The subsequent development of the African Minister's Council on Water (AMCOW), and its eventual integration into the African Union Commission as a Specialised Technical Committee, provided a framework within which action on the Africa Water Vision could be coordinated across the countries and sub-regions of Africa, while also taking account of issues arising of specific importance to African development such as transboundary

water management, climate change, and infrastructure.

Ten years after UNCED, a major impetus to improving integrated water resources management was provided by governments at the 2002 World Summit on Sustainable Development (WSSD), held in Johannesburg, South Africa. One hundred and ninety three countries agreed to the Johannesburg Plan of Implementation, calling for the development and implementation of IWRM and water efficiency strategies, plans, and programmes at national and at regional levels, with national-level IWRM plans to be developed by 2005.

Under the auspices of UN-Water, the first official status report on the WSSD resolution was submitted to the 16th session of the UN Commission on Sustainable Development in 2008⁵. The 2008 report covered 104 countries: 77 developing countries and economies in transition and 27 developed countries. The 2012 global survey⁶, requested by CSD and overseen by UN-Water, includes responses from 134 countries. The 2012 survey focuses on progress with in the application of integrated approaches to the management and development of water resources.

AMCOW, supported by the EU Water Initiative Africa Working Group, commissioned this analysis of the 2012 global survey results from responding African countries to highlight the progress being made in Africa as a basis for directing future action. Effective water resources management must be underpinned by knowledge and understanding of the availability of the resource itself, the uses to which water is put, and the challenges

4 The Africa Water Vision for 2025: Equitable and Sustainable Use of Water for Socioeconomic Development, publisher: Economic Commission for Africa.

5 Status report: http://www.unwater.org/downloads/UNW_Status_Report_IWRM.pdf Developed from survey reports by UNEP, GWP, and ADB.

6 More information at <http://www.unwater.org/rio2012/report/index.html>

facing the managers at all relevant levels of administration. AMCOW is in a unique position to target actions that will facilitate improved water resources management with expected outcomes for economic development and social well-being while taking due consideration of environmental sustainability.

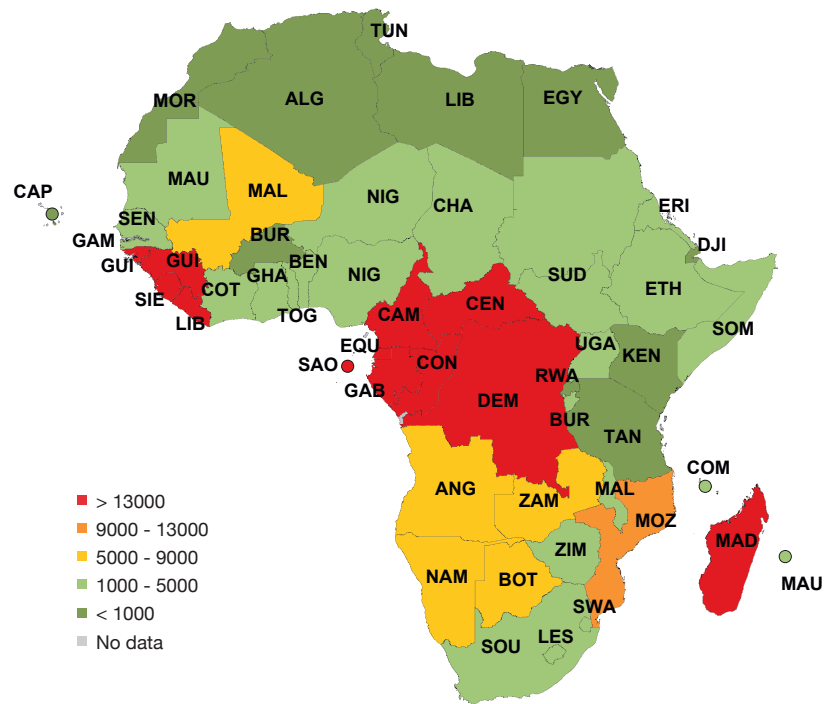
This report focuses on the status of water resources management in Africa, identifies current barriers to progress, and makes recommendations for future action. Furthermore, the report contributes to the establishment of a permanent monitoring and reporting framework to promote more sustainable development and management of freshwater resources that is one of the strategic objectives of AMCOW.

1.1 AMCOW AND THE AFRICA WATER VISION 2025

Water Resources Availability and Use in Africa:⁷ The average rainfall for the continent is about 670 mm per year but the spatial and temporal distribution is very varied. Due to high rates of evaporation, renewable water resources constitute only about 20 percent of total rainfall on average. In the Sudano-Sahelian and Southern African sub-regions, renewable water resources constitute only about 6 percent and 9 percent respectively. African water resources are also characterised by the multiplicity of transboundary water basins. They cover 64 percent of the continent’s land area and contain 93 per cent of its total surface water resources. There are about 80 transboundary river and lake basins in Africa and over 38 transboundary aquifers. Groundwater is the main source of drinking water for more than 75 percent of the African population.

Withdrawals of water are estimated to be about 3.8 percent of total annual

FIGURE 1.1 Total renewable water resources per capita (m³ per person per year, 2009).



7. Developing effective and reliable strategies for coping with climate variability and change, water scarcity threats, and the disappearance of water bodies;
8. Reversing increases in man-made water-quantity and quality problems, such as overexploitation of renewable and non-renewable water resources and the pollution and degradation of watersheds and ecosystems;
9. Achieving sustainable financing for investments in water supply, sanitation, irrigation, hydropower, and other uses and for the development, protection, and restoration of national and trans-boundary water resources;
10. Mobilizing political will, creating awareness, and securing commitment among all with regard to water issues, including appropriate gender and youth involvement.

Africa Water Vision 2025: The Africa Water Vision 2025 was developed in 2000 to provide input from the African continent for the development of a global Water Vision by the World Water Council. It was developed through a participatory process run in each of the African sub-regions.

To take up the above challenges, the shared vision is for *“An Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socioeconomic development, regional cooperation, and the environment”*.

The Africa Water Vision has been accompanied by a Framework for Action (FFA) consisting of actions under the following categories: i) Strengthening governance of water resources, ii) Improving water wisdom, iii) Meeting urgent water needs, iv) Strengthening the investment base for the desired water future.

AMCOW: Established by the 2002 Abuja Ministerial Declaration on Water, the African Ministers’ Council on Water (AMCOW) has the mission to provide political leadership, policy direction, and advocacy for the protection, management, and wise utilisation of all Africa’s water resources for sustainable social, economic, and environmental development; and for the maintenance of Africa’s ecosystems in furtherance of both the vision of the African Union (AU) and the goal of the New Partnership for Africa’s Development (NEPAD). AMCOW embodies the collaboration and commitment of African governments, regional institutions, civil society groups, development cooperation partners, and financial institutions towards the Africa Water Vision 2025.

This role includes: a) facilitating sub-regional, regional and international co-operation through coordination of issues relating to water policies and actions among African countries; b) providing assistance in the delivery of national, sub-regional, and regional programmes to translate the Africa Water Vision 2025 into action; c) providing a mechanism for monitoring the progress of implementation of major regional and global water resources and water supply and sanitation initiatives; and d) promoting sub-regional and basin and/or sub-basin cooperation.

AMCOW also provides a forum for dialogue with UN agencies and other partners on water issues; champions Africa’s involvement in global and continental studies on climate change and its impacts, and the development of regional observation networks; facilitates information exchange; and aims to develop policies and strategies for addressing the water issues in Africa. AMCOW’s institutional set-up consists of a Council of Ministers responsible for water; an Executive Committee constituted by three ministers from each of AMCOW’s 5

sub-regions-West Africa, Eastern Africa, Central Africa, North Africa, and Southern Africa; a Technical Advisory Committee; and sub-regional structures.

Declarations related to water in Africa:

The Africa Water Vision 2025 has been complemented by various declarations to focus and to accelerate its implementation, providing the policy framework for AMCOW. These declarations reflect political commitment to a number of actions to be taken at various scales across the continent. Three 2008 declarations emphasize the importance of addressing water issues:

- **eThekweni Declaration** is a commitment of African Water Ministers to accelerate reaching sanitation MDGs by implementing AfricaSan Action Plan
- **Tunis Declaration** is a commitment adopted by AMCOW at the first African Water Week to focus on “Accelerating Water Security for Africa’s Socio-Economic Development”.
- **Sharm-el-Sheikh Declaration** is a commitment of African heads of state to meet the MDGs related to water security: water supply and sanitation, water for food, and water for growth, and to report regularly the outcomes of actions taken.

The commitments and actions identified under the declarations and the Africa Water Vision have formed the foundation of actions captured in the AMCOW Work Plan 2011-2013. The work plan sets out key actions to be taken at four levels: AMCOW, regional, transboundary, and national including local governments. Its work is divided into seven main themes:

- Theme 1: Water Infrastructure for Economic Growth
- Theme 2: Managing Water Resources and Transboundary Water Resources

- Theme 3: Meeting the Sanitation, Hygiene, and Water MDG Gaps
 - Theme 4: Global Changes and Risk Management: Climate Variability and Change
 - Theme 5: Governance and Management
 - Theme 6: Financing
 - Theme 7: Education, Knowledge, and Capacity Development
3. Management instruments;
 4. Infrastructure development;
 5. Financing water resources management;
 6. Outcomes of integrated approaches to water resources management.
 7. Priority challenges

1.2 ASSESSMENT METHODOLOGY

The survey on progress in integrated approaches to the development, management, and use of water resources in Africa was part of a global survey initiated at the request of the UN Commission on Sustainable Development and implemented by UN-Water. The survey addressed planning and implementation as well as the possible outcomes and impacts of integrated approaches. It consisted of two components: a questionnaire-based survey (Level 1) and an interview-based survey (Level 2). The questionnaire and interview guidelines were developed by a UN-Water Working Group⁹ and approved by UN-Water.

A questionnaire-based survey (Level 1) was sent out in March 2011 through UN-DESA to the governments of all 53 countries on the official UN listing for Africa.¹⁰ It was a multiple-choice questionnaire similar to the survey carried out by UN-Water in 2007 and presented to CSD 16 in 2008, but broadened to cover additional issues in its finalized version (Annex 3).

The questionnaire was divided into a seven sections:

1. Policy, strategic planning and legal frameworks;
2. Governance and institutional frameworks;

The Level 1 survey provides a self-assessment by national governments of the status of water resources management (sections 1-5), the outcomes of integrated approaches (section 6), concerns regarding uses of water resources and threats such as extreme events, and the management challenges (section 7). The simultaneously-collected data provides a basis for comparative analysis.

However, a survey of this nature has limitations when evaluating the conclusions of the report. Important among these are:

- The survey captures the official perspective of governments, is not based on quantitative data, and may not provide any check or balance for other stakeholder perspectives.
- The difficulty of giving single responses to characterize a whole country when circumstances in different parts of a country can be very diverse.
- The difficulty that a survey aimed at national governments may well not represent the management responsibilities at sub-national levels. This may be particularly the case in federal administrations.
- The difficulty of ensuring equal objectivity in the responses between countries.

An interview-based survey (Level 2) was carried out in 10 countries representing each of the sub-regions of Africa (Table

1.1) and was designed to provide a more in-depth understanding of country situations. The Level 2 survey was an extension of Level 1 in the form of questions and issues to be discussed in structured interviews (Annex 4). The Level 2 survey further qualified the findings from Level 1 through interviews soliciting opinions and experiences from government and non-government stakeholders¹¹.

The interviews provided a narrative story of the situation in each Level 2 country. The aim was to deepen the understanding of outcomes, impacts, and remaining priority challenges in water resources management, as well as to provide illustrative examples. The result is not a consolidated country report on water resources management for each country, but rather a collection of assessments and experiences following the questionnaire structure.

1.3 COUNTRY CATEGORIZATION AND RESPONSE TO THE SURVEY

Countries have been grouped according to the sub-regional structure used by AMCOW (Figure 1.2) and listed in Table 1.1. Over 75 percent of African countries responded to the Level 1 survey (Tables 1.1 and 1.2) including several countries that were too late to be included in the global report. The sub-regions were well represented with a good geographic distribution of responses (Table 1.2). The response rate to particular questions was consistently very high at over 93 percent. The Level 2 surveys were carried out in 10 countries across the sub-regions.

⁹ Coordinated by the UNEP-DHI Centre, and including GWP, UNDP, SIWI, and independent consultants

¹⁰ At the time South Sudan had not yet become an official UN member state.

¹¹ The interviewers for Level 2 were given interview guidelines and the responses to the Level 1 questionnaire for the country in advance of the task (Annex 4)

TABLE 1.1 African countries by sub-region as adopted by AMCOW and their participation in the survey.

CENTRAL AFRICA	EAST AFRICA	NORTH AFRICA	SOUTHERN AFRICA	WEST AFRICA
Cameroon**	Burundi*	Algeria*	Angola*	Benin Republic**
Central African Republic	Comoros	Egypt*	Botswana*	Burkina Faso*
Chad*	Djibouti	Libya*	Lesotho*	Cape Verde**
Congo Brazzaville*	Eritrea	Mauritania	Madagascar*	Cote d'Ivoire*
Democratic Republic of Congo	Ethiopia*	Morocco*	Malawi*	Gambia*
Equatorial Guinea	Kenya*	Tunisia**	Mauritius*	Ghana**
Gabon*	Rwanda**		Mozambique**	Guinea*
	Somalia		Namibia**	Guinea-Bissau
	Sudan*		Seychelles	Liberia*
	Tanzania**		South Africa*	Mali
	Uganda**		Swaziland*	Niger
			Zambia*	Nigeria*
			Zimbabwe*	Senegal
				Sierra Leone*
				Togo*
				Sao Tome & Principe*

Notes:
 * Countries completing Level 1.
 ** Countries completing Level 1 and Level 2
 The survey was undertaken before South Sudan became an official UN member country.

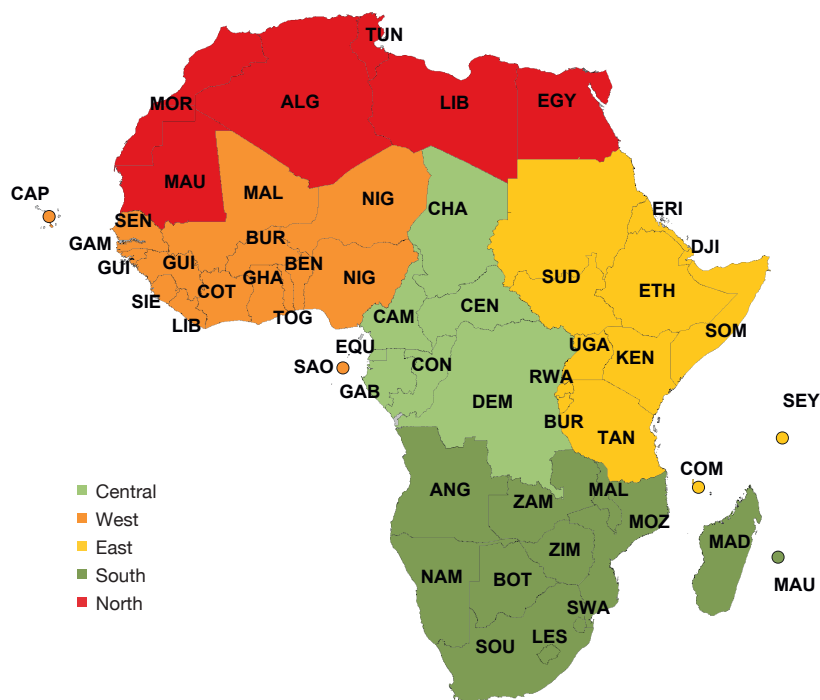
1.4 APPROACH TO THE ANALYSIS

The range of conditions and actions in countries were captured by a set of multiple and complementary questions requesting the opinion of government about progress on a particular issue. In some instances the approach involved amalgamating responses into groups

TABLE 1.2 Level 1 Survey response summary

	Total Number Sent	Responded (%)
Total	53	40 (75)
Sub-region		
North Africa	6	5 (83)
Southern Africa	13	12 (92)
East Africa	11	7 (64)
West Africa	16	12 (75)
Central Africa	7	4 (57)

FIGURE 1.2 Map of the African sub-regions.¹² Country names shortened and some islands states shown as circles for clarity.



12 See <http://amcow-online.org/>

determined by similar questions, which can enhance the robustness of the data. In cases where questions are considered to be of specific importance, a more detailed analysis is presented. However, the attempt to provide sub-regional analyses is hampered by the small number of responding countries in some cases. Percentages, although less appropriate in the case of small numbers, have been used as a means for ease of presentation of figures and tables. Caution should therefore be used when assigning importance to percentages based on small numbers of responses.

The Level 2 information, as well as narrative information provided as a response to some Level 1 questions, is used to provide context and a sense of stakeholder perceptions. These responses are also important to provide a deeper understanding of the problems being faced and the successes being achieved that may not emerge readily from the check boxes of the questionnaire. These good examples have been drawn upon to assist in identifying directions for future action.

The Boxes in each Chapter also provide context. These Boxes give background details extracted from the surveys that illustrate particular experiences, issues, or conditions. Informative statements represent a mixture of government and other stakeholder opinions.

The survey provides very valuable insight on progress being made in managing and developing water resources in Africa. However, more significance could be assigned to the results had the data been more objective and independently verifiable. Such a standardised approach to information on water resources management is not yet available. The information therefore represents the subjective opinion of the government representative complet-

ing the survey and does not necessarily reflect the performance of the actions undertaken. For example the decision to classify an action as 'implementation started', 'implementation advanced' or 'fully implemented' may be based on different interpretations of how to measure implementation.

Data Presentation: The data are presented using the sub-regional groupings of member countries adopted by AMCOW. Some inference may be made in the report about different levels of progress with integrated approaches to water resource management across these sub-regions and countries. However, interpretation of these differences must take into account natural variation in conditions such as relative importance of surface water vs. groundwater, average rainfall, specific circumstances of island states, and national priorities.

Figures: The stacked bar diagrams shown throughout the report provide a graphical presentation of the responses within each of the five sub-regions of Africa and summarised for the whole of Africa in the bottom bar. In Chapters 2-5, each bar shows the distribution of the six categories of the questionnaire stacked from left (not relevant) to right (fully implemented) with the colour codes shown in the legend. The label in the bottom left-hand corner of the bar diagrams refers to the question(s) in the survey from which the information is derived. The numbers in brackets to the left of the bars indicate the number of countries in each region responding to the question or group of questions. A rounding error of 1 percent can occasionally be found in the percentage labels.

1.5 STRUCTURE OF THE REPORT

Setting the Scene: Chapter 1 outlines the background and rationale for the survey. The role of AMCOW in Africa water management is summarised, as is the vision for water management in Africa.

Creating the Enabling Environment: Chapter 2 reports the extent to which countries have been able to create an enabling environment. This involves developing and implementing the required policy, planning, and legal framework needed for guiding and coordinating water resources management, development, and use.

Establishing Governance and Institutional Frameworks: Chapter 3 reports the extent to which countries have been able to establish the political, social, economic, and administrative systems needed for managing the development and use of water resources.

Applying Management Instruments: Chapter 4 reports the extent of countries' abilities to apply tools and methods, often referred to as "management instruments" that enable and help decision-makers to make rational and informed choices between alternative actions.

Developing Infrastructure: Chapter 5 reports the extent of countries' abilities to develop installations and facilities for water resources management and use.

Financing Water Resources Management and Development: Chapter 6 reports the general trends in financing for the development, management, and use of water resources over the last 20 years.

Outcomes and Impacts: Chapter 7 reports on outcomes, impacts, and constraints identified by countries.

Priority Issues: Chapter 8 identifies priority water issues arising from the survey and also examines in more detail transboundary water resources and climate change, two of the key water issues identified by AMCOW and the Africa Water Vision 2025.

Overall Progress on Applying Integrated Approaches to Water Resources Management: Chapter 9 summarises the progress of integrated approaches to water resources management, based on the responses to the questionnaire and interviews as provided in Chapters 2 to 8. It presents a summary of actions, arising from the survey, that may be taken up by AMCOW and other regional or national water agencies to advance the application of IWRM.



2.

CREATING THE ENABLING ENVIRONMENT

2.1	POLICIES, LAWS, AND PLANS	10
2.2	WATER IN NATIONAL PLANNING	12
2.3	SUMMARY OF PROGRESS WITH THE ENABLING ENVIRONMENT	13
2.4	PROPOSALS FOR ACTION	14

2. CREATING THE ENABLING ENVIRONMENT

This chapter reports the extent to which countries have been able to create an enabling environment for water resources management (Annex 3, Questions 1.1). This involves developing and implementing the policy, planning, and legal framework needed for guiding and coordinating water resources management, development, and use. It includes sections on:

- Policies, Laws, and Plans
- Water in National Development Planning
- Summary of Progress
- Proposals for Action

Transboundary agreements are an important part of the enabling environment for water management—especially in Africa where most countries share water in transboundary basins. As transboundary water management plays such an important role, all questions relating to it have been pulled together and are treated separately in Chapter/Section 8.2.

2.1 POLICIES, LAWS, AND PLANS

African leaders have committed to integrated water resources (IWRM) to move towards more sustainable management and development of Africa’s water resources.

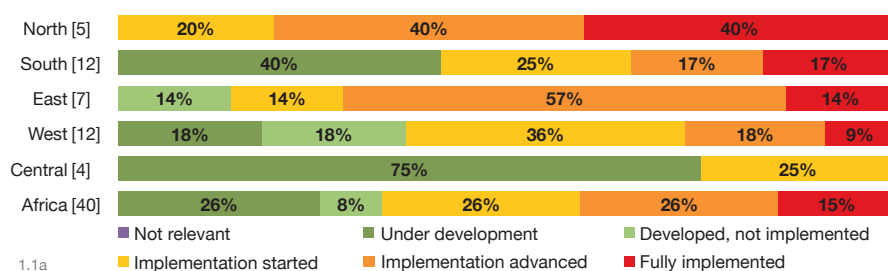
BOX 1. IT TAKES LONGER THAN YOU THINK

Adopting a national water policy and a new water management law can be very challenging and takes time. Benin took several years of awareness creation and advocacy campaigns to convince decision makers on the relevance of IWRM that resulted in the development and adoption of a national water policy in July 2009, the passing of a new water law in October 2010, and its enactment in November 2010. It took 2 years for Ghana to come up with a comprehensive National Water Policy that was approved in 2007.

Once policies are in place, it may take a long period to come up with an IWRM plan. Namibia’s policy was adopted in 2000, but the IWRM plan was formulated in 2010. Tanzania’s National Water Policy is from 2002, but the process of developing IWRM started in 2011 within the first 5 out of 9 basins.

Source: Level 1 and Level 2 survey. Statements may represent a mixture of government and other stakeholder opinions. This applies to all subsequent boxes which draw on either the Level 1 or Level 2 surveys

FIGURE 2.1 National/Federal Water Resources Policy: The current status of the main policy instrument in responding countries by sub-region.



Number of countries responding is shown to the left of each bar.

This approach has required far reaching reforms for many countries with adjustments to water policy, water legislation, and water resources planning. Appropriate laws, policies, and plans constitute the enabling environment for effective management and development of water resources to take place.

Water Policy: Of the 40 countries that responded to the survey 27 (67 percent) countries are implementing their water policy, while the remainder of countries are at the development stage (Figure 2.1). Six countries reported that the policy is being fully implemented. From a sub-regional perspective, North Africa reports all countries under implementation followed by

East, West, Southern, and Central Africa.

Water Law: Thirty countries (75 percent of respondents) report that they are implementing a water law. Of these, 9 countries report that their water law is being fully implemented and although it can be assumed these countries are confident in their progress, the question does not infer whether the law is effective in achieving its objectives (Figure 2.2). North Africa reports the greatest progress on implementation and Central Africa the least.

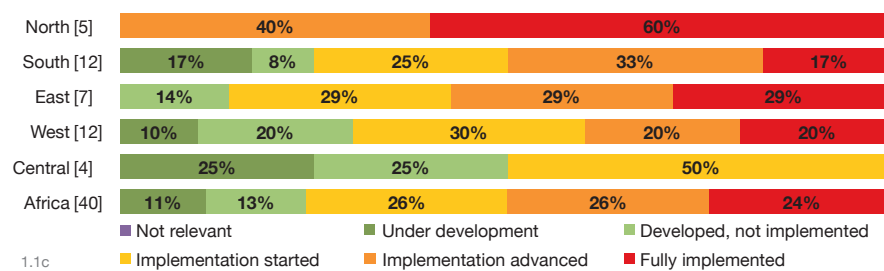
When comparing progress on development and implementation of water law among the 15 countries surveyed both

BOX 2. MORE THAN ONE WAY TO GO

In many cases the implementation of policy requires legislation to back up the implementation, as in Uganda and Tanzania. However, Namibia tested the Basin Management approach without the legislation in place and experiences from implementation will guide the drafting of legislation. Rwanda formulated its policy after enacting the legislation. In 2008, the Rwanda water law was enacted and then a national water management policy and strategy were developed. Currently, Rwanda is developing a national water resources master plan based on international best practices in IWRM.

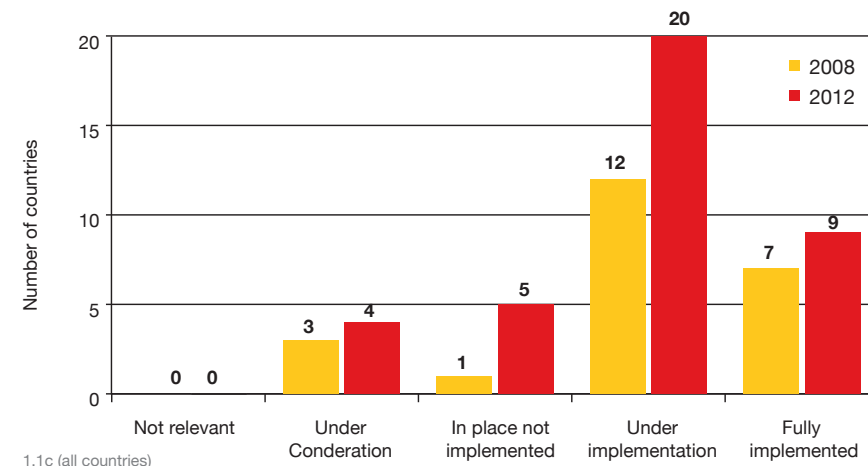
Source: Level 2 Survey

FIGURE 2.2 National/Federal Water Law: The current status of the main water law by sub-region.



Number of countries responding is shown to the left of each bar.

FIGURE 2.3 Progress from 2008 to 2012 on Implementation of National/Federal Water Laws: A comparison between African country responses in the UNCS16 report in 2008 (23 countries) and 2012 (38 countries).



1.1c (all countries)

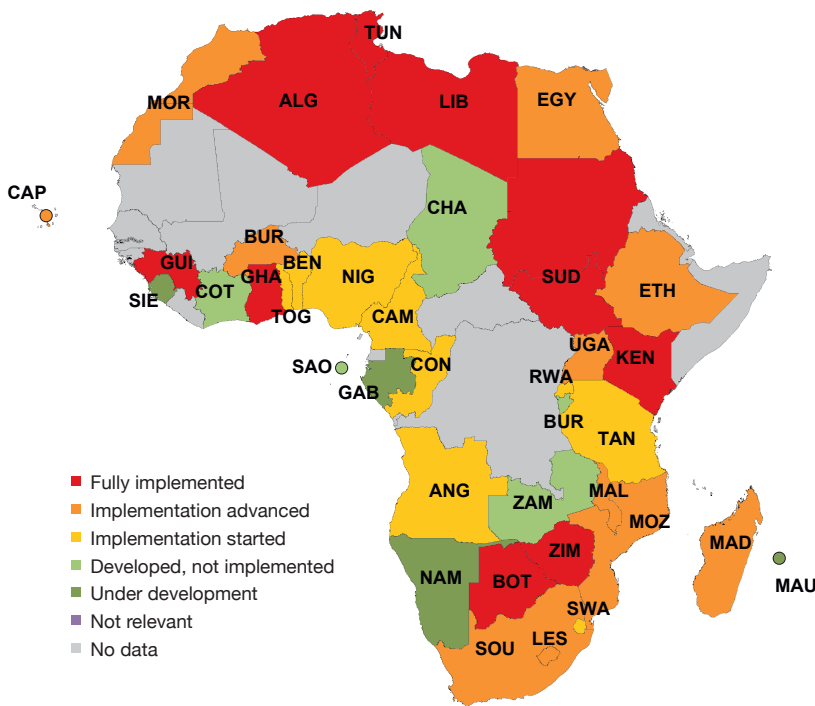
in 2008 and in 2012, there is not much change: 5 countries report increased progress, 2 remained the same, and 8 give a poorer progress score. However, the overall results from both surveys demonstrate limited progress with more than 75 percent of African countries implementing water law (Figure 2.3).

These results, combined with the Level 2 interviews, demonstrate:

- the long time frame required for achieving reforms to the legal framework,
- the challenge of keeping reform commitments on track, and
- the importance of maintaining consistency between reports.

Figure 2.4 shows that countries implementing water law can be found in all regions. Also, countries reporting laws under full implementation – Tunisia, Libya, Sudan, Algeria, Guinea, Kenya, Ghana, Botswana, and Zimbabwe – are spread widely across the continent. However

FIGURE 2.4 Progress on water law development and implementation. (Question 1.1c)



BOX 3. CREATING OWNERSHIP CAN BE A CHALLENGE

For effectiveness of the plans and strategies developed, the ownership at national and local level is very important. Tunisia reported that a multiplicity and repetition of strategies prepared by different ministries creates a problem with stakeholder participation. Stakeholder identification and engagement from early stages may help to ensure ownership but this may be weakened if the messages across ministries are not consistent.

Source: Level 2 Survey

many countries remain without an operational water law and in most countries the law is not yet fully implemented.

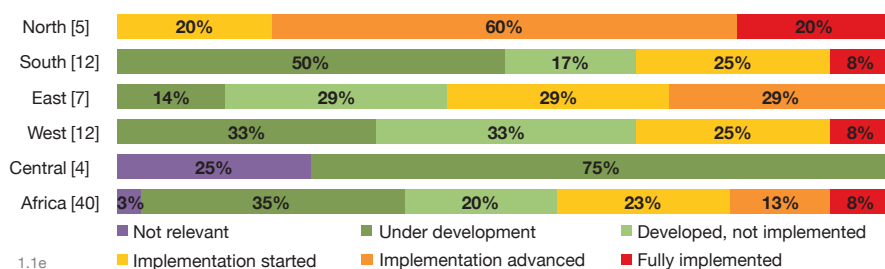
IWRM plans: Many countries have reported on programmes to develop IWRM plans since the Johannesburg call for such plans to be developed. The survey reveals that 18 countries (44 percent) have IWRM plans under implementation,

with 3 fully implemented (Figure 2.5). Only 1 country considers IWRM plans not relevant and the remainder have plans under development or awaiting approval for implementation. The sub-regional adoption and implementation of IWRM plans varies considerably with the highest levels of implementation taking place in North and East Africa and the lowest

in Central Africa. It is evident that, with the exception of North Africa, there is a great deal of work remaining to develop and implement plans for water resources management.

A comparison of 16 countries surveyed in both the 2008 and the 2012 surveys shows that 7 countries advanced the level of implementation of plans, while 2 remained the same and 3 reported a reduced status. The overall trend has been for more countries to be developing and implementing IWRM plans although planning lags behind progress with water law (Figure 2.6).

FIGURE 2.5 The current status of National/Federal Integrated Water Resources Management Plan in responding countries by sub-region.



Number of countries responding is shown to the left of each bar.

2.2 WATER IN NATIONAL PLANNING

Countries were asked about national planning instruments that contained a water component and given a list of 11 instruments likely to be in common use. Water resources management was most commonly included in the national poverty reduction strategy (58 percent), strategy for sustainable development

FIGURE 2.6 Progress from 2008 to 2012 on implementation of national/federal integrated water resources management plans: A comparison between country responses in the UNCSD16 report in 2008 (23 countries) and 2012 (40 countries).

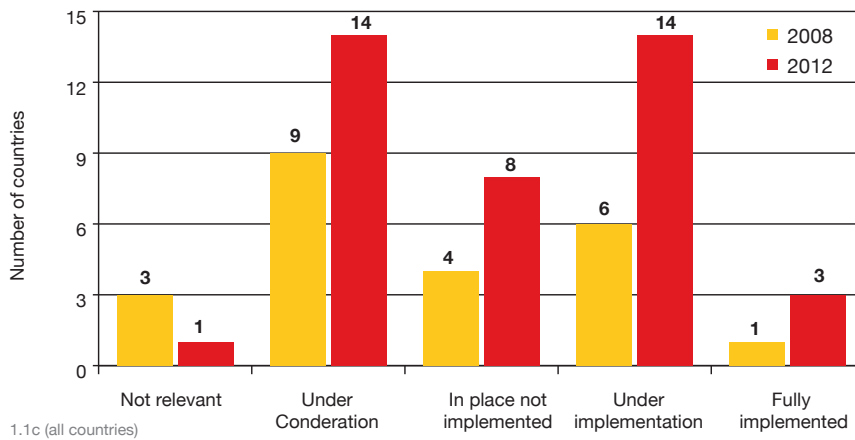
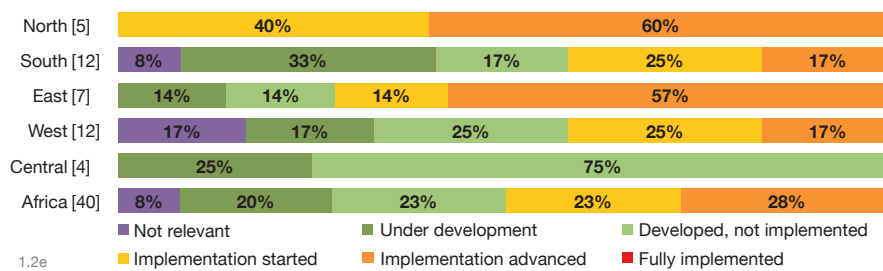


FIGURE 2.7 Status of incorporating water resources management in national plans for environmental action by sub-region.



Number of countries responding is shown to the left of each bar

BOX 4. A CHAMPION TO LEAD THE WAY

The identification of a champion or a special unit is one way to help speed progress, as shown in Cameroon. Cameroon established a unit responsible for Integrated Water Resources Management within the Department of Hydraulics and Hydrology, at the Ministry of Energy and Water, and created a budget line for IWRM in the public investment budget. The concept was presented in Parliament by the Prime Minister as “*Integration of IWRM in the Economic, Financial, Social and Cultural Programme of Cameroon for 2010*”.

Source: Level 2 Survey

(55 percent), development plan (53 percent), and environmental action plan (50 percent). Just under half of reporting countries have water resources management incorporated in their national agriculture development plans, but most of these are at an early stage of implementation, except in North Africa.

Focusing on two planning instruments of topical relevance to water resources management, sub-regional priorities can be detected in the adoption and implementation of environmental action plans and climate change adaptation. Most concern for water resources in environmental action can be observed in North and East Africa (Figure 2.7). Climate

change is more of a priority for West and Southern Africa (Figure 2.8).

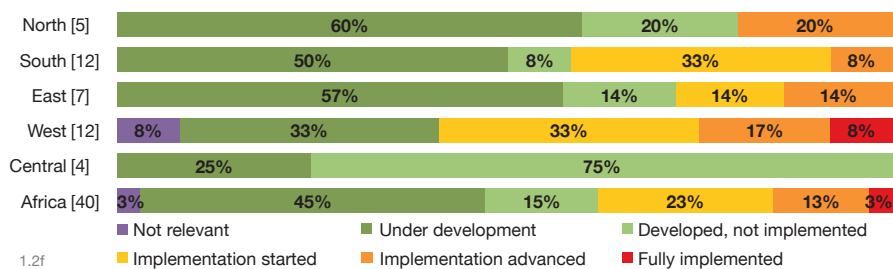
2.3 SUMMARY OF PROGRESS WITH THE ENABLING ENVIRONMENT

The overall impression is that there is good progress but a great deal of work remains to be done to strengthen the enabling environment for water resources management. Policies, laws, and plans are in place in many countries but are still in the earlier stage of implementation in most sub-regions except for North Africa. The lack of these enabling instruments are raised as constraints by many countries and the reasons why 25 percent of countries have not yet started to apply a water law and 50 percent are without IWRM plans at all needs to be explored (Table 7.2).

This survey looked primarily at the enabling environment at the national level but there are also supporting conditions that may be present at the sub-regional, regional, and global levels. International agreements on transboundary basins are well established and implementation is underway in 77 percent of countries, and mostly at an advanced stage (Chapter/Section 8.3). However, other elements of the enabling environment at the sub-regional and regional levels should be included in future surveys.

- 75 percent of countries are implementing national water laws and 67 percent a water policy. This clearly demonstrates the commitment of African countries to sustainable management and development of water resources. However in most sub-regions as many as 50 percent of countries are still at early stages of implementation or have not yet started.

FIGURE 2.8 Status of incorporating water resources management in national plans for climate change adaptation by sub-region.



Number of countries responding is shown to the left of each bar.

- Progress with implementing national plans for water resources management demonstrates widespread adoption and effort to improve management of water resources. Over 40 percent (17 of 40) of countries report implementation of IWRM plans in 2012 compared with 30 percent (5 of 16) in 2008.
- The analysis of countries' progress from the 2008 to the 2012 survey suggests that there are challenges to be addressed to maintain momentum towards better water resources management.
- The success of an integrated approach can partly be assessed by the extent to which water resources management has been included in sectoral development plans. For some development plans over 50 percent of countries report that water resources have been included and plans are starting to be implemented.

IWRM has been adopted by AMCOW as the supporting framework for all actions pertaining to water. This concept has been reinforced with the priority of growth and development and is often referred to as Water for Growth and Development. This clearly demonstrates that water cannot be dealt with in isolation, but requires a high degree of collaboration and engagement between and among the water ministries

and the ministries responsible for driving social and economic development, such as ministries of economic planning; environmental management and natural resources development; agriculture; energy; and physical planning. If water resource managers are to engage effectively with other ministries, the creation of a strong enabling environment for water management is essential. The survey shows that progress has been made in this regard over the 20 years since Agenda 21, but the survey also shows that progress is slow in a significant number of countries.

2.4 PROPOSALS FOR ACTION

To maintain momentum towards the Africa Water Vision and accelerate the achievement of an enabling environment for an integrated approach to water resources management, the following key actions are proposed, to be taken at the relevant levels:

- Identify and address barriers to legal and policy reform and target late countries, mainly those coming out of long period of political crisis, civil wars, or natural disasters. The assistance can take the form of political support from a regional/ sub-regional level and

country to country and peer to peer experiential learning.

- Enhance political will for water reforms by conceiving and implementing specific programmes on information, sensitisation, and advocacy to target decision makers.
- Promote integration of water management across sectors. Water cannot be dealt with in isolation, but requires a high degree of collaboration and engagement between and among the water ministries and the ministries responsible for driving social and economic development. The adoption and implementation of an integrated approach to basin planning, both at the transboundary and sub-national levels, is one key strategy to be followed. AMCOW may support this initiative by engaging with ministers from related ministries to identify and seek to address obstacles to an integrated approach.
- Establish the survey as a monitoring instrument for Africa. Future surveys of progress with water resources management at the Africa level should include international, regional, and sub-regional elements in the questions pertaining to the enabling environment. Questions should be developed to utilize more evidenced-based indicators.



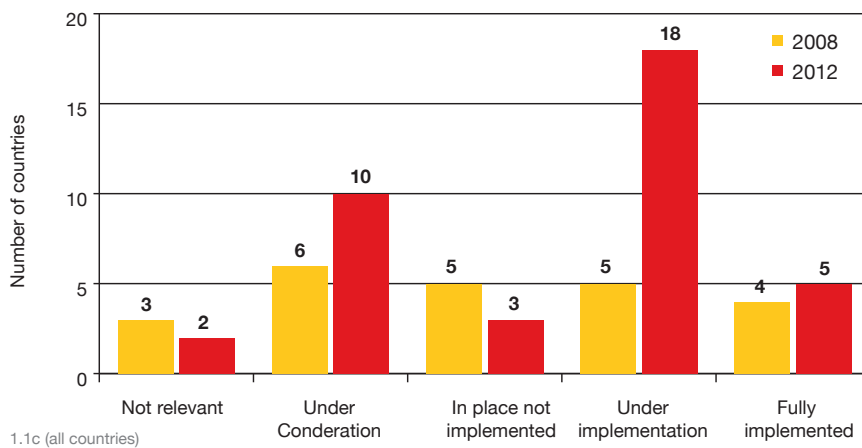
3.

ESTABLISHING GOVERNANCE AND INSTITUTIONAL FRAMEWORKS

3.1	INSTITUTIONAL FRAMEWORKS	16
3.2	STAKEHOLDER PARTICIPATION	18
3.3	CAPACITY BUILDING	19
3.4	SUMMARY OF PROGRESS WITH GOVERNANCE AND INSTITUTIONAL FRAMEWORKS	20
3.5	PROPOSALS FOR ACTION	21



FIGURE 3.2 Progress from 2008 to 2012 on mechanisms for river basin management: A comparison between country responses in the 2008 survey (23 countries) and this 2012 survey (38 countries).

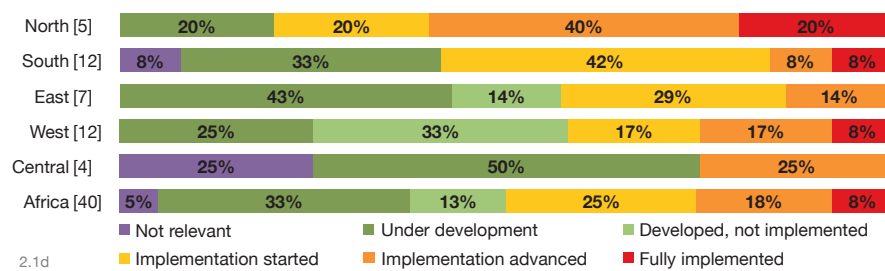


BOX 5. WHY PROGRESS IS NOT CONSISTENT ACROSS AFRICA

There are many challenges to maintaining momentum towards better water resources management. These include delays in setting up appropriate institutions according to the law as in Benin; having the concept not well understood by decision makers, thus delaying government support as in Burundi; and having the law in place but not the guidelines/regulation as in Angola. The survey indicates political instability is also a challenge – as Burundi, Zimbabwe, and Cote d’Ivoire have reported.

Source: Level 2 Survey

FIGURE 3.3 Mechanisms established for cross sector management of water resources.



Number of countries responding is shown to the left of each bar.

BOX 6. OPERATIONAL WATER MANAGEMENT INSTITUTIONS IN PLACE

With most countries in Africa developing new water policies with an IWRM approach and enacting laws, the need for appropriate operational institutions to oversee their implementation is paramount. Some countries have managed to develop them while others are at different stages due to various reasons.

River basin management entities are one of the key institutions: Ghana has established 3 out of a planned 17 river basin organisations and 2 more are in the process of being established. Due to limited resources, Ghana proposed this to be done in a phased manner starting with the basins that have serious availability, quality, and environmental problems. Tanzania has established 9 basin boards, covering all the nation’s basins. Mozambique has established 7 River Basin Committees.

Source: Level 1 and 2 Survey

as not relevant in their circumstances and these were Libya and Mauritius. Basin management mechanisms have also been adopted for transboundary basins (Chapter/Section 8.3).

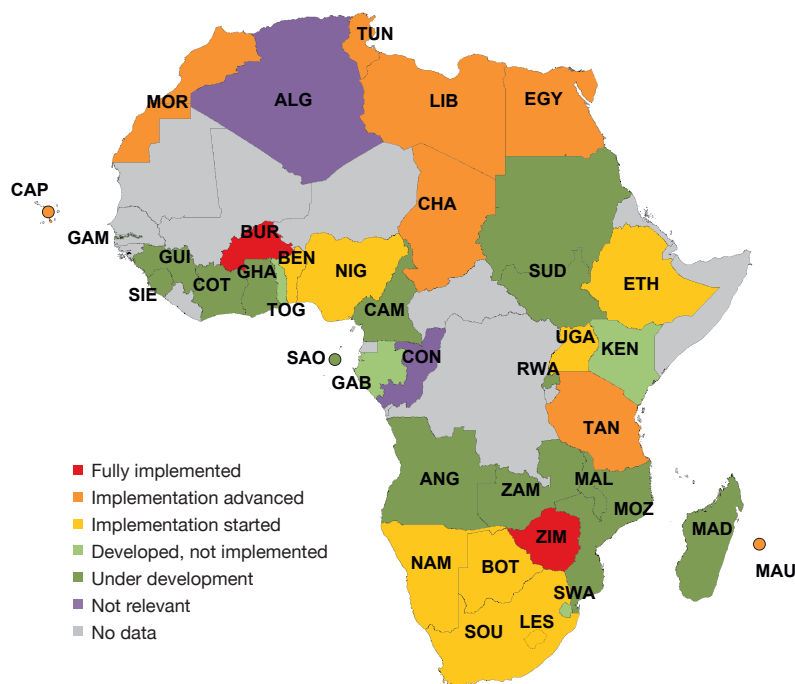
The 2008 survey also examined progress with mechanisms for decentralised management of water resources, specifically river basins. Comparing the results from both surveys, significant progress has been achieved from planning to implementation with 60 percent of countries reporting to be in a stage of implementation in 2012 compared to 39 percent in 2008 (Figure 3.2).

Managing water with an integrated approach requires mechanisms for bringing

together the different demands, experiences, and opportunities presented by various stakeholders/water users. There are many ways this integration can take place but it usually requires structures where these views may be expressed and in some way influence management decisions on water. The survey did not ask about specific institutional arrangements for integration but looked for progress in cross sector management of water resources (Figure 3.3). 51 percent of countries reported implementation of such mechanisms demonstrating the adoption of measures to improve integrated water resources management.

Drinking water needs in Africa are met by groundwater to a large extent, especially

FIGURE 3.4 Status of implementation of institutional frameworks for the management of groundwater. (Question 2.1b)



for dispersed rural communities and for those countries with constraints on surface water. Governance systems for groundwater are operating across most of North Africa but are less common in West and Central Africa (Figure 3.4). The survey shows that groundwater governance mechanisms have been prioritised by countries in the drier parts of the continent, as might be expected (Figure 3.4).

3.2 STAKEHOLDER PARTICIPATION

There are many different strategies used for enabling stakeholder participation and the survey addressed 7 questions on this subject, covering issues such as access to information, engagement in water management, private sector participation, and attention to gender issues (Annex 3, Questions 2.1.2). 20 countries (50 percent) responded that they were implementing

stakeholder activities in 5 or more of the 7 question areas. This is a signal that the role of stakeholders is being seriously addressed in some countries.

However, there is much more to be done in other countries. 9 of 40 respondents

reported that they were implementing only 1 or none at all of the 7 issues in the survey. 5 countries said that at least 3 of the stakeholder action areas were not relevant to them. This latter point may need further investigation to understand the circumstances. Clearly, stakeholder participation has not been pursued to any significant extent in at least 25 percent of the surveyed countries so far, although good progress may be identified from the positive responses of 50 percent of countries.

Across the continent 70 percent of countries reported that they provide stakeholders with access to information on water resources management, with North Africa as the leading sub-region (Figure 3.5). However when it comes to the involvement of stakeholders in water resources management and development at a national level, then East Africa (100 percent) and Southern Africa (75 percent) are the sub-regions reporting the highest levels of implementation (Figure 3.6).

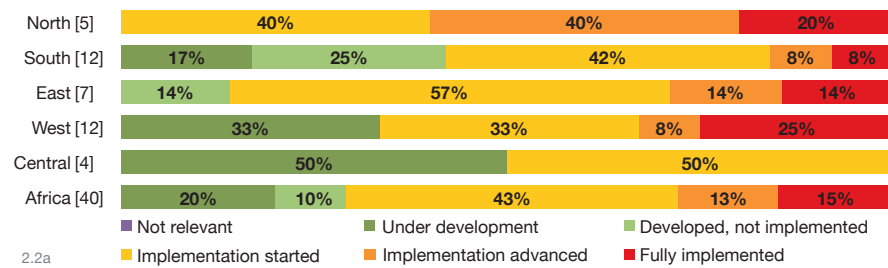
Only one country, Benin, reports full implementation of gender mainstreaming in water resources management and development (Figure 3.7). Implementation

BOX 7. STAKEHOLDER PARTICIPATION

Participation of stakeholders is a key component of the integrated approach and countries are at different levels in this aspect. In Tanzania stakeholders are included in the established institutions as members of the National Water Board, Basin Water Boards, Catchment Committees, or Water User Associations. The Togo survey indicates that the private sector has become more aware of the relevant issues as it is now common for them to ask for authorisations from the appropriate Ministry for withdrawals and commercialisation of water. However, the survey shows that in some countries poor participation in the process is likely due to low capacity, particularly in the private sector and civil society. The Ghana survey notes that the involvement of diverse stakeholders is an uneasy task, consuming time and effort, and South Africa finds that inadequate education hampers stakeholder participation. On the other hand, the Uganda survey indicates an inadequate framework for stakeholder's involvement in water resources management.

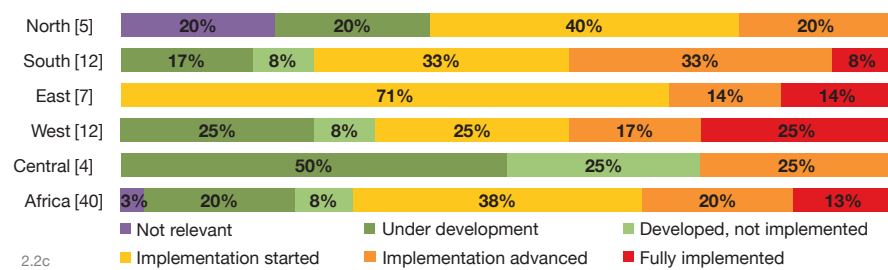
Source: Level 1 and Level 2 Survey.

FIGURE 3.5 Stakeholders with access to information on national water resources management and development.



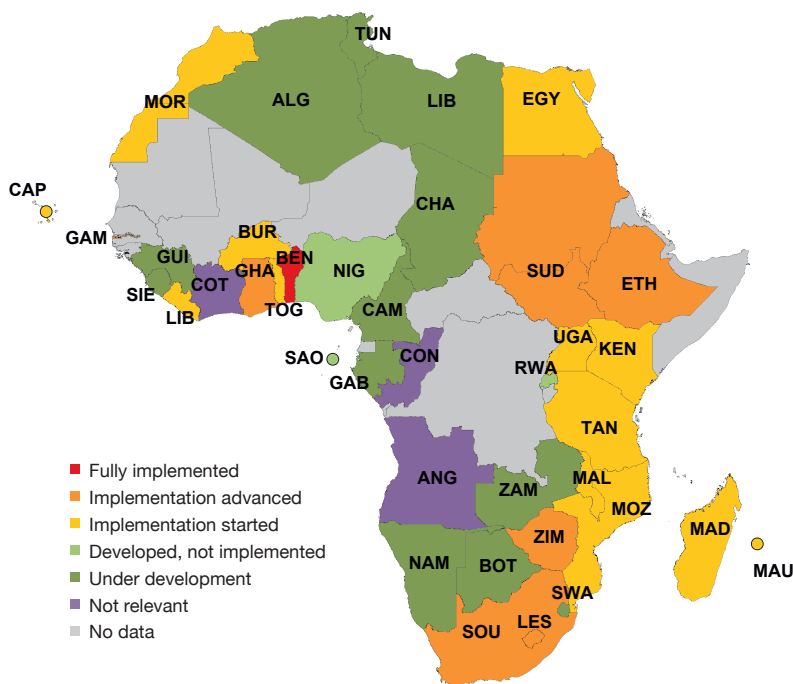
Number of countries responding is shown to the left of each bar.

FIGURE 3.6 Involvement of civil society and general public in water resources management and development at national level.



Number of countries responding is shown to the left of each bar.

FIGURE 3.7 Progress on implementation of gender mainstreaming in water resources management and development. (Question 2.2g)



of gender activities was reported by 51 percent of countries, with the East Africa sub-region reporting the most progress and Central Africa the least.

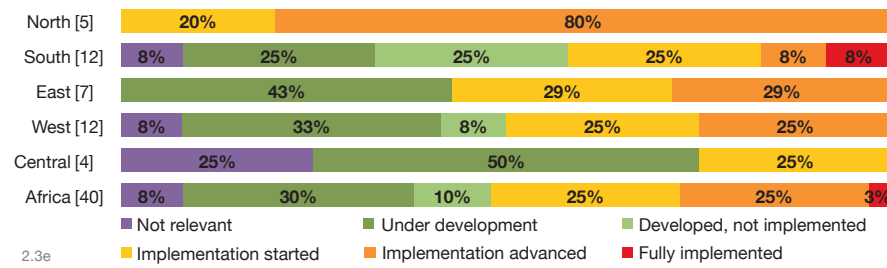
3.3 CAPACITY BUILDING

Lack of capacity is frequently cited as one of the main constraints to development in Africa. Water reforms, shown in this survey to be widely underway in Africa, should be accompanied by capacity development. In the absence of supportive capacity development, efficiency and effectiveness will be delayed if not unachievable altogether. Capacity development should therefore be an important concern. Capacity building can take place in many water management spheres and the survey contained 7 questions addressing related issues such as capacity needs assessment, institutional capacity, in-service training, formal education, and research (Annex 3, Questions 2.1.3).

The survey reveals the extent to which capacity deficits are being addressed. Of the 40 respondents, only 14 countries reported that they were implementing capacity building actions in 5 or more of the 7 survey question areas, while 15 respondents reported that they implement actions in only 1 area or in none at all.

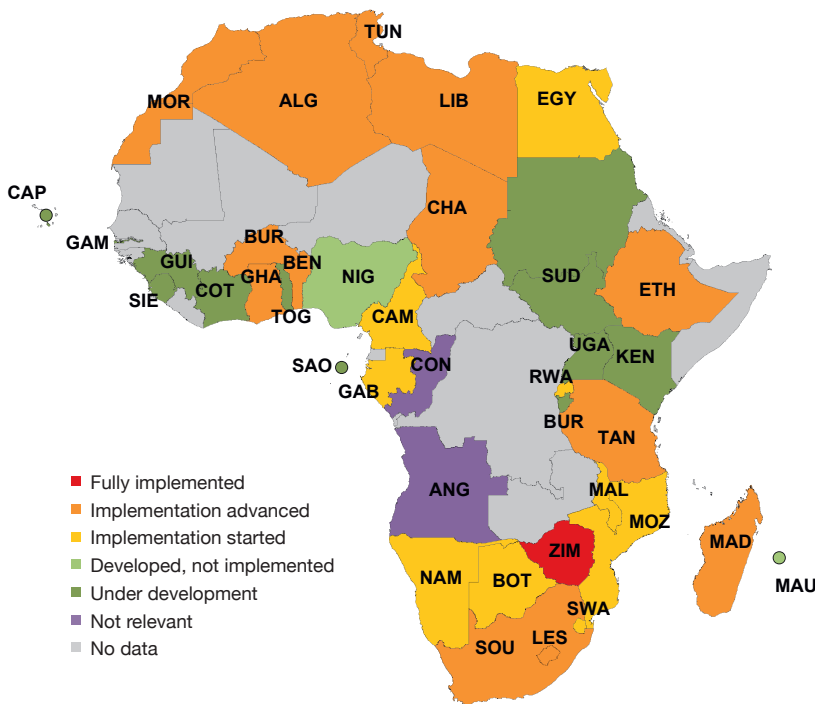
Over 50 percent of countries reported implementing in-service training of staff with North Africa being the sub-region of highest level of implementation and Central Africa the lowest (Figure 3.8). The capacity building activity with the highest level of implementation reported was in technical/ higher education (Figure 3.9). For technical and higher education, the sub-regions of North, Southern, and Central Africa all reported good proportions of countries with implementation underway and West Africa reported the lowest.

FIGURE 3.8 Progress on in-service training of staff by sub-region.



Number of countries responding is shown to the left of each bar.

FIGURE 3.9 Progress on the introduction of water resources management in curricula of technical/ higher education. (Question 2.3f)



3.4 SUMMARY OF PROGRESS WITH GOVERNANCE AND INSTITUTIONAL FRAMEWORKS

It should be expected that improvements to the enabling environment such as improved policy, law, and plans will result in improved performance and progress

with other aspects of water resources management (Chapter 2). While this is difficult to prove, at the moment, there are indications that this may be the case.

Countries reporting progress with the enabling environment also report progress with governance and institutional frameworks (Figure 3.10). There is a positive relationship between these two factors and

BOX 8. CAPACITY BUILDING CHALLENGES

For sustainability of IWRM undertakings, capacity building is a prerequisite at all levels. However, the level of investment in capacity building differs from country to country and it remains a big challenge. Most countries report inadequate technical capacity: Namibia identifies the specific need for on-the-job mentoring and support for implementation. Liberia reports limited trained capacity due to aging staff. Zimbabwe reports inadequate capacity resulting from skills flight.

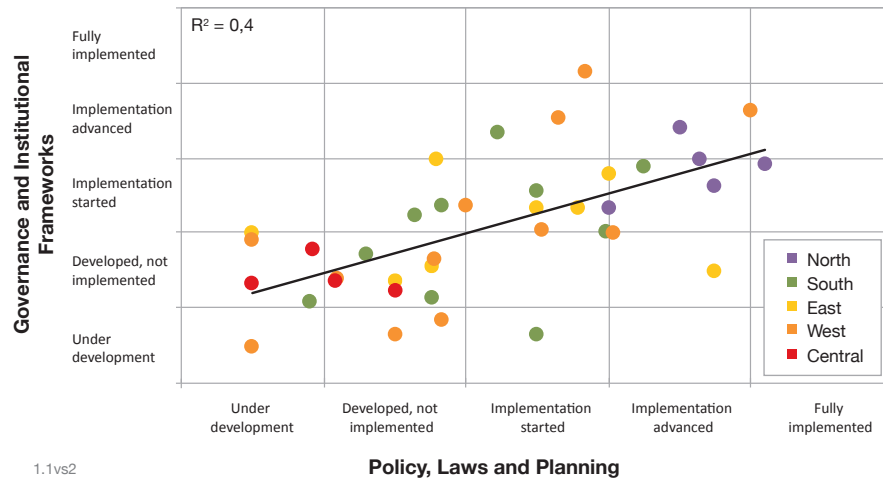
Source: Level 2 and Level 1 Surveys

countries recording higher levels of implementation with the enabling environment are likely to have made greater progress with governance and institutional systems.

There are sub-regional differences. The 5 responding North Africa countries report an advanced implementation status while the 4 responding Central Africa countries report least progress on implementation. The remaining sub-regions have countries across the scale showing a wide diversity of experience.

- Widespread progress is reported with implementation of the river basin approach progressing in 60 percent of reporting countries. Institutions for groundwater management are under implementation in 47 percent of countries.
- Mechanisms are established for cross sector inputs to water management and many other strategies are being implemented to engage stakeholders.
- Stakeholder participation is not fully endorsed, as almost 25 percent of countries report little or no stakeholder engagement. Stakeholder participation is accepted fully in 50 percent of coun-

FIGURE 3.10 Relationship between progress on the enabling environment of policies, laws, and plans and progress on governance and institutional frameworks.



The x-axis represents the average country response to questions in 1.1 of the Level 1 survey and the y-axis represents the average country response to questions in 2.1 of the Level 1 survey (Annex 3). Colours show which sub-regions countries belong to.

- tries although actual progress is hard to gauge without further study.
- Institutional reform can be very challenging. Some countries have only established basin organizations in few cases and support is necessary to follow through on further strengthening and expansion of the initiatives.
- Capacity building appears to be lagging behind, despite its essential role to support institutional restructuring and the adoption of new roles and responsibilities of water staff and stakeholders. Capacity building emerges strongly as a priority, and as a constraint in other parts of the survey (Table 7.2).
- Improving governance is a long and challenging process. Most reporting countries are at early stages of development or implementation and are likely to benefit from strategic support – but they are adopting components of IWRM.

The Africa Water Vision 2025 recognises the importance of managing water at the

basin level and also the need for adequate motivated and skilled personnel. The AMCOW work plan recognises the need for adequate mechanisms for stakeholder engagement in water management, especially to build the linkages between water resources management and the provision of water and sanitation services.

Countries are responding to these regional priorities by improving governance and institutional arrangements for water resources management. The widespread adoption of the basin approach and the gradual strengthening of stakeholder participation in water resources management are some of the markers of improving water resources management. The basin level provides one of the best opportunities for the setting of priorities for development, particularly as concerns priorities for water development and use. This can also be said for the progress being made in transboundary basin management, reported in section 8.3, where 68 percent of reporting countries are starting

to implement governance systems for transboundary basins.

In many countries the progress with governance and institutional frameworks is reported as being at an early stage with evidence of capacity challenges and limitations of stakeholder engagement. Countries reported institutional arrangements as a constraint to progress so pressure and support to institutional development should be seen as an on-going process (Table 7.2). Institutional strengthening, capacity development, and fostering mechanisms for cross sector management of water resources will continue to be important.

3.5 PROPOSALS FOR ACTION

Concerning the institutional framework for water resources management, stakeholder’s participation, and capacity building, priority should be given to:

- Support and promote the establishment of effective governance and institutional frameworks based on IWRM at transboundary level, national level in the form of national commissions or councils, at basin level as basin committees or agencies, and at local level as local water committees through institutional capacity development and peer to peer sharing of experience.
- Enhance mechanisms for stakeholder engagement, including food/agriculture, energy generation, industry, health, environment stakeholders, at the level of river basin organisations. Particular attention can be given to creating awareness about water resources management and supporting consultative processes for basin planning. Enhance capacity building at all levels to obtain the necessary human resources for implementing IWRM.

4.

APPLYING MANAGEMENT INSTRUMENTS

4.1	UNDERSTANDING THE WATER RESOURCE	24
4.2	WATER RESOURCES MANAGEMENT PROGRAMMES	25
4.3	SYSTEMS FOR KNOWLEDGE SHARING	27
4.4	INDICATORS	28
4.5	SUMMARY OF PROGRESS ON MANAGEMENT INSTRUMENTS	28
4.6	PROPOSALS FOR ACTION	30



4. APPLYING MANAGEMENT INSTRUMENTS

This chapter reports the extent that countries have been able to apply tools and methods, often referred to as management instruments, that enable and help decision-makers to arrive at rational and informed choices regarding alternative actions for the development and use of water resources.

The survey included questions related to:

- Understanding the water resource by collecting information through basin studies, monitoring and valuing ecosystems, monitoring water use, and monitoring water quantity and quality (Annex 3, Questions 3.1.1 and 3.1.3)
- Existence of management programmes for purposes such as water allocation, demand management, environmental impact assessment, water related disasters including early warning systems,

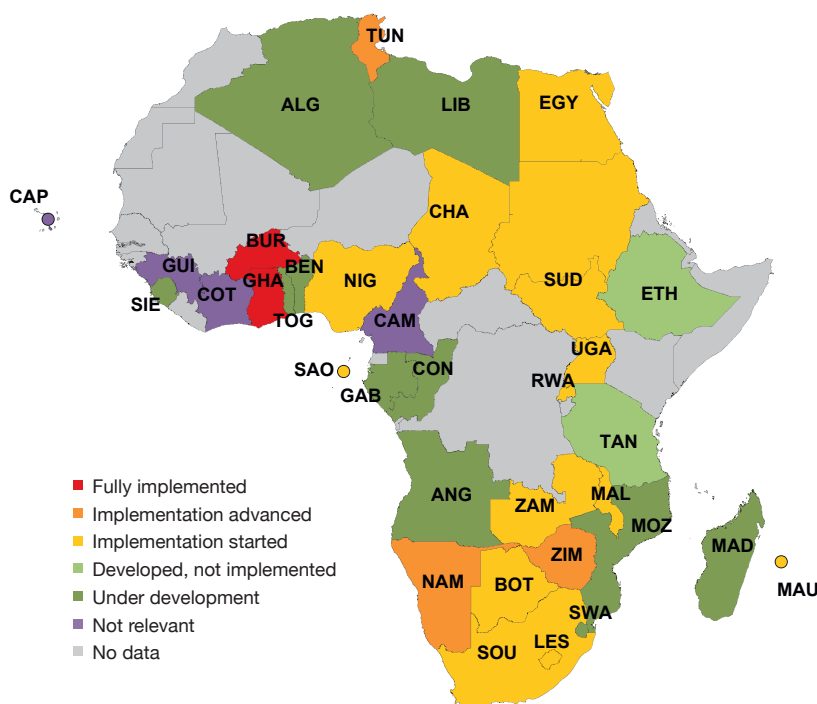
and climate change adaptation (Annex 3, Questions 3.1.2).

- Systems for knowledge sharing such as information systems, information exchange, and advisory or technology transfer programmes (Annex 3, Questions 3.1.4).

4.1 UNDERSTANDING THE WATER RESOURCE

This part of the survey largely concerns monitoring systems. The programme reported as most implemented was monitoring of surface water quantity, in 33 (83 percent) out of 40 countries. The Congo, Sierra Leone, Benin, Gambia, Liberia, Cote d'Ivoire, and Madagascar reported that they did not yet undertake monitoring of surface water resources. Over half of countries reported basin studies for long-term development and management of water resources. Monitoring systems for groundwater quantity were also widely reported as under implementation (26 countries or 65 percent).

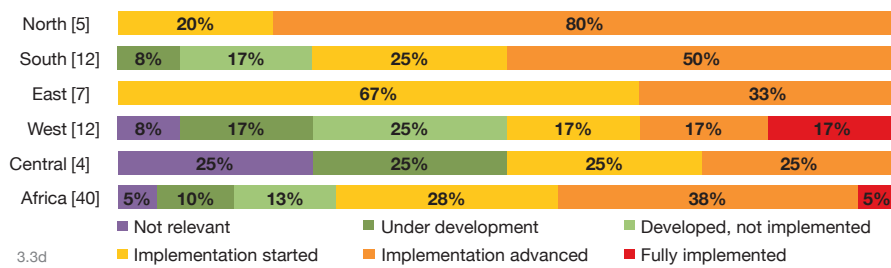
FIGURE 4.1 Country status of programmes to monitor aquatic ecosystems (Question 3.3e)



Environmental issues receive a mixed response with valuing of ecosystem services reportedly implemented in 9 countries out of 38 respondents, although monitoring of aquatic ecosystems takes place in 18 countries out of 33 responding (Figure 4.1). Environmental impact assessment is one of the most widely implemented management instruments being used in 26 (66 percent) of responding countries with East and North Africa the leading sub-regions.

Water quality monitoring is another widely implemented tool used by 28 countries, relevant both to environmental health and to consumers and users of water resources (Figure 4.2). Only Burkina Faso and Ghana reported a fully implemented monitoring programme but many others

FIGURE 4.2 Status of monitoring systems for water quality at a sub-regional level.



Number of countries responding is shown to the left of each bar.

BOX 9. PROGRAMMES TO STRENGTHEN MONITORING SYSTEMS

Cameroon is currently implementing several programmes to strengthen water monitoring. These include:

- the African Environmental Monitoring for Sustainable Development (AMESD), a pan-African initiative;
- a programme for the assessment of water resources that is being implemented by the Hydrological Research Centre intending to rehabilitate and reinforce the monitoring network for surface and groundwater
- a programme for the conservation of coastal and maritime ecosystems.

Cameroon states that the “Hydrological processes are presently better managed with the help of the treatment of planet observation data made available through servers within the framework of the AMESD programme. In addition, the hydrological network in Cameroon is gradually becoming functional with the help of programmes [such as] the Niger-Hycos”.

Some countries, such as Rwanda, are reporting improved water monitoring and assessment systems through hydrological networks.

Source: Level 2 and Level 1 Surveys

are at an advanced stage of implementing this programme. All countries in the North and East Africa sub-regions report implementation of a water-quality monitoring programme.

4.2 WATER RESOURCES MANAGEMENT PROGRAMMES

The survey focused on a few management programmes, of which some may be considered basic to effective water resources management. The first of these is careful monitoring for water resource availability. This sub-section examines the management instruments controlling and regulating the use, protection, and maintenance of the resource.

The survey has 13 questions about management programmes (Annex 3, Questions 3.1.2). When examined individually they generally show that around 30-50 percent of countries are at an implementation stage on this issue. However, when examined from a country perspective a skewed distribution emerges: 12 countries reported 2 or less management programmes under implementation and at the other end of the scale 12 countries report implementing 10-13 management programmes.

BOX 10. WATER QUALITY PROGRAMMES

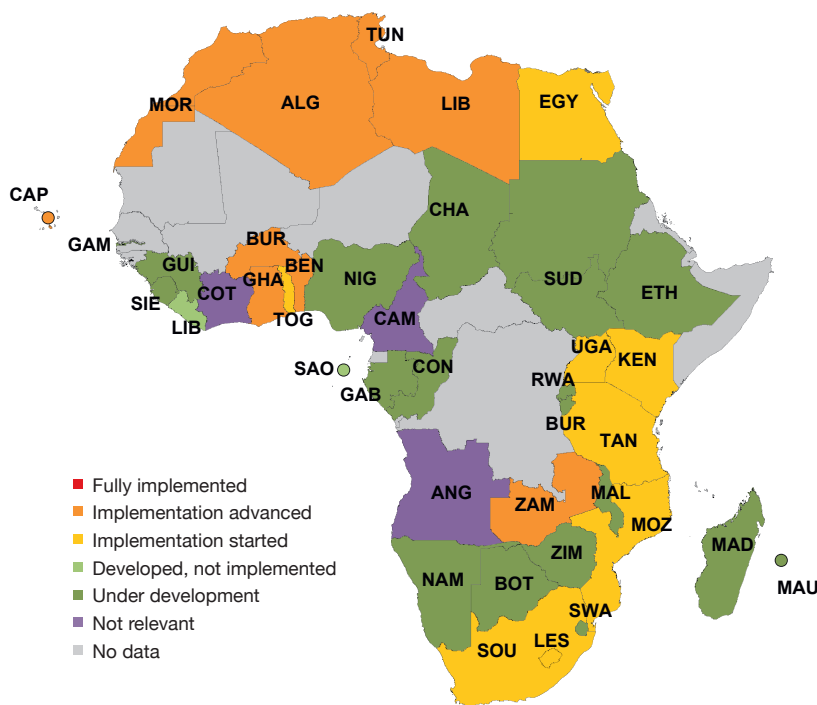
Water quality is a key parameter in water resources management but not all countries have been able to fully implement water quality management programmes. In Ghana the Environmental Protection Agency has established the Environmental Assessment Regulations of 1999. This stipulates that no person shall undertake certain identified activities that have an impact on the environment without registering and obtaining a license from the Agency beforehand. This also covers ecological changes. However, the Agency has yet to pass a legislative instrument to define the mechanism for controlling discharge and effluents into water bodies to maintain raw water quality at acceptable standards.

Source: Level 2 Survey

A water allocation programme is one of the more essential water management instruments in conditions of water scarcity or competition, and is necessary if water is to be managed to achieve social and development goals. Overall 40 percent of countries reported water allocation systems have reached the stage of implementation, but none of them fully implemented (Figure 4.3). Most of these countries report incorporating environmental considerations into allocation programmes.

The survey also addressed water demand management and water re-use programmes with similar results. Less than half of countries are implementing demand management measures to improve water use efficiency and none of them reported that they had achieved full implementation (Figure 4.4).

FIGURE 4.3 Country status of programmes for efficient allocation of water resources among competing uses. (Question 3.2d)



Many African countries face on-going threats of drought and flood, often with disastrous outcomes. The survey examined issues of forecasting and early warning programmes to address water-related disasters and programmes for addressing climate change adaptation through water resources management. Forecasting and early warning systems are reported as under implementation in 51 percent of countries, especially in East and North Africa sub-regions, but are reported as fully implemented only in Egypt and Zimbabwe (Figure 4.5).

65 percent of responding countries reported implementation of programmes to address water-related disasters such as floods and droughts (Figure 4.6). West and Central Africa presented the lowest level of implementation, although the issue is identified as relevant and under development in most countries of these sub-regions.

BOX 11. ALLOCATION SYSTEMS REQUIRE ENFORCEMENT

Ghana has advanced in the establishment of the water resources regulation process with two Legislative Instruments:

- Water Use Regulations of 2001. This requires that any person who wishes to have water for domestic, commercial, industrial, municipal, agricultural, power generation, fisheries, etc. purposes shall apply for a water permit from the Commission; and
- Drilling License and Groundwater Development Regulations of 2006. This requires that any person who wishes to construct a well for the abstraction or monitoring of groundwater for research should obtain a water-drilling license from the Water Resources Commission.

They reported that the allocation measures are very relevant and will contribute to sustainability but that there is a problem with compliance and enforcement, due to lack of logistic support and manpower. The same applies to drilling licenses. Consequently some boreholes are sited near septic tanks where the groundwater can easily be contaminated.

Other countries that have established water allocation systems include Mauritius, Namibia, South Africa, and Tanzania. However in South Africa, equitable allocation is not yet fully implemented.

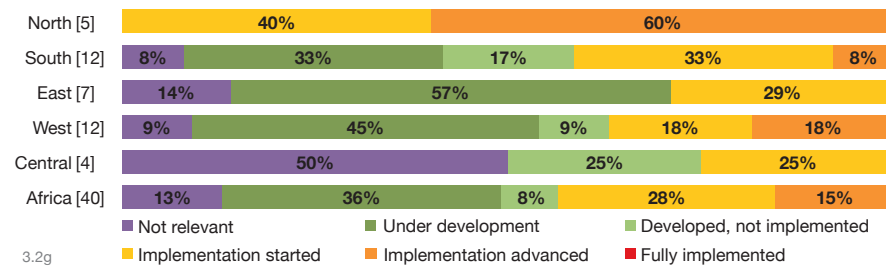
Source: Level 2 Survey

BOX 12. IMPROVEMENT IN WATER USE EFFICIENCY

The results of implementing IWRM are promising with increased agriculture productivity. Egypt reports that crop yield increased because of improved water management. In Tanzania there are indications based on a few improved irrigation schemes that irrigation water-use efficiency has increased: open channel irrigation has improved by up to 35 percent and lined canal irrigation has improved by up to 45 percent. Irrigation systems using water saving technologies increase water use efficiency by up to 98 percent. This indicates that with wider coverage, the improvement in efficiency may be significant.

Source: Level 1 and Level 2 survey

FIGURE 4.4 Progress on implementation of demand management measures to improve water use efficiency.



Number of countries responding is shown to the left of each bar.

FIGURE 4.5 Status of forecasting and early warning systems by country. (Question 3.3i)

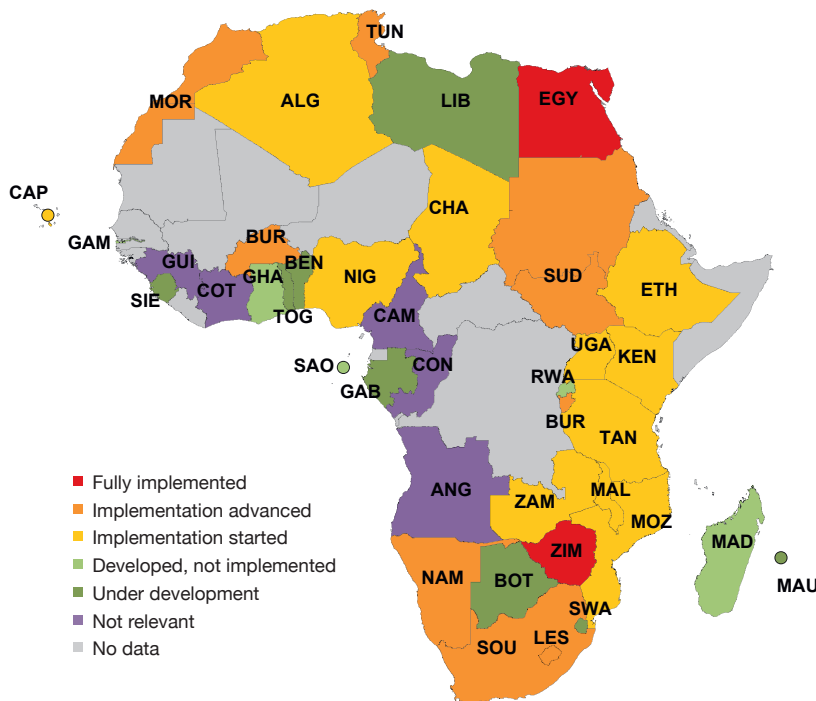
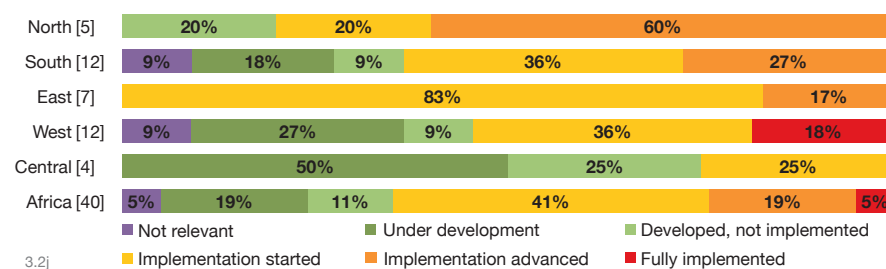


FIGURE 4.6 Status of programmes to address water-related disasters summarised by sub-region.



Number of countries responding is shown to the left of each bar.

4.3 SYSTEMS FOR KNOWLEDGE SHARING

Water resources information systems are generally set up in parallel with monitoring systems for more effective use of the data. Water resources information systems were reported to be under implementation in 63 percent of reporting countries and many of these reported implementation to be at an advanced stage (Figure 4.7). Many

BOX 13. STRENGTHENING WATER RESOURCES INFORMATION AGENCIES

Ghana, through the Water Resources Commission, has obtained external assistance to strengthen water resources information agencies – namely the Ghana Meteorological Service of the Ministry of Transport and Communication for hydrometeorological data, the Hydrological Services Division of the Ministry of Water Resources Works and Housing for hydrological data, and the Water Research Institute of the Council for Scientific and Industrial Research for groundwater and aquatic ecosystem data. However, there are still some problems with the hydrological data in particular and if adequate resources are not made available, the hydrological data will not improve as expected.

Gambia is constrained by poor data and inadequate water resources information systems for data archiving, analysis, mapping, data sharing, and decision support capabilities. In Swaziland and Togo, national hydrometeorological and hydrogeology monitoring networks need investment. In Tanzania infrastructure for water resources data collection is being installed or rehabilitated.

Source: Level 2 and Level 1 Survey

FIGURE 4.7 Country status with the implementation of water resources information systems. (Question 3.3h)

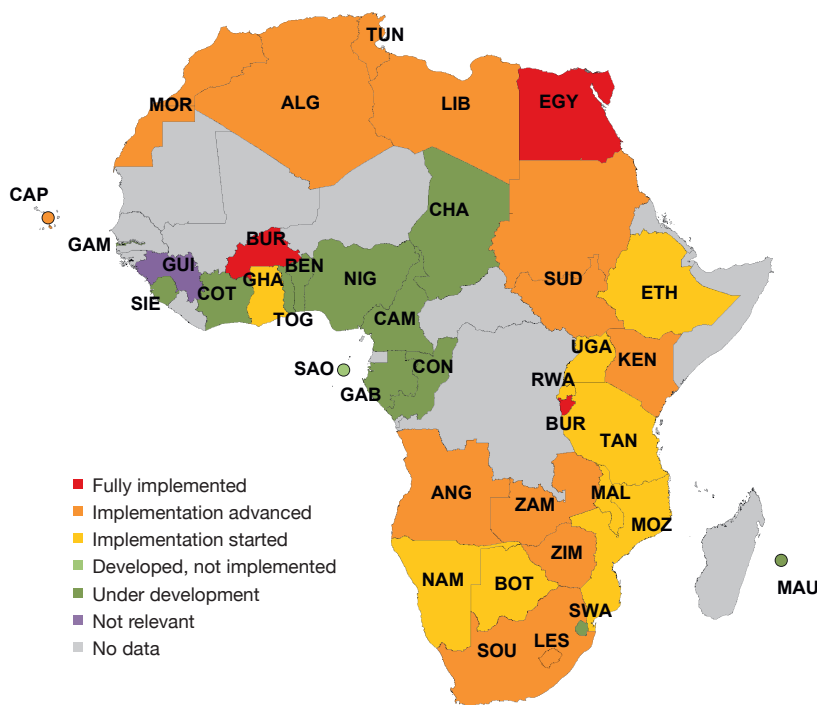
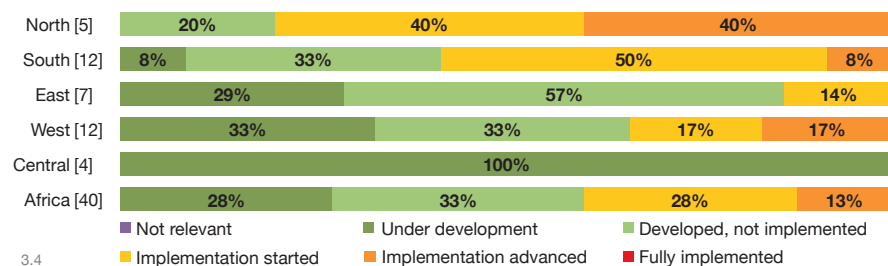


FIGURE 4.8 Status of knowledge sharing programmes. Summarising results from 4 related survey questions.



Number of countries responding is shown to the left of each bar.

reporting countries from Central and West Africa are still at the development stage.

Knowledge sharing is an essential element for effective stakeholder participation, promoting cross sector cooperation and capacity development. The survey shows programmes for knowledge sharing on aspects such as good practices, extension

services, and water saving technologies are not widely implemented and are reported most frequently in North and Southern Africa sub-regions (Figure 4.8). One third of countries report they have developed programmes for knowledge sharing that are not yet implemented presenting an opportunity for coordinated support to speed up progress (Figure 4.8).

4.4 INDICATORS

The Level 2 interviews included a checklist to determine what indicators were currently being used at country level for the monitoring and measurement of performance of the water resources management system.

The indicator checklist included 42 indicators from the following categories:

- Water resources governance (2)
- State of the resource (13)
- Ecosystems (5)
- Human health (4)
- Food, agriculture, and rural livelihoods (4)
- Industry (6)
- Risk assessment (3)
- Valuation and charging for the resource (5)

Of the 42 indicators on the checklist, the 10 countries of the Level 2 survey used 17 of them regularly on average. Human health is monitored at the highest frequency but the general impression is that water resources management is not widely or well monitored (Figure 4.9). Given that there are monitoring systems reportedly in place in many countries, it may be that there is not enough attention to disseminating data sets or transforming monitoring information into indicators.

4.5 SUMMARY OF PROGRESS ON MANAGEMENT INSTRUMENTS

As stated in the previous section it is to be expected that improvement of the enabling environment and governance systems for water resources will have a positive impact on management systems and ultimately on development. Although the data are not adequate to prove a

FIGURE 4.9 Percentage of selected water indicators by category, being used regularly. Data from Level 2 interviews in 10 countries.

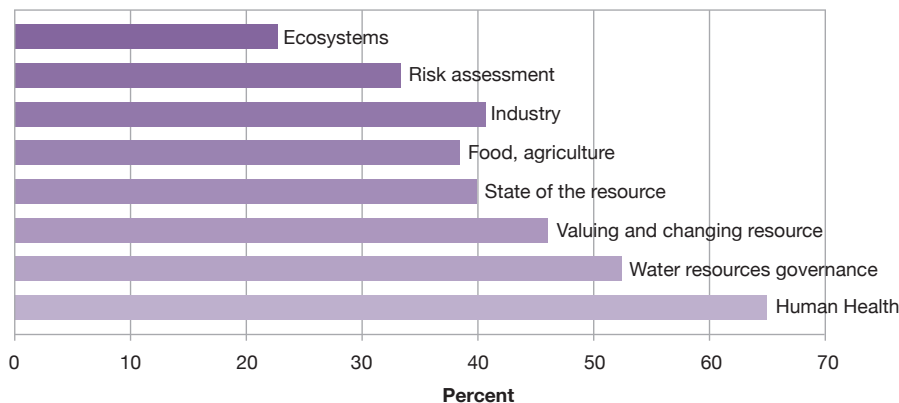
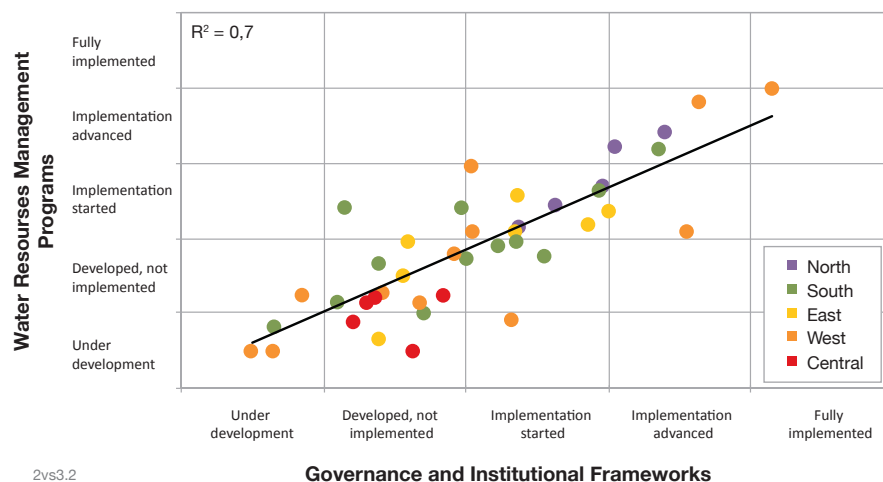


FIGURE 4.10 Relationship between progress on governance and institutional frameworks and progress on water resource management instruments.



The x-axis represents the average country response to questions in 2.1.1 of the Level 1 survey and the y-axis represents the average country response to questions in 3.2.1 of the Level 1 survey (Annex 3). Colours represent sub-regions and dots represent countries.

causal relationship, it is nevertheless reassuring to observe from the survey a good positive correlation between progress on governance and institutional frameworks and progress on water resource management instruments (Figure 4.10). Sub-regional differences emerge with North African countries clustered towards the top and Central African countries clustered towards the bottom. The remaining sub-

regions have countries across the scale showing a wide diversity of experience. The rich variety of experience in most sub-regions provides a good basis for country to country exchange.

- Monitoring systems are widely established and in many cases are at an advanced stage of implementation. This suggests that knowledge

of the water resource is one of the more advanced components of water resources management although it does not necessarily mean that this understanding of the water resources is adequate. The high priority assigned to this action by countries suggests more work is needed.

- Programmes to regulate the use of water resources and control pollution are rarely reported as under implementation in more than 50 percent of countries. Even in most of those countries implementation is at an early stage. The survey shows that more work is needed to develop these management programmes, to give water resource managers the full range of management tools.
- Information management systems are reported as in place in many countries. However there is a lack of adequate supporting tools for knowledge sharing. Knowledge sharing is a key instrument to support stakeholder participation and capacity building and may be a limiting factor to progress in these areas.
- Progress on management instruments is linked, and probably dependent upon, the development of governance and institutional arrangements.

Water resources management instruments provide a practical basis for translation of policy into practice. Decisions are made on who gets water, what project receives priority, and consequently what are the social and development outcomes possible. The Africa Water Vision 2025 and the AMCOW work programme envision the application of water for the economic benefit and development of Africa but water for growth and development is difficult to achieve without the application of these water resources management instruments. Specific attention should be given to promote and support the

development and effective implementation of water resources management instruments and there are countries in most sub-regions that can provide good practical examples.

4.6 PROPOSALS FOR ACTION

Water resources management instruments provide the practical basis for translation of policy into practice. Priority action areas to help progress with management instruments are:

- Develop and implement water allocation systems at country and basin levels by:
 - improving the monitoring of water quantity, water quality and water use,
 - developing appropriate models of allocation, and
 - promoting the Environmental Water Requirements
- Documentation of lessons and country to country learning are useful supporting strategies.
- Contribute to climate change adaptation and management of floods and droughts by promoting forecasting and early warning systems and through improved water resources management. This can be done by a peer to peer learning from the existing good experiences.
- Develop a good practice guide, for African conditions, on sharing water knowledge with stakeholders.



5.

INFRASTRUCTURE DEVELOPMENT AND FINANCING

5.1	INVESTMENT PLANS AND FINANCING	32
5.2	SUMMARY OF PROGRESS	34
5.3	PROPOSALS FOR ACTION	35



5. INFRA-STRUCTURE DEVELOPMENT AND FINANCING

This chapter reports the country progress with infrastructure development and financing for the development, management, and use of water resources. Questions addressed status of investment plans for various purposes (Annex 3, Questions 4.1.1) and the status of mobilising financing for water resources infrastructure for the same purposes (Annex 3, Questions 4.1.2).

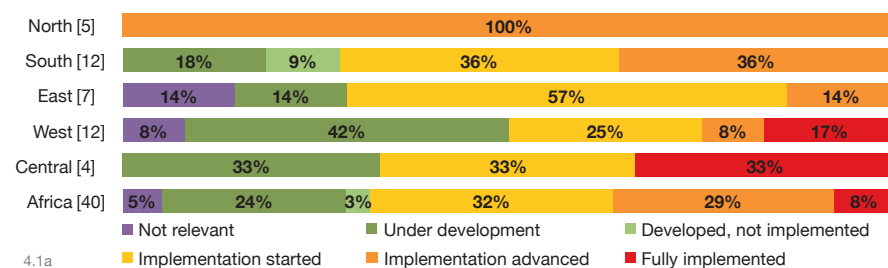
infrastructure can be seen from the status of implementation of both infrastructure development and the financing. There appears to be little difference among the sub-regions, other than the impressive success in North Africa.

A series of questions in the survey covered progress on infrastructure development, and associated financing, for different purposes. The aggregated response for all countries is shown in Figure 5.3 ordered by level of reported progress on implementation. 59 percent of responses reported an advanced or fully implemented stage for domestic water supply and 31 percent of countries are starting implementation. Programmes next in importance, as judged by the number of countries reportedly at an advanced stage of implementation or

5.1 INVESTMENT PLANS AND FINANCING

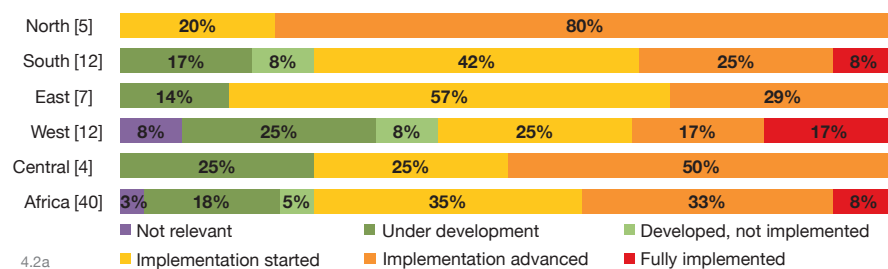
Water infrastructure, and the necessary finance, has been included or is in the process of being included in national infrastructure investment plans in 70 percent of countries surveyed (Figure 5.1, Figure 5.2). The priority attached to

FIGURE 5.1 Water resources included in national infrastructure investment plans: The current status in responding countries by sub-region.



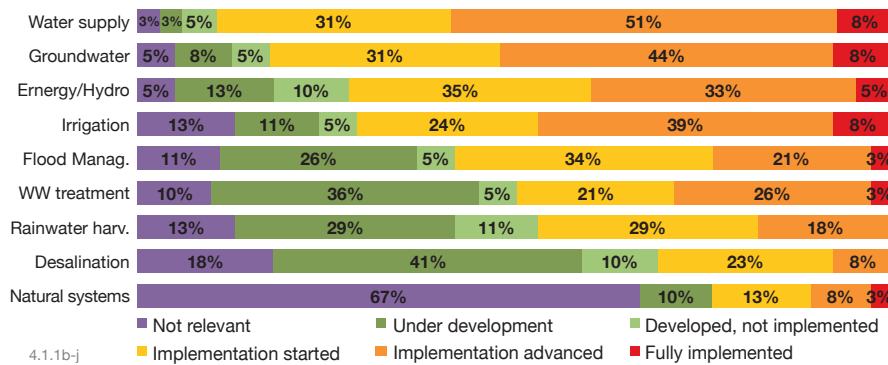
Number of countries responding is shown to the left of each bar.

FIGURE 5.2 Mobilizing financing for water resources infrastructure – financing for water resources included in national investment plans: The current status in responding countries by sub-region.



Number of countries responding is shown to the left of each bar.

FIGURE 5.3 Progress on infrastructure development for various water related purposes including irrigation, energy, groundwater recovery, flood management, water supply, wastewater treatment, desalination, rainwater harvesting, and natural systems such as wetlands, floodplains, and catchment restoration: The current status in responding countries.



fully implemented, are groundwater (52 percent) and hydropower (47 percent). At the lower end of the scale are infrastructure programmes for natural systems (8 percent) and desalination (11 percent) (Figure 5.3, Figure 5.5).

Progress with financing is comparable to that for infrastructure development. Taking flood management as an example: the majority of countries report implementation of both financing and investment plans (Figure 5.4).

Progress with implementation of investment plans for natural systems such as wetlands and catchment restoration is not very marked: overall, only 31 percent of countries have started implementation of the plans (Figure 5.5). In contrast 90 percent of reporting countries are at the stage of implementing plans for water supply, with 60 percent at an advanced stage of implementation (Figure 5.5).

A conclusion from these reports may be that countries are managing to progress with infrastructure in priority areas and to find the finance. It is important to note that it cannot be determined from the survey whether the level of implementation meets the actual needs of the country and it is highly likely that the scale of action is below that desired to meet development objectives. The situation does indicate that systems have been developed for implementation in many countries and that scaling up may be appropriate for most countries rather than initiation of new programmes.

FIGURE 5.4 Status of infrastructure development (left) and mobilisation of finance (right) for flood management. (Questions 4.1e; 4.2e)

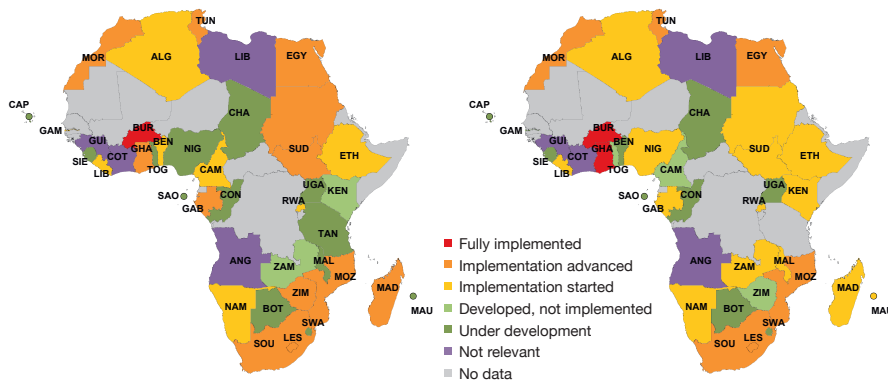
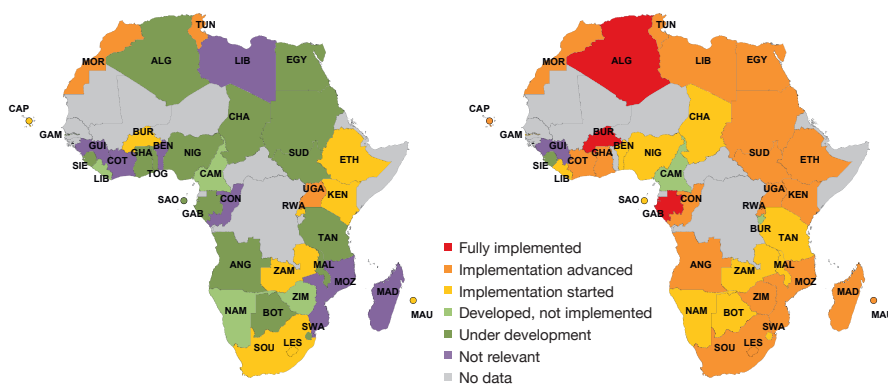


FIGURE 5.5 Status of investment plans and programmes for natural systems such as wetlands, floodplains, and catchment restoration (Left) and water supply for domestic and industrial use (Right). (Questions 4.1j; 4.1f)



BOX 14. ACHIEVEMENTS WITH INFRASTRUCTURE DEVELOPMENT AND FINANCE

Ghana addressed the issue of infrastructure by rehabilitating existing infrastructure, expanding, and building new elements to meet current and growing demand with funding from government and development partners. Demands include urban water supply, rural and small towns water supply, irrigation, and hydropower infrastructure. This has resulted in a road map for increasing access to urban, rural, and small towns water supply to meet the MDGs and improved irrigation facilities for over 2400 peasant farmers. Efficiency improvement in hydropower production has been achieved, increasing installed capacity by 108 MW. In addition, another hydropower plant is being built with an installed capacity of 400 MW.

In Mozambique, water-related infrastructure development has been given high priority by the government. The government is actively financing large schemes of rainwater harvesting like excavated reservoirs in Gaza Province, the driest place in country. Moreover, mobilisation of funds for 20 small dams and excavated large schemes for rainwater harvesting is underway to minimize the severity of droughts. To realize this goal, the Office of Hydraulic Works was established to coordinate and speed up the construction of water resource infrastructures for irrigation, hydropower, flood control, and water supply. The government is at a stage of economic development where investment on water resources infrastructure show higher returns to support industrial, urban, and commercial irrigation development, as well as addressing small-holder agricultural needs. Several water infrastructure investment projects are in the pipeline, including the construction of large dams Mpanda-Ncua and Moamba Major and the completion of Corumana, Gorongoza, Metuchira, and Nnacangara. With the objective of reducing off-budget expenditure, the government and its partners signed a Code of Conduct in 2008 to provide the basis for multilateral development cooperation in the water sector. This alignment of water finance has allowed the government to channel funds for water-related infrastructure development.

In Benin, the sector where significant progress was made is the drinking water supply. Many boreholes, hand dug wells, and piped systems were built for rural and small towns' water supply so that the average coverage of drinking water in rural areas increased from 39 percent in 2004 to 57 percent in 2010. No significant change has been observed during the past 20 years in the field of irrigated water use and water use for livestock, apart from some small-scale infrastructures constructed by the private sector.

Source: Level 2 and Level 1 Survey

5.2 SUMMARY OF PROGRESS

Infrastructure development, with associated financing, is a very high priority for Africa.

As shown with other parts of the survey analysis, there is a positive relationship between the progress on the enabling environment of laws and policies and the

progress on infrastructure and financing. The most important message may be that the efforts invested in developing improved water resources management could contribute to a better investment climate for water-related infrastructure (Figure 5.6).

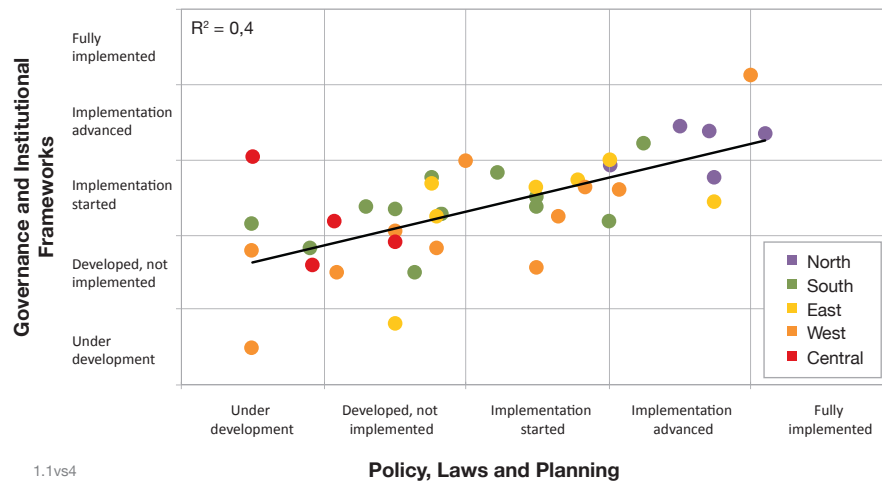
- Many countries are reporting good progress on implementation of investment plans for specific areas of activ-

ity, with most implementation on the issue of domestic water supply. Other development issues with widespread implementation of investment plans are groundwater, hydropower, and irrigation.

- Development or implementation of investment plans for natural systems is not widely reported, suggesting it may be a low priority or else be at a small scale.
- The progress on implementation of investment plans for infrastructure development is encouraging. However given the level of investment needed in Africa it is clear that attention should be given to the factors necessary to increase the scale of action.

The first theme in the AMCOW work programme is infrastructure for economic growth and specific areas of concern for Africa are infrastructure for food security, hydropower for economic growth, and water supply and sanitation. It is reassuring that these are the areas where there is greatest investment activity taking place according the survey country reports. The enabling policy framework for these actions is only partly within the scope of the water sector but it is encouraging to note that there is a positive relationship between the country reports on enabling environment for the water sector and progress with infrastructure development. This suggests that these countries are on the right track. Those countries reporting full or advanced implementation of their investment plans are not yet reaching their long term development goals for infrastructure but may be ready for scaling up investment to higher levels. The countries that are reporting to be only at the stage of developing investment plans or early implementation may need to address constraining factors such as lack of capacity or the investment environment. Improved IWRM plans, specifically basin

FIGURE 5.6 Relationship between progress on the enabling environment of policies, laws, and plans and progress on infrastructure and financing.



The x-axis represents the average country response to questions in 1.1 of the Level 1 survey dealing with the enabling environment and the y-axis represents the average country response to questions in 4.1 of the Level 1 survey regarding infrastructure development. Colours show which sub-regions countries belong to.

development plans, may have a significant role to play in building cooperation between key stakeholders for development priorities and scaling up infrastructure development.

5.3 PROPOSALS FOR ACTION

To scale up infrastructure development the following actions are proposed:

- Where the river basin management approach has been adopted, promote a multi-stakeholder approach to the preparation of basin plans for water resources management including comprehensive investment programmes on water infrastructure with a clear financing plan.
- Enhance fund raising at all levels for water infrastructures by:
 - creating new financial mechanisms in partnership with the development banks,
 - reinforcing existing strategic partnerships between AMCOW and G8, between AMCOW and European Union, etc.
 - reinforcing and sustaining the African Water Facility with AfDB
- Develop and implement or enhance human and institutional capacity at country level for more effective use of funds and for management of infrastructure to allow scaling up



6.

FINANCING WATER RESOURCES MANAGEMENT AND DEVELOPMENT

6.1	SOURCES OF FINANCE	38
6.2	PAYMENT FOR WATER RESOURCES	40
6.3	SUMMARY OF PROGRESS ON FINANCING FOR DEVELOPMENT OF WATER RESOURCES	40
6.4	PROPOSALS FOR ACTION	42

6. FINANCING WATER RESOURCES MANAGEMENT AND DEVELOPMENT

This chapter reports the general trends in financing for the development, management, and use of water resources in African countries over the last 20 years. The results are an indication of government perception of the trends. There is no attempt to examine in detail the actual levels of financing for each country, as this is beyond the scope of the survey. The chapter includes sections on:

- Sources of Finance (Annex 3, Questions 5.1)
- Payment for Water Resources (Annex 3, Questions 5.1e, 3.5b,c)
- Summary of Progress on Financing for Development of Water Resources.

The survey covers two aspects of financing: the sources of finance and user charges for water resources management.

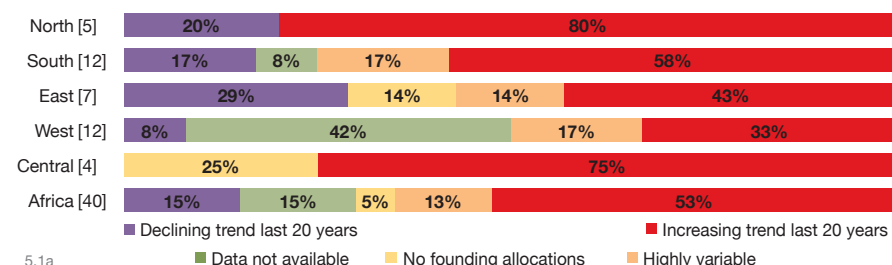
This section complements Chapter 4 on management instruments and Chapter 5 on water resources infrastructure, and informs Chapters 7-8 on outcomes and impacts.

6.1 SOURCES OF FINANCE

Over 50 percent of countries reported an increasing allocation of government expenditures for water resource development in the past 20 years. 15 percent of countries report a declining trend in financing. A number of countries, especially West Africa, report a lack of data (Figure 6.1).

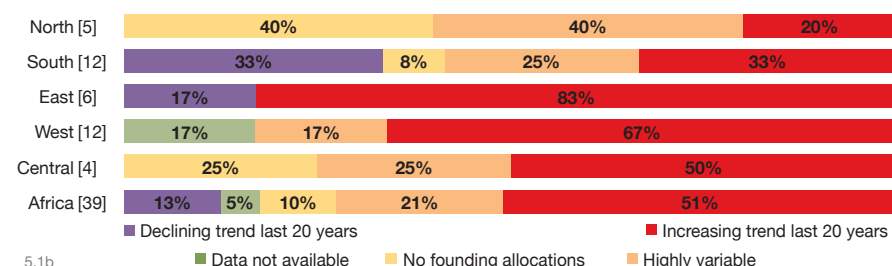
Most countries in East and West Africa reported an increasing trend of grants and loans for water resources management

FIGURE 6.1 Government budget allocation (% of GDP) for water resources development: The trend over the last 20 years in responding countries, by sub-region.



Number of countries responding is shown at the end of each bar.

FIGURE 6.2 Grants and loans from aid agencies for water resources development: The trend over the last 20 years in responding countries, by sub-region.



Number of countries responding is shown at the end of each bar.

BOX 15. SOURCES OF FINANCE

The survey shows that most countries have two main sources of financing for water resource management and development: development partners and government. Some countries add revenues from water user charges, contributions from the private sector, and local efforts for creating special funds. Benin reported that the Central Government contribution is relatively small – between 15 and 25 percent of total investments – and generally it covers exemption from duties, various charges as staff salaries and sometimes operation and maintenance expenses, and cost of rehabilitation of infrastructures.

In Mozambique, although the water use revenues are not enough to meet basic administrative and operational costs of Regional Water Administrations, they have been used to some extent to expand and maintain the gauging network and three out of five Regional Water Administrations show positive increases on their revenues.

Uganda reports that the funding for development, management, and use of water resources as a percentage of the national budget is still small and is currently 2.8 percent. Only 0.1 percent (US\$ 4 million) of the national budget is for water resources management activities. Donor funding constitutes about 68 percent of the funding for water resources management. The percentage share of the national budget for development, management, and use of water resources has generally been decreasing over the last 6 years although in absolute terms this amount has remained almost constant. Government is also promoting self-supply by the water users and involves the private sector and nongovernmental organizations in water resources development as a means of increasing financing.

Cameroon has put in place a fiscal policy founded on the principle of user-pays and polluter-pays. As well, a special allocation account was created within the 1998 water law towards the financing of sustainable development projects in water and sanitation. These mechanisms complement the funds raised through public investment projects that mainly finance water infrastructure.

Similarly, in Nigeria a trust fund was established to mobilize resources and Ghana hopes a Water Resources Fund, which has been established, will relieve some of the financial constraints”.

Cape Verde stated that diversification of funding sources and reinforcement of financial contribution from central and municipal administrations in the Islands with revenue from agriculture has been a successful way of raising capital.

Source: Level 2 and Level 1 Survey

from aid agencies and the same picture emerged for investment from international financing institutions such as the World Bank (Figure 6.2). Among the North African countries only Egypt reported increasing trends of support from aid agencies and international financing institutions. Southern Africa gave the highest frequency of countries reporting a decline of finance from aid agencies. Overall, 21 percent of countries report that financial support from aid agencies is highly variable and 26 percent report the same about international financing institutions.

Just over one third of countries report an increasing trend of financing for water resources from the private sector whereas over 50 percent report no funding or

BOX 16. PAYMENT FOR WATERSHED SERVICES-AN INNOVATIVE INITIATIVE IN TANZANIA

Payment for watershed services or payment for ecosystem services is a relatively new concept as a source of finance for water resource management activities and is being studied in Tanzania. Studies led by international NGOs and higher learning institutions have been conducted in Pangani, Ruvu, and Sigi river basins to assess the potential of applying the concept. The only trial going on in Tanzania now started in 2008 in a small watershed of Kibungu within Ruvu basin, the source of domestic and industrial water for Dar es Salaam. Some buyers have been identified and signed the memorandum of understanding with communities who are sellers. Currently, the buyers are paying sellers as rewards for engaging in applying conservation techniques that will reduce sediment load and turbidity. The results of the initiative concerning reduction of sediment load cannot be assessed yet although there are behavioural changes being observed within the piloting area.

Source: Level 2 Survey

6.4 PROPOSALS FOR ACTION

To ensure sustainable financing for water development in Africa countries, there is need to diversify the sources of financing, to increase the internal contributions, and to manage financing with transparency and traceability. In this purpose the following actions are proposed:

- Increase at country level government financing of water resources to widen the national financial contribution for water resources development, mainly in those countries where the government financial contribution is very low.
- Build a knowledge base from African countries of water financing based on the implementation of IWRM principle of polluter-pays and user-pays and the benefits of its use as an economic instrument to promote better practice in water use.
- Explore means to improve the collection, storage and analysis of financial data for water investment and water resources management.
- Support countries to create an environment suitable for private sector financing of water infrastructure.

7.

DEVELOPMENT OUTCOMES, IMPACTS, AND CONSTRAINTS

7.1	COUNTRY OUTCOMES AND IMPACTS ATTRIBUTED TO WATER MANAGEMENT	44
7.2	COUNTRY CONSTRAINTS TO PROGRESS IN APPLYING INTEGRATED APPROACHES TO WATER RESOURCES MANAGEMENT	46
7.3	SUMMARY OF OUTCOMES, IMPACTS, AND CONSTRAINTS	46



7. DEVELOPMENT OUTCOMES, IMPACTS, AND CONSTRAINTS

This chapter reports the outcomes, impacts, and constraints identified by countries in the survey. Part 6 of the survey questionnaire asks countries to score the impact over the last 20 years of integrated approaches to water resources management on the national economic, social, and environmental objectives (Annex 3, Questions 6.1).

A second part requested countries to list the outcomes and impacts achieved as well as the constraints experienced in implementing integrated approaches (Annex 3, Questions 6.2). Impacts and constraints presented below were compiled from these questions as well as from information emerging from the Level 2 interviews. This chapter is presented as follows:

- Country Outcomes and Impacts Attributed to Water Management

- Country Constraints to Progress
- Summary of Impacts and Constraints

7.1 COUNTRY OUTCOMES AND IMPACTS ATTRIBUTED TO WATER MANAGEMENT

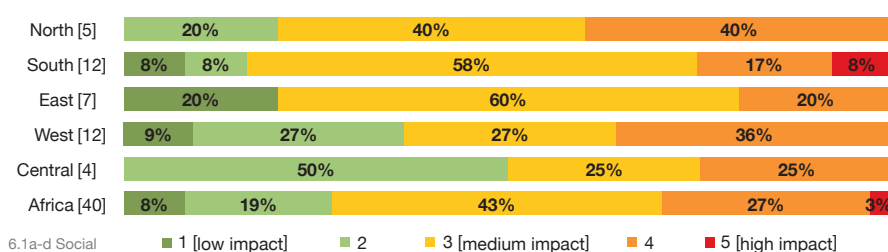
The survey obtained a country perspective on the impact of integrated approaches to water resources management on national social, economic, and environmental objectives over the past 20 years. This was a challenging task for the countries for many reasons not least of which is the difficulty to attribute the contribution of water management to change at such a high level of objectives. It is nevertheless relevant to maintain a broad perspective because the integrated approach to water resources management has often been promoted around the guiding principles of Social Equity, Economic Efficiency, and Environmental Sustainability and tools are needed to measure such outcomes.

Most countries report a medium to low impact on social development and this particularly applied to Central Africa where progress with water resources management has been the lowest (Figure 7.1). Highest impacts were reported from North and West Africa and one country in Southern Africa, Madagascar, reported a very high impact.

Overall, countries gave a higher impact rating of water resources management on economic objectives than either social or environmental objectives (Figures 7.1-7.3). However the divergence among sub-regional assessments of economic impact is quite high (Figure 7.2).

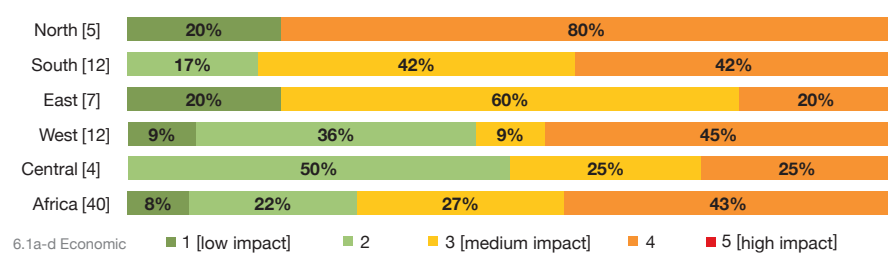
The impact on national environmental objectives attributed to water resources management is interesting particularly with regards to the divergence between

FIGURE 7.1 Impact of improved water resources management on social development objectives in the past 20 years by sub-region.



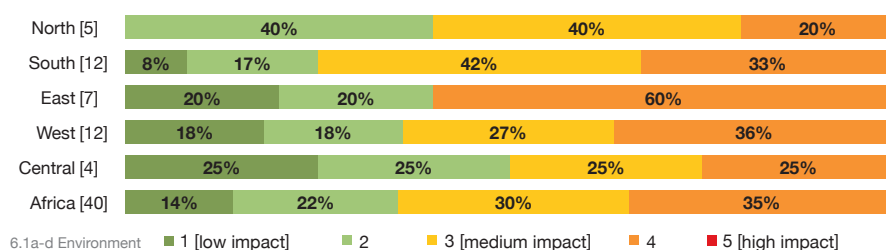
The scale 1-5 is from low to high impact.

FIGURE 7.2 Impact of improved water resources management on economic development objectives in the past 20 years by sub-region.



The scale 1-5 is from low to high impact.

FIGURE 7.3 Impact of improved water resources management on environment development objectives in the past 20 years by sub-region.



6.1a-d Environment 1 [low impact] 2 3 [medium impact] 4 5 [high impact]

The scale 1-5 is from low to high impact.

the sub-regions. North Africa gives the impact on environment a much lower score than the impact on social and economic objectives while East Africa reports the opposite (Figures 7.1-7.3).

Countries were given the opportunity to list outcomes and impacts arising from implementing integrated approaches to the development, management, and use

TABLE 7.1 Outcomes and impacts arising from implementing integrated approaches to the development, management, and use of water resources. Country responses from Level 1 questionnaire (Question 6.2a) and Level 2 interviews.

Outcome/Impacts	Country
A. Related to Enabling Environment	
Incorporation of IWRM in the economic, financial, social, and cultural programmes of the country	Cameroon
The profile of IWRM has risen and understanding of the issues and challenges has also risen	Tanzania
Better awareness among stakeholders	Libya, Namibia, Tanzania
B. Related to Governance and Institutional Frameworks	
Participatory approaches in water management involving all stakeholders such as public, private, NGO, user associations, and municipalities	Benin, Gabon, Gambia, Namibia, Swaziland, Togo, Tanzania
Created user ownership of water projects	Mozambique
C. Related to Applying Management Instruments	
Improved water monitoring and availability of data	Libya, Rwanda
Ensured water allocations for environmental requirement	Mauritius, Nigeria, Tunisia
Efficient allocation of water resources from improved knowledge of the resource	Gambia, Libya
Enabled a judicious use of water resources by the different sectors of the economy	Libya, Mauritius, Namibia, South Africa, Sudan, Mozambique
The development of surface and groundwater resources and their complementary use has resulted in the improved availability of water for domestic use	Botswana, Tunisia
Water saving	Egypt
Reduce rate of childhood mortality due to water-related diseases	Chad
Improved livelihoods of cattle farmers and their cattle	Chad, South Africa
Reducing poverty, enhancing the quality of life, improving social and cultural assets	Ghana
Increase agriculture productivity and improve benefits	Cape Verde, Egypt, South Africa, Zambia, Rwanda
Increased rehabilitation of critically degraded watersheds and fragile ecosystems	Ghana, Rwanda, Swaziland
Reduced conflicts	Ghana, Zambia, Rwanda
Reduction/control of water pollution	Ghana, Uganda, Rwanda
Reduced flood threats and drought	Ghana, Morocco
D. Related to Infrastructure Development and Financing	
Improving water access to communities by building infrastructure	Benin, Egypt, South Africa, Swaziland, Zambia, Namibia, Rwanda, Namibia, Rwanda, South Africa, Uganda
Improved sanitation in rural areas where living conditions have advanced and the prevalence of water-related disease has decreased significantly. Improved sanitation in urban areas	Benin, Cameroon, Cape Verde, Mozambique
Improved power production (Energy)	Sudan, Uganda, Rwanda
E. Related to Financing Water Resources Management and Development	
Increasing economic investments	Mozambique
Improved eco-tourism	Rwanda

of water resources. These reports are compiled in the following table (Table 7.1) where they have been structured to follow the order of this document's main chapters. Countries provided no detailed explanations and it will be valuable to further document outcomes as part of a feedback process to promote attention to water resources management.

7.2 COUNTRY CONSTRAINTS TO PROGRESS IN APPLYING INTEGRATED APPROACHES TO WATER RESOURCES MANAGEMENT

A number of factors constrain progress with water resources management across Africa and it is important that they are both recognised and addressed in the context of on-going strategy and planning frameworks. The constraints identified by countries have been organised, to the extent possible, following the structure of this report (Table 7.2). It is important to note that, as with Table 7.1, Table 7.2 statements emerge from Level 2 and Level 1 of the survey by countries, usually with little explanatory information. They serve to raise awareness about issues that may need to be addressed. Those issues that are common to several countries may benefit from attention at sub-regional or regional level. Further investigation may be necessary to understand underlying causes.

As is normal with problem analysis, constraints often highlight the effect and not the cause. For example, the lack of a water policy or adequate water law is cited under enabling environments when the underlying constraint may be the lack of political will or conflict of vested interests preventing adoption of a new water law (Table 7.2.A). It is relevant to note that

countries with constraints in the enabling environment are mostly those that have yet to make significant progress with integrated approaches. Improved coordination among sectors and overcoming other such obstacles to development of adequate water policies, laws, and plans appear to be key requirements related to the enabling environment (Table 7.2. A).

Under governance and institutional frameworks a large number of countries identify inadequate capacity as a constraint, matching reported results elsewhere in this document (Table 7.2B). Inadequate institutional structure is also identified by several countries and can be a disabling factor. The institutional structure is under reform or awaiting reform in many countries so this constraint may be understandable. The process of institutional change is complex and requires continuous support. Lack of water resources management awareness probably is linked to some of the other constraints such as poor participation of other actors and stakeholders.

Constraints to applying management instruments are surprisingly few, mainly concerning lack of data or inadequate information systems (Table 7.2C). Water pollution is identified by a few countries but it should be seen more as a reason for action than a constraint. Constraints to infrastructure and financing of the water sector are simply the inadequacy of both components: the absence or deteriorating state of existing infrastructure and a shortage of funds (Table 7.2 D, E).

7.3 SUMMARY OF OUTCOMES, IMPACTS, AND CONSTRAINTS

Probably the most important goal behind the Africa Water Vision 2025 and the

declarations driving the AMCOW work plan is the mobilisation of water resources for economic and social development in Africa. Figures 7.1-7.3 show that many respondents feel water management does contribute to the advancement of economic and social development but this is probably one of the most subjective areas of the survey. Tools need to be developed to enable better measurement of the contribution of water to development and this is essential if water resources management is to receive the priority it deserves.

The more detailed and specific outcomes and impacts described by countries are an impressive and useful indicator of the kind of gains that can be, and are being, achieved from improved approaches to water resources management (Table 7.1). But these gains are hard won and still difficult to attribute accurately to water management. More efforts to measure and quantify these impacts can do much to motivate change through political and social commitment.

Constraints are widespread in the developing world yet there are many examples where constraints have been overcome as well as examples of great achievement in the same country or in a neighbouring country. Countries that have been making the most progress in applying integrated approaches still face constraints, but it is clear from analysis in this report that progress in one area facilitates progress in other areas of water management. African experience offers valuable understanding that can be shared on overcoming or by-passing constraints and, through the facilitation power of AMCOW, much can be done to address constraints that hinder water management progress.

TABLE 7.2 Constraints to progress with implementing integrated approaches to the development, management, and use of water resources. Country responses from Level 1 questionnaire and Level 2 interviews.

Constraints	Country
A. Related to Enabling Environment	
Absence of water policy	Congo, Nigeria, Sierra Leone
Inadequate legal framework	Nigeria, Sao Tome and Principe, Sierra Leone
Insufficient regulations to implement the law	Sao Tome and Principe
Inadequate coordination among sectors related to water	Gambia, Sao Tome and Principe, Sierra Leone, Swaziland, Uganda
Unclear understanding of IWRM concept by some of the stakeholders	Benin, Burundi
Absence of a champion to lead the development of IWRM plans	Cameroon
B. Constraints Related to Establishing Governance and Institutional Frameworks	
Low levels of awareness among different stakeholders	Benin, Burundi, Ghana, Egypt, Malawi, Rwanda, South Africa, Sudan, Togo, Uganda, Tanzania
Inadequate institutional structure to implement IWRM Plan	Burundi, Cape Verde Côte d'Ivoire, Gabon, Namibia, Rwanda, Swaziland, Togo, Uganda
Inadequate human capacity for the development and implementation of IWRM	Benin, Burundi, Botswana, Cape Verde, Congo, Gabon, Gambia, Ghana, Guinea, Lesotho, Liberia, Libya, Mozambique, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Sierra Leone, South Africa, Swaziland, Togo, Uganda, Tanzania, Zimbabwe
Involvement of all stakeholders is difficult; it consumes much time and other resources. Inadequate participation.	Cape Verde, Guinea, Ghana, Togo, Uganda
Low response capacity of certain actors, particularly the private sector and civil society.	Congo
Water sector has experienced many changes of ministries	Burundi
Inadequate experience in the management of conflicts related to water	Cape Verde, Sudan, Tanzania
C. Applying Management Instruments	
Poor data/ inadequate availability of water related data and inappropriate water information system	Benin, Botswana, Gambia, Ghana, Morocco, Swaziland, Tanzania, Togo
Environmental considerations not taken into account in water allocation.	Tunisia
Pollution of water sources	Morocco, Rwanda, Sudan
Difficulty to enforce and obtain compliance with the management instruments	Ghana
Inappropriate land use practise such as soil erosion or unplanned rural and urban human settlement	Rwanda
D. Constraints Related to Infrastructure Development and Financing	
Funding for water resource infrastructure	South Africa, Sudan
Inadequate infrastructure	Libya, Zimbabwe
E. Constraints related Financing Water Resources Management and Development	
Difficult to assess donor funds / development partners assistance	Ghana, Liberia
Slowness in mobilization of financing	Burkina Faso, Congo
Inadequate finance to develop IWRM Plans	Burundi, Cameroon, Côte d'Ivoire, Egypt, Ghana, Guinea, Lesotho, Liberia, Libya, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Uganda, Tanzania, Tunisia, Zimbabwe
Failure to collect revenue from local sources	Ghana



8.

PRIORITY WATER ISSUES IN AFRICA

8.1	PRIORITY ISSUES ARISING FROM THE SURVEY	50
8.2	TRANSBOUNDARY WATER MANAGEMENT	51
8.3	CLIMATE CHANGE ADAPTATION	54

8. PRIORITY WATER ISSUES IN AFRICA

This chapter examines the priorities assigned to issues of water use, water resource threats, and water resources management arising from the survey. It then examines the specific issues of transboundary water resources management and climate change to bring together concerns regarding these issues expressed by respondents under various survey headings.

- Priority Issues Arising from the Survey
- Transboundary Water Management
- Climate Change Adaptation

8.1 PRIORITY ISSUES ARISING FROM THE SURVEY

Information for this sub-section is drawn from responses to Questions 7.1 and 7.3, found in Annex 3.

The highest priority for water use is generally assigned to domestic water supply

and water for growing cities and all major water users – except ecosystems – are rated as high priority by over 60 percent of countries in Africa (Figure 8.1).

Concerns about threats to water resources showed little difference among the issues presented in the questionnaire and all are important depending upon country circumstances with drought the leading issue affecting 79 percent of countries (Figure 8.2). The number of countries identifying water quality as a higher priority than floods and water scarcity is a particularly interesting result.

Countries were asked to assign priority to a range of water management issues and these are presented combining responses from all countries (Figure 8.3). Infrastructure development and financing is a high or highest priority for 92 percent of countries and is the most important issue for the continent. This matches the emphasis countries have given to implementation

FIGURE 8.1 Priorities assigned by African countries to various water use categories.

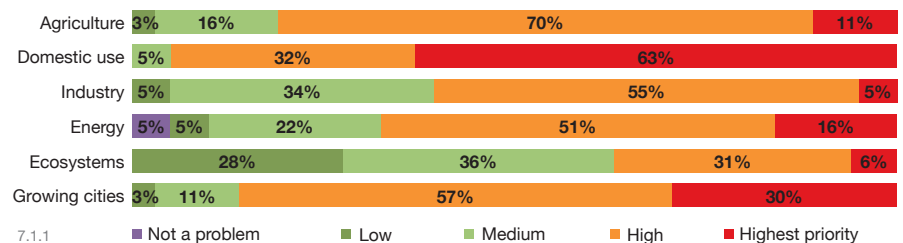


FIGURE 8.2 Priorities assigned by African countries to various water resources threats.

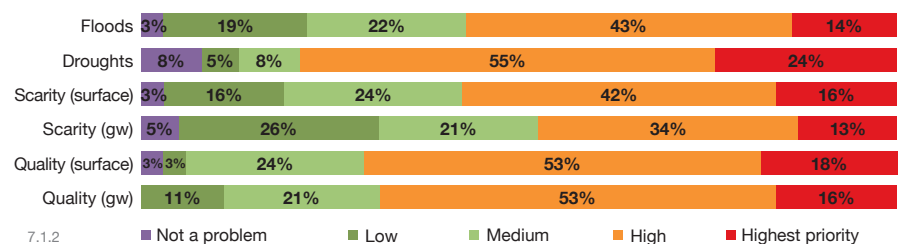
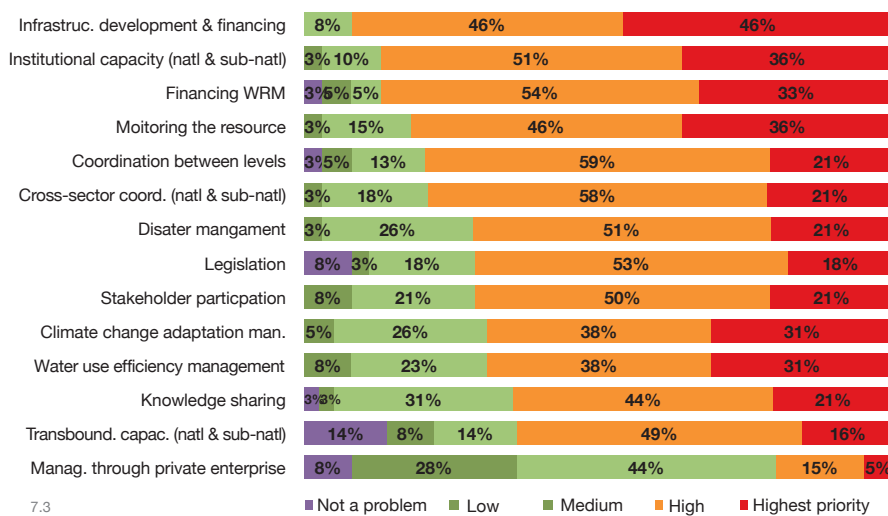


FIGURE 8.3 Priorities assigned by African countries to various water resources management issues.



of investment plans (Chapter 5). Financing water resources management was assigned a high or highest priority rating by 87 percent of countries and must be seen as a key challenge area as the revenues for water resources management remain an area of uncertainty for most countries (Section 6.2).

Other high-ranking priorities were institutional capacity and coordination among sectors and management levels, although most proposed issues ranked highly, with the exception of private enterprise management (Figure 8.3).

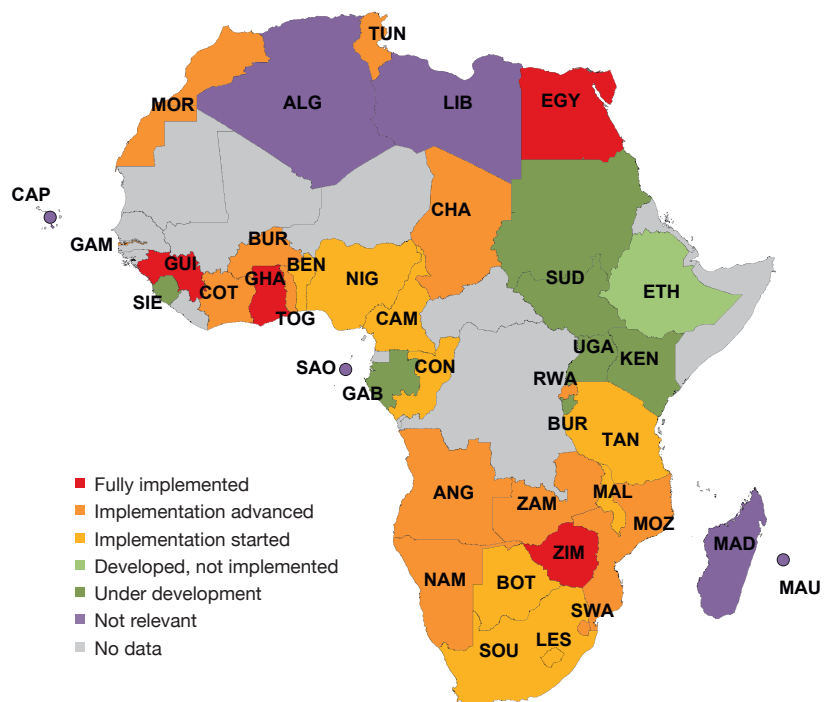
8.2 TRANSBOUNDARY WATER MANAGEMENT

Information for this sub-section is drawn from responses to Questions 1.3b, 2.1e, 3.2i, 3.4d, and 7.3.1c in Annex 3.

Transboundary water management is of significant importance to the continent. The Africa Water Vision 2025 emphasises the importance of transboundary waters with almost all sub-Saharan countries

sharing at least one international basin. Managing transboundary water is one of 7 themes of the AMCOW work plan.

FIGURE 8.4 Status of transboundary water agreements for specific basins by country. (Question 1.3b)



This report reflects similar concern. The influences of transboundary water resources management can be observed in responses to almost all question topics: therefore, establishing an enabling environment for managing these resources is critical. Most African participating countries report shared water resources and increased competition between upstream and downstream interests. Not surprisingly, the number of countries engaged in transboundary water agreements for specific basins is high, at 77 percent of those responding to the survey (Figure 8.4). Over 50 percent are at an advanced stage of implementation of these transboundary agreements.

All sub-regions show that institutional arrangements for managing transboundary water is of high importance with 68 percent of countries having these mechanisms

under implementation, although many are at an early stage (Figure 8.5).

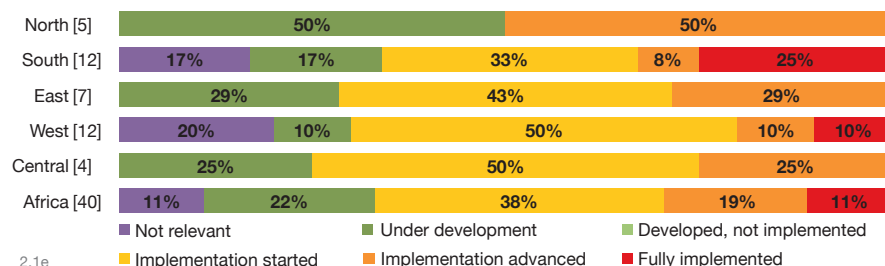
The establishment of water resources management instruments is also required for transboundary situations (Chapter 4). Often systems differ between or among cooperating countries requiring specific management arrangements. 58 percent of responding countries reported implementation of cooperative programmes to manage transboundary water although only 2 countries, Zimbabwe and Ghana, reported that full implementation of the programmes had been achieved (Figure 8.6).

Countries were asked about mechanisms to exchange information between countries (Figure 8.7). North and Southern Africa sub-regions reported that 80 percent or more countries had mechanisms under implementation for information exchange between countries while in East Africa only Rwanda reported that information exchange mechanisms were under implementation. No information was collected from the survey on the financing of transboundary management.

Capacity to engage at the transboundary level was raised as a priority in the survey, especially in Southern and East Africa where most countries rated the priority as high or highest (Figure 8.8).

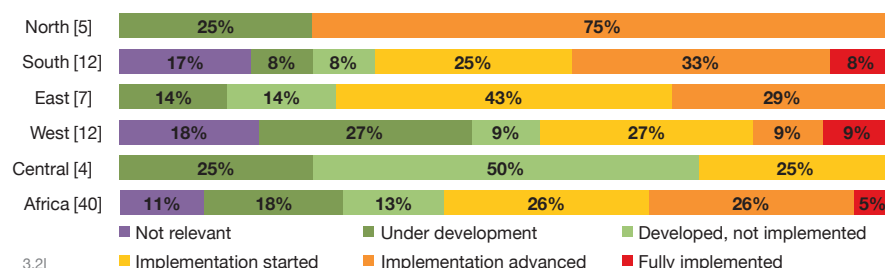
To summarize, transboundary water management is very important in Africa, affecting most countries. Transboundary agreements are in place involving 30 reporting countries and are under implementation at various levels. In many cases institutional mechanisms have been set up for the governance of these transboundary systems but most are at an early stage of implementation. In addition, institutional capacity constraints at transboundary level were identified as a key challenge.

FIGURE 8.5 Countries with institutional arrangements for management of transboundary water summarised by sub-region.



Number of countries responding in each sub-region shown to the left of each bar.

FIGURE 8.6 Status of cooperative programmes to manage transboundary water resources summarised by sub-region.



Number of countries responding in each sub-region shown to the left of each bar.

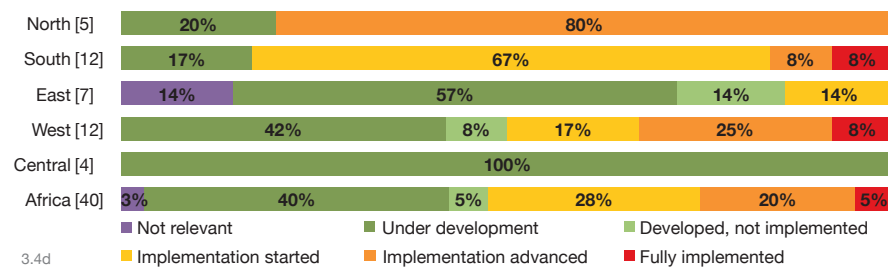
BOX 19. IMPLEMENTING TRANSBOUNDARY AGREEMENTS

South Africa reports progress with regional integration through transboundary agreements. But critical challenges in the implementation of these agreements include limited human resources to oversee the implementation. For example Mozambique has four technical/legal staff to closely monitor the implementation of all transboundary activities in nine transboundary systems.

Another challenge is the fact that transboundary basin initiatives rely heavily on donor-funded projects and programs and this leads to an unsustainable condition once those projects/programs close, as reported by Mozambique. For those basins with operational institutions, not all members contribute their share in time thus causing operational problems within the institutions established to implement the agreements, as reported by Tanzania.

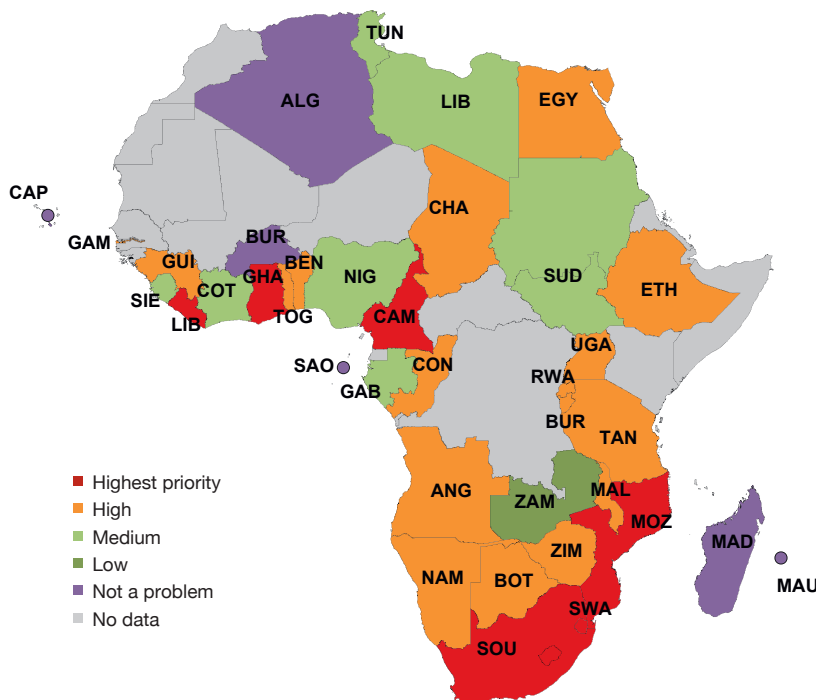
Source: Level 2 survey

FIGURE 8.7 Mechanisms for exchanging information between countries.



Number of countries responding is shown to the left of each bar.

FIGURE 8.8 Priority assigned to the challenge of transboundary capacity at international level. (Question 7.3.1c)



The progress on development of governance and institutional frameworks for national level water resources management will almost certainly influence progress with transboundary institutions (Chapter 3). The development of institutional capacity is identified as a priority at both levels and capacity development actions will assist the further implementation of both.

No information was collected on financing transboundary water resources management although the dependence on development partners was raised in the Level 2 interviews (Box 19). Given the problems with financing water resources management at national level (see Chapter 6), sustainable financing at the transboundary level is also likely to be a problem.

8.3 CLIMATE CHANGE ADAPTATION

Concerns over climate change impacts on water resources and water-related disasters have emerged and grown in significance since Agenda 21 was published in 1992. The AMCOW work plan has one theme on climate variability and change that focuses on action through:

- Integrating climate change into policy, strategy, and development planning
- Information on climate science, risk, and adaptation
- Capacity building and awareness
- Disaster response and preparedness
- Infrastructure

Africa is already widely affected by periodic floods and drought and of the region is expected to be most vulnerable to climate change. The survey brought out several

aspects of climate change in the African water context as summarised below.

As discussed in Chapter 2, climate change adaptation strategies and policies are at the development stage in 45 percent of countries and under implementation in 39 percent (Figure 2.8). Southern Africa and West Africa are the sub-regions most advanced in national planning for climate change. However in terms of priority issues, 69 percent of countries rated climate change adaptation a high or highest priority water management issue (Figure 8.3).

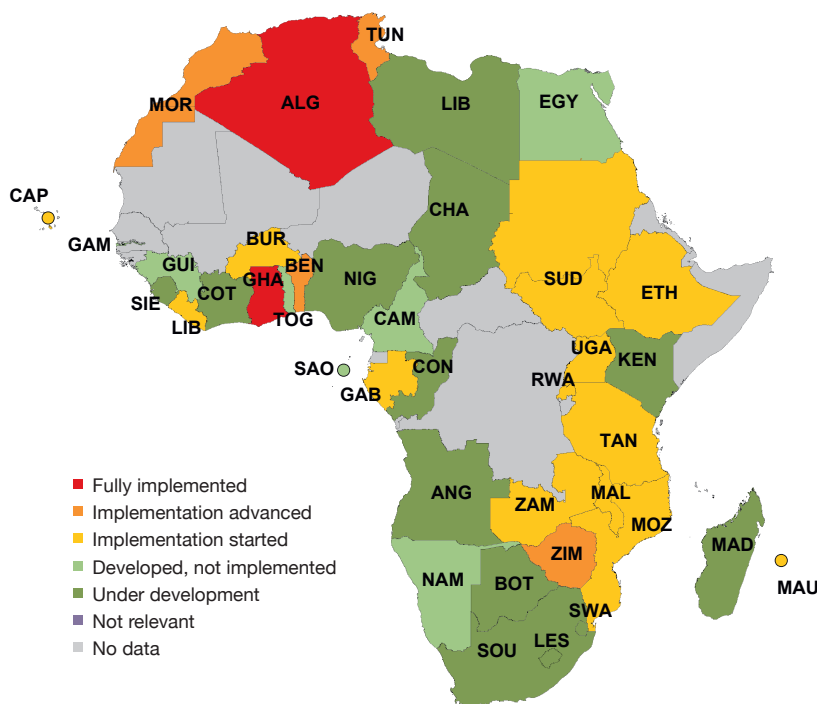
Water management programmes on climate change reportedly are implemented in the water sector in 50 percent of countries, possibly in the absence of any national plan (Figure 8.9). It is clear that the immediate problems of flood and drought risk are already a high

priority since 65 percent of countries have management programmes under implementation (Chapter 4, Figure 4.6). Whether the risk is currently enhanced by climate change, or will be increased by future climate change, is not known.

Early warning systems for floods and droughts are an important initiative relevant to climate change adaptation and could provide the basis for experience transfer should they become necessary in additional countries (Chapter 4, Figure 4.5).

Regarding infrastructure for climate change adaptation, the survey indicates that reasonable progress is being made, providing a good basis for further action. In Chapter 5, Figure 5.3 shows infrastructures for groundwater and flood management are considered highly important actions that to ameliorate the risk of drought or flood events. A well-functioning water resources management system is considered a precondition for effective response to climate effects on the water environment. Continued support to the development of water resources management, based on the integrated approach, is therefore a valuable adaptation response.

FIGURE 8.9 Country progress with programmes to address climate change adaptation through water resources management. (Question 3.2k)



BOX 20. PROGRAMS TO ADDRESS WATER-RELATED DISASTERS

After catastrophic floods in 2000, Mozambique's national government established a strategy for water-related disaster prevention and preparedness. Management instruments that were developed and introduced include: establishing telemetric monitoring systems in the Umbeluzi, Maputo, and Limpopo River basins; establishing a real time hydro-climatologic stations network, under the HYCOS framework; developing a comprehensive pilot forecasting and early warning system for flood events in Buzi basin, by the National Unit for Disaster Management (INGC); developing system operating rules for dams on the Maputo and Incomati Rivers, under the PRIMA Program; developing a national disaster management strategy, including protocols for flood and drought events also under the PRIMA Program; developing resettlement plans for flood-risk areas by INGC; developing a land use zoning to guide new settlements out of flood-risk areas by Ministry of Environment; promoting rainwater harvesting in dry areas, as adaptation measures to climate changes; and developing a drought and flood strategy for the Pungwe Basin.

On an institutional level, the most significant actions taken to cope with water-related disasters was the creation of the National Operative Centre for Emergency (CENOE) chaired by INGC, that works 24 hours a day monitoring nation-wide occurrences of floods, droughts, and other disasters. This Centre is tasked to coordinate efforts and actions from different institutions working on disaster prevention, mitigation, and relief. Additionally, CENOE has decentralized its decision-making and operations to district level, strengthening local capacity to deal with flood events. This has led to dramatic reduction of human and economic losses caused by floods, facilitated by close engagement of upstream countries in data and information exchange, availability of decision support tools, appropriate coordination mechanisms, and participation of basin communities.

In West Africa, Benin is implementing disaster risk management through the National Adaptation Programme of Climate Change. It has approved the establishment of the first system of flood forecasting and management for the watershed of Mono River.

Source: Level 2 survey



9.

OVERALL PROGRESS ON APPLYING INTEGRATED APPROACHES TO WATER RESOURCES MANAGEMENT

9.1	PROGRESS ON APPLYING INTEGRATED APPROACHES	58
9.2	SUMMARY OF PROPOSED ACTION AREAS	60
9.3	KEY FINDINGS AND RECOMMENDATIONS	61



9. OVERALL PROGRESS ON APPLYING INTEGRATED APPROACHES TO WATER RESOURCES MANAGEMENT

This chapter takes a broad perspective on the results of the survey of progress on applying integrated approaches to water resources management in Africa. It then proceeds to identify strategic actions, relevant to the findings of the survey, which may take place at regional, sub-regional, or national levels. The actions are intended to reinforce existing successes or to address areas where there are constraints or slow progress towards improved water resources management. The chapter ends with some key findings and recommendations drawn from the whole report.

9.1 PROGRESS ON APPLYING INTEGRATED APPROACHES

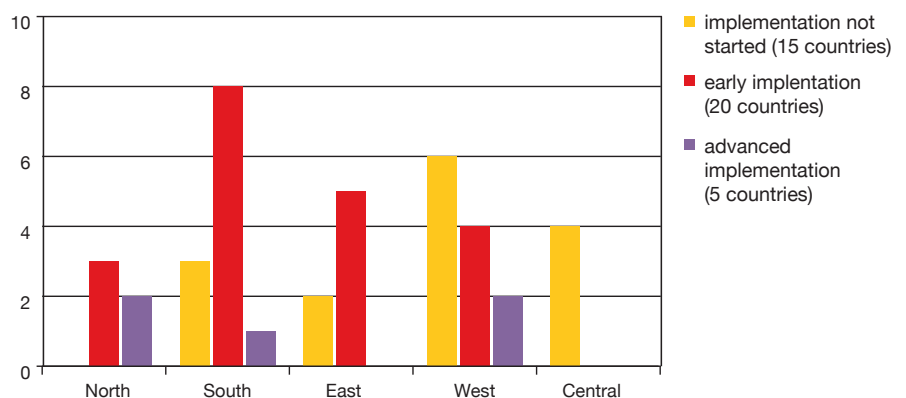
The Africa Water Vision 2025, in response to Agenda 21, calls for the application of integrated approaches to the development, management, and use of water resources in Africa. This survey has focused on measuring progress these approaches from the perspective of practical actions leading to implementation on the ground, Questions 1-4, and also from the context perspective of challenges, constraints, funding support, Questions

5-7. Country responses to Questions 1-4 have been summarised to provide an overview of country and sub-regional progress (Figure 9.1).

Only in North Africa are all countries under implementation (Figure 9.1). Southern and West Africa have countries in all three categories thus presenting each other with good learning opportunities. East Africa is making good progress in many countries but none have placed themselves in the advanced implementation category. Central Africa, with abundant water resources, needs more encouragement to recognise the long term importance of addressing water resources management.

The results reported from the survey are encouraging: about half of the countries are reporting good progress along the path towards the Africa Water Vision 2025. Across the continent there are examples of advanced implementation reported in each of the key areas of water resources management, building a solid base of experience and knowledge. However, most of the implementation reported is at the early stages. This can mean many things including that it may not be extended across the whole country, or all provisions may not be implemented, or all

FIGURE 9.1 Summary of country progress with water resources management by sub-regions. (Data from Annex 2. Average score per country across all questions groups in Annex 2).



1.1c (all countries)

the conditions for successful implementation may not be in place. The ranges of progress demonstrate that adoption of the integrated approach to water resources management is a long-term commitment. A key outcome from this survey should be to use the experiences, lessons, and knowledge already gained to facilitate progress by others.

There have been widespread changes to the enabling environment for water resources management with 67 percent implementing revised water policies, 75 percent of countries implementing revised water laws, and 44 percent reporting implementation of IWRM plans (Chapter 2). There are indications that some countries may stall and find progress difficult or very slow. These observations show that while progress on the enabling environment is impressive there is a need for action to support those countries being left behind or those that are facing political or capacity obstacles to further progress.

As part of the governance and institutional actions countries reported adoption and implementation of the basin approach for water resources management in 60 percent of countries and mechanisms for transboundary water resources management in 53 percent of countries (Chapter 3). The priority of achieving adequate institutional capacity at basin, national, and transboundary level; the challenge of sectoral integration; and the lack of stakeholder awareness about IWRM are all concerns pointing to the need for intervention, no matter how inadequate institutional arrangements may be. Benefits will come from a coordinated response to these problems with capacity building, awareness creation, and peer to peer cooperation at the institutional level. Basin development planning, a key component of the basin level approach, is one instrument that can serve to bring

sector and other stakeholder interests to the table, can provide an entry point for next steps in water resources management programmes, and can focus attention on water development. This is one strategy to contribute to the necessary scaling up of infrastructure development in an integrated manner.

The application of water resources management programmes to understand and quantify the resource, as well as managing its use and quality, have reached varying levels of implementation in countries. Most countries have monitoring systems in place for various aspects of resource state and trends, although the quality of these monitoring systems is not assessed in the survey. Few countries report systems in place to control and regulate how that water is being used, shared, or contaminated. These controls are essential if water resources are to be managed for national and basin objectives of development and growth. There is scope and opportunity for a coordinated approach to development of these programmes to bring water resources management from a concept into full practice.

The progress reported with implementation of infrastructure and financing plans is not mirrored by progress with financing of water resources management. While countries identified financing of water resources management as a high priority, payment schemes for water resources were reported in only 37 percent of countries. Sustainable financing of transboundary water resources management was also a high priority but no information was collected from the survey on how this may be addressed. The lack of accessible data on financing for many countries is a troublesome issue, enhancing visibility of financial arrangements and accountability can be a major mechanism to raise awareness and to secure further funding.

Probably the most important objective behind the Africa Water Vision 2025 and the drivers of the AMCOW work plan is the need for economic and social development in Africa and the extent that water can contribute to this. Very detailed and specific outcomes have been described by countries that provide impressive and useful indicators of the benefits already available through improved approaches to water resources management. More efforts to measure and quantify these outcomes can do much to motivate change through political and social commitment.

One outcome of the survey has been to demonstrate that there is a positive relationship between the development of the enabling environment for the integrated approach to water resources management and progress with other key outcomes—governance and institutions, management instruments, and infrastructure and financing. While no analysis is attempted to prove these relationships to be causal, there is a logical expectation for soothed assumption. The positive relationship on its own is an encouragement to continue the strategy that has been adopted from Agenda 21 and Africa Water Vision 2025.

The survey has been successful in motivating responses from most African countries and meeting in part AMCOW objectives to improve monitoring of water resources in Africa. The survey can be further developed into an appropriate tool for monitoring the state of water resources management in Africa by the use of more verifiable and standardised indicators that measure change over time. Such an instrument may also be a tool to build cooperation at the transboundary level.

9.2 SUMMARY OF PROPOSED ACTION AREAS

The findings of the survey encourage further observations on sub-regions and countries where there may be challenges in taking the IWRM approach forward and those that may have been neglected. The survey has also highlighted which countries have been able to make progress on specific aspects of the integrated approach and could be useful mentors for other countries. Chapters 2-6 have each concluded by identifying a few priorities to be addressed and some suggested actions. It is not within the scope of this report to take description of these suggested action issues to any depth, mainly because the survey does not provide a sufficiently detailed understanding of the problems and their context.

The priorities for action are sourced from the chapters and summarised below. More detail on actions and the survey results that triggered them can be found by referring back to the relevant chapter. Many of these priority issues for action could be taken up by AMCOW or sub-regional bodies because they represent common challenges across the continent that may benefit from a harmonised approach and the leverage that AMCOW can bring to bear. However individual countries may also take advantage of the survey data-base to identify and collaborate with neighbours on specific issues.

Peer to peer exchange, whether within or between sub-regions, is proposed as an important mechanism to assist countries to move forward. Annex 2 provides a general summary of country responses and can allow identification of countries that have made good progress in an area of water resources management. Further information can then be gained from investigating the full data-base, available

on request from AMCOW, or contacting the country.

A summary of the priority action areas is given below:

At enabling environment level:

- Address barriers to legal and policy reform and target stalled countries
- Enhance political will for water reforms
- Promote integration of water management across sectors
- Establish the survey as a monitoring instrument for Africa

At governance and institutional frameworks level:

- Support and promote the establishment of effective governance and institutional frameworks through capacity development and peer to peer sharing of experience
- Enhance mechanisms for stakeholder engagement at the level of river basin organisations

At management instruments level:

- Develop and implement water allocation systems at country and basin levels
- Promote forecasting and early warning systems and IWRM to contribute to climate change adaptation
- Develop a good practice guide, for African conditions, on sharing water knowledge with stakeholders.

For developing water infrastructure:

- Where the river basin management approach has been adopted, promote a multi-stakeholder approach to the preparation of basin plans
- Enhance fund-raising at all levels – AMCOW, sub-regional entities, countries – for water infrastructure

- Develop and implement, or enhance, human and institutional capacity programmes at country level for more effective use of funds and for management of infrastructure to allow scaling up.

For financing water management and development:

- Increase national government financing of water resources
- Build a knowledge base from African countries of water financing based on the implementation of IWRM polluter-pays and user-pays principles
- Explore means to improve the collection, storage, and analysis of financial data for water investment and water resources management
- Promote private sector financing in water development

For monitoring integrated approaches to water resources management:

- Building on the current survey, establish permanent monitoring mechanism to assess the implementation and impact of integrated approaches to water resources development, management, financing, and use.
- Establish a suite of indicators that make the reporting more objective

9.3 KEY FINDINGS AND RECOMMENDATIONS

The recommendations bring together findings from the survey and actions that may facilitate further progress with the integrated approach. The actions are not specifically targeted but are relevant to the responsibilities of key regional, sub-regional, and national bodies.

Key messages and recommendations

1. **76 percent of reporting African countries are implementing national water laws and 44 percent are implementing national plans based on the application of integrated approaches as stated in Agenda 21 and described in the Africa Water Vision 2025.**

With due recognition of the unique challenges in each sub-region, targeted action is required to support the promulgation of the relevant political commitments at continental level in those countries still facing challenges in this regard. A key element of these action programmes could be country-to-country experiential learning.

2. **Countries with improved enabling environment for water resources management are more likely to have improved governance and institutions as well as to progress faster with infrastructure development and financing.**

More proof is required that the integrated approach is working and influencing development. Evidence should be collected to demonstrate the benefits and impacts of improved water resources management and good examples used to obtain commitment to action. One approach is to strengthen the regular reporting process and to improve the quality

and consistency of indicators used at national to regional levels.

3. **Some countries reported good progress in financing for water resources infrastructure. Generally though, financing of water resources management is poorly addressed and not well appreciated.**

It is necessary to document and disseminate, for possible adaptation and adoption, the various innovative approaches to financing of water resources management that have worked in different countries in Africa. Good experiences should be documented and shared to show the economic benefits accrued from better water resources management and more efficient use. Also, an improved monitoring framework can lead to better data collection and to visibility of the issues. Scaling up infrastructure development and building sectoral cooperation can emerge from a programme of support to development of basin plans at national and transboundary levels.

4. **Countries reported a diverse range of positive impacts from water resources management and some countries indicated significant impacts on national social and economic objectives.**

One of the most important issues to be addressed is the documentation of economic and social development contributions from water resources. This is essential to prioritize water allocation decisions and to justify government budgets, as well as to gain political commitment.

5. **Progress with development and implementation of transboundary agreements is one of the most advanced elements of water resources management involving 77 percent of reporting African countries.**

Programmes are necessary to address the capacity requirements of governance structures for transboundary water. In particular this relates to the ability of national organisations to contribute at transboundary level. To move beyond conflict resolution to more complex issues of water resources management it is desirable that all basin countries achieve comparable levels of progress with IWRM.

6. **Progress with instituting water resources management instruments has lagged behind compared to the implementation of other elements of IWRM. Progress has been observed primarily in those countries with improved enabling environment and institutions.**

In most sub-regions particular countries stand out with good experiences to share. Regional cooperation programmes designed to share experiences and lessons learned can assist country development and adoption of appropriate water management instruments and tools.

7. Floods, droughts, and water pollution are the greatest threats to water resources in Africa. The responses also indicate a great deal of effort invested in measures to overcome these challenges as well as other climate-related issues at national and subnational levels.

Peer to peer learning should be developed to build upon the very good examples of climate change adaptation actions in most sub-regions, including water-related disaster preparedness and risk management programmes. These actions are specific to climatic or geographic circumstances and so peer to peer learning needs to be customized accordingly.

8. Concerns over institutional capacity constraints feature prominently in the survey results along with little evidence of responsive capacity development programmes in place.

There is a need for well-designed capacity development programmes to support institutional development and reform, especially for the management of transboundary water systems, as well as local river basin organisations and national apex bodies. These capacity building programmes should also address inter-sectoral coordination that appears to be very weak in most countries and that has proven to be a challenge to achieve

9. The high level of country response and the clear value of information for measuring progress and planning future action emphasize the need for a more rigorous, evidence-based, system for reporting progress on water resources development and management in Africa.

As part of AMCOW's reporting responsibilities, the outcomes of the

survey should be utilised as a first step towards development of a permanent reporting mechanism on the status of water resources management to serve as a basis for informed decision making within AMCOW. To build greater conformity between national data sets, it is imperative that the system is relevant at national, sub-regional, and continental levels.

Annex 1

Statement of African Ministerial Conference on Water (AMCOW) at the World Summit on Sustainable Development in Johannesburg, South Africa, August 2002

“Water is Life – Without water there can be no future”

We, the Ministers responsible for water in African countries, meeting in Abuja, Nigeria on 29-30 April 2002 on the occasion of the inauguration of the African Ministerial Conference on Water – AMCOW, having adopted the Abuja Declaration;

NOTING:

The continuing process of improving the management and care for water resources through a series of international events including:

Governmental processes

- The adoption of the Rio Principles in 1992;
- The adoption, by the African Heads of State and Government of the New Partnership for Africa’s Development (NEPAD) in 2001;
- The statement by the Ministers responsible for Water Resources from African Countries attending the International Conference on Freshwater (Bonn, December 2001);
- The priorities for the development of the African Continent held by the African Union, 2001.

Broad stakeholder processes (not all the contents of which are accepted by all African countries)

- The adoption of the Dublin Principles in 1992;
- The adoption of the Africa Water Vision for 2025 during the Second World Water Forum held in the Hague, Netherlands in 2000;
- The Accra Declaration of the Regional Stakeholders’ Conference for Priority Setting, “Water and Sustainable Development in Africa”, April 2002;

EXPRESS CONCERN THAT:

- Although water is abundant in Africa on a regional scale, it is unevenly distributed by nature. While a few African countries have high annual averages of rainfall, many already or soon will face water-stress or scarcity conditions where the population cannot be sustained with available water resources.

- Over 400 million people are expected to be living in at least 17 water-scarce African countries by the year 2010. Their lack of adequate water will severely constrain food production, ecosystem protection and socio-economic development.
- Due to climate variability, the potential impacts of climate change on water resources, recurring droughts leading to chronic water shortages, and floods in many parts of Africa, many African countries and people are becoming increasingly vulnerable to water related crises.
- Over 300 million people in Africa still do not have reasonable access to safe drinking water. An even greater number of people lack adequate sanitation.
- Almost half the people of the African continent suffer from water-related diseases.
- Aquatic species, habitats and ecosystems are at risk. With increasing water demand throughout Africa to provide for greater food demands, industrial expansion, rural and urban growth, less water is available for maintaining aquatic ecosystems.
- More than 50 major watersheds, river basins and lakes in Africa, are shared by two or more countries. Most of them are without any agreements on equitable use and/or environmental protection. Few have effective institutional arrangements for consultation and cooperation. Procedures for avoiding or resolving international disputes over water are largely lacking.

RECOGNISE THAT:

- **Integrated Water Resources Management is a priority**
The integrated management, utilization, development and protection of water resources, which recognizes social, economic and environmental needs, is a national and regional priority for all the member countries of the African Ministerial Conference on Water.
- **Water, food security, environment and access to international markets are inter-related**
Efficient and sustainable use of limited water resources, effective application of science and technology, and regional investment in irrigated agriculture and aquaculture should focus as much on economic development and income generation as on food security. Partnerships should be built and the regional and international trade situation examined to remove trade barriers restricting the trade of African produce and to create a fair exchange of agricultural produce.

– **Many countries and peoples in Africa are vulnerable to climate variability and change**

With per capita water storage in Africa 100 times lower than in Europe and North America and with higher climate variability, Africa, particularly its poor, is especially vulnerable to water-related disasters such as droughts, floods and desertification.

– **Most of Africa's water resources (watersheds, river basins, lakes and aquifers) are shared between two or more countries**

National and international shared water resources are instruments for regional cooperation, development and integration. The lack of cooperative arrangements in these basins and the institutional and financial weaknesses of the existing ones undermine the potential benefits to the continent.

– **Inadequate water supply and sanitation continue to contribute to poverty and ill health**

Specific action programs are required to address the huge challenge of ensuring that the proportion of Africans without access to safe drinking water and sanitation is reduced by 75 percent by 2015 and by 95 percent by 2025, including actions to promote improved hygiene.

– **Water infrastructure requires adequate financing**

There is a need for an annual investment level of US\$20 billion for the development of water infrastructure, as articulated in the Africa Water Vision for 2025. Initial investment of US\$10 billion per year is required to meet urgent water

needs – [US\$6 billion to meet basic water supply and sanitation targets, US\$2 billion to promote irrigated agriculture and US\$2 billion to support institutional development, capacity building, research, education and information management.]

Therefore, in the spirit of international cooperation and in accordance with the principle of common but differentiated responsibilities,

RESOLVE:

to accord the highest priority to address the issues noted above and, to this end

- 1) Promote action which will translate into reality the goals of AMCOW;
- 2) Develop a regional programme of action on water to provide a framework for concrete actions in addressing key water-related concerns;

CALL UPON:

the developed countries to exert their best efforts to meet the agreed United Nations target for official development assistance of 0.7 percent of Gross Domestic Product (GDP) to developing countries.

The African Ministers responsible for Water

Annex 2. Data Summary:

Reported progress by main groups of questions relevant to the stated topic area. The purpose of this is a) a means to develop an overview of progress with water resources management and b) to enable identification of countries reporting good levels of progress in a specific area so that the table can be used to organise focused peer to peer exchange of experience.

Data categories: 1: Average of the questions answered = Under development or developed but not yet implemented

2: Average of the questions answered = Early implementation

3: Average of the questions answered = Advanced implementation or fully implemented

Africa Sub-Regions	Countries	Question groups												
		Policies, laws, plans. 1.1	Other national plans 1.2	International agreements 1.3	Institutional frameworks 2.1	Stakeholders 2.2	Capacity building 2.3	Water Res. Development 3.1	WR management progs. 3.2	Monitoring and info 3.3	Knowledge sharing 3.4	Financing WRM 3.5	Infrastructure dev. 4.1	Infrastructure finance 4.2
North	Algeria	3	2	3	3	3	2	3	2	2	1	3	3	2
	Egypt	3	1	3	2	1	2	2	2	3	2	2	2	3
	Libya	3	2	3	3	2	3	2	2	2	3	1	3	3
	Mauritania													
	Morocco	3	3	3	3	3	3	3	3	3	3	3	3	3
	Tunisia	3	3	3	3	1	3	3	3	3	2	2	3	3
South	Angola	2	2	3	1	1	1	1	1	2	2	1	2	2
	Botswana	1	2	3	2	1	2	1	1	2	1	1	1	2
	Lesotho	1	1	3	3	1	2	1	2	2	2	2	2	2
	Madagascar	1	1		1	2	1	1	1	2	1	2	2	2
	Malawi	3	2	2	1	1	2	2	1	2	2	1	1	2
	Mauritius	1	1		2	2	1	3	2	2	2	1	2	1
	Mozambique	2	2	3	2	2	2	1	1	1	1	2	2	2
	Namibia	1	1	3	1	1	1	1	1	2	1	1	2	2
	Seychelles													
	South Africa	3	1	2	3	3	2	3	2	3	2	2	3	3
	Swaziland	1	1	3	1	1	1	2	1	1	1	1	1	1
	Zambia	1	2	3	1	1	1	2	2	2	2	1	2	2
	Zimbabwe	2	1	3	3	3	2	3	3	3	3	3	3	2
	East	Burundi	1	1	1	1	1	1	2	1	3	1	1	1
Comoros														
Djibouti														
Eritrea														
Ethiopia		3	3	1	2	3	2	2	2	2	1	1	2	2
Kenya		3	2	1	1	1	1	1	1	2	1	2	2	2
Rwanda		1	2	3	1	1	1	1	1	1	2	1	2	2
Somalia														
Sudan		2	2	2	1	3	2	1	2	3	1	1	2	2
Uganda		2	2	1	2	2	2	2	2	2	1	1	2	2
Tanzania		1	2	2	3	2	3	3	2	2	1	2	1	2

West	Benin	2	3	2	2	3	3	2	2	1	2		2	2
	Burkina Faso	3	3	3	3	3	3	3	3	3	3	2	3	3
	Cape Verde	3	2	2	2	2	1	3	2	3	1	1	3	2
	Côte d'Ivoire	1	1	3	1	1	1	1	1	1	1	1	1	2
	Gambia	2	1	3	2	3	1	1	1	2	1	1	3	2
	Ghana	2	2	3	3	3	3	3	3	3	3	3	2	3
	Guinea	1	3	3	1	1	1	1	1	1	1	1		
	Guinea-Bissau													
	Liberia	1	1	3	1	2	1		1	1	1	1	1	1
	Mali													
	Niger													
	Nigeria	1	1	2	1	1	1	1	1	1	1	1	1	1
	Sao Tome and Principe	1	1	1	1	1	1	1	1	1	1	1	1	1
	Senegal													
	Sierra Leone	1	1	1	1	1	1	1	1	1	1	1	1	1
Togo	2	1	3	2	2	1	1	2	1	2	1	1	1	
Central	Cameroon	1	1	2	1	1	1	1	1	1	1	1	2	2
	Central African Republic													
	Chad	1	1	3	3	1	1	2	1	2	1	1	1	1
	Congo	1	1	2	1	1			1	1	1	1	1	1
	Democratic Republic of the Congo													
	Equatorial Guinea													
	Gabon	1	1	1	1	2	1	1	1	1	1	1	3	2

Annex 3. Questionnaire to UN Member Countries (Level 1)

On Integrated Approaches in the Development, Management and Use of Water Resources for UNCSD 2012

While it is important that approaches to water resources management are suited to the individual circumstance of a country and a local region, it has been widely recognized that traditionally fragmented or purely sectoral approaches are no longer viable. This is due to the challenges created by increasing and often conflicting demands on water resources that are further complicated by climate change. The best management practices are those based on integrated approaches that try to combine and balance both societal and environmental needs. The purpose of this survey is to generate input to a status report on integrated approaches in the development, management and use of water resources. The report will be used as the basis for informed decision-making by the United Nations Commission on Sustainable Development and national governments, and will include lessons learned and recommendations, as well as focus areas for action. Moreover, the knowledge gained will be used to help develop a process for establishing a regular international monitoring and reporting framework to promote sustainable water resources management.

Should you have any questions regarding the contents of the questionnaire, please contact:

Ms. Josephine Gustafsson

E-mail: UNWRio2012@siwi.org

Phone: +46 (0)8 522 139 60

Fax: +46 (0)8 522 139 61

Skype: siwi.josephine.gustafsson

Please send your completed questionnaire no later than April 18th 2011 to (in order of preference):

1) Online through

<http://www.surveymonkey.com/s/UNWaterReport2012>

Or, if not possible,

2) Send the filled out questionnaire in word-format by email to UNWRio2012@siwi.org

Or, as a last option if the above are not possible,

3) Send the filled out questionnaire to:

Ms. Josephine Gustafsson

Stockholm International Water Institute

Drottninggatan 33

SE – 111 51 Stockholm

SWEDEN

Fax: +46(0)8 522 139 61

Please complete

Country	
Date	

1. POLICY, STRATEGIC PLANNING AND LEGAL FRAMEWORK

Please indicate the current status of key policy making, strategic planning and legal frameworks for the development, management and use of water resources in your country, by checking one of the six columns for each line.

1.1 Enabling environment for the development, management and use of water resources		Not relevant	Under development	Developed but implementation not yet started	Implementation started	Implementation advanced	Fully implemented
1.1.1 Main national/federal¹³ instruments for water resources management							
a.	National/federal water resources policy						
b.	Sub-national/provincial/state water resources policy						
c.	National/federal water laws						
d.	Sub-national/provincial/state water law						
e.	National or federal integrated water resources management plan/s or equivalent strategic plan document/s						
f.	Separate national or federal water efficiency plan/s						
g.	Water efficiency in integrated water resources management plan or equivalent						
1.1.2 Other national/federal instruments that may incorporate water resources management							
a.	Integrated national policy/strategy/plan for land and water resources management						
b.	Poverty Reduction Strategy (PRS) with water resources management component						
c.	National Strategy for Sustainable Development						
d.	National Development Plan with water resources management component						
e.	National Environmental Action Plan water resources management component						
f.	National climate change adaptation policy/strategy/plan with water resources management component						
g.	National Agricultural Plan with water resources management component						
h.	National energy policy/strategy/plan with water resources management component						
i.	National desertification policy/strategy/plan with water resources management component						
j.	National wetland policy/strategy/plan with water resources management component						
k.	National biodiversity policy/strategy/plan with water resources management component						
1.1.3 International agreements on water resources management to which your country is party							
a.	Regional/sub-regional water resources management agreements						
b.	Transboundary water resources management agreements for specific river basins						

¹³ Federal states may complete the questions in this section from a state perspective

2. GOVERNANCE AND INSTITUTIONAL FRAMEWORKS

Please indicate the current status of governance and institutional frameworks for the development, management and use of water resources in your country, by checking one of the six columns for each line.

2.1 Governance systems for the development, management and use of water resources		Not relevant	Under development	Developed but implementation not yet started	Implementation started	Implementation advanced	Fully implemented
2.1.1 Institutional Frameworks							
a.	Mechanisms (e.g. commissions, councils) for river basin management						
b.	Mechanisms for management of groundwater						
c.	Mechanisms for management of lakes						
d.	Mechanisms for cross-sector management of water resources						
e.	Mechanisms for transboundary water resources management						
f.	Decentralized structures for water resources management (other than above)						
2.1.2 Stakeholder Participation							
a.	Stakeholders have access to information on national water resources management and development						
b.	Public awareness campaigns on water resources management and development						
c.	Involvement of general public, civil society organizations and non-government organizations in water resources management and development at the national level						
d.	Involvement of the private sector in water resources management and development at the national level						
e.	Involvement of general public, civil society organizations and non-government organizations in water resources management and development at the basin level						
f.	Involvement of the private sector in water resources management and development at the basin level						
g.	Gender mainstreaming in water resources management and development						
2.1.3 Capacity Building							
a.	Assessment of capacity needs in water resources management at national level						
b.	Assessment of capacity needs in water resources management at sub-national level						
c.	Programs for capacity development in water resources management institutions/organizations at national level						
d.	Programs for capacity development in water resources management institutions/organizations at sub-national levels						
e.	Programs for in-service training of staff/professionals in water resources management						
f.	Water resources management in the technical/higher education curriculum						
g.	Research programs in water resources management						

3. MANAGEMENT INSTRUMENTS

Please indicate the current status of management instruments for the development, management and use of water resources in your country, by checking one of the six columns for each line.

3.1 Management instruments for the development, management and use of water resources		Not relevant	Under development	Developed but implementation not yet started	Implementation started	Implementation advanced	Fully implemented
3.1.1 Water Resources Development							
a.	Basin studies for long-term development and management of water resources						
b.	Periodical assessment of water resources						
c.	Regulatory norms and guidelines for sustainable development of water resources						
d.	Programs to value water-related or dependent ecosystem services						
3.1.2 Water Resources Management Programs							
a.	Groundwater management program						
b.	Surface water management program						
c.	Linked ground and surface water management program						
d.	Programs for efficient allocation of water resources among competing uses						
e.	Land/natural resources management programs that include water resources management components						
f.	Programs for allocating water resources that include environmental considerations						
g.	Demand management measures to improve water use efficiency in all sectors						
h.	Program for re-use or recycling of water						
i.	Programs to evaluate environmental impacts of water projects						
j.	Programs to address water-related disasters (e.g. floods and droughts)						
k.	Programs to address climate change adaptation through water resources management						
l.	Cooperative programs managing transboundary water resources						
m.	Programs to reverse environmental/ecosystem degradation						
3.1.3 Monitoring and Information Management							
a.	Government responsibility for hydro-meteorological monitoring adequately addressed in national legislation						
b.	Monitoring of surface water quantity						
c.	Monitoring of ground water quantity						
d.	Monitoring of water quality						
e.	Monitoring of aquatic ecosystems						
f.	Monitoring of water use						
g.	Monitoring of water use efficiency						
h.	Water resources information system						
i.	Forecasting and early warning systems						

3.1 Management instruments for the development, management and use of water resources		Not relevant	Under development	Developed but implementation not yet started	Implementation started	Implementation advanced	Fully implemented
3.1.4 Knowledge Sharing							
a.	Programs for information exchange and knowledge sharing of good practices						
b.	Programs for providing advisory (extension) services on water management issues to end users						
c.	Programs for transferring improved and cost effective water saving technologies						
d.	Mechanisms for exchanging information between countries						
3.1.5 Financing of Water Resources Management							
a.	Cost recovery mechanisms/progressive tariff structures for all water uses						
b.	Subsidies for promoting water efficiency						
c.	Charges for water resource management (e.g. pollution charges)						

4. INFRASTRUCTURE DEVELOPMENT AND FINANCING

Please indicate the current status of infrastructure development and financing for the development, management and use of water resources in your country, by checking one of the six columns for each line.

4.1 Infrastructure development for the development, management and use of water resources		Not relevant	Under development	Developed but implementation not yet started	Implementation started	Implementation advanced	Fully implemented
4.1.1 Investment plans and programs							
a.	Water resources included in national infrastructure investment plans						
b.	Irrigation						
c.	Energy/hydropower						
d.	Groundwater (e.g. boreholes, pumps and treatment)						
e.	Flood management						
f.	Water supply (domestic and industrial)						
g.	Wastewater treatment						
h.	Desalination of seawater						
i.	Rainwater harvesting						
j.	Natural systems (e.g. wetlands, floodplains and catchment restoration)						

4.1 Infrastructure development for the development, management and use of water resources		Not relevant	Under development	Developed but implementation not yet started	Implementation started	Implementation advanced	Fully implemented
4.1.2 Mobilizing financing for water resources infrastructure							
a.	Financing for water resources included in national investment plans						
b.	Financing for irrigation						
c.	Financing for energy/hydropower						
d.	Financing for groundwater (e.g. boreholes, pumps and treatment)						
e.	Financing for flood management						
f.	Financing for water supply (domestic and industrial)						
g.	Financing for wastewater treatment						
h.	Financing for desalination of seawater						
i.	Financing for rainwater harvesting						
j.	Financing for natural systems (e.g. wetlands, floodplains and catchment restoration)						

5. SOURCES OF FINANCING FOR THE DEVELOPMENT OF WATER RESOURCES

Please indicate sources of financing as well as financing trends over the last 20 years for the development of water resources in your country, by checking one or more appropriate columns for each line.

5.1 Sources of financing for the <u>development</u> of water resources		Data not available or not recorded	No funding allocations made	Declining trend over last 20 years	Increasing trend over last 20 years	Highly variable and no clear trends
a.	Government budget allocation (as % of GDP) for water resources development					
b.	Grants and loans from aid agencies for water resources development					
c.	Investments from International Financing Institutions (e.g. World Bank) for water resources development					
d.	Investments from private sources (e.g. banks and private operators, non-profit) for water resources development					
e.	Revenues (e.g. from water use charges/tariffs) used for water resources development					
f.	Payments for ecosystem services and related benefit/cost transfer schemes					

6. OUTCOMES AND IMPACTS

Please indicate to what extent improved water resources management has impacted economic, social, environmental and overall national objectives in the past 20 years in your country, by checking the appropriate columns for each line.

6.1 Improved Water Resources Management		Economic development objectives ¹⁴ impact in past 20 years	Social development objectives ¹⁵ impact in past 20 years	Environmental objectives ¹⁶ impact in past 20 years	Overall national development impact in past 20 years
		1-5 Low to high	1-5 Low to high	1-5 Low to high	1-5 Low to high
a.	Improved policy, strategic planning and legal frameworks				
b.	Improved governance and institutional frameworks				
c.	Improved management instruments				
d.	Improved infrastructure development				

6.2 Key outcomes and impacts from water resources management measures

- (a) List the outcomes and key results achieved as a result of implementing integrated approaches to the development, management and use of water resources.

Please provide text.

- (b) Briefly list the constraints or obstacles that your country has experienced in implementing integrated approaches to water resources management.

Please provide text.

¹⁴ **Economic development objectives** relating to economic growth, wealth, management of monetary assets, and economic sector development.

¹⁵ **Social development objectives** relating to human development, gender considerations, such as poverty alleviation, health, education, and job creation.

¹⁶ **Environmental objectives** relating to the conservation and sustainable use of natural resources, such as water, pollution control, nature, agricultural land, forest, and fisheries.

7. PRIORITY CHALLENGES

What are the priority water resources challenge areas in your country and how have they changed? Please indicate the level of importance of priority issues by checking one of the five columns for each challenge, and then indicating to what extent the challenge has changed in the past 20 years. Please add lines if necessary.

7.1 Priority water resources challenge areas	Current challenge level				
	Not a Problem	Low Priority	Medium Priority	High Priority	Highest Priority
7.1.1 Water Uses					
a. Water for agriculture					
b. Water for domestic use					
c. Water for industry					
d. Water for energy					
e. Water for ecosystems / environment					
f. Water for growing cities					
7.1.2 Threats to the resource					
a. Floods					
b. Droughts					
c. Water scarcity (surface water)					
d. Water scarcity (groundwater)					
e. Water quality (surface water)					
f. Water quality (groundwater)					

7.2 Priority water resources challenge changes	In the past 20 years, how has the challenge changed?				
	Significantly decreased	Slightly decreased	Unchanged	Slightly increased	Significantly increased
7.2.1 Water Uses					
a. Water for agriculture					
b. Water for domestic use					
c. Water for industry					
d. Water for energy					
e. Water for ecosystems / environment					
f. Water for growing cities					
7.2.2 Threats to the resource					
a. Floods					
b. Droughts					
c. Water scarcity (surface water)					
d. Water scarcity (groundwater)					
e. Water quality (surface water)					
f. Water quality (groundwater)					

What are the priority water management challenge areas in your country and how have they changed? Please indicate the level of importance of priority issues by checking one of the five columns for each challenge, and then indicating to what extent the challenge has changed in the past 20 years. Please add lines if necessary.

7.3 Priority water management challenge areas		Current challenge level				
		Not a Problem	Low Priority	Medium Priority	High Priority	Highest Priority
7.3.1 Levels of management						
a.	Institutional capacity at national level					
b.	Institutional capacity at sub-national level					
c.	Transboundary capacity at international level					
d.	Transboundary capacity at national/ sub-national level					
e.	Management through private enterprise					
f.	Stakeholder participation					
g.	Coordination between levels and types of management					
7.3.2 Management between sectors						
a.	Coordination between sectors at national level					
b.	Coordination between sectors at sub-national level					
7.3.3 Other governance issues						
a.	Legislation					
b.	Infrastructure development					
c.	Financing of water resources management					
d.	Financing of infrastructure					
7.3.4 Managing resource information						
a.	Monitoring the resource					
b.	Knowledge sharing					
7.3.5 Specific types of management						
a.	Disaster management					
b.	Climate change adaptation management					
c.	Water use efficiency management					

7.4 Priority water management challenge areas		In the past 20 years, how has the challenge changed?				
		Significantly decreased	Slightly decreased	Unchanged	Slightly increased	Significantly increased
7.4.1 Levels of management						
a.	Institutional capacity at national level					
b.	Institutional capacity at sub-national level					
c.	Transboundary capacity at international level					
d.	Transboundary capacity at national/ sub-national level					
e.	Management through private enterprise					
f.	Stakeholder participation					
g.	Coordination between levels and types of management					

7.4 Priority water management challenge areas	In the past 20 years, how has the challenge changed?				
	Significantly decreased	Slightly decreased	Unchanged	Slightly increased	Significantly increased
7.4.2 Management between sectors					
a.	Coordination between sectors at national level				
b.	Coordination between sectors at sub-national level				
7.4.3 Other governance issues					
a.	Legislation				
b.	Infrastructure development				
c.	Financing of water resources management				
d.	Financing of infrastructure				
7.4.4 Managing resource information					
a.	Monitoring the resource				
b.	Knowledge sharing				
7.4.5 Specific types of management					
a.	Disaster management				
b.	Climate change adaptation management				
c.	Water use efficiency management				

ADDITIONAL COMMENTS

If relevant, please list additional comments in relation to the survey instrument. Suggestions for improvements to the questionnaire and aspects not covered or considered less relevant are also most welcome.

Please provide text.

	Respondent 1	Respondent 2 (if necessary)
Name		
Email address		
Job title		
Ministry/Department		
Telephone number		
Address		

Thank you for completing the questionnaire!

Annex 4 – Level 2 interview survey

Level 2: Interview Guide

Input to the report to the UNCSO 2012 (Rio 2012) conference on the application of integrated approaches to the development, management and use of water resources

March 11th 2011

1. Purpose of this note

The purpose of this note is to inform and guide interviewers from UN Development Programme (UNDP) in the background and processes relating to the interviews they will undertake with key national stakeholders. These interviews will help to provide a deeper qualitative understanding of individual country experiences in the application of integrated approaches to the development, management and use of water resources. It is the intention that this note contributes to ensuring a common understanding and a uniform approach. This note is a Guide for the appointed interviewers to complete the Level 2 survey in selected countries.

2. Background

The UN Commission on Sustainable Development (CSD) at its 13th Session in 2005 decided to call on Governments and the UN System to take actions related to water resources management and decided to monitor and follow-up the implementation of decisions in both 2008 and 2012.

At CSD-16 in 2008 UN-Water delivered a Status Report on Integrated Water Resources Management and Water Efficiency Plans based on surveys carried out by UN-DESA, GWP and the UNEP-DHI Centre. This initiative will provide input for an important new benchmark report at CSD-20 in 2012.

CSD-20 will mark 20 years after the Rio Earth Summit, 10 years after the Johannesburg Summit and 40 years after the Stockholm Conference. The UNCSO 2012 Summit thus provides a unique opportunity to strengthen the commitment from Governments and the international community to promote and implement integrated approaches to the sustainable management of water resources, as called for in Rio 1992 (Chapter 18 of Agenda 21) and in Johannesburg 2002 (the Johannesburg Plan of Implementation).

The goal of the UN Water Resources UNCSO 2012 Report is to support countries in the sustainable development and management of water resources. The report will be based on a global survey which will assess progress and outcomes on the application of integrated approaches to the development, management and use of water resources. This report will form the basis for informed decision-making by the CSD and national governments. Moreover, the knowledge gained will be used to develop a process for establishing a regular international monitoring and reporting framework to promote sustainable water resources management.

The survey has been divided into two parts, labelled Level 1 and Level 2:

Level 1: All countries are surveyed by means of a questionnaire that is comparatively quick and easy to complete. Level 1 will provide a global and regional overview and may also be used to assess general development trends. It is similar to a questionnaire carried out in 2008, but simplified by giving more focus on questions and less on text. It is assumed that this simplified approach would allow countries to fill in the data rapidly without any assistance. Level 1 will be carried out by a government official of the country and NOT by the UNDP.

Level 2: Approximately 25-30 countries will be covered in more detail in the form of a guided interview in order to gain a deeper situational understanding. The interviews will provide qualitative information of country specific experiences based on the responses to the Level 1 questionnaire, as well as information on the national indicators currently in use.

Level 2 is very important for the outcome of the UNCSO 2012 process because it provides the opportunity to qualify the general findings from Level 1 and supplement the data collected. In so

doing it is important that a uniform procedure for the Level 2 survey is adopted and that the facilitators in different countries have a common understanding and approach to conducting the Level 2 survey.

3. Use of outputs

The outputs from the interview processes will be consolidated in an Interview Report Outline (see annex 1). The narrative detail from these interview reports will be used to supplement statistical information in an important UN-Water report to the UNCSD 2012. This report will form the basis for informed decision-making by the United Nations Commission on Sustainable Development and national governments. Moreover, the knowledge gained will be used to help develop a process for establishing a regular international monitoring and reporting framework that will help to promote sustainable water resources management.

4. Profile of interviewers

Interviewers are expected to be experienced and professionally respected individuals with a detailed appreciation of national priorities and experiences in water resources development, management and use. They are also expected to have an understanding of the background and purpose of this initiative. For background reference the interviewer can refer to the report that was prepared in May 2008 for the 16th Session of the Commission on Sustainable Development (CSD16).¹⁷

5. Letter of reference

In order to both introduce and to provide legitimacy to the interviewer for this assignment, a letter of introduction will be provided. This letter will explain the background of the Level 2 interviews, refer to the Level 1 questionnaire, and will introduce the interviewer and briefly explain his/her role and responsibilities. In addition, the interviewer can contact a special helpline for any further explanations or discussion of problems in completing the task:

Ms. Josephine Gustafsson, Stockholm International Water Institute

E-mail: UNWRio2012@siwi.org ;

Telephone: +46 (0)8 522 139 60

Skype: siwi.josephine.gustafsson

Or

Mr Joakim Harlin

Sr Water Resource Advisor, UNDP

E-mail: joakim.harlin@undp.org

Skype: joakim.harlin

6. Process guide for interviewers

Step 1: Familiarization with task: Become familiar with the completed level 1 survey and the background and purpose of this initiative, refer if necessary to the earlier report for CSD16 (see above), and the Interview Report Outline included as annex 1 to this note. Begin to fill out the table on national indicators for water resources and water resources management and give the reference to the document/report where these indicators are presented (see annex 1).

Step 2: Identify significant responses: Obtain a copy of the completed Level 1 questionnaire from the government focal person listed in the attached contact database. Using a combination of local knowledge and experience, identify the most significant responses from each of the main sections of the questionnaire:

- 1) Policy, strategic planning and legal framework
- 2) Governance and institutional frameworks
- 3) Management instruments
- 4) Infrastructure development and financing
- 5) Sources of financing for the development of water resources
- 6) Outcomes and impacts of water resources management over the last 20 years
- 7) Priority challenges in the development, management and use of water resources

Significant responses may not necessarily be the most extreme (high or low) scores, and may be grounded in either good or bad experiences, as well as progress or lack of progress. It is important that the interviewer gets the most "added value" from the survey by focusing on and learning from a few characteristic issues from each country, rather than formulating a broad summary. The aim will be to produce an Interview Report consisting of ½-1 page assessment of country experiences focusing on one key issue for each of the headings above, as well as a table of national indicators. The assessment of experiences should identify where progress has been made, where it is stalled, and if possible why.

¹⁷ "Status Report on Integrated Water Resources Management and Water Efficiency Plans" available here: http://www.unwater.org/downloads/UNW_Status_Report_IWRM.pdf

Step 3: Identify interviewees: Identify and contact the people you believe are both necessary and relevant to discuss the most significant Level 1 responses as input to the Interview Report that you will prepare. The interviewees will probably include:

- 1) The person who completed the Level 1 questionnaire
- 2) Representatives from ministries with dominant water use such as Agriculture, Energy and Environment
- 3) Representatives from non-government organizations (NGOs) and community based organizations (CBOs)
- 4) Representatives from the private sector

It can be expected that interviews will vary in scope, depth and time needed.

Step 4: Conduct the interviews: Conduct the interviews using the Interview Report Outline (included as annex 1 to this note) for guidance. The following questions may also provide inspiration (the 'measures' referred to below could be any action, policy or plan etc., which has been taken over the last 20 years):

The interviewees should also be able to provide you with information to complete the table on national indicators. Please remember to ask about these.

Question types	Example questions
Relevance	What was the relevance of the measures undertaken over the last 20 years?
Efficiency	Were the measures undertaken in an efficient manner? For example, have resources been used cost effectively? Do the quantitative and qualitative results justify the resources expended?
Effectiveness	To what extent have anticipated results been achieved and are contributing to changes in behaviour, among relevant institutions & individuals and in relationships or activities? What is the evidence?
Impact	What evidence is there that the measure is potentially contributing to improved water resources management?
Sustainability	To what extent is the measure contributing to building an enabling environment for integrated approaches to the development, management and use of water resources?
Lessons learned	To what extent is the measure replicable? Might its approaches, methods, and/or content have potential value in other countries or regions or for other subjects?
Ownership	What is the level of participation (by gender) of stakeholders in the implementation of the measure? To what extent does the measure strengthen ownership among stakeholders?
Barriers	What were the significant barriers to implementation of the measure? How were the barriers overcome?

Step 5: Prepare and send the Interview Report: Prepare a report as described in Annex 1 on the most significant aspects from your discussions with the interviewees. The report will be between 4 and 8 pages long. Please send a draft of the completed Interview Report to:

Ms. Josephine Gustafsson, Stockholm International Water Institute

E-mail: UNWRio2012@siwi.org ;

with copy to

Mr. Joakim Harlin

E-mail: joakim.harlin@undp.org

UN-Water and UNDP will review the draft and contact the author if they have any comments or questions of clarification. The final report should then be sent to the above contact persons.

7. Estimated time required

The interviewer will be remunerated on a lump-sum basis. It is anticipated that approximately 7 to 10 working days is needed to complete this assignment:

Reading of documents and analysis of Level 1 results	1 day
Identification of stakeholders to be interviewed and setting up interviews	1 day
Conducting interviews	2-3 days
Reporting	3-5 days

8. Annex 1: Interview Report Outline

Country:
Name of interviewer:
Position/job title(s):
Email address:
Phone number(s)
Address:

People interviewed:

Name	Organization	Job title	Email address	Telephone number	Date(s) interviewed

1. Policy, strategic planning and legal framework:

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative assessment of country experiences. Please focus on just 1 key issue within this area, rather than making a broad summary.

The assessment should be based on the following format:

1. Challenges (very briefly)
2. Actions taken from a policy, strategic planning and legal perspective
3. Results of actions taken
4. Lessons to be learned

2. Governance and institutional frameworks

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative assessment of country experiences. Please focus on just 1 key issue within this area, rather than making a broad summary.

The assessment should be based on the following format:

5. Challenges (very briefly)
6. Actions taken from a governance and institutional (see level 1 survey for examples) perspective
7. Results of actions taken
8. Lessons to be learned

3. Management instruments

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative assessment of country experiences. Please focus on just 1 key issue within this area, rather than making a broad summary.

The assessment should be based on the following format:

9. Challenges (very briefly)
10. Actions taken in terms of management instruments (see the level 1 survey for examples) developed and introduced
11. Results of actions taken
12. Lessons to be learned

4. Infrastructure development and financing

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative

assessment of country experiences. Please focus on just 1 key issue within this area, rather than making a broad summary.

The assessment should be based on the following format:

13. Challenges (very briefly)
14. Actions taken for infrastructure development and financing
15. Results of actions taken
16. Lessons to be learned

5. Sources of financing for the development of water resources

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative assessment of country experiences. Please focus on 1-2 key issues within this area, rather than making a broad summary.

The assessment should be based on the following format:

17. Challenges (very briefly)
18. Actions taken in terms of financing for the development of water resources
19. Results of actions taken
20. Lessons to be learned

6. Outcomes and impacts of water resources management over the last 20 years

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative assessment of outcomes and impacts over the past 20 years.

The assessment should be based on the following format:

21. How water resources management has impacted national objectives over the past 20 years
22. Key results achieved from implementing integrated approaches to the development, management and use of water resources
23. The constraints or obstacles experienced
24. Lessons to be learned

7. Priority challenges in the development, management and use of water resources

Using the most significant responses under the corresponding section of the Level 1 questionnaire as a starting point, please prepare a ½ -1 page narrative assessment of priority challenges.

The assessment should be based on the following format:

25. Current water resource challenges and how they have changed in the past 20 years

26. Current water resource management challenges and how they have changed in the past 20 years
27. Lessons to be learned

Please check the following list to show whether an indicator is whether the following indicators are currently in use in the country from the list below. Please contact the persons listed above if any question or concept is unclear.

(Please add lines to the table as necessary)

8. Comment on the Level 1 survey results

Please provide your own general comment on the responses to level 1 (use ½ -1 page)

Indicator	Not Used	Used irregularly	Used regularly	Comments
Water resources governance				
Progress towards planning and implementing integrated water resources management – national scale				
Progress towards planning and implementing integrated water resources management – sub-national scale				
State of the resource				
Total renewable water resources				
Total non-renewable water resources				
Precipitation				
Surface water as share of total actual renewable water resources				
Inflow from other countries as share of total actual renewable water resources				
Outflow to other countries as share of total actual renewable water resources				
Total use as share of total actual renewable water resources				
Groundwater development as share of total actual renewable water resources				
Total surface water withdrawals				
Total groundwater withdrawals				
Water withdrawals by sector				
Water withdrawals by source				
Dam capacity				
Ecosystems				
Fragmentation and flow regulation of rivers				
Nutrient pollution				
Biodiversity and habitat loss				
Freshwater species population trends index				
Ecosystem valuation				

Indicator	Not Used	Used irregularly	Used regularly	Comments
Human health				
Access to safe drinking water				
Population affected by water related diseases				
Treated waste water as a share of total waste water produced				
Access to improved sanitation				
Food, agriculture and rural livelihoods				
Irrigated land as a percentage of cultivated land				
Agriculture water withdrawals as share of total water withdrawals				
Extent of land salinized by irrigation				
Groundwater use as share of total irrigation				
Industry				
Trends in industrial water use				
Water use by major industrial sector				
Pollution emissions by industrial sector				
Industrial water productivity				
Volume of desalinated water produced				
Capability for hydropower generation				
Risk assessment				
Disaster Risk				
Risk and policy assessment				
Climate vulnerability				
Valuing and charging for the resource				
Water sector share in total public spending				
Ratio of actual to desired level of public investment in drinking water Supply				
Ratio of actual to desired level of public investment in basic sanitation				
Rate of cost recovery				
Domestic water charges as percentage of household income				

(Please add lines to the table as necessary)

Please send the completed Interview Report to:

Ms. Josephine Gustafsson, Stockholm International Water Institute

E-mail: UNWRio2012@siwi.org

With copy to Mr Joakim Harlin, UNDP

E-mail: joakim.harlin@undp.org

LIST OF FIGURES

Figure 1.1	Total renewable water resources per capita.	3
Figure 1.2	Map of the African sub-regions.	6
Figure 2.1	National/Federal Water Resources Policy: The current status of the main policy instrument in responding countries by sub-region.	10
Figure 2.2	National/Federal Water Law: The current status of the main water law by sub-region.	11
Figure 2.3	Progress from 2008 to 2012 on Implementation of National/Federal Water Laws: A comparison between African country responses in the UNCSD16 report in 2008 (23 countries) and 2012 (38 countries).	11
Figure 2.4	Progress on water law development and implementation. (Question 1.1c)	12
Figure 2.5	The current status of National/Federal Integrated Water Resources Management Plan in responding countries by sub-region.	12
Figure 2.6	Progress from 2008 to 2012 on implementation of national/federal integrated water resources management plans: A comparison between country responses in the UNCSD16 report in 2008 (23 countries) and 2012 (40 countries).	13
Figure 2.7	Status of incorporating water resources management in national plans for environmental action by sub-region.	13
Figure 2.8	Status of incorporating water resources management in national plans for climate change adaptation by sub-region.	14
Figure 3.1	Progress on decentralised management of water resources. Mechanisms for river basin management. (Question 2.1a)	16
Figure 3.2	Progress from 2008 to 2012 on mechanisms for river basin management: A comparison between country responses in the 2008 survey (23 countries) and this 2012 survey (38 countries).	17
Figure 3.3	Mechanisms established for cross sector management of water resources.	17
Figure 3.4	Status of implementation of institutional frameworks for the management of groundwater. (Question 2.1b)	18
Figure 3.5	Stakeholders with access to information on national water resources management and development.	19
Figure 3.6	Involvement of civil society and general public in water resources management and development at national level.	19
Figure 3.7	Progress on implementation of gender mainstreaming in water resources management and development. (Question 2.2g)	19
Figure 3.8	Progress on in-service training of staff by sub-region.	20
Figure 3.9	Progress on the introduction of water resources management in curricula of technical/ higher education. (Question 2.3f)	20
Figure 3.10	Relationship between progress on the enabling environment of policies, laws, and plans and progress on governance and institutional frameworks.	21
Figure 4.1	Country status of programmes to monitor aquatic ecosystems (Question 3.3e)	24
Figure 4.2	Status of monitoring systems for water quality at a sub-regional level.	25
Figure 4.3	Country status of programmes for efficient allocation of water resources among competing uses. (Question 3.2d)	26
Figure 4.4	Progress on implementation of demand management measures to improve water use efficiency.	27
Figure 4.5	Status of forecasting and early warning systems by country. (Question 3.3i)	27
Figure 4.6	Status of programmes to address water-related disasters summarised by sub-region.	27
Figure 4.7	Country status with the implementation of water resources information systems. (Question 3.3h)	28
Figure 4.8	Status of knowledge sharing programmes. Summarising results from 4 related survey questions.	28
Figure 4.9	Percentage of selected water indicators by category, being used regularly. Data from Level 2 interviews in 10 countries.	29
Figure 4.10	Relationship between progress on governance and institutional frameworks and progress on water resource management instruments.	29

Figure 5.1	Water resources included in national infrastructure investment plans: The current status in responding countries by sub-region.	32
Figure 5.2	Mobilizing financing for water resources infrastructure – financing for water resources included in national investment plans: The current status in responding countries by sub-region.	32
Figure 5.3	Progress on infrastructure development for various water related purposes including irrigation, energy, groundwater recovery, flood management, water supply, wastewater treatment, desalination, rainwater harvesting, and natural systems such as wetlands, floodplains, and catchment restoration: The current status in responding countries.	33
Figure 5.4	Status of infrastructure development (left) and mobilisation of finance (right) for flood management. (Questions 4.1e; 4.2e)	33
Figure 5.5	Status of investment plans and programmes for natural systems such as wetlands, floodplains, and catchment restoration (Left) and water supply for domestic and industrial use (Right). (Questions 4.1j; 4.1f)	33
Figure 5.6	Relationship between progress on the enabling environment of policies, laws, and plans and progress on infrastructure and financing.	35
Figure 6.1	Government budget allocation (% of GDP) for water resources development: The trend over the last 20 years in responding countries, by sub-region.	38
Figure 6.2	Grants and loans from aid agencies for water resources development: The trend over the last 20 years in responding countries, by sub-region.	38
Figure 6.3	Investments from private sources such as banks and private operators for water resources development. The trend over the last 20 years in responding countries, by sub-region. (Question 5.1d)	40
Figure 6.4	Charges for water resources management. The implementation status in responding countries (Question 3.5c)	41
Figure 7.1	Impact of improved water resources management on social development objectives in the past 20 years by sub-region.	44
Figure 7.2	Impact of improved water resources management on economic development objectives in the past 20 years by sub-region.	44
Figure 7.3	Impact of improved water resources management on environment development objectives in the past 20 years by sub-region.	45
Figure 8.1	Priorities assigned by African countries to various water use categories.	50
Figure 8.2	Priorities assigned by African countries to various water resources threats.	50
Figure 8.3	Priorities assigned by African countries to various water resources management issues.	51
Figure 8.4	Status of transboundary water agreements for specific basins by country. (Question 1.3b)	51
Figure 8.5	Countries with institutional arrangements for management of transboundary water summarised by sub-region.	52
Figure 8.6	Status of cooperative programmes to manage transboundary water resources summarised by sub-region.	52
Figure 8.7	Mechanisms for exchanging information between countries.	53
Figure 8.8	Priority assigned to the challenge of transboundary capacity at international level. (Question 7.3.1c)	53
Figure 8.9	Country progress with programmes to address climate change adaptation through water resources management. (Question 3.2k)	54
Figure 9.1	Summary of country progress with water resources management by sub-regions. (Data from Annex 2. Average score per country across all questions groups in Annex 2).	58

LIST OF TABLES

Table 1.1	African countries by sub-region as adopted by AMCOW and their participation in the survey.	6
Table 1.2	Level 1 Survey response summary	6
Table 7.1	Outcomes and impacts arising from implementing integrated approaches to the development, management, and use of water resources. Country responses from Level 1 questionnaire (Question 6.2a) and Level 2 interviews.	45
Table 7.2	Constraints to progress with implementing integrated approaches to the development, management, and use of water resources. Country responses from Level 1 questionnaire and Level 2 interviews.	47

LIST OF BOXES

Box 1.	It takes longer than you think	10
Box 2.	More than one way to go	11
Box 3.	Creating ownership can be a challenge	12
Box 4.	A champion to lead the way	13
Box 5.	Why progress is not consistent across Africa	17
Box 6.	Operational water management institutions in place	17
Box 7.	Stakeholder participation	18
Box 8.	Capacity building challenges	20
Box 9.	Programmes to strengthen monitoring systems	25
Box 10.	Water quality programmes	25
Box 11.	Allocation systems require enforcement	26
Box 12.	Improvement in water use efficiency	26
Box 13.	Strengthening water resources information agencies	27
Box 14.	Achievements with infrastructure development and finance	34
Box 15.	Sources of finance	39
Box 16.	Payment for watershed services-an innovative initiative in Tanzania	39
Box 17.	Motivating users to pay	40
Box 18.	Economic instrument to promote better practice	41
Box 19.	Implementing transboundary agreements	52
Box 20.	Programs to address water-related disasters	55

Agenda 21 of the UN Conference on Environment and Development (UNCED) in 1992 called for integrated approaches to water resources management. Africa embraced this challenge and in 2000 published the Africa Water Vision 2025.

This report is based on the data collected from 40 African countries responding to a questionnaire circulated by UN-Water as part of a global survey to determine progress towards sustainable management of water resources using integrated approaches. This regional report for Africa has been prepared at the request of the African Minister's Council on Water (AMCOW).

This report focuses on the status of the management of water resources in Africa, identifies current barriers to progress, and makes recommendations for future action. Furthermore, it is intended to provide a first step towards a permanent monitoring and reporting framework on both the state of Africa's freshwater resources and their contribution to development. In turn, the framework will strengthen mechanisms for informed decision making within AMCOW in furtherance of both the vision of the African Union (AU) and the goals of the New Partnership for Africa's Development (NEPAD).



UNEP-DHI CENTRE
for Water and Environment



Empowered lives.
Resilient nations.