OIC Water Vision:

Working together for a water secure future

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Across the 57 nations of the Organization of the Islamic Cooperation (OIC), maximizing the productive use of water and minimizing its destructive impacts is a common and major challenge, despite the great diversity of water environments. The OIC's great diversity and great water challenges, coupled with its shared beliefs, together provide an extraordinary opportunity for its member states to work together to ensure a water secure future, sharing varied experiences and learning from what has and has not worked.

The OIC over the last decade has worked to address directly major issues of environmental and social concern such as clean water availability and access to sanitation and, following a direct request from the OIC Water Ministers, the OIC General Secretariat began the process of developing a common vision to address water issues up to the year 2025. Following deliberations at meetings of an Advisory Panel of Experts in Dubai in May 2010 and Astana in June 2011, a draft vision was developed that was then presented to wider communities within the OIC for adoption.

The need for an OIC water vision to catalyze action to address the major challenges facing member states is only too apparent and highly diverse. Many OIC nations are classified as water scarce, while others are endowed with large freshwater resources; baseline conditions in others are much more limited and these conditions are likely to be further exacerbated under a changing climate. The situation may be further exacerbated where the quality of the water is poor, where access to finance is difficult or where the sharing of resources across international boundaries limits management. In addition the often rising and conflicting demands for water from different sectors, especially in balancing food and water security needs, is likely to increase in the future with changes in socio-economic conditions in member states. The key water challenges under the Millennium Development Goals, access to clean water and adequate sanitation services, have received a patchy response with coverage ranging from very low to very high across the member states.

The OIC Water Vision of "*working together for a water secure future*" is a powerful call, but the challenge will be to move to implement this and to achieve results. Adopting this and developing supporting activities will foster greater cooperation and collaboration between member states ensuring the rich knowledge and experiences available within can be shared. Through commitment to this vision by all OIC members there are real possibilities of addressing many of the present and future water security challenges. The initial objective for the vision is to catalyze improved water security in OIC member countries through cooperation in key activities and will involve:

1) connecting centres of excellence within the OIC in water science, policy, management and technology development to build capacity, and share and enhance knowledge
2) identifying solutions to water problems through increased dialogue and exchange of experience as well as through promoting concrete actions
3) promoting solutions to water security challenges in the national and international agendas of OIC leaders.

1. Introduction: The OIC Water Vision – working together for a water-secure future

Water: a source of life, production and destruction. Water is a source of life, livelihoods and prosperity. It is an input to almost all production, in agriculture, industry, energy, transport, by healthy people in healthy ecosystems. But water can also be a cause of death, devastation and poverty, catastrophically through drought, flood, landslides and epidemic, as well as progressively through erosion, saline intrusion, inundation, desertification, contamination and disease.

The OIC: great diversity, great water challenges. Across the 57 nations of the Organization of the Islamic Cooperation (OIC), maximizing the productive use of water and minimizing its destructive impacts is a common and major challenge, despite the great diversity of water environments. In some OIC nations, such as those in the Middle East and North Africa (MENA), absolute water scarcity governs production systems and economies. In other OIC nations, such as many of those in Asia, unpredictable monsoon systems can be immensely productive, or can either cause devastating floods, or, by their absence, major droughts. These can exacerbate already growing scarcity and environmental degradation in these regions resulting from resource over-exploitation. In yet other OIC nations, such as many of those in Sub-Saharan Africa, very high inter- and intra-annual variability of rainfall and runoff create great risks at all levels, from homes to farms to industries to cities, leading to widespread risk-averse behaviour and disincentives to invest (e.g. in agricultural or industrial modernisation). Water resource management is further complicated in some parts of Central Asia, Africa and Asia where rivers and aquifers cross international boundaries. In most OIC nations, lack of reliable access to water and high risks of water-related shocks are a significant cause of poverty and characterize the lives and livelihoods of a high proportion of poor people.

The OIC: shared beliefs and water-related histories. While geographically and ethnically diverse, the OIC nations are guided by the noble Islamic values of unity and fraternity to preserve and promote all aspects related to the environment for present and future generations and promoting and consolidating the unity and solidarity among the Member States in securing their common interests in the international arena. Islam emphasizes the importance of water and of the sound management of water. Water is a central theme in Islamic culture, such as in art, architecture and horticulture, where it plays an important symbolic role. Water institutions and rules are often deep-rooted, founded on the principles of equity, fairness and conservation. In addition, success in managing water resources in the past, often in community- and nation-building efforts, has defined many of the world's earliest major civilizations, such as those of the great floodplains of the Ganges, Indus, Niger, Nile, Tigris-Euphrates, Senegal rivers – today the territory of many OIC nations[1] and of about half of its people.

The OIC Water Vision: working together for a water secure future. The OIC's great diversity and great water challenges, coupled with its shared beliefs, together provide an extraordinary opportunity for its member states to work together to ensure a water secure future, sharing varied experiences and learning from what has and has not worked. Water security in this context means

[1] Including Afghanistan, Bangladesh, Benin, Burkina Faso, Cameroun, Cote d'Ivoire, Egypt, Guinea, Iran, Iraq, Mali, Mauritania, Niger, Nigeria, Pakistan, Senegal, Sudan, Syria, Togo, Turkey, Uganda

that the people of the OIC will have reliable access to a sufficient quantity of water for health, livelihoods, production and the environment, as well as an acceptable level of risk of unpredictable water-related events and shocks.

2. Facing the challenge of Water Security: the role of the OIC

Early general discussions of the OIC. Against this background the OIC over the last decade has worked to directly address major issues of environmental and social concerns such as clean water availability and desertification. Discussions at the Tenth Summit Conference held in Putrajaya, Malaysia in 2003, and at the Eleventh Session of the Islamic Summit Conference, March 2008 in Dakar, Republic of Senegal, reaffirmed the OIC political will to take and support any initiatives designed, among others, to alleviate the effects of natural disasters, overcome the impacts of environmental problems on humans and eradicate poverty.

2.1 Developing the OIC Water Vision

A focus on water. Water was a particular focus at the special meeting of OIC Water Ministers organized on the sidelines of the 5th World Water Forum on 20th March 2009 in Istanbul. The ministers discussed water issues faced by the Ummah and the meeting requested the OIC General Secretariat to formulate concrete proposals for solving the water issues through the preparation of an OIC Water Vision and establishment of an OIC Water Council.

Developing the concepts of a OIC Water Vision. The 36th and 37th Sessions of the Council of Foreign Ministers (23-25 May 2009, Damascus and 18 - 20 May, 2010, Dushanbe) adopted Resolutions NO.4/36-S&T and NO.4/37-S&T on Environment Matters. The resolutions requested the OIC General Secretariat to cooperate with various OIC subsidiary and specialized institutions to implement the request of the OIC Water Ministers to establish of an expert group and prepare an OIC Vision on to address water issues up to the year 2025. The Secretary General of the OIC then established an Advisory Panel comprising 15 experts (composition is in Annex 1) representing various disciplines of Water and the first Meeting of the Advisory Panel of Experts was organized by the OIC General Secretariat in partnership with the Islamic Development Bank (IDB) and International Centre for Biosaline Agriculture (ICBA) in Dubai, UAE on 25 – 26 May 2010. The prime purpose of the meeting was to discuss ideas for the structure and contents of the OIC Water Vision. Work duly began by a drafting team at ICBA to bring these concepts together. The 38th Session of the Council of Foreign Ministers (28-30 June, 2011, Astana), inter alia, adopted a Resolution NO. 4/38-S&T on Environment Matters and this was then followed by the Second Meeting of Advisory Panel of Experts to review the draft OIC Water Vision in Astana, Republic of Kazakhstan on 13 – 14 July 2011. The meeting noted that the draft OIC Water Vision incorporated the various recommendations made by the experts at the First Meeting and contains all elements for cooperation among OIC Member States towards water security.

Taking the Vision forward. The next steps involve presenting the draft vision to an open-ended meeting of Senior Officials of the OIC Member States hosted by the Government of Turkey in Istanbul on 12 – 14 January 2012 and following approval of the draft OIC Water Vision, it will be presented to the Islamic Conference of Ministers responsible for Water was hosted by the Government of Turkey in Istanbul on 5 – 6 March 2012.

2.2 The important role of the OIC in supporting member states develop water security

Strength in OIC's unique diversity. The OIC is uniquely diverse, representing almost all geographic and climatic regions of the world, except the Polar Regions, as Section 3 will illustrate. OIC countries include those that are rich and poor, wet and dry. They include net food and energy importers as well as exporters. What is true for geographic and socio-economic diversity is also true specifically for water-related diversity. They include countries that are more or less advanced in water development and management across the sectors as the various data given in Appendix 2 amply illustrate. This diversity should be recognized not as an obstacle but rather an opportunity that greatly facilitates the identification and adoption of solutions to specific water issues. Through working together within a framework of cooperation, sharing knowledge and experiences, and developing collaborative efforts, more effective water resources development and management can be implemented leading to greater water security and accelerated socio-economic growth within the 57 member countries.

Solidarity in OIC's shared beliefs and values. Developments in a framework of cooperation within the OIC are given a solid foundation guided by the noble Islamic values, which provide common beliefs and principles for water management. Water is a gift from Allah "*and we created from Water every living thing*". Humans are the stewards of water, as trustees bearing witness. Water management principles and practices needed to achieve and sustain water security are deeply rooted in Islam values, such as: consultation and participation (*shura*), the seeking and sharing of knowledge (*ijtihad)*, not causing harm and equitable use (*fassad*), sharing of wealth with the poor (*zakat*), and the use of donated endowment funds (*waqf*), particularly for the poor. This shared thinking provides the community of Islamic countries with the strong foundation needed to work together for the common goal of achieving enhanced water security within these principles.

Ensuring relevance, avoiding duplication. Around the world today there are many global and regional water initiatives, some are very successful, others less so. The World Water Council, the Collaborative Council for Water Supply and Sanitation, the International Commissions on Irrigation and Drainage and on Large Dams, and the International Hydropower Association are all examples of global initiatives, as is the Global Water Partnership, which has global committees and regional and national partnerships. There are also a number of regional water initiatives, including ministerial councils, such as the African Ministerial Council on Water (AMCOW), the Arab League of Water Ministers, the Asia Pacific Water Forum (APWF) and similar bodies. There are thus significant challenges for the OIC Water Vision, including: to complement and not duplicate the many efforts already in place; to ensure relevance and shared benefits; to be both aspirational as well as realistic; and to succeed. However, the OIC's unique diversity and shared beliefs and values are distinct advantages.

3. The challenges today and tomorrow: water insecurity in many OIC countries

The major water challenges. The scale of the ever-present societal challenge of achieving and sustaining water security is determined by many factors, of which three stand out. First there is the hydrologic environment – the absolute level of water resource availability, its inter- and intra-annual variability and its spatial distribution —a natural legacy that every society inherits. Second there is the socio-economic environment (the structure of the economy and the behaviour of its actors) – reflecting natural and cultural legacies and policy choices of each society. Third, there will be changes in the future economic, political and physical environment, with considerable and growing evidence that climate change could severely impact the water cycle in many parts of the world. These factors will play important roles in determining the institutions and the types and scales of infrastructure needed to achieve water security.

3.1 The challenge of water resource availability

Water availability. The starting point for understanding water security in OIC countries is an assessment of freshwater availability and, as Figure 1 illustrates and the data in Annex 2 detail (Table 2), there is a wide range of conditions across the 57 nations. Many OIC nations are classified as water scarce[2], while others are endowed with large freshwater resources; baseline conditions in others are much more limited. Natural aridity has led some countries to rely on desalination for their potable water supplies requiring large energy inputs to power such plants and high capital investment. Treated wastewater is a further source of water in some countries requiring again energy inputs as well as regulatory controls.

The resource situation may be further exacerbated where the quality of the water is poor, further restricting its use, particularly for human consumption. Naturally occurring chemicals (such as arsenic in Bangladesh) as well as those introduced by human activities (organic matter, heavy metals, fertilizers) limit the use of these waters for many activities. Differences in water resources availability across different countries within a region can bring about conflicts of interest, and the decline in Central Asia of the Aral Sea is just one example of such conditions affecting member countries. Differences in conditions are also found within countries and over time, with many OIC nations experiencing naturally high variability in precipitation events as recent drought and floods have illustrated. The magnitude and frequency of these events as well as the vulnerability of citizens varies, leading to markedly different conditions of water security.

Water consumption. The map in Figure 1 of naturally occurring resources however, tells only part of the story as water security is as much a product of water use as of availability. In OIC countries large variations exist in water use in the various sectors (agricultural, industrial and municipal) as well as

[2] The Food and Agriculture Organisation (FAO) of the United Nations regards water as a severe constraint on socio-economic development and environmental protection at levels of internal renewable water availability less than 1 000 m^3/capita. At levels of water availability of less than 2000 m^3/capita, water is regarded as a potentially serious constraint

in supplies as Annex 3 Table 3 details. Many of the states in the Middle East, North Africa, Central and South Asia are consuming more than 50% of available freshwater resources, with some greatly exceeding natural replenishment. This is particularly the case in countries that rely on groundwater; in some cases, groundwater abstraction exceeds recharge and is thus being mined. In contrast, other countries (mostly in Sub-Saharan Africa and South America) are using just a small fraction of their potentially available water resources. However, in many poorer countries this is often a result of high variability requiring major storage infrastructure, whose large up-front investment costs cannot be met. Figure 2 displays the resulting distribution of water scarcity (based on river flow) highlighting the great diversity across the OIC states.

Figure 1 Freshwater availability (Source: UNEP GRID http://www.grida.no/publications/vg/water2/page/3239.aspx: accessed 21.2.2011)

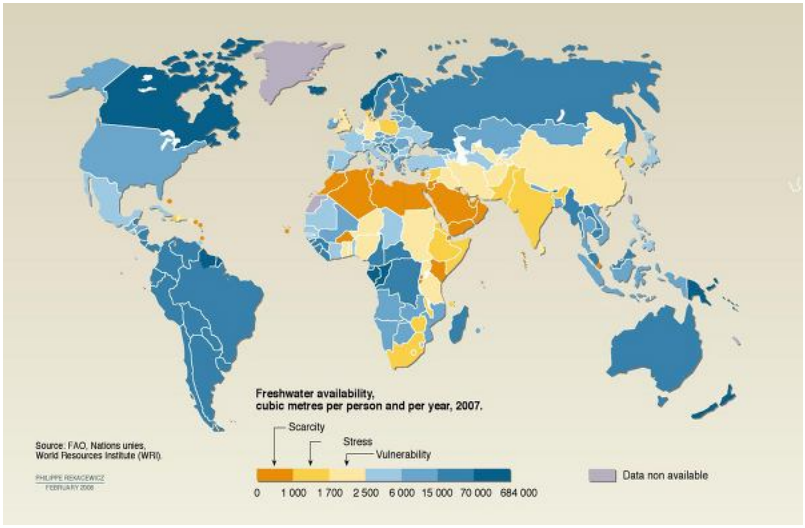
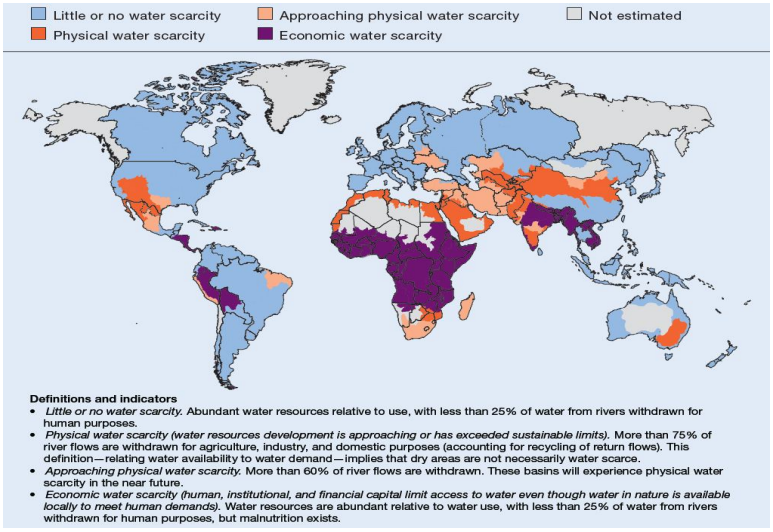


Figure 2 Areas of physical and economic water scarcity (Source: International Water Management Institute, 2006)[3]



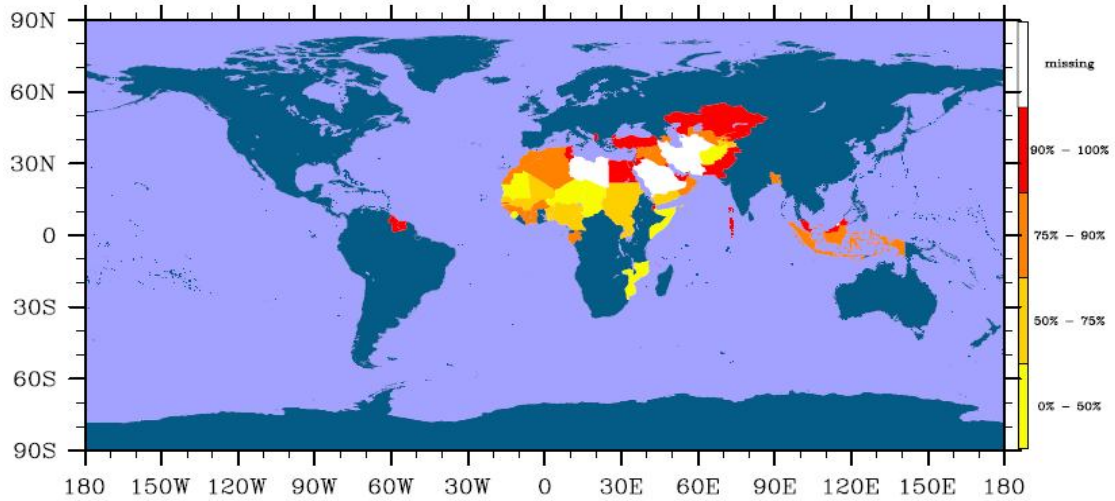
[3] IWMI (2006). Comprehensive assessment of water management in agriculture. IWMI, Sri Lanka

3.2 The challenge of ensuring access to water and sanitation services

Access to water supply. Adequate access to clean water and sanitation services is a central element of water security, and their importance to human health and productivity cannot be overstated. Within the OIC member states, water supply and sanitation service (WSS) coverage ranges from very low to very high, as Figures 3 and 4 illustrate (and data given in Annex 3, Table 4) with some nations providing universal access for all regions, while in other nations coverage is poor, and adequate household services limited to well-established urban areas. These differences largely reflect the variations in socio-economic conditions across the OIC (illustrated in the gross domestic product values and human development indices given in Annex 3, Tables 5 and 6).

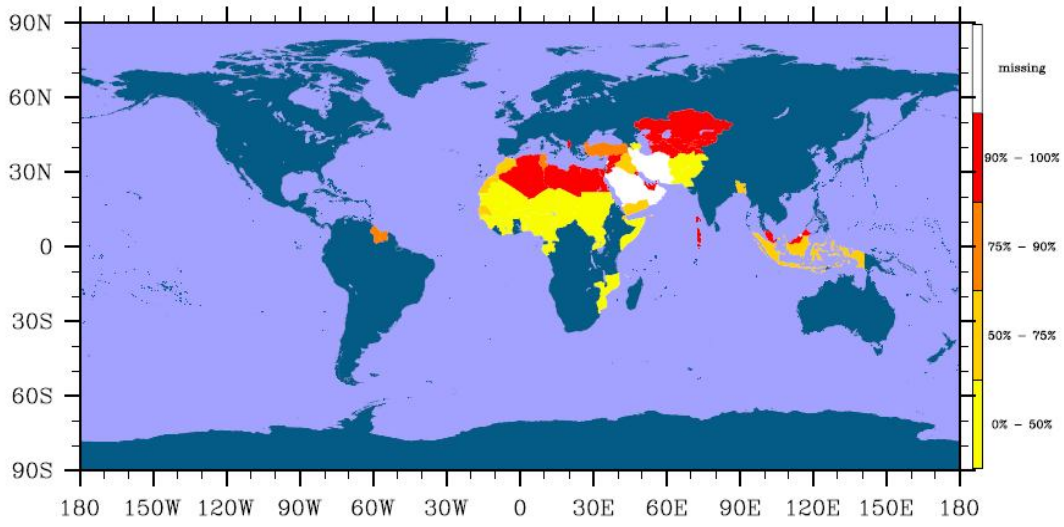
Access to sanitation. Marked improvements have been made in a number of countries in the last few years with impetus coming from many initiatives, including targets established under the Millennium Development Goals. While good progress has typically been made in the provision of access to improved drinking water sources, there is much left to do to protect human health from water-related disease resulting from lack of access to improved sanitation facilities[4]. This is likely to be one of the contributing factors to the marked differences found in life expectancy within the OIC member states (see Annex 3 Table 6). Thus there is an important need and opportunity to close the WSS gaps across the OIC nations as a critical input to supporting life and contributing to increased water security.

Figure 3 Percentage of the population that has access to improved water sources (Source: WHO/UNICEF Joint Monitoring Program www. wssinfo.org: accessed 14/08/2010)



[4] An improved sanitation facility is defined as one that hygienically separates human excreta from human contact. An improved drinking-water source is defined as one that, by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with faecal matter (www.wssinfo.org).

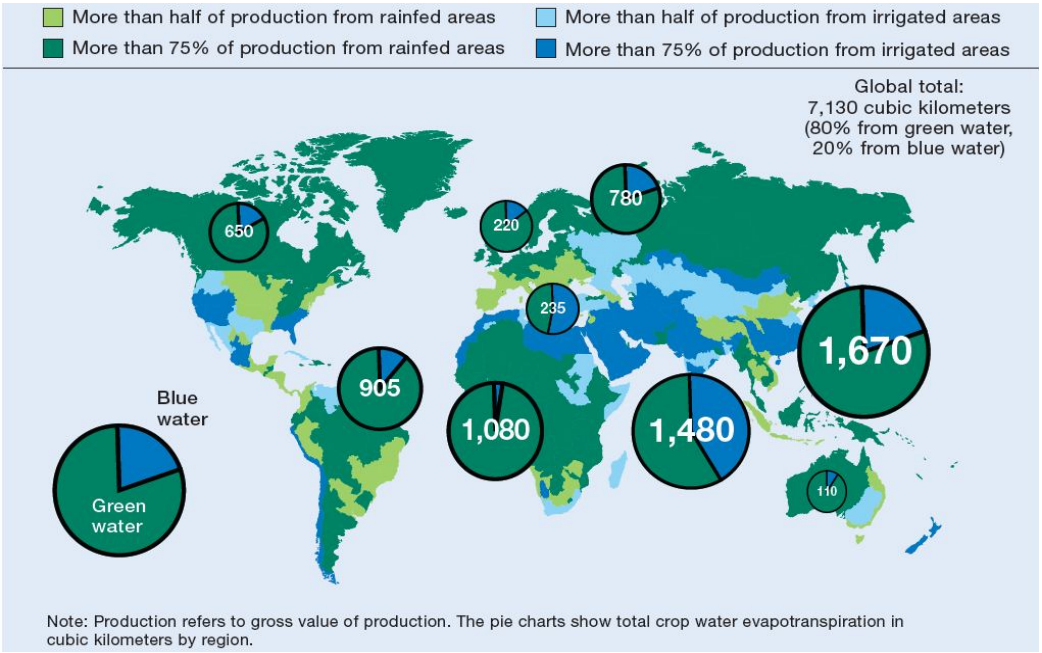
Figure 4 Percentage of the population with access to improved sanitation (Source: WHO/UNICEF Joint Monitoring Program www. wssinfo.org: accessed 14/08/2010)



3.3 The challenge of balancing water use and food production

Food security and water. Food security objectives can greatly influence the water security of a country. In most OIC countries the great majority of water use is in agriculture (see Annex 3 Table 3). The use of water in food production varies widely, reflecting environmental conditions (particularly water availability) as well as socio-economic conditions (including population density and institutional capacity).

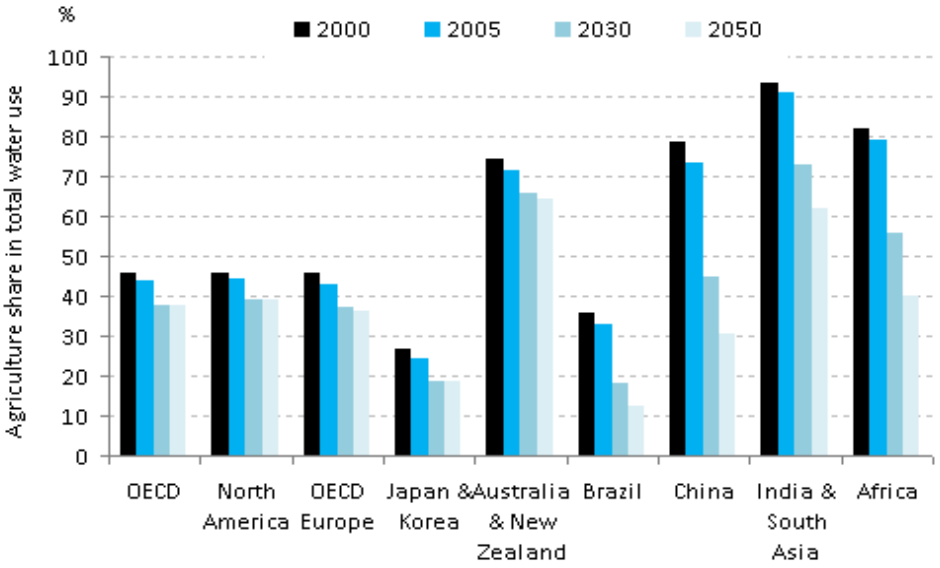
Figure 5 Regional variations in evapotranspiration in rain fed and irrigated agriculture (Source: IWMI, 2006)



Whilst some countries are able to rely primarily on rain-fed irrigation for food production (e.g. Gabon, Gambia Sierra Leone, Uganda), others need irrigation, with some developing sophisticated infrastructure (e.g. Algeria, Egypt, Libya, Syria, UAE). Central Asian countries use more that 90% of their total water resources consumption for irrigated agriculture. The differences are amply illustrated in Figure 5 and in the more detailed OIC data given in Annex 3 (see Tables 7 and 8). This results in large differences between countries in terms of the exploitation of irrigation potential and in productivity. The variations in yield (kg/ha/year) for the key staples of maize, rice and wheat across the OIC countries and in comparison with Australia, China and the USA (see Annex 3, Table 9), highlight large differences, which are a consequence of natural climate and soil conditions as well as, importantly, agricultural management and irrigation performance. This has important implications for food self-sufficiency, food imports and exports, and local vulnerability and economies.

Agricultural intensification. With high population growth rates currently in many of the OIC countries (see Annex 3 Table 10) the need to intensify agricultural productivity is important if water resources are to be managed sustainably. In a recent OECD (Organization for Economic Cooperation and Development) study[5], it is predicted that there will be a change in the proportion of water used in agriculture in many OIC countries due to industrialization and other economic development (see Figure 6). Unless this is accompanied by innovation in technology adoption, policies and management, the ability to sustain food production will be limited. Developing irrigation potential and increasing its productivity are important areas of opportunity for the OIC to share skills, innovations and experience.

Figure 6 Projected withdrawals from 2000 to 2050: share of agriculture in total water (Source: OECD 2007).

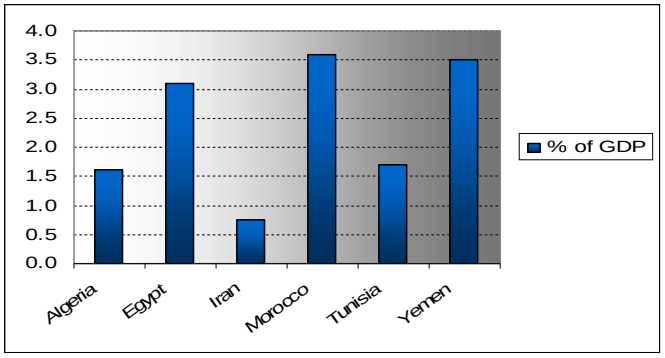


[5] OECD (2007). Environmental Outlook Baseline. OECD Paris

3.4 The challenge of access to finance

Major investment needs. Achieving and sustaining water security depends as much on economic conditions and organizational capacity as on water availability. Flows can be modified through river regulations (e.g. dams) or augmented (e.g. through desalination or wastewater treatment and reuse) (Annex 3 Tables 2 and 3 details this for OIC countries). However, such infrastructure developments require large financial investments as well as sufficient funds to support operations and management. Due to the economic disparities across OIC countries, there are marked differences in rates of investment as well as in sources of finance. Levels of public expenditure on water are difficult to obtain but figures for certain MENA countries give some insight (Figure 7).

Figure 7 Average public expenditures on water as a share of GDP (2001-2005) (Source: World Bank 2004[6], 2005[7], 2006[8], Arab Water Council 2006[9])



Access to finance. Some OIC countries are able to access finance through international markets, supporting investment in infrastructure, increasingly in partnership with the private sector. Recent figures (given in Annex 3 Table 11) highlight the growing private sector participation in many OIC countries in water and sanitation developments[10]. The raising of finance might be through bonds or direct loans, with interest rates reflecting perceived risk. In other countries, support through loans and credits from multi-lateral financial institutions, such as the Islamic Development Bank (IsDB), World Bank and regional banks, facilitate water development in many areas including clean water provision, sanitation services, and irrigation and drainage. In a number of OIC countries, grants from aid organizations have been an important contributor to developing water infrastructure. The OIC countries shown in Table 1 are among the top 10 global recipients of aid to the water supply and sanitation sector in 2009.

[6] World Bank, 2004. Country water resources assistance strategy for the Islamic Republic of Iran. World Bank, Washington, D.C.
[7] World Bank, 2005. Cost-effectiveness and equity in Egypt's water sector. Egypt Public Expenditure Review. Draft Rural Development, Water and Environment Department. MENA World Bank, Washington DC.
[8] World Bank, 2006. People's Democratic Republic of Algeria, making best use of the oil windfall with high standards for public investment: A Public Expenditure Review. Report No. 36270-DZ, Draft, World Bank Washington, D.C.
[9] Arab Water Council, 2006. MENA Regional Report. Cairo, AWC.
[10] Pinsent Masons. 2010. Pinsent Masons Water Yearbook 2010-2011. Pinsent Masons: London

Figure 8 Official development assistance to water by subsector 2009 USD commitments (Source: OECD, 2011)

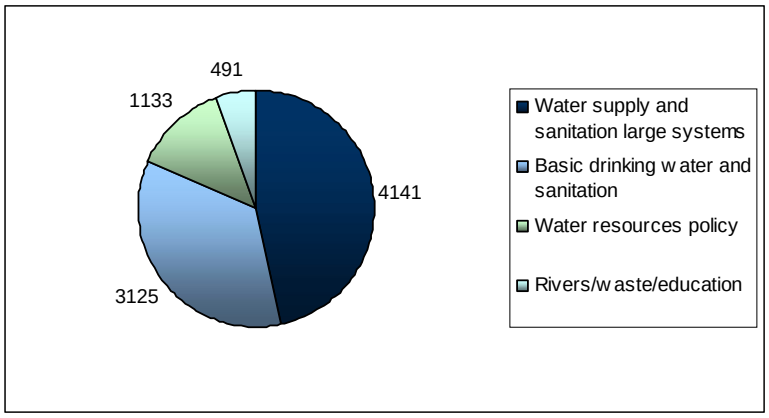


Figure 8 illustrates that the greatest water sector contributions are for the development of large systems, favouring urban populations. It is often the rural poor that are least served by WSS investments.

Table 1 Top OIC recipients of official development assistance for water 2009

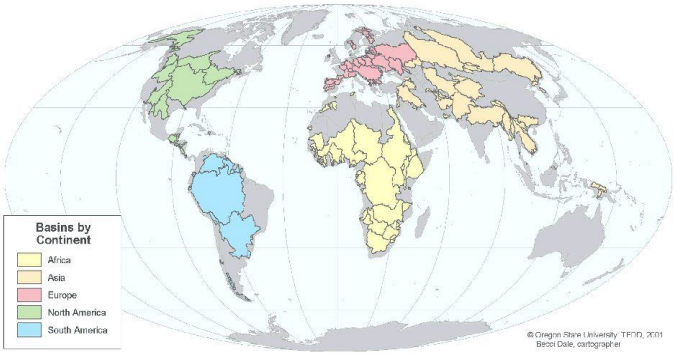
Commitments in USD million	**Top aid receiving countries**						
	Iraq	Azerbaijan	Turkey	Burkina Faso	Tunisia	Yemen	Bangladesh
Aid donating countries							
Japan	390	352	287	17	1	2	5
Germany				22	83	22	
IDA		2		90		59	
France				3	176		
Spain			11	1			
EU Institutions			5	70			
USA	65	1					1
AsDf							186
UK							7
Other	4			90		152	11

(Source: OECD 2011[11])

[11] OECD 2011. Development aid at a glance: statistics by Regions 2011 http://www.oecd.org/dataoecd/59/5/42139479.pdf

3.5 The challenge of transboundary waters

Transboundary aquifers and rivers. As in so many parts of the world, many rivers and aquifers are of transboundary nature in OIC countries (see Figure 9). Major river systems such as the Nile, Ganges/Brahmaputra/Megna are generally among the sources of water in these countries.



Whilst transboundary waters are regarded as a source of cooperation between neighbouring countries, they may also constitute a challenge with respect to management including their efficient, reasonable and equitable use and the control and the protection of water quality.

Figure 9 Transboundary rivers basins (Sources: Oregon State University http://www.transboundarywaters.orst.edu/publications/atlas/atlas_html/interagree.html)

Figure 10 Transboundary groundwater reserves (Sources: World-wide Hydrogeological Mapping and Assessment Programme http://www.bgr.de/app/fishy/whymap/)

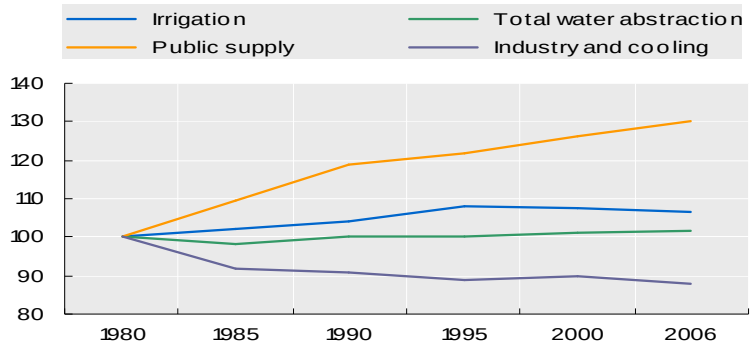
Growing stresses on water resources. There are many challenges to water security to overcome, but the nature and extent of these threats will change in coming decades in response to socio-economic and environmental dynamics affecting both human wellbeing as well as the water landscape. In a number of countries economic development is leading directly to changes in both the quantity and quality of water. The growing salinity of rivers and aquifers from over-abstraction, polluted return flows and evaporation caused primarily by poor irrigation drainage is a major threat to the natural water resource base.

3.6 The challenge of changing socio-economic climates

Shifting water use from agriculture to industry. Economic policies in many OIC countries are progressively shifting emphasis towards industrial and commercial development and away from agriculture. This is likely to change the nature of water demand both in quantity and location. In OECD countries various shifts in water use have taken place in the last twenty-five years with greater amounts used in public supplies reflecting the growth of an urbanized population and a more service-oriented industrial sector (see Figure 11). In the light of trends already shown in some OIC countries and the predicted changes in urban and rural populations predicted through to 2025 (given in Annex 3 Table 10) there is likely to be pressure to shift from agriculture to

domestic/industry sectors. In Malaysia for example, domestic water use accounts for 62%, whilst industrial is 21% and agriculture 17% respectively (2007 data)[12]. There will be need to increase the efficiency of all water use but particularly in agriculture where irrigation methods are not always effective. In urban environments, non–revenue water losses such as through leakage or unlicensed tapping will need to be reduced.

Figure 11 **Water Abstractions in OECD Countries, Year 1980 = 100 (Source: OECD 2010[13])**



Increasing urban water demand and wastewater production. Any increase in the economic well-being within countries has been found all over the globe to lead to increased per capita water consumption. This, coupled with predicted major increases in urban populations (see Appendix 3, Table 10), will lead to growing demand for improved WSS, in terms of both increasing water supplies and managing increasing wastewater volumes. These changes will require much greater investments in water and sanitation infrastructure, as well as sound policies and management practices, including improved and enforced regulations. The World Bank, for example, estimates that up to USD8 billion will be needed for water supply and sewerage system developing in Dhaka over the next 20 years[14]

Water and changing nutrition. Improved economic conditions in some OIC countries are already leading to changes in the pattern and quantity of food consumption, whilst in others malnutrition is likely to be exacerbated due to soil and water degradation affecting food production. In OIC countries where incomes are increasing, diets are changing, with the share of staples, such as cereals, roots and tubers, declining, and that of meat, dairy products and oil crops are rising. To meet these demands, both economic and physical water scarcity needs to be addressed through increased agricultural productivity, by institutional and technological innovation as well as changes in economic incentives, such as the reduction of subsidies.

3.7 The challenge of changing physical climates

Climate change will significantly affect water resources. The water resource base will be affected by climate change to some degree in all countries over the next few decades. The implications of

12 Pinsent Masons ibid

13 OECD Factbook 2010: Economic, Environmental and Social Statistics. OECD, Paris

14 Quoted in Pinsent Masons ibid

climate change for many countries are still poorly understood but the modelled results published in the Intergovernmental Panel for Climate Change (IPCC) 4th reports[15],[16] indicate significant changes to water resources in many countries (illustrated by region in Annex 3 Figures 12-14). Whilst increased rainfall is predicted at higher latitudes, in others areas such as West and North Africa, and Central Asia decreases are expected[17]. Similarly, climate change models suggest increased variability of Asia's monsoon systems, with increased threats of extreme floods and droughts. The various studies suggest that increased average temperatures, greater variability and changing patterns of rainfall, changes in snow accumulation/glacial melt rates, increased incidence of extreme climatic events, increased evapotranspiration, and sea level rise will intensify existing water scarcity and resource degradation in many areas. These primary impacts will bring cause other changes, such as in the amount and timing of surface water flow, decreases in groundwater recharge, increases in saline intrusion of soils and freshwater bodies, and changes in the nature of the soil which will all affect water using sectors, particularly agriculture. For example, it is estimated that sea-level rise alone will lead to extensive loss of agricultural land in Bangladesh and Egypt, and affect coastal aquifers in Kuwait and Qatar. The predicted sea-level rise of 0.88m for the Maldives threatens its very existence[18]. A recent report by the Arab Forum for Economy and Development (AFED)[19] highlighted that the Arab region is among the most vulnerable in the world to the potential impacts of climate change.

The consequences of climate change have wide implications for water management. Some existing water infrastructure will be severely affected (e.g. closure of well fields due to increased salinity of groundwater, sea level inundation of desalination plants, etc). Reduced water availability is also likely to increase environmental degradation and competition between water-using sectors, both within nations and across international boundaries where the water resource is shared. There is an important need to analyze the implications of climate change and to share experiences in terms of coping policies, management and technology use across OIC countries.

4. The OIC Water Vision: a programme for working together for a water secure future

OIC Water Vision: Working together for a water secure future

Learning from OIC experience. The future will bring many new dimensions to the challenge of achieving and sustaining water security. Without action today, many OIC member countries could be

[15] IPCC, 2007. Climate Change 2007: The Physical Science Basis. Contributions of Working Group I to the Fourth Assessment Report of the Intergovenmental Panel on Climate Change Change. Eds. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller. Cambridge University Press: Cambridge, UK and New York, USA.

[16] IPCC. 2008. Climate Change and Water. Ed Bates, B., Kundzewicz, Z.W., Wu, S., Palutikof, J. IPCC, Geneva

[17] Milly et al. 2005. Global Pattern of Trends in Streamflow and Water Availability in a Changing Climate, Nature, 438 (7066): 346-350.

[18] IPCC. 2007. ibid

[19] AFED 2009. Arab Environment Climate Change: Impact of climate change on Arab countries. AFED. Beirut, Lebanon.

severely impacted by intensified water-related problems, such as the increased incidence of droughts and floods, water quality degradation, and unreliability of food production. There is also an obvious need to increase the development of water and sanitation infrastructure. Within the OIC there are many experiences of successful water policy development, management and technology application (see Boxes 1 and 2 for examples). The improved management of water resources, the increased efficiency of water use and the development of alternative ways of providing water, such as through grey, reclaimed[20] or desalinated water for both rural and urban supplies, are all areas where innovation is needed. They are also all areas where individual OIC countries have successful experience to learn from. Through a shared Water Vision and the development of cooperation and collaboration across the member states, increased water security can be developed.

Box 1 Water reuse in Jordan

Reclaimed water provides an important contribution to the water balance in Jordan and is distributed to around 3400 farms in the middle and southern Jordan Valley. It provides an input to irrigation giving both water and nutrients to the plants. There is a need to manage this practice carefully as in many arid countries reclaimed water often has higher salinity and boron concentrations. To protect human and environmental health, regulations need to be in place and enforced.

Wadi Musa reclaimed water demonstration farm

Box 2 Abu Dhabi's water utilities regulator

مكتب التنظيم و الرقابة
Regulation & Supervision Bureau

An effective and independent regulator is an important part of water and sanitation services development in any country. The Regulation and Supervision Bureau (RSB) of Abu Dhabi Emirate is widely viewed as highly effective and follows a route of transparency and consultation with each new step in developing and enforcing regulations (see www.rsb.gov.ae for examples and more details). The RSB is governed by Law No (2) of 1998 concerning the Regulation of the Water and Electricity Sector in the Emirate of Abu Dhabi, with various amendments in recent years. It has been part of a coordinated group of organizations within the Emirate that has overseen the shift in water utility provision from public sector to private-public partnerships in water and wastewater services.

[20] See for example, Carr et al. 2010. Water reuse for irrigated agriculture in Jordan: challenges for soil sustainability and the role of management strategies. Philosophical Transactions of Royal Society A. 338: 5315-5321.

4.1 The Objective of the Water Vision

From Vision to Action. The OIC Water Vision is a powerful call, but the challenge will be to move to implement this and to achieve results. There are already many activities being promoted under the OIC banner that foster cooperation and development within member countries. The most important is the OIC's Ten-Year Programme of Action (see Annex 1 for the Introduction), which sets out a framework for working together. This framework, adopted by OIC Heads of State in 2005 in Makkah, serves as a template for a programme of action. The key concepts of solidarity and mutual exchange serve as important structuring elements in developing a framework of cooperation for water. Building upon these concepts, it is clear that initial activities should be developed that start to develop and enhance alliances between governments, research and educational institutions, the private sector and civil society groups that are already involved in water development in the OIC.

Towards a possible enhanced Vision. The most powerful visions are when specific and iconic goals are defined within a specified time period, as this creates political and public commitment and measurable targets. '*Salmon 2000'* is an example of an iconic vision, where the riparian states of the Rhine River agreed in the 1980s to clean up the extremely polluted system to the point where salmon would once again be breeding above Mannheim (Germany) by 2000. Existing institutions and agreements facilitated this remarkable achievement and, after intense effort and major investment, this goal was achieved before 2000. For the Nile Basin Initiative the vision *is 'to achieve sustainable socio-economic development through the equitable utilization of and benefit from the common Nile Basin water resources*[21]*.'* The Africa Water Vision 2025 is '*An Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional cooperation and the environment*[22].'

Starting small, aiming high. The OIC Water Vision: *Working together for a water-secure future* and its implementation seeks to start with small but significant steps, building confidence and experience, creating institutional and financial mechanisms and demonstrating success (see Box 3). Success will enable the future consideration of greater cooperation, potentially framed by an ambitious vision of water security across the OIC. The case of cooperation among the countries of the Senegal River Basin (Guinea, Mali, Mauritania and Senegal – all OIC member states) is an inspirational example. In order to address challenges of river basin management for navigation, power generation, irrigation management, water supply and saline intrusion, the basin countries have jointly invested in infrastructure assets (e.g. Mananthali and Diama dams) and are operating these assets together for collective water security.

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21 www.nilebasin.org (accessed 10-4-2011).

22 Economic Commission for Africa/United Nations Water Africa. The Africa Water Vision for 2025: Equitable and Sustainable Use of Water for Socioeconomic Development. http://www.uneca.org/awich/AfricanWaterVision2025.pdf (accessed 10-4-2011)

Against this background the initial objective of the OIC Water Vision is:

To catalyze improved water security in OIC member countries through cooperation in :

1) **connecting centres of excellence within the OIC in water science, policy, management and technology development to build capacity, and share and enhance knowledge**
2) **identifying solutions to water problems through increased dialogue and exchange of experience as well as through promoting concrete actions**
3) **promoting solutions to water security challenges in the national and international agendas of OIC leaders**

4.2 Implementation Activities

Identifying initial activities. There are six main areas of development to enhance water security – the 6 "In"s: Information, Innovation, Institutions, Incentives, Investment and Infrastructure. Taking account of these and building upon the broad areas outlined in the OIC 10-year Plan of Action as a guide, the proposed 'start-up' activities are as follows:

- Exchange and knowledge sharing
- Collaborative activities amongst OIC knowledge centres in research, or policy and management support
- Capacity building and outreach development
- Forums and summits

4.2.1 Exchange and knowledge sharing

Peer networks and knowledge hubs. There are many centres of excellence in both water knowledge and practice within the OIC, in ministries, research and education establishments, the private sector and civil societies. Under the framework of cooperation, specific national and international initiatives could be supported where centres of excellence share information and experience with institutions in other OIC countries. Examples could include an exchange programme linking well-performing urban utilities and municipal governments with their counterparts in countries with low coverage and standards (twinning, training, staff exchange etc) sharing both engineering as well as operational experiences. Another example could include experience sharing and peer- learning facilitated between local government leaders on economic development, water allocation and working with water user groups. Further examples could be between farmers who have implemented efficient irrigation practices and experiences of both success and failure. A network of knowledge hubs could be developed in which insight and findings could be rapidly shared both between and then within countries. The internet is an obvious way of facilitating knowledge exchange and the OIC could develop active areas highlight water technology and management possibilities that people can access without needing to leave their communities.

4.2.2 Collaborative activities

Areas for collaboration. There are many possible areas for collaborative action in which various organizations within the OIC could work together to enhance water security. Taking the 6 "In's":

Information. Rainfall and river flows are always difficult to predict, and, where highly variable, are more-or-less unpredictable. Yet, in many OIC countries, the density of hydro-meteorological monitoring stations are less than 5% of that in richer countries with temperate (and not highly

variable) climates. Enhanced monitoring enables refined modelling of water systems which itself enables improved water management. There are many other areas in OIC countries where improved information will facilitate increased water security – including increased used of satellite sensor data, mobile-phone based flood warnings systems (see Boxes 4 and 5) for example.

Box 3 Middle East North Africa Land Data Assimilation System – MENA LDAS

Water and climate data availability is a problem in many countries ensuring decision-makers often lack the information they need to make informed decisions. Satellite imagery offers a means of obtaining data and with recent innovations in sensor technology it is now possible to obtain measures for ground and surface water stores using the GRACE system. Researchers at the International Centre for Biosaline Agriculture in Dubai, in partnership with NASA and USAID are developing regional and country based modelling for the MENA region that will be able to provide regular information on water flows. This MENA LDAS modelling system can be linked to information obtained from other satellite sensors to developed data on agriculture water usage, irrigation potential and other land use related water issues.

Box 4 Bangladesh grass-roots flood warning system

Bangladesh a flood-warning system has been developed for the country. Data is provided by the European Centre for Mid-Range Weather Forecasts which is fed into hydrological models of the Ganges and Brahmaputra by Danish Hydraulics Insitute. The resulting information is passed on to governmental and non-governmental organizations in Bangladesh. From there, warnings propagate along 'cellphone-calling-trees' to reach remote areas. Public education programs, which include religious leaders, have primed the population to move themselves and their livestock to higher ground. The system has been used effectively on a number flooding occasions reducing deaths and economics losses.

Innovation. There are many centres of excellence but their findings are not shared and promoted within the larger OIC community. There are also gaps in knowledge for understanding and developing water under many of the natural and socio-economic conditions found. Collaborative research and development could be catalyzed and commissioned between centres in key water-related areas (e.g. water demand management, desalination, waste water re-use, saline and drainage water use, hybrid seeds, innovative future scenario development including climate change and demographic change, etc.). For example in some countries there have been moves to use

mobile banking (m-banking) for the collections of payments for water and sanitation services and this is particular useful for rural communities[23]

Box 5 M-banking for water and sanitation services

Mobile banking (m-banking) is a relatively low-cost electronic payment system that enables money transfers to and from an electronic account that can be accessed via an ordinary mobile phone. This harnesses the rapidly expanding network of mobile GSM provision in most countries. In 2009, the Dar Es Salaam Water and Sewerage Corporation (DAWASCO) became the first utility in Africa to introduce mobile water payments via agreements with Vodacom and Zain. Water service providers across Kenya, Ghana, Zambia, Rwanda and Uganda have since adopted this means. This may offer a means of encouraging investment into rural WSS which are currently under-provisioned in many areas.

Institutions. There is great diversity in water management institutions found within the OIC, with some being based on central or local government departments, whilst others include private sector, and civil society groups. Some institutional solutions are more effective than others. A common characteristic is that responsibilities for water are split across a number of departments and levels of government. In some OIC countries, water resource management and water services (e.g. WSS and irrigation) are in the same institution, whilst in others they are spread across different departments, with both arrangements bring challenges of conflicts of interest and coordination. Institutional approaches which build upon community engagement – e.g. water committees for water supply management and water user associations for irrigation management – are proven institutional elements in many OIC countries. While such approaches are innovative, some build upon long tradition, often rooted in shared values and beliefs (Afghanistan's ancient *mirab* system of community-based and democratic irrigation management is an interesting example). Developing programs in which management, governance and policy experiences are exchanged and changes implemented and supported in collaborating countries would be a valuable step in realizing greater water security. Capacity building is a central strategy for institutional development (5.2.3 below). This might also be an area of development that can encourage transboundary cooperation.

Incentives. Incentives underlie performance in multiple areas of water management and development (as they do in all other areas). For example, public accountability improves water utility performance, consumer prices to some extent determine water demand and reduce waste, tariff regulation improves infrastructure management and reduces wasteful investment, and so on. There is considerable experience across the OIC to be shared and lessons (both positive and negative) to be learned.

Infrastructure. The water infrastructure gap in many OIC countries is very great. For example, there is only about 30 days of regulated storage on the Indus and Ganges rivers, resulting in increased flood and drought risks downstream in Pakistan and Bangladesh. This is in contrast to the storage on the Colorado River in the US and the Murray Darling River in Australia which each have over 2

[23] Hope, R.A. (2011) Smart Water Systems. Project report to UK DFID, April 2011. Oxford Water Futures Programme, School of Geography and the Environment, Oxford University, Oxford.

years of storage, and the River Nile 10 years. In many OIC countries, only a small potential of the hydropower and irrigation potential has been developed. Given the large disparities in access to water and sanitation highlighted in Section 3.2 (see Figures 3 and 4 and Table 4), a key priority is the promotion of investments in rural and urban services particularly for those OIC countries that will not meet the Millennium Development Goals[24] [25] . This will enhance the health, dignity and productivity of the poor and will require a special focus on Africa. Similarly, investments in irrigation intensification and expansion, in order to raise agricultural productivity across the OIC to the standards set by the best-performing countries (as shown in Annex 2 Table 9) is a key strategy for increasing food production – at national, regional and even global level. There is an opportunity for the OIC countries to identify critical infrastructure gaps and campaign collectively for support to close these gaps as a global imperative for development, growth and stability. Specialist engineering knowledge is needed for many of the developments and the OIC could support a network for information exchange to support decision-making on complex projects.

Investment. Investment is needed in the other "In's": in information (e.g. hydrometric networks); in innovation (e.g. in research and development); in institutions (e.g. in capacity building); and, particularly, in infrastructure, where the total investment needs in OIC countries for water security to be achieved will be in tens if not hundreds of billions of dollars. Investment would be enhanced by the promotion of inter-country private sector engagement, working with chambers of commerce and industry associations. This could include engagement in water supply and sanitation (e.g. in urban water supply public private partnership), in irrigation (e.g. in irrigation service provision, in extension and in marketing and agribusiness) and in hydropower (e.g. in equipment manufacturing, independent power provision, power markets, and carbon trading). There is clearly potential to increase both public and private investment within and between OIC countries, as well as to promote investment from outside the OIC.

4.2.3 Capacity building

Building capacity for water security. There are always many areas and at many different levels in which capacities can be strengthened, in all learning institutions regardless of their sophistication. The drivers and foci are many and various but could include, for example, helping countries meet Millennium Development Goals. Organizations involved will range from policy developers, planners, regulators, water managers, service providers, contractors, to water users and NGO support organizations. There are many different ways of building capacity and many different areas of skill development. To launch a capacity building programme, national and regional centres of excellence need to be identified and nominated as OIC focal point institutions in specific water disciplines (e.g. in water policy, law, engineering, economics, science, data and information, management etc.) and twinned with institutions seeking support in countries with identified capacity gaps (e.g. through scholarships, academic exchanges, curriculum enhancement etc.). It would be particularly pertinent

[24] United Nations and League of Arab States. 2010. The Third Arab Report on the Millennium Development Goals 2010 and the Impact of the Global Economic Crisis. United Nations: New York.

[25] World Health Organization.2010 GLAAS 2010: UN-water global annual assessment of sanitation and drinking water. WHO: Geneva.

to establish a programme to enhance women's roles in all activities above, in recognition of the cultural role of women in the provision and protection of water in OIC countries.

4.2.4 Summits and other Forums

Political leadership. As the apex body of the OIC, the Islamic Summit Conference could launch the *OIC Water Vision: working together for a water-secure future* and would then receive reports of progress. This could then be followed by water summits every few years which would ensure political leadership of, and commitment to, the OIC Water Vision.. It would also be an important means of providing a powerful OIC voice on water issues in the international community and of promoting and monitoring achievements in solving water problems. More specialized forums would also be useful for countries and organizations to meet together on specific programs (such as sanitation, water utility performance, irrigation productivity).

5. Institutional Arrangements

Building on existing institutions. The '*OIC Water Vision: working together for a water-secure futur*e' is proposed as a first step to build a framework of cooperation across the OIC. The creation and strengthening of this collaboration will be a long-term process, as ownership of the Vision needs to be built, a clear strategy developed, specific actions planned and implemented and results achieved. The Department of Science and Technology of the OIC General Secretariat will serve as an interim secretariat to oversee and monitoring the implementations of the OIC Water Vision and will form the backbone of it at this stage. The Secretary General will report periodically to the Islamic Conference of Ministers responsible for Water. It will be important to establish a simple governance structure to bring about a well-coordinated network of member organizations which is inclusive, open and flexible. Over time, the Vision may be refined to be more specific, as experience in cooperation builds the confidence and commitment to it.

5.1 Responsibilities

Collective ownership and responsibility. The OIC Water Vision needs to be adopted by the Islamic Conference of Heads of State as a commitment to a future where all of the peoples of the OIC, rich and poor, have reliable access to water and have manageable risks of water shocks. The primary responsibility for achieving this rests with the member states of the OIC themselves, as no central organization can do this. However, the existing organs of the OIC (such as the Secretariat) have a central role in supporting, promoting and catalyzing the achievement of the Vision, without compromising the sovereignty and responsibility, individually and collectively, of nation states. The Islamic Development Bank, as a product of the OIC, will also have a role to play in supporting the programme of activities. It is important that widespread and collective ownership of, and responsibility for, the OIC Water Vision is built, so the goal of water security is understood in homes, farms, schools, villages, industries, and towns – as managing water is ultimately everybody's business, and everybody's responsibility.

5.2 Relevant precedents

Relevant precedents. There are few precedents for international organizations of nations in alliance to collaborate under a 'Water Vision' on the scale of the OIC's proposed collaboration. There are,

however, several 'shared visions' (see Annex 3) which are useful precedents. There are different models of approach with some organizations working at a particular level such as an alliance of water ministers (e.g. Arab League of Water Ministers, International Fund for Saving the Aral Sea, the Gulf Cooperation Council), whilst others adopt a more multi-stakeholder platform with different membership criteria (e.g. World Water Council, Arab Water Council). The latter might include IGOs, NGOs, researchers, private sector representatives as well as representation from different levels of government. Two regional institutions which have significant relevance and exemplify these two approaches are the African Ministerial Council on Water and the Asia Pacific Water Forum. These have in common a lean organizational structure focusing on facilitating activities within a geographical region in priority areas of interest, harnessing existing organizations where possible.

The African Ministerial Council on Water (AMCOW). The AMCOW institutional framework comprises:

- Council of Ministers (the minister responsible for water from each member country)
- Executive Committee (EXCOM) with a President/Chair (presently South Africa), comprising 3 water ministers from each of the sub-regions. The EXCOM ensures that decisions of the Council are implemented and is responsible for the development of work programs/budgets for approval by the Council, mobilizes the financing and supervises the secretariat.
- 5 sub-regions (West Africa, Eastern Africa, Central Africa, North Africa and Southern Africa), each headed by a Vice President
- Technical Advisory Committee (TAC) to advise EXCOM
- AMCOW Secretariat, based in Abuja, Nigeria and headed by an Executive Secretary
- Sub regional Secretariats (for each sub-region), usually housed in a Regional Economic Community, to co-ordinate sub-regional activities.

The Asia Pacific Water Forum (APWF). The APWF institutional framework comprises:

- Water Summit, with Summit meetings every 3 years, high-level representations from government, industry and other key stakeholders.
- Forum, headed by a President/Chair, with diverse membership, including governments, NGOs, civil society, country water partnerships, regional/development banks, academics, regional organizations and international organizations.
- Governing council, comprising Chair, vice chairs, member organization representatives and lead organizations for priority areas
- 5 sub regions (Central Asia, Northeast Asia, South Asia, Southeast Asia, Oceania and the Pacific)
- 17 networked regional knowledge hubs
- Secretariat
- Priority themes: water financing and development; water-related disaster management; water for development and ecosystems.
- Activity approaches include: developing knowledge and lessons; increasing local capacity; increasing public outreach; monitoring investments and results; supporting Summit and Forum.

6. The Way Forward

From a proposal to an OIC Water Vision. This draft of the Water Vision has been based on discussions at the first meeting in May 2010 in Dubai of the OIC Water Vision Expert Group, drawn from several OIC institutions and countries. Many valuable insights and experiences were shared at this meeting and included in the current draft. The process of taking the draft Water Vision from the Expert Group, through the OIC Secretariat to the OIC Summit needs careful consideration. There are likely precedents for this and the OIC Secretariat is in the best place to determine this.

6.1 Building ownership

Getting to a plan of early actions. Priority areas for early activities are best determined by wide consultation; these might include areas of concern already highlighted, such as water supply and sanitation services; water productivity; and institutional and policy development. The Asia Pacific Water Forum has chosen water finance; disaster management and water for development and ecosystems as their priority areas for collaboration and development. In order to facilitate discussions an illustrative action plan is presented here for the short to medium term, setting out possible activities to advance the realization of the OIC Water Vision. These activities need to be practical, to build confidence and commitment to the vision, and to be achievable. They also need to deliver results which demonstrate the value of the OIC Water Vision.

6.2 Illustrative action plan

Possible early actions. The creation and strengthening of the collaboration and cooperation between the OIC countries will be a long-term process, as ownership of the Vision needs to be built, a clear strategy developed, specific actions planned and implemented and results achieved. This will create a 'virtuous circle' that will reinforce commitment and ownership. To get started, there need to be initial actions and achievable results in the short to medium term to lay early and strong foundations. These might include the following:

Year 0:

- Adopt the OIC Water Vision by Expert Group, followed by open-ended Senior Officials of Member States meeting , Conference of Ministers responsible for Water and the OIC Summit
- Appoint an interim organization to oversee the development of the institutions and programs of activities.

Year 1:

- Establish Water Vision Secretariat
- Develop a funding strategy and mechanisms to support activities
- Survey policy initiatives, research and training capacities and opportunities within member states
- Establish 2-3 expert groups to initiate focussed activities (e.g. rural water supply; urban utilities; sanitation; irrigation productivity; water law and policy; hydrometric monitoring)
- Develop and start to implement a technical agenda to support the Vision's mandate
- Support the creation of partnerships between organizations
- Prepare the 1st OIC Water Vision Conference, to build ownership of, and commitment to, the Water Vision implementation strategy and programme

- Agree targets for all member states to help focus activities e.g. the UN MDG access to improved water and sanitation targets.

Year 2:

- Deliver 1st Water Vision Conference with parallel workshops (implementation programme discussions, 'matchmaking' across countries, solidarity)
- Establish other expert and ad hoc groups
- Operationalize a robust set of activities involving various expert Groups

Year 3:

- Report on progress to OIC Summit.
- Convene and support participation in numerous water science, policy and management events
- Establish regional and international recognition as a permanent resource to OIC member countries and the sector

7. Conclusions

The lead taken by the OIC to develop a common water vision in such a critical area of concern is powerful. Adopting this and developing supporting activities will foster greater cooperation and collaboration between member states ensuring the rich knowledge and experiences available within can be shared. Through commitment to this vision by all OIC members there are real possibilities of addressing many of the present and future challenges to water security the Islamic people face.

Annex 1 The Introduction to the OIC Ten Year Programme of Action

THIRD EXTRAORDINARY SESSION OF THE ISLAMIC SUMMIT CONFERENCE

Makkah al Mukarramah - Kingdom of Saudi Arabia

5-6 dhul qa'dah 1426 h 7-8 December 2005

Introduction

The Muslim World is faced with grave political, socio-economic, cultural and scientific challenges with implications for its unity, peace, security and development. OIC Member States would need to cooperate decisively in order to face these challenges and to take necessary initiatives to overcome them. It has therefore become imperative for them to take joint actions within the framework of the OIC, based on common values and ideals so as to revive the Muslim Ummah's pioneering role as a fine example of tolerance and enlightened moderation, and a force for international peace and harmony.

Conscious of these challenges and anxious to bring the Ummah out of its present situation into a new reality marked by greater solidarity and more prosperity to achieve its decisive objectives and aspirations, the Custodian of the Two Holy Mosques, King Abdullah Ibn Abdulaziz, addressed the pilgrims on Eid Al-Adha Day in 1425 H, and called upon the leaders of the Muslim Ummah to convene an Extraordinary Conference of the leaders of OIC Member States to consider the issues of solidarity and Joint Islamic Action.

In preparation for this Extraordinary Conference, the Custodian of the Two Holy Mosques invited the scholars and intellectuals of the Ummah to meet in Makkah Al-Mukarramah in order to consider the state of the Ummah, develop visions and concepts and propose optimal solutions to the challenges facing the Ummah in all fields. Accordingly, an elite group of Muslim scholars and intellectuals from different countries met in Makkah Al-Mukarramah from 5 to 7 Shaaban 1426 H (9-11 September 2005) and examined the challenges facing the Ummah in the intellectual, cultural, political, media, economic and developmental fields. They also formulated a number of recommendations to effectively address these challenges.

Based on the views and recommendations of scholars and intellectuals, convinced of the potential for the Muslim Ummah to achieve its renaissance, and in order to take practical steps towards strengthening the bonds of Islamic solidarity, achieve unity of ranks, and project the true image and noble values of Islam and its civilizational approaches, a Ten-Year Programme of Action has been developed, which reviews the most prominent challenges facing the Muslim world today, as well as ways and means to address them in an objective and realistic way in order to serve as a practicable and workable Programme for all OIC Member States.

In the intellectual and political fields, there are major issues, such as establishing the values of moderation and tolerance, combating extremism, violence and terrorism, countering Islamophobia, achieving solidarity and cooperation among Member States, conflict prevention, the question of

Palestine, the rights of Muslim minorities and communities, and rejecting unilateral sanctions. All of these are issues which require a renewed commitment to be addressed through effective strategies. In this context, special attention needs to be given to Africa, which is the most affected region, due to poverty, diseases, illiteracy, famine, and debt burden.

In the economic and scientific fields, the Ummah needs to achieve higher levels of development and prosperity, given its abundant economic resources and capacities. Priority must be given to enhancing economic cooperation, intra-OIC trade, alleviating poverty in OIC Member States, particularly in conflict-affected areas, and addressing issues related to globalization, economic liberalization, environment, and science and technology.

As for education and culture, there is an urgent need to tackle the spread of illiteracy and low standards of education at all levels as well as a need to redress ideological deviation. In the social field, it is imperative to focus on the rights of women, children and the family.

In implementing the new vision and goals for the Muslim world, the role of the OIC is central, which requires its reform in a way that meets the hopes and aspirations of the Ummah in the 21st Century.

To achieve this new vision and mission for a brighter, more prosperous and dignified future for the Ummah, We, the Kings**,** Heads of State and Heads of Government of the OIC Member States, decide to adopt the following Ten-Year Programme of Action, with a mid-term review, for immediate implementation.

Annex 2 The OIC Advisory Panel on Water

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Annex 3 Supporting data for OIC Water Vision

Table 2 Natural water resources in OIC countries

1960-2010	Average precipitation in depth (mm/yr)	Surface water: produced internally (10^9 m3/yr)	Ground-water produced internally (10^9 m3/yr)	Surface water: total external renewable (actual) (10^9 m3/yr)	Water resources: total external renewable (actual) (10^9 m3/yr)	Water resources: total renewable (actual) (10^9 m3/yr)	Water resources: total renewable per capita (actual) (m3/inhab/yr)	Total dam capacity (km3)
Afghanistan	327			10	10	65	2389	
Albania	1485	23.05	6.2	14.8	14.8	41.7	13268	0.56
Algeria	89	9.76	1.487	0.39	0.42	11.67	339.5	6.01
Azerbaijan	447	5.955	6.51	26.56	26.56	34.68	3972	21.5
Bahrain	83	0.004	0	0	0.112	0.116	149.5	0
Bangladesh	2666	83.91	21.09	1106	1106	1211	7569	20.3
Benin	1039	10	1.8	16.09	16.09	26.39	3047	0.04
Brunei Darussalam	2722	8.5	0.1	0	0	8.5	21684	0.05
Burkina Faso	748	8	9.5	0	0	12.5	820.5	5.1
Cameroon	1604	268	100	12.5	12.5	285.5	14957	15.33
Chad	322	13.5	11.5	28	28	43	3940	
Comoros	900	0.2	1	0	0	1.2	1412	
Cote d'Ivoire	1348	74	37.84	4.3	4.3	81.14	3941	38.1
Djibouti	220	0.3	0.015	0	0	0.3	353.4	
Egypt	51	0.5	1.3	55.5	55.5	57.3	702.8	169
Gabon	1831	162	62	0	0	164	113260	0.22
Gambia	836	3	0.5	5	5	8	4819	
Guinea	1651	226	38	0	0	226	22984	1.88
Guinea-Bissau	1577	12	14	15	15	31	19683	0
Guyana	2387	241	103	0	0	241	315858	
Indonesia	2702	2793	455	0	0	2838	12483	15.8
Iran	228	97.3	49.3	9.015	9.015	137.5	1876	31.61
Iraq	216	34	3.2	40.33	40.41	75.61	2512	139.7
Jordan	111	0.485	0.45	0.165	0.255	0.937	152.7	0.27
Kazakhstan	250	69.32	6.1	34.19	34.19	109.6	7061	88.75
Kuwait	121	0	0	0	0.02	0.02	6.852	
Kyrgyzstan	533	46.46	13.69	-25.87	-25.87	23.08	4263	21.5
Lebanon	661	4.1	3.2	-0.297	-0.297	4.503	1074	0.23
Libya	56	0.2	0.5	0	0	0.6	95.33	0.39
Malaysia	2875	566	64	0	0	580	21470	
Maldives	1972	0	0.03	0	0	0.03	98.36	0
Mali	282	50	20	40	40	100	7870	13.62
Mauritania	92	0.1	0.3	11	11	11.4	3546	0.89
Morocco	346	22	10	0	0	29	917.5	16.09
Mozambique	1032	97.3	17	116.8	116.8	217.1	9699	64.47
Niger	151	1	2.5	30.15	30.15	33.65	2288	0.1
Nigeria	1150	214	87	65.2	65.2	286.2	1893	44.17
Occupied Palestinian Territory	402	0.072	0.74	0.015	0.025	0.837	201.8	0

1960-2010	Average precipitation in depth (mm/yr)	Surface water: produced internally (10^9 m3/yr)	Ground-water produced internally (10^9 m3/yr)	Surface water: total external renewable (actual) (10^9 m3/yr)	Water resources: total external renewable (actual) (10^9 m3/yr)	Water resources: total renewable (actual) (10^9 m3/yr)	Water resources: total renewable per capita (actual) (m3/inhab/yr)	Total dam capacity (km3)
Oman	125	1.05	1.3	0	0	1.4	502.7	0.09
Pakistan	494	47.4	55	170.3	170.3	225.3	1273	23.36
Qatar	74	0	0.056	0	0.002	0.058	45.28	
Saudi Arabia	59	2.2	2.2	0	0	2.4	95.23	0.84
Senegal	686	23.8	3.5	13	13	38.8	3177	1.6
Sierra Leone	2526	150	25	0	0	160	28777	0.22
Somalia	282	5.7	3.3	8.7	8.7	14.7	1647	0
Sudan	416	28	7	34.5	34.5	64.5	1560	8.8
Suriname	2331	88	80	34	34	122	236893	
Syrian Arab Republic	252	4.288	4.844	8.34	9.67	16.8	791.4	19.65
Tajikistan	691	63.3	6	-50.32	-50.32	15.98	2338	28.97
Togo	1168	10.8	5.7	3.2	3.2	14.7	2276	1.711
Tunisia	207	3.1	1.495	0.3	0.4	4.595	451.9	2.55
Turkey	593	186	69	-12.24	-13.44	213.6	2890	651
Turkmenistan	161	1	0.36	23.36	23.36	24.72	4901	2.89
Uganda	1180	39	29	27	27	66	2085	0.01
United Arab Emirates	78	0.15	0.12	0	0	0.15	33.44	0.12
Uzbekistan	206	9.54	8.8	34.07	34.07	50.41	1854	19
Yemen	167	2	1.5	0	0	2.1	91.64	0.46

Source: FAO Aquastat http://www.fao.org/nr/water/aquastat/main/index.stm (accessed 17/08/2010)

Table 3 Total water withdrawals and water produced, and its use in various sectors (latest values available)

Country	Total water withdrawal (sum of sectors) (10^9 m3/yr)	Desalinated water produced (10^9 m3/yr)	Treated wastewater reused (10^9 m3/yr)	Agricultural water withdrawal as % of total water withdrawal (%)	Municipal water withdrawal as % of total withdrawal (%)	Industrial water withdrawal as % of total water withdrawal (%)
Afghanistan	23.26	0	0	98.19	1.806	0
Albania	1.71	0	0	61.99	26.9	11.11
Algeria	6.07	0.017	0	64.91	21.91	13.18
Azerbaijan	12.21	0	0.161	76.41	4.267	19.33
Bahrain	0.3574	0.1024	0.0163	44.54	49.78	5.68
Bangladesh	35.87	0	0	87.82	10.04	2.147
Benin	0.13	0	0	45.38	31.54	23.08
Brunei Darussalam	0.092	0	0	n/d	n/d	nd/
Burkina Faso	0.8	0	0	85.25	13	0.75
Cameroon	0.99	0	0	73.74	18.18	8.081
Chad	0.23	0	0	82.61	17.39	0
Comoros	0.01	0	0	47	48	5
Cote d'Ivoire	0.93	0	0	64.52	23.66	11.83
Djibouti	0.019	0.0001	0	15.79	84.21	0
Egypt	68.3	0.1	2.971	86.38	7.76	5.857
Gabon	0.12	0	0	41.675	50	8.33
Gambia	0.0306	0	0	65.36	22.88	11.76
Guinea	1.51	0	0	90.07	7.947	1.987
Guinea-Bissau	0.175	0	0	82.29	13.14	4.571
Guyana	1.64	0	0	97.56	1.829	0.6098
Indonesia	82.78	0.0187	0	91.33	7.997	0.6765
Iran	93.3	0.2	0	92.18	6.645	1.179
Iraq	66	0.0074	0	78.79	6.515	14.7
Jordan	0.9409	0.0098	0.0835	64.96	30.96	4.081
Kazakhstan	35	1.328	0.274	81.8	1.686	16.51
Kuwait	0.9132	0.4202	0.078	53.87	43.86	2.278
Kyrgyzstan	10.08	0	0.0001	93.75	3.175	3.075
Lebanon	1.31	0.04573	0.002	59.54	29.01	11.45
Libya	4.326	0.018	0.04	82.85	14.1	3.051
Malaysia	9.02	0.0043	0	62.08	16.85	21.06
Maldives	0.0034	0.0004	0	0	97.06	2.941
Mali	6.546	0	0	90.13	9.013	0.8555
Mauritania	1.7	0.002	0.0007	88.24	8.824	2.941
Morocco	12.6	0.007	0	87.38	9.762	2.857
Mozambique	0.63	0	0	87.3	11.11	1.587
Niger	2.18	0	0	95.41	4.128	0.4587
Nigeria	8.01	0.003	0	68.79	21.1	10.11
Occupied Palestinian Territory	0.418	0	0.01	45.22	47.85	6.938
Oman	1.321	0.109	0.037	88.42	10.14	1.438
Pakistan	183.5	0	0	93.95	5.259	0.7629
Qatar	0.444	0.18	0.043	59.01	39.19	1.802
Saudi Arabia	23.67	1.033	0.166	88	8.999	3
Senegal	2.221	0.00005	0	92.98	4.412	2.611
Sierra Leone	0.38	0	0	92.11	5.263	2.632

Country	Total water withdrawal (sum of sectors) (10^9 m3/yr)	Desalinated water produced (10^9 m3/yr)	Treated wastewater reused (10^9 m3/yr)	Agricultural water withdrawal as % of total water withdrawal (%)	Municipal water withdrawal as % of total withdrawal (%)	Industrial water withdrawal as % of total water withdrawal (%)
Somalia	3.298	0	0	99.48	0.4548	0.0606
Sudan	37.32	0.0004	0	96.65	2.653	0.6967
Suriname	0.67	0	0	92.54	4.478	2.985
Syrian Arab Republic	16.69	0	0.55	87.9	8.544	3.565
Tajikistan	11.96	0	0	91.64	3.679	4.682
Togo	0.169	0	0	44.97	52.66	2.367
Tunisia	2.85	0.013	0.021	75.96	12.81	3.86
Turkey	40.1	0.004	0	73.82	15.46	10.72
Turkmenistan	24.65	0	0.025	97.53	1.704	0.7708
Uganda	0.3	0	0	40	43.33	16.67
United Arab Emirates	3.998	0.95	0.248	82.84	15.43	1.726
Uzbekistan	58.34	0	0	93.2	4.748	2.057
Yemen	3.4	0.01	0.006	90	8	2

Source: FAO Aquastat http://www.fao.org/nr/water/aquastat/main/index.stm (accessed 17/08/2010)

Table 4 Data showing total and proportional values of population having access to improved water supply and sanitation (2008)

Country	Proportion of Urban population served with Improved Water (%)	Urban population served with Improved Water (x1000)	Proportion of Rural population served with Improved Water (%)	Rural population served with Improved Water (x1000)	Proportion of Urban population served with Improved Sanitation (%)	Urban population served with Improved Sanitation (x1000)	Proportion of Rural population served with Improved Sanitation (%)	Rural population served with Improved Sanitation (x1000)
Afghanistan	78	5091	39	8066	60	3916.53	30	6204.23
Albania	96	1409	98	1642	98	1438.44	98	1641.99
Algeria	85	19070	79	9431	98	21986.15	88	10505.95
Azerbaijan	88	3985	71	2984	51	2309.33	39	1638.95
Bahrain	100	687			100	686.53		
Bangladesh	85	36815	78	91017	56	24254.74	52	60677.81
Benin	84	2997	69	3515	24	856.24	4	203.78
Brunei Darussalam								
Burkina Faso	95	2828	72	8825	33	982.31	6	735.43
Cameroon	92	9973	51	4206	56	6070.67	35	2886.77
Chad	67	1946	44	3524	23	668.15	4	320.35
Comoros	91	168	97	462	50	92.46	30	142.74
Cote d'Ivoire	93	9350	68	7165	36	3619.41	11	1159.11
Djibouti	98	727	52	56	63	467.51	10	10.72
Egypt	100	34786	98	45806	97	33742.43	92	43001.86
Gabon	95	1172	41	88	33	406.98	30	64.46
Gambia	96	901	86	621	68	638.03	65	469.25
Guinea	89	3007	61	3937	34	1148.84	11	709.95
Guinea-Bissau	83	389	51	564	49	229.77	9	99.59
Guyana	98	212	93	509	85	183.59	80	437.96
Indonesia	89	104305	71	78206	67	78521.58	36	39653.53
Iran	98	49211						
Iraq	91	18219	55	5542	76	15215.68	66	6649.91
Jordan	98	4714	91	1206	98	4714.45	97	1285.17
Kazakhstan	99	8891	90	5887	97	8711.16	98	6410.09
Kuwait	99	2842	100	48	100	2870.89	100	48.22
Kyrgyzstan	99	1942	85	2934	94	1843.99	93	3210.32
Lebanon	100	3648	100	546	100	3647.82		
Libya			97	4732.08	96	1359.12		
Malaysia	100	19038	99	7897	96	18276.3	95	7577.7
Maldives	99	114	86	163	100	115.58	96	181.86
Mali	81	3309	44	3793	45	1838.55	32	2758.43
Mauritania	52	684	47	892	50	658.17	9	170.88
Morocco	98	17347	60	8343	83	14691.86	52	7230.38
Mozambique	77	6352	29	4099	38	3134.74	4	565.33
Niger	96	2324	39	4791	34	823.11	4	491.34
Nigeria	75	54842	42	32797	36	26324.36	28	21864.93

Country	Proportion of Urban population served with Improved Water (%)	Urban population served with Improved Water (x1000)	Proportion of Rural population served with Improved Water (%)	Rural population served with Improved Water (x1000)	Proportion of Urban population served with Improved Sanitation (%)	Urban population served with Improved Sanitation (x1000)	Proportion of Rural population served with Improved Sanitation (%)	Rural population served with Improved Sanitation (x1000)
Occupied Palestinian Territory	91	2710	91	1063	91	2710.33	84	981.45
Oman	92	1834	77	610	97	1933.73		
Pakistan	95	60709	87	98351	72	46011.23	29	32783.81
Qatar	100	1225	99	55	100	1225.48	100	55.39
Saudi Arabia	97	19956			100	20572.69		
Senegal	92	4752	52	3664	69	3563.91	38	2677.52
Sierra Leone	86	1803	26	900	24	503.27	6	207.77
Somalia	67	2183	9	510	52	1694.31	6	340.08
Sudan	64	11505	52	12153	55	9886.76	18	4206.92
Suriname	97	374	81	105	90	347.47	66	85.17
Syria	94	10806	84	8174	96	11035.82	95	9244.71
Tajikistan	94	1697	61	3069	95	1714.88	94	4729.09
Togo	87	2362	41	1535	24	651.62	3	112.31
Tunisia	99	6696	84	2861	96	6492.63	64	2179.9
Turkey	100	50794	96	22196	97	49270.06	75	17340.29
Turkmenistan	97	2377			99	2426.49	97	2514.84
Uganda	91	3732	64	17635	38	1558.56	49	13502.15
United Arab Emirates	100	3492	100	993	98	3422.17	95	943.27
Uzbekistan	98	9789	81	13934	100	9989.26	100	17202.02
Yemen	72	5054	57	9062	94	6598.45	33	5246.29

Source: WHO/UNICEF Joint Monitoring Program www. wssinfo.org (accessed 18/08/2010)

Table 5 GDP per capita 2007 in US$ in increasing order

Country	GDP per capita (US$)	Country	GDP per capita (S$)
Guinea-Bissau	248	Guyana	1406
Niger	300	Egypt, Arab Rep.	1630
Sierra Leone	307	Turkmenistan	1903
Afghanistan	359	Indonesia	1923
Mozambique	368	Syria	2019
Togo	397	Morocco	2373
Uganda	401	Jordan	2974
Gambia	403	Tunisia	3425
Bangladesh	434	Albania	3458
Guinea	438	Maldives	3509
Burkina Faso	460	Azerbaijan	3851
Tajikistan	552	Algeria	4018
Mali	552	Iran	4028
Chad	660	Suriname	4749
Benin	661	Lebanon	6017
Kyrgyzstan	726	Kazakhstan	6772
Comoros	740	Malaysia	7031
Uzbekistan	830	Gabon	8138
Mauritania	842	Turkey	8874
Pakistan	881	Libya	11639
Senegal	952	Oman	15273
Yemen, Rep. of	973	Saudi Arabia	15899
Djibouti	980	Bahrain	24321
Cote d'Ivoire	984	Kuwait	43087
Cameroon	1109	United Arab Emirates	45531
Nigeria	1123	Qatar	62451
Sudan	1143		
No data			
Occupied Palestine	Iraq	Brunei Darussalam	Somalia

Source: World Bank http://data.worldbank.org/topic (accessed 18/08/2010)

Table 6 Human Development Index and Life Expectancy at Birth (2007)

HDI Rank		Human development index value 2007	Life expectancy at birth (years) 2007	HDI Rank		Human development index value 2007	Life expectancy at birth (years) 2007
Very High Human Development				**Medium Human Development cont...**			
30	Brunei Darussalam	0.92	77	139	Comoros	0.576	64.9
31	Kuwait	0.916	77.5	140	Yemen	0.575	62.5
33	Qatar	0.91	75.5	141	Pakistan	0.572	66.2
35	United Arab Emirates	0.903	77.3	146	Bangladesh	0.543	65.7
High Human Development				150	Sudan	0.531	57.9
39	Bahrain	0.895	75.6	153	Cameroon	0.523	50.9
55	Libyan Arab Jamahiriya	0.847	73.8	154	Mauritania	0.52	56.6
56	Oman	0.846	75.5	155	Djibouti	0.52	55.1
59	Saudi Arabia	0.843	72.7	157	Uganda	0.514	51.9
66	Malaysia	0.829	74.1	158	Nigeria	0.511	47.7
70	Albania	0.818	76.5	**Low Human Development**			
79	Turkey	0.806	71.7	159	Togo	0.499	62.2
82	Kazakhstan	0.804	64.9	161	Benin	0.492	61
83	Lebanon	0.803	71.9	163	Côte d'Ivoire	0.484	56.8
Medium Human Development				166	Senegal	0.464	55.4
86	Azerbaijan	0.787	70	168	Gambia	0.456	55.7
88	Iran Islamic Republic	0.782	71.2	170	Guinea	0.435	57.3
95	Maldives	0.771	71.1	172	Mozambique	0.402	47.8
96	Jordan	0.77	72.4	173	Guinea-Bissau	0.396	47.5
97	Suriname	0.769	68.8	175	Chad	0.392	48.6
98	Tunisia	0.769	73.8	177	Burkina Faso	0.389	52.7
103	Gabon	0.755	60.1	178	Mali	0.371	48.1
104	Algeria	0.754	72.2	180	Sierra Leone	0.365	47.3
107	Syria	0.742	74.1	181	Afghanistan	0.352	43.6
109	Turkmenistan	0.739	64.6	182	Niger	0.34	50.8
110	Occupied Palestinian Territories	0.737	73.3	Without HDI Rank			
111	Indonesia	0.734	70.5		Iraq	..	67.8
114	Guyana	0.729	66.5		Somalia	..	49.7
119	Uzbekistan	0.71	67.6				
120	Kyrgyzstan	0.71	67.6				
123	Egypt	0.703	69.9				
127	Tajikistan	0.688	66.4				
130	Morocco	0.654	71				

HDI combines indicators for three dimensions of human development into one summary measure. These dimensions are a) a long and healthy life b) knowledge and c) a decent standard of living

Sources: http://hdr.undp.org/en/statistics/ (accessed 18/08/2010) UN (2009e). "World Population Prospects: The 2008 Revision". New York: Department of Social and Economic Affairs

Table 7 Percentage of irrigation potential equipped for irrigation (%)

Country	Percentage of irrigation potential equipped for irrigation (%)	Country	Percentage of irrigation potential equipped for irrigation (%)
Afghanistan	n/d	Mozambique	3.844
Albania	n/d	Niger	27.28
Algeria	111.6	Nigeria	12.57
Azerbaijan	82.91	Occupied Palestinian Territory	n/d
Bahrain	94.92	Oman	n/d
Bangladesh	72.84	Pakistan	42.67
Benin	3.807	Qatar	n/d
Brunei Darussalam	n/d	Saudi Arabia	n/d
Burkina Faso	15.15	Senegal	29.27
Cameroon	8.845	Sierra Leone	3.638
Chad	9.036	Somalia	83.33
Comoros	43.33	Sudan	66.92
Cote d'Ivoire	15.32	Suriname	n/d
Djibouti	42.17	Syria	115.1
Egypt	77.42	Tajikistan	95.23
Gabon	1.011	Togo	4.056
Gambia	2.686	Tunisia	70.36
Guinea	18.25	Turkey	58.62
Guinea-Bissau	8.02	Turkmenistan	74.12
Guyana	n/d	Uganda	10.17
Indonesia	40.68	United Arab Emirates	339.8
Iran (Islamic Republic of)	54.21	Uzbekistan	85.92
Iraq	63.47	Yemen	n/d
Jordan	92.78		
Kazakhstan	94.37		
Kuwait	34.4		
Kyrgyzstan	47.93		
Lebanon	50.7		
Libya	117.5		
Malaysia	87.67		
Maldives	n/d		
Mali	41.66		
Mauritania	18		
Morocco	89.24		

Percent of the total area of potentially irrigable land (irrigation potential) that is equipped for irrigation, expressed in percentage.
[Area equipped for irrigation as % of irrigation potential] = 100 * [Area equipped for irrigation: total] / [Irrigation potential] n/d = no data
Most values are FAO estimates
Source: http://www.fao.org/nr/water/aquastat (accessed 24/08/2010)

Table 8 Percentage of area equipped for full control irrigation irrigated by non-conventional water (%)

Country	Date of last available data	Percentage of area equipped for full control irrigation irrigated by non-conventional water (%)
Bahrain	1994	13.59
Jordan	2004	15.85
Kazakhstan	1993	1.999
Kuwait	1994	38.99
Qatar	2001	6.631
Saudi Arabia	2000	2.999
Tajikistan	1994	3.504
Tunisia	2001	1.907
Turkey	2006	3.032

Most values are FAO estimates and there are large gaps in this data

Source:FAO aquastat http://www.fao.org/nr/water/aquastat (accessed 24/08/2010)

Table 9 Staple crop yield in kg/ha/yr (2007/2008)

Countries	Maize (Kg/ha)	Rice (Kg/Ha)	Wheat (Kg/Ha)	Countries	Maize (Kg/ha)	Rice (Kg/Ha)	Wheat (Kg/Ha)
Afghanistan	2044	2158	1226	Mozambique	918	617	1250
Albania	4832		3581	Niger	564	1606	1491
Algeria	7500	1500	1278	Nigeria	1957	1754	1656
Azerbaijan	4778	2797	2725	Occupied Palestinian Territory			1809
Bahrain				Oman			3051
Bangladesh	6015	4000	2175	Pakistan	3611	3520	2451
Benin	1381	2840		Qatar	12154		2319
Brunei Darussalam		1200		Saudi Arabia	5723		5620
Burkina Faso	1666	2406		Senegal	1992	3198	
Cameroon	1875	1300	1333	Sierra Leone	800	1000	
Chad	961	1531	1800	Somalia	421	6154	373
Comoros	2000	1214		Sudan	2021	4463	1946
Côte d'Ivoire	2197	1709		Suriname	2250	4189	
Djibouti	1667			Syria	3515		2423
Egypt	7977	9731	6501	Tajikistan	9398	5262	1987
Gabon	1650	2200		Togo	1222	2193	
Gambia	33	1126		Tunisia			1656
Guinea	1966	1931		Turkey	7198	7572	2345
Guinea-Bissau	982	1792		Turkmenistan	1072	2263	3195
Guyana	1333	4232		Uganda	1469	1336	1727
Indonesia	4078	4895		United Arab Emirates			2000
Iran	7442	5556	2105	Uzbekistan	71156	3154	4463
Iraq	2477	3163	1011	Yemen	15140		1384
Jordan	18483		629				15140
Kazakhstan	5550	3374	971				
Kuwait	21000		2000				
Kyrgyzstan	5857	2855	1940				
Lebanon	3444		2201				
Libya	2223		787				
Malaysia	3192	3571					
Maldives	4400						
Mali	1621	2707	2460				
Mauritania	850	4324	1125				
Morocco	552	6956	1319				
Australia	5691	9500	1583				
China	5556	6556	4762				
USA	9660	7673	3017				

Most values are FAO calculated
Source: FAO Agricultural Statistics http://faostat.fao.org/ (accessed 24/8/2010)

Table 10 World Population Prospects: The 2008 revision values for 2010 and 2025

	Total population (000s)	Total population (000s)	Rural population (000s)	Rural population (000s)	Urban population (000s)	Urban population (000s)	Urban annual growth rate (%)	Urban annual growth rate (%)	Rural annual growth rate (%)	Rural annual growth rate (%)
	2010	*2025*	*2010*	*2025*	*2010*	*2025*	*2010-2015*	*2020-2025*	*2010-2015*	*2020-2025*
Afghanistan	29117	44970	22537	31923	6581	13047	4.68	4.44	2.81	1.83
Albania	3169	3395	1524	1212	1645	2184	2.27	1.49	-1.51	-1.57
Algeria	35423	42882	11868	11104	23555	31779	2.29	1.7	-0.32	-0.59
Azerbaijan	8934	10128	4294	4444	4639	5684	1.4	1.28	0.71	-0.28
Bahrain	807	1021	101	102	715	919	1.85	1.5	1.16	0.22
Bangladesh	164425	195012	118276	122169	46149	72844	3.13	2.94	0.5	-0.08
Benin	9212	13767	5339	6831	5751	6936	4.01	3.75	2.05	1.22
Brunei Darussalam	407	513	99	98	308	415	2.2	1.8	0.04	-0.16
Burkina Faso	16287	24837	12103	15227	4184	9610	6.21	4.9	1.89	1.19
Cameroon	19958	26478	8303	8366	11655	18112	3.34	2.55	0.22	-0.1
Chad	11506	16906	8328	10564	3179	6342	4.62	4.54	1.81	1.41
Comoros	691	907	496	605	259	302	2.75	3.1	1.8	0.85
Cote d'Ivoire	21571	29738	10664	11577	10906	18161	3.72	3.07	0.75	0.34
Djibouti	879	1111	209	236	670	875	1.76	1.86	1.14	0.51
Egypt	84474	104970	47810	54464	36664	50506	2.09	2.18	1.32	0.42
Gabon	1501	1915	210	197	1292	1719	2.13	1.69	-0.76	-0.32
Gambia	1751	2478	733	790	1449	1688	3.74	3.06	0.68	0.3
Guinea	10324	15158	6673	8335	3651	6823	4.27	4.02	1.86	1.1
Guinea-Bissau	1647	2296	1153	1484	494	812	3	3.6	2	1.35
Guyana	761	732	544	484	218	248	0.49	1.23	-0.46	-1.1
Indonesia	232517	263287	129557	129868	102960	133419	1.72	1.75	0.37	-0.32
Iran)	75078	87134	21958	19151	63596	67983	1.9	1.33	-0.86	-1.01
Iraq	31467	44692	10644	14448	20822	30244	2.59	2.44	2.7	1.42
Jordan	6472	8088	1390	1555	5083	6533	1.57	1.71	0.98	0.45
Kazakhstan	15753	17025	6537	6049	9217	10977	1.27	1.05	-0.21	-0.84
Kuwait	3051	3988	49	54	3001	3933	2.06	1.57	0.9	0.37
Kyrgyzstan	5550	6378	3633	3985	2202	2393	1.27	1.67	1.08	0.14
Lebanon	4255	4736	543	504	3712	4231	0.94	0.8	-0.3	-0.67
Libya	6546	8144	1447	1497	5098	6647	2.07	1.45	0.76	-0.27
Malaysia	27914	33770	7768	6582	20146	27188	2.44	1.58	-1.28	-0.91
Maldives	314	384	188	168	126	216	4.24	2.93	-0.66	-0.83
Mali	13323	18603	8546	9761	7325	8842	4.44	3.76	1.1	0.66
Mauritania	3366	4443	1971	2291	1395	2152	2.86	2.93	1.49	0.52
Morocco	32381	37865	13523	12630	18859	25235	2.15	1.72	-0.28	-0.64
Mozambique	23406	31190	14410	15578	8996	15612	4.02	3.35	0.75	0.31
Niger	15891	27388	13173	21621	2719	5767	4.7	5.33	3.52	3.09
Nigeria	158259	210057	79441	83467	109859	126591	3.5	2.84	0.65	0.02
Occupied Palestinian Territory	4409	6553	1140	1445	3269	5108	3.19	2.77	1.94	1.23
Oman	2905	3782	783	865	2122	2917	2.27	1.96	0.95	0.35
Pakistan	184753	246286	118435	141551	66318	104735	3.1	2.99	1.57	0.8
Qatar	1508	1848	63	61	1445	1787	1.62	1.25	-0.17	-0.22
Saudi Arabia	26246	34176	4705	5045	26617	29131	2.21	1.81	0.71	0.21
Senegal	12861	17861	7410	9055	5450	8806	3.25	3.15	1.81	0.86
Sierra Leone	5836	8112	3595	4404	2241	3708	3.35	3.36	1.67	1.03

	Total population (000s)	Total population (000s)	Rural population (000s)	Rural population (000s)	Urban population (000s)	Urban population (000s))	Urban annual growth rate (%)	Urban annual growth rate (%)	Rural annual growth rate (%)	Rural annual growth rate (%)
Somalia	9359	13922	5854	7472	3505	6451	4.08	4.05	1.89	1.37
Sudan	43192	56688	25871	27764	17322	28924	3.74	3.07	0.74	0.19
Syria	22505	28592	9961	10654	12545	17938	2.45	2.35	0.69	0.24
Tajikistan	7075	9075	5213	6367	1862	2708	2.24	2.72	1.71	0.91
Togo	6780	9282	3835	4277	2945	5005	3.86	3.22	1.02	0.44
Tunisia	10374	11797	3394	3161	6980	8636	1.54	1.29	-0.28	-0.68
Turkey	75705	87364	22977	21048	62033	66316	1.72	1.34	-0.43	-0.74
Turkmenistan	5177	6072	2614	2584	2562	3487	2.2	1.88	0.26	-0.44
Uganda	33796	53406	29303	43802	4493	9604	4.82	5.27	2.97	2.35
United Arab Emirates										4707
Uzbekistan	27794	32715	17720	19685	10075	13030	1.37	2	1.04	0.3
Yemen	24256	35509	16542	20706	12082	14803	4.59	4.06	1.81	1.15

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision and World Urbanization Prospects: The 2009 Revision, http://esa.un.org/wup2009/unup/, Wednesday, February 23, 2011; 2:21:59 AM.

Table 11 Private Sector Participation (PSP) in Water and Sewerage Provision in some OIC countries

	Private Sector Participation in 2010		Private Sector Participation in 2015	
	Water	**Sewerage**	**Water**	**Sewerage**
Albania	0%	5%	15%	30%
Algeria	30%	10%	35%	16%
Azerbaijan				
Bahrain	0%	0%	100%	100%
Bangladesh	0%	0%	0%	0%
Egypt	0%	7%	6%	17%
Iraq	0%	0%	0%	0%
Jordan	0%	34%	43%	36%
Kazakhstan	2%	0%	3%	0%
Kuwait	0%	61%	100%	100%
Lebanon	0%	0%	11%	11%
Maldives	32%	0%	50%	0%
Morocco	21%	15%	29%	23%
Oman	29%	24%	39%	48%
Pakistan	0%	0%	0%	0%
Qatar	0%	70%	40%	100%
Saudi Arabia	24%	11%	26%	34%
Tunisia	0%	0%	18%	0%
Turkey	2%	8%	10%	11%
United Arab Emirates	3%	31%	38%	47%
Uzbekistan	2%	0%	3%	0%
Yemen	0%	0%	0%	0%

Source: Pinsent Masons. 2010. Pinsent Masons Water Yearbook 2010-2011. Pinsent Masons: London

The following figures are taken from the Intergovernmental Panel on Climate Change Fourth Assessment Report Working Group 1 (2007)[26] and are based on Multi-Model Data (MMD) using the A1B scenario, hereonin referred to as MMD-A1B simulations. The A1 scenarios are based on an integrated world approach to climate change. The A1 family of scenarios is characterized by:

- Rapid economic growth.
- A global population that reaches 9 billion in 2050 and then gradually declines.
- The quick spread of new and efficient technologies.
- A convergent world - income and way of life converge between regions. Extensive social and cultural interactions worldwide.

There are subsets to the A1 family based on their technological emphasis:

- A1B - A balanced emphasis on all energy sources.

[26] IPCC. 2007. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.) Cambridge University Press. Cambridge, United Kingdom and New York, NY, USA.
http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm

Figure 12 **Temperature and precipitation changes over Africa from the MMD-A1B simulations**

Top row: Annual mean, DJF and JJA temperature change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Middle row: same as top, but for fractional change in precipitation. Bottom row: number of models out of 21 that project increases in precipitation (Source, IPCC, 2007, Working Group 1)

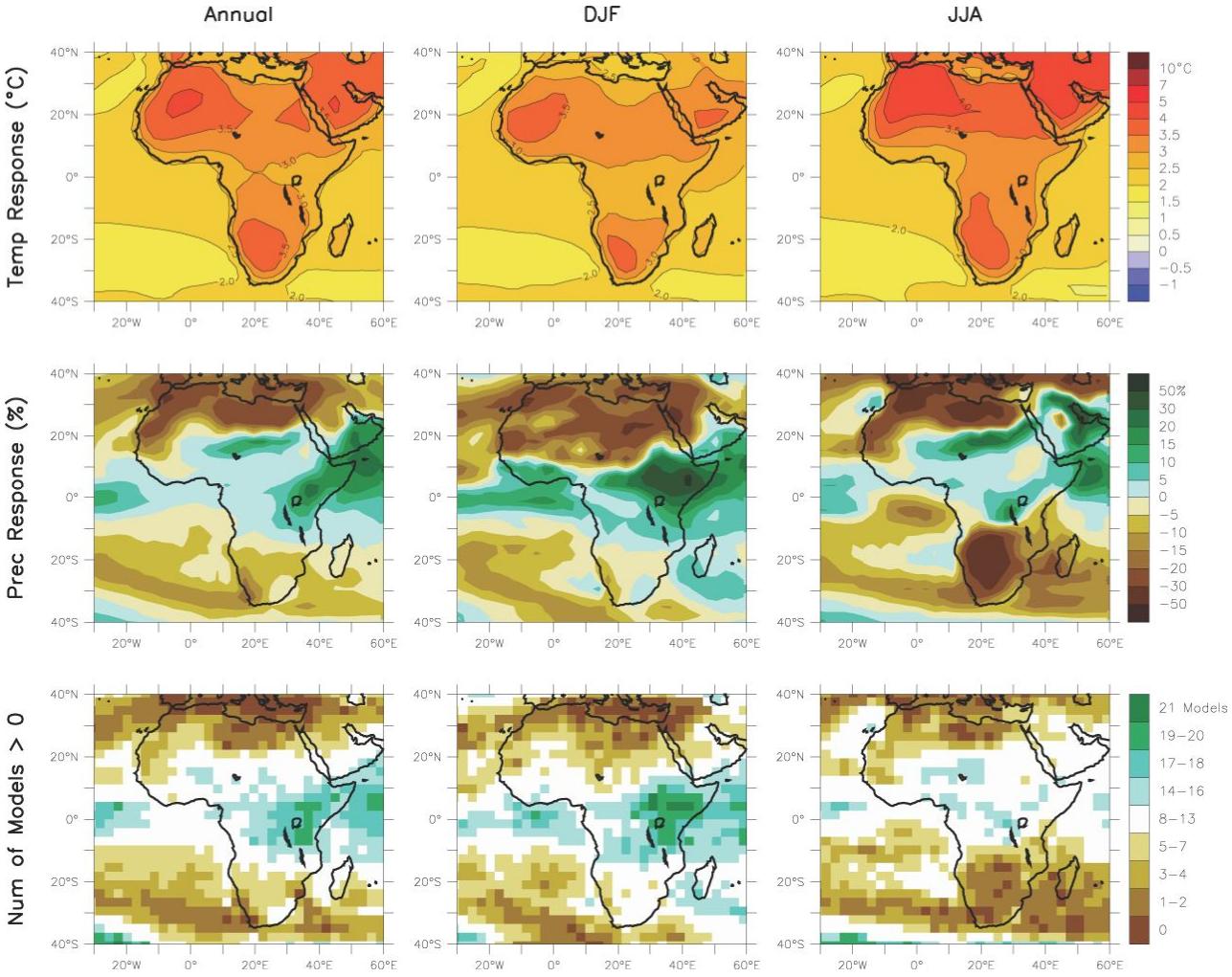


Figure 13 **Temperature and precipitation changes over Asia from the MMD-A1B simulations**

Top row: Annual mean, DJF and JJA temperature change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Middle row: same as top, but for fractional change in precipitation. Bottom row: number of models out of 21 that project increases in precipitation (Source, IPCC, 2007, Working Group 1)

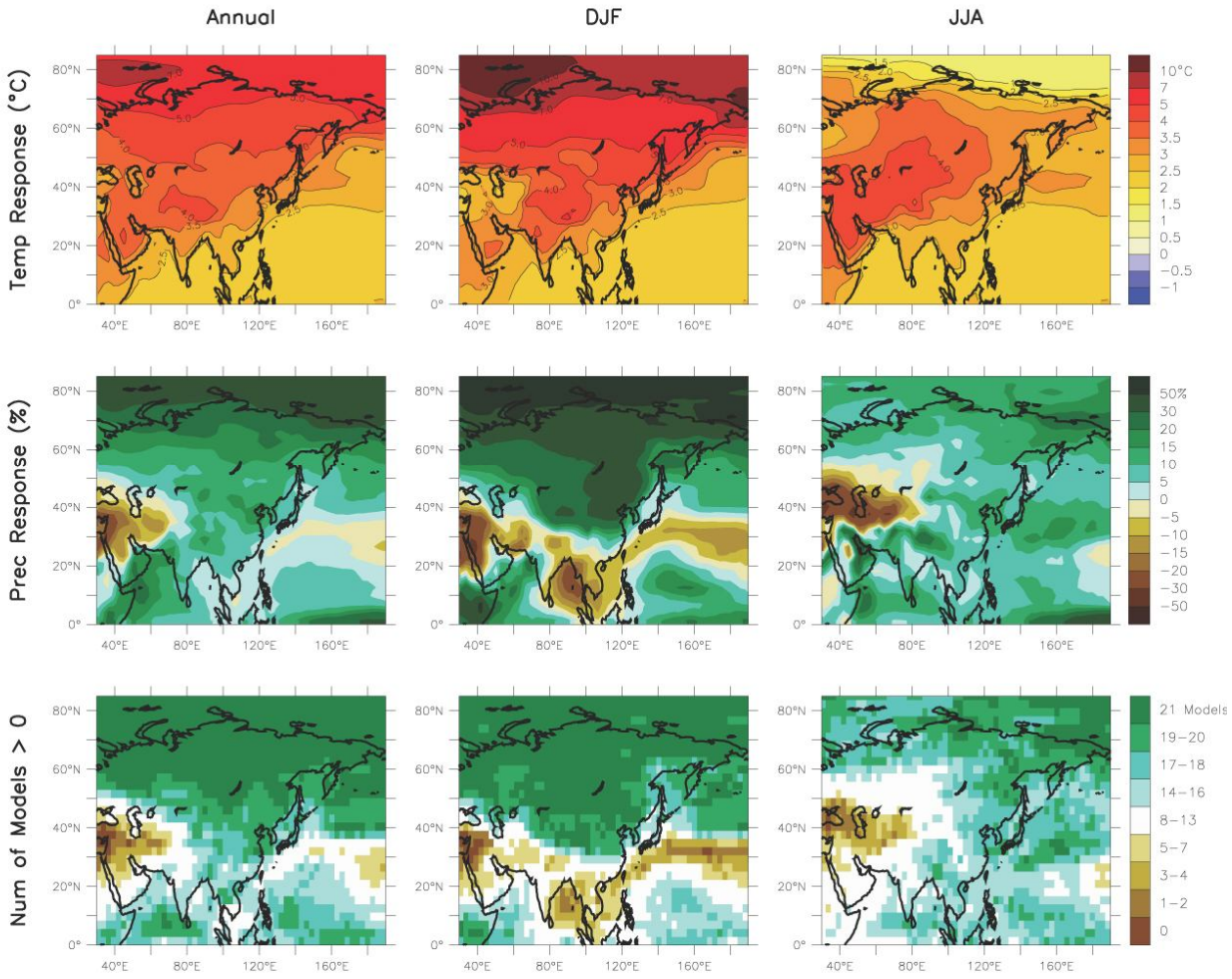


Figure 14 Temperature and precipitation changes over Central and South America from the MMD-A1B simulations

Top row: Annual mean, DJF and JJA temperature change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Middle row: same as top, but for fractional change in precipitation. Bottom row: number of models out of 21 that project increases in precipitation (Source, IPCC, 2007, Working Group 1)

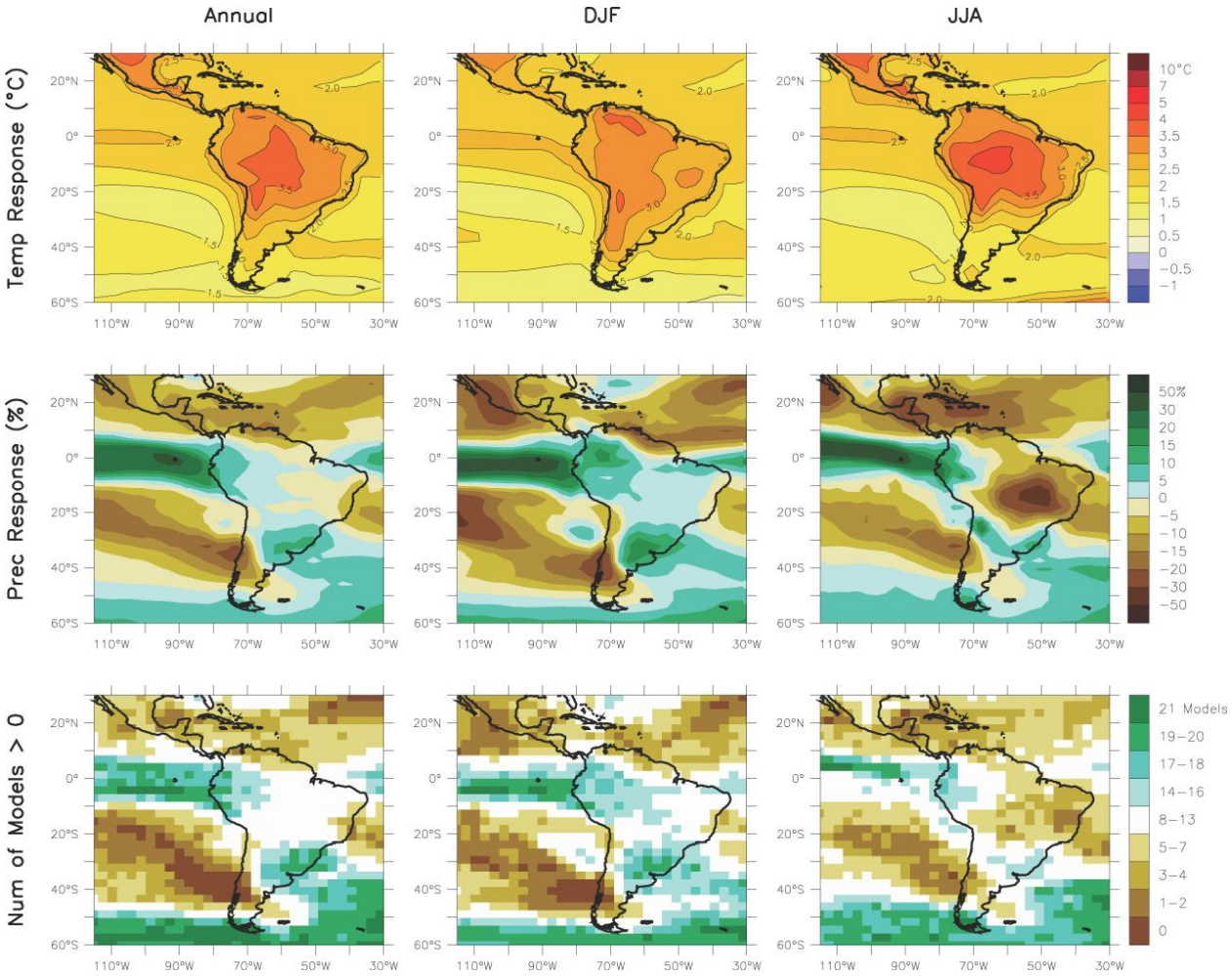


Figure 15 Temperature and precipitation changes over Europe from the MMD-A1B simulations

Top row: Annual mean, DJF and JJA temperature change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Middle row: same as top, but for fractional change in precipitation. Bottom row: number of models out of 21 that project increases in precipitation (Source IPCC 2007, Working Group 1)

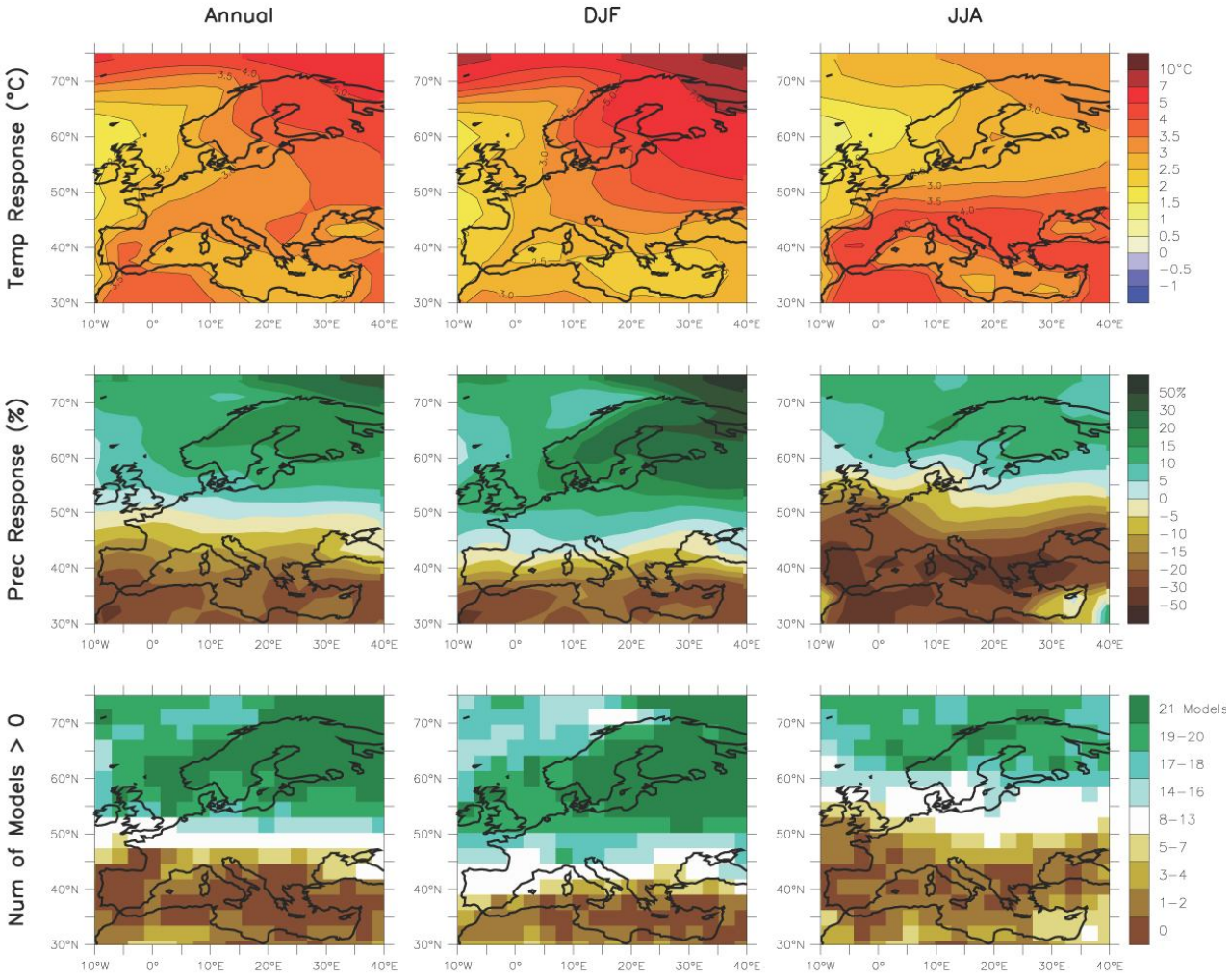
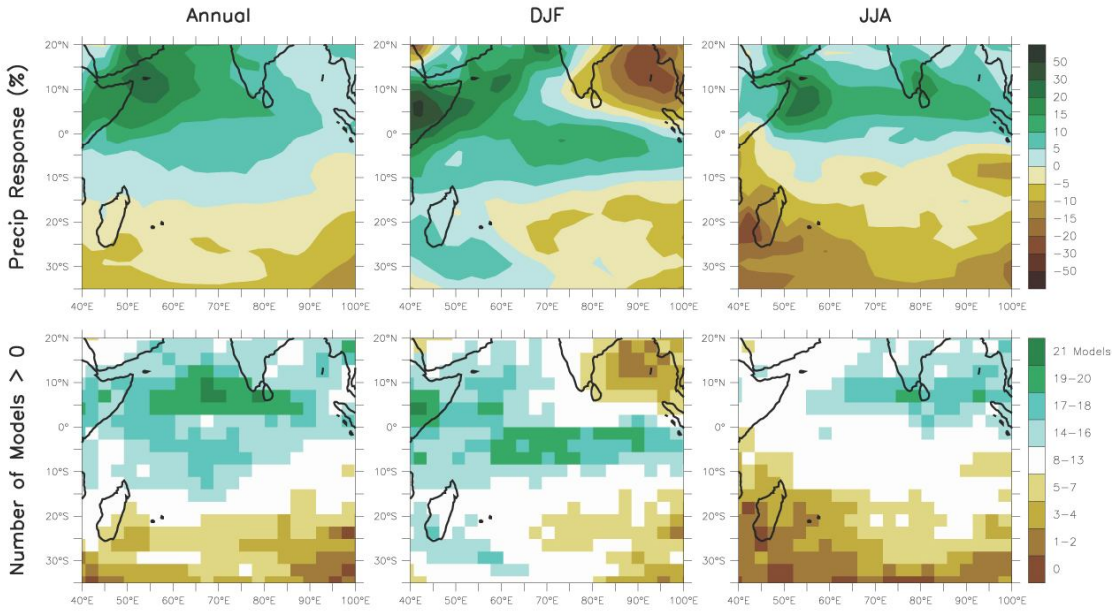


Figure 16 **Precipitation changes over the Indian Ocean from the MMD-A1B simulations**

Top row: Annual mean, DJF and JJA fractional precipitation change between 1980 to 1999 and 2080 to 2099, averaged over 21 models. Bottom row: number of models out of 21 that project increases in precipitation. (Source, IPCC, 2007, Working Group 1)



Annex 4 Useful Precedents of Shared Water Visions

There is no precedent for a 'water vision' on the scale of the OIC Water Vision except for global organizations such as the World Water Council. There are, however, several 'shared visions' which are useful precedents.

In 1987 the Ministers of the Rhine riparian states adopted the **Rhine Action Plan** with the vision of 'Salmon 2000' – a simple ideal behind which lay a massive and technically complex agenda of cleaning up the 'sewer of Europe' by 2000, with the widely understood measure of water quality being the iconic return of the salmon to spawn again above Manheim. The programme has been coordinated by the International Commission for the Protection of the Rhine (ICPR), whose parties are Germany, EU, France, Luxembourg, Netherlands and Switzerland. The presidency of the Commission alternates every three years. The Plenary Assembly is staged annually together with the Coordination Committee Rhine. Decisions are taken in the Plenary Assembly. Technical questions are dealt with in working and expert groups with permanent or fixed-term mandates and passed on to the Strategy Group preparing the Plenary Assembly. Problems related to water quality and emissions, groundwater, ecology and floods are discussed. Expert groups support the working groups. Furthermore, work in the international working groups is prepared by national committees, and group members are assigned by each of the parties. Conferences of Rhine Ministers decide on important political issues and their decisions are binding for their Governments. The IPCR has a very small secretariat based in Koblenz, Germany, with a Secretary General and 12 staff (3 secretariat, 3 technical experts, 5 language staff).

The International Commission for the Protection of the Danube River established in 1998, with 13 riparian states as signatories to the 1994 Danube Convention, has a similar model. The ICPDR has a secretariat (in Vienna) of 15 staff, and all the substantive work is undertaken by expert groups, of which there are 4 expert groups, supported by 3 cross-cutting 'ad-hoc' groups (information management, public participation and strategy), all backed up by task forces as required. A major emphasis is given to public participation and communication.

The US-Canada International Joint Commission, built upon the 1909 Boundary Waters Treaty, has 17 staff in a regional office (in Windsor, Ontario), with larger national offices (in Ottawa and Washington DC), and 20 'Boards'. There are other examples of where a very lean Secretariat is supported by national groups and international groups comprising experts nominated by member states. This minimizes new institutional structures and promotes sovereign responsibility, while fostering cooperation and relationships within expert groups.