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Water Scarcity and Humanitarian Action:

Key Emerging Trends and Challenges

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I. INTRODUCTION

1. Humanitarian stakeholders are increasingly concerned about the impacts that current or emerging global challenges, such as climate change, the food crisis, population growth, and water scarcity may have on humanitarian caseloads and operational environments. While anticipating the evolution of these challenges – propelled by various political, economic, legal, demographic, environmental, and technological factors – is a complex task at best, it is clear that their individual and combined impacts are already shaping, and will continue to shape humanitarian action.

2. One challenge in particular to humanitarian action is that of water scarcity. Water is integral to all aspects of human welfare, including security, energy, food, and health. Indeed, achievement of all eight Millennium Development Goals hinges on access to and availability of essential water resources. Yet, with the number of people without access to safe water expected to rise from just over 1 billion to 2 billion by 2025, water scarcity represents a major political, economic, and human rights issue, threatening to amplify conflict, food insecurity, and poor health and sanitation. Population growth, economic development and profligate use place an undue strain on existing water resources. Beyond a tipping point, increased water scarcity may not have isolated effects, but may precipitate slow-onset disasters, catalyze the drop from chronic into acute vulnerability, and exacerbate humanitarian need.

3. While the full humanitarian impact of the current and projected global water scarcity situation remains to be seen, this occasional policy paper highlights the dominant trends affecting water scarcity and offers an initial analysis of its potential implications for humanitarian action in terms of the:

- **Impact on vulnerability and humanitarian caseloads:** Water scarcity may heighten the vulnerability of non-beneficiaries, thereby increasing the incidence or sheer number of individuals requiring humanitarian assistance. It can also be expected that those already receiving assistance or who are extremely vulnerable will be most adversely affected by a shortage in water resources, thereby increasing the depth of their humanitarian need. In particular, water scarcity may lead to increased volatility and vulnerability in fragile states, particularly those reliant upon rural agriculture for their food supplies and income-generation.
- **Impact on operational environments:** in response to the increase in the need for humanitarian assistance, including in many slow-onset disasters, it may become necessary to scale up operations in new ways to meet these increased demands.

II. OVERVIEW OF THE GLOBAL WATER SCARCITY SITUATION

Physical and economic water scarcity

4. Water scarcity occurs at the point where inadequate water resources exist to meet current and projected demand by all sectors, whether due to a decrease in the supply, an

increase in demand due to population growth or changes in consumption practices, or institutional factors. Water scarcity is distinct from water security, in that the latter is defined by the predictability of water supply and often the presence of contingency measures to compensate in times of water scarcity. Two distinct forms of water scarcity include physical and economic scarcity. Physical water scarcity involves a simple insufficiency or depletion of water resources. Economic water scarcity can occur in regions with adequate water reserves, but where poor governance and infrastructure prevent it from being fully usable or where inefficient use and mismanagement of water resources leads to waste and contamination. There is greater scope to tackle economic water scarcity through better governance and investment in infrastructure, but physical water scarcity is projected to grow steadily against the compounded impacts of climate change and population growth.

5. Currently, 1.2 billion people, or almost one-fifth of the world's population, live in areas of physical water scarcity, while another 1.6 billion people, or almost one quarter of the world's population, face economic water shortage. Further, projections indicate that by 2025, 800 million people will be living in countries or regions with absolute water scarcity and two-thirds of the world's population could be under severe water stress conditions. For example, by 2025, the Middle East and North Africa (MENA) region is set to experience a decline of per capita annual renewable water resources from 750 cubic meters to 500. By contrast, the provisional 2010 Sphere Project standards for water use recommend that the average per capita water consumption range from 7.5 liters to 15 liters per day, which amounts to 2,730 to 5,475 annually.[1]

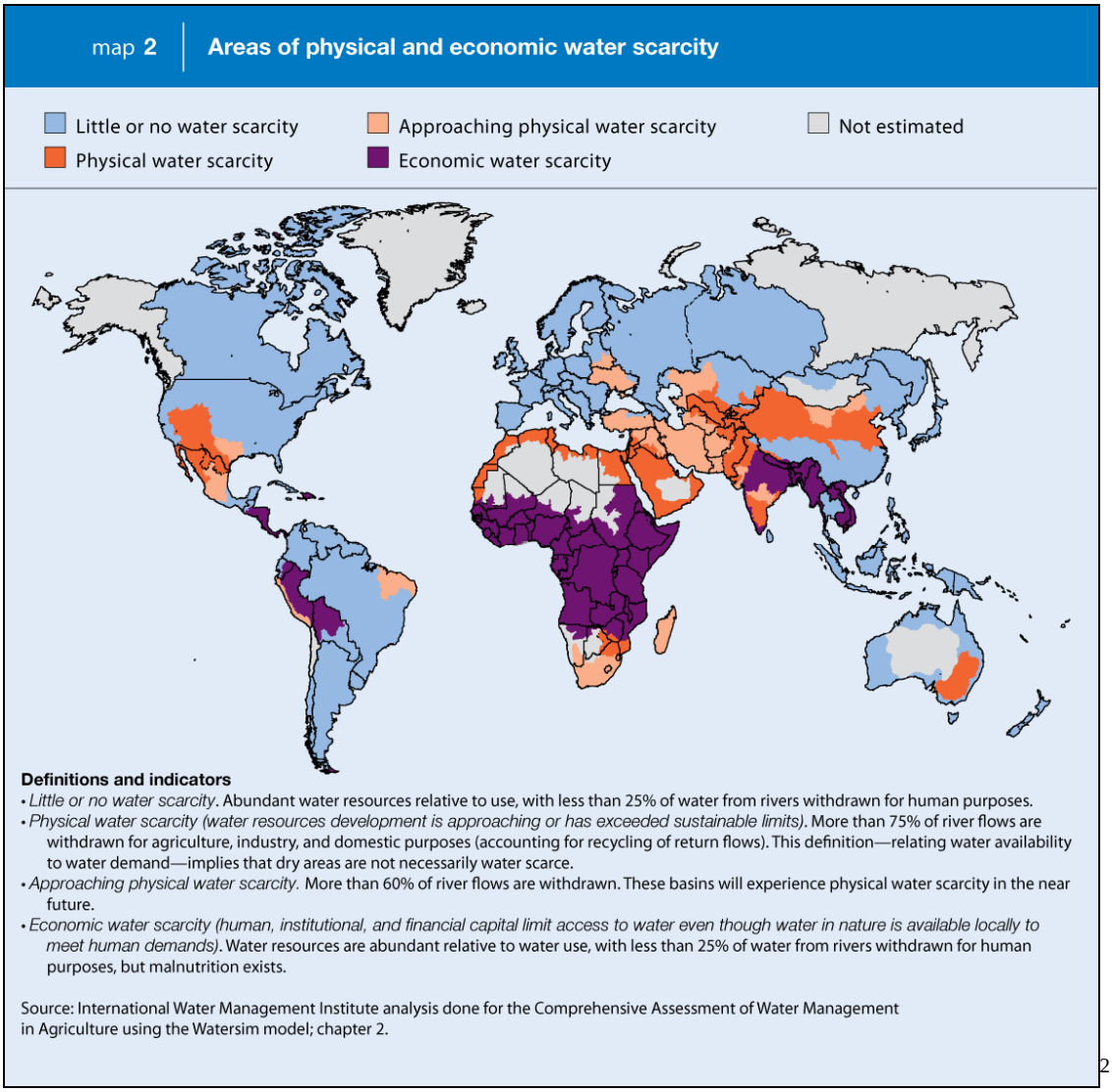
Simplified table of basic survival water needs		
Survival needs: water intake (drinking and food)	2.5-3 litres per day	Depends on: the climate and individual physiology
Basic hygiene practices	2-6 litres per day	Depends on: social and cultural norms
Basic cooking needs	3-6 litres per day	Depends on: food type, social as well as cultural norms
Total basic water needs	7.5-15 litres per day	

Source: Sphere Project

6. It is argued, however, that water scarcity places a significant onus upon the poor in developing countries on account of their projected population growth in the future. In doing so, this generalized argument obfuscates disparities in water distribution and consumption between the developed and developing world. Indeed, more than half of the

[1] The Sphere Project, Chapter 4, 2010. Chapter 4, titled Water and Sanitation, provides a detailed analysis of water requirements to sustain life and livelihoods.

1.2 billion people in situations of physical water scarcity are also those in the poorest 40 percent of the income distribution bracket. Therefore, notwithstanding increased demand due to population growth, if those already suffering from physical water scarcity were guaranteed improved access to water resources, then scarcity would significantly increase without a redistribution of resources.



[2]

Source: UNEP/GRID – Arendal Maps and Graphics Library

Current and future trends exacerbating water scarcity

7. ***Climate change:*** It is widely believed that water is the key medium through which climate change impacts will manifest. Global temperature rise is expected to directly exacerbate freshwater scarcity by leading to increasingly protracted, severe, and

[2] UNEP/GRID – Arendal, Areas of physical and economic water scarcity, *UNEP/GRID -Arendal Maps and Graphics Library*, http://maps.grida.no/go/graphic/areas-of-physical-and-economic-water-scarcity (Accessed 8 March 2010).

expansive droughts. Climate change models consistently project a decrease in average annual rainfall across large swaths of southern Europe, northern and southern Africa, and central Asia. Temperature warming coupled with lower precipitation is expected to lead to increased aridity in many of these regions. Desertification is closely tied to water scarcity. Populations in dry land areas are particularly vulnerable to decreased access to freshwater resources. While the minimum availability of freshwater per person to ensure human wellbeing is estimated at 2,000m^3/year, in 2000 the average availability per person in dry lands was only 1,300m^3/year. At present, one-sixth of the world's population resides in arid and semi-arid regions and more than 250 million people are directly affected by desertification, while another one billion is considered at risk.

8. The effects of climate change and global warming also threaten to reduce freshwater availability through rising sea levels and melting glaciers. Sea-level rise globally is already contaminating freshwater supplies by spilling over into delta regions, such as the Dutch and Nile Deltas. By 2035, it is highly probable that, with the juggernaut of climate change, the glaciers that feed the Indus, Ganges, and Brahmaputra will have disappeared altogether and, with them, the freshwater supplies sustaining hundreds of millions. Climate change is expected to also lead to growing ocean acidification, which will greatly impact the sustainability of coastal populations. In Africa, higher temperatures and lesser and more seasonal rainfall will also place up to 250 million more Africans under severe water stress by 2020. This will affect East, West and North Africa, the latter suffering a rapid and severe decline in potable water, possibly by as much as 50 percent by 2050. All told, the earliest global effects of climate change may mean that up to 700 million may be living in stressed water situations within the next few decades.

9. ***Water and energy demand:*** The International Energy Agency (IEA) forecasts that energy demand, driven primarily by population and GDP growth, will rise by over 50 percent between now and the year 2030. Over 70 percent of this increase in energy demand will stem from population growth in the developing world, and dwindling fossil fuel reserves will continue to account for 83 percent of this demand. Water is indispensable to all forms of energy production, but particularly for hydropower, the cooling of power plants, fossil fuel production and processing, the hydrogen economy, and biomass production. Where countries are very reliant on hydropower, for example in Central Asia, during periods of drought and very cold weather, governments may have to make difficult tradeoffs between water for energy generation and water for agricultural, domestic, or industrial use.

10. Fears that energy demand for non-renewable resources will outstrip supply underpin a burgeoning alternative energy sector to replace dwindling fossil fuel reserves. As witnessed in 2008, the oil price shock generated unprecedented interest in the cultivation of ethanol bio-fuel crops. However, bio-fuel production is the most significant consumer of water in the alternative energy sector. Yet, global bio-fuel demand, and with it agricultural demand for water, is projected to continue to increase as fossil fuels become scarcer and hence more prohibitive in cost. While energy production may divert water from household or personal consumption, these energy production processes also risk contamination of underground and surface water supplies.

11. ***Water, population growth and demographic shifts:*** Today, the global population is 6.8 billion, and by 2025, it will approximate 8 billion. Of this increase, the net population of developing countries is expected to rise from 5.6 billion in 2009 to 7.9 billion in 2050. Water use has been growing at more than twice the rate of population increase in the last century. While this rapid increase in global population and acceleration of global economic activity clearly translates to increased demand for both renewable and finite natural resources, including water, the mere ability to feed everyone in 2050 requires 50 percent more water than is needed now. Moreover, the most rapid population growth is occurring in regions where water is already scarce and where current populations do not have reliable access to potable water and adequate sanitation. For example, sub-Saharan Africa and Northern Africa are the two regions in the world facing both the most rapid population growth and the greatest water stress. Thus, given the difficulty and expense of transporting water, proximity of water supply is a crucial factor in the water scarcity challenge.

12. Compounding the strain on urban water infrastructure, significant migrations from rural areas – where water supplies will be increasingly exhausted – to urban centers are anticipated in the coming decades. The increasing strain on water and sanitation infrastructure in urban settlements will decrease water quality, making water resources less potable. About 40 percent of slum populations migrated from rural areas due to climatic concerns. At present, 92 percent of urban areas have access to water, but only 72 percent of rural areas. By 2025, it is expected that the global population will shift from current figures of 55 percent rural and 45 percent urban to 41 percent rural and 59 percent urban. Environmentally-induced migration, especially in agricultural economies where climate change contributes to or aggravates drought, is predicted to account for much of this shift.

13. For example, of major concern is that some urban centers, like Sana'a in Yemen, can now only operate 80 of its 180 wells. At best, residents receive piped city water once every nine days. Some of the wells in Sana'a are now 800 to 1,000 meters deep, thus requiring sophisticated oil-drilling equipment while other wells are no longer functional because of sinking water tables. With the pressures of population growth and urban migration due to water scarcity in rural areas, it is estimated that Sana'a may be the first city to run dry, in as few as 10 years. The crisis is worsened by excessive irrigation connected with the production of *qat*, a mild narcotic leaf highly prevalent in Yemeni life. Agriculture accounts for more than 90 percent of water use in Yemen, of which 37 percent is channeled to irrigate *qat* crops. The country imports most of its food, largely because it has too little water to feed itself. Adding even further to the global strain on urban water supplies, when people migrate from rural to urban areas, their water consumption patterns are noted to increase from 8 liters/day to 27 liters/day. By contrast to Yemen where the government provides diesel subsidies to *qat* farmers which encourages increased water pumping, in neighboring Oman, the government has made water conservation a top priority and no new wells can be drilled without the Sultan's approval.

III. HUMANITARIAN IMPLICATIONS OF WATER SCARCITY

Impact on vulnerability and humanitarian caseloads

14. ***Water scarcity and conflict:*** Historically, water has been a highly contentious issue fomenting both inter- and intra-state conflict. The control or cessation of water resources has been used as a political tool even where water is abundant in a region. In some instances, warring states have made use of existing water resources to threaten the opposition by poisoning wells or controlling access to water supplies that were not necessarily scarce. Ostensibly, countries controlling the headwaters have incentives to hoard water, while downstream countries have incentives to withhold water from weaker neighbors. Based on these criteria, therefore, the Nile, Tigris, Euphrates, Mekong, and the Indus are all potential sites of conflict. Conflicts over water, however infrequent, are not a new phenomenon. History reminds us of conflict between Egypt and Ethiopia over dam construction; competition over water from the river Jordan as a key instigating factor of the 1967 war in the Middle East; and, disputes between India and its neighbors over the Indus and the Ganges. Access to water and fuel inputs – particularly since the blockade of Gaza in 2007 – remain major points of contention to a peace settlement between Israel and the Palestinian territories.

15. Today, there are 215 "international" rivers and more than 300 water basins that are shared by multiple countries, all providing potential conflict zones as water resources are depleted. Some shared water sources have a very large number of dependent states: nine different nations share the Nile. The Israelis, Palestinians, Jordanians, Lebanese and Syrians all share the Jordan River. However, positive lessons can also be drawn from how potential conflicts over water resources have been defused or averted; while the risk of water as a driver of conflict has always existed, very few conflicts have in fact come to play. However, even as water wars may be unlikely, water disputes or riots are already a reality in arid regions prone to water scarcity, particularly those with strong ethnic or tribal divisions where imbalances of water distribution may be drivers of civil conflict in marginalized or highly-divided societies.

16. Often the question of water shortages is not one of actual physical scarcity, but of improper water management and poor water quality. However, recent conflicts over water have been triggered by genuine scarcity more than accessibility. The "scarcity-conflict thesis" projects that contestations and political maneuvers over water resources will only increase as they become more scarce and unable to meet dependency on them. Homer-Dixon theorized that migration is a key linkage between resource scarcity and conflict insofar as scarcity pushes people or compels migrations into areas where they may encounter hostility from locals who feel threatened. For example, many view the conflict in Darfur as partly motivated by growing population pressures over a shrinking supply of water. Drought and desertification in the northern parts of Darfur has led to migration of the Arab nomads to the south of Darfur, where they came into contact with African farmers resulting in disputes over land and water resources. In a similar vein,

refugee migrations in areas with scarce water resources may increase competition and intensify tensions with host communities. Climate change will not only reduce freshwater resources at the outset, but will also act as a conflict multiplier in forcing migrations, especially to densely populated urban centers. Much more analysis needs to take place to predict when water shortages risk precipitating conflict; here, the development of trigger mechanisms for slow-onset disasters to predict drought would also help to highlight trouble areas.

17. Yemen offers an illuminating snapshot of how water scarcity has aggravated and entrenched political instability. In Sa'ada – the troubled northern province where fighting ensues – water scarcity is compounded by growing energy insecurity. Fuel to operate the urban water network system has run out and ICRC has agreed to start fuel provisions on a weekly basis to operate the system. Authorities have also agreed to create additional water points for internally displaced persons in order to relieve pressure on the urban water infrastructure that has built up through increased levels of displacement and prevailing drought. In the southern city of Aden, water shortages are fuelling violence, including protests on 24 August 2009 that led to fatal fighting between civilians and police. Water disputes often turn violent, particularly in tribal areas, and urban resource pressures may exhaust water supplies for rural communities, thereby escalating the incidence of water disputes. Projections that the capital of Sana'a could run dry in less than 10 years have forced authorities to consider transferring water to Sana'a from another basin, but this strategy risks sparking provincial conflict over depleting resources.

18. ***Water scarcity, developmental progress, and achievement of the MDGs:*** In 2000, the world pledged that half of the 2.6 billion lacking safe drinking water and basic sanitation would have access by 2015. However, to reach this goal by 2200, let alone 2015, poor countries will need an estimated US$18.4 billion more aid per year. The eradication of poverty and developmental progress toward the achievement of the Millennium Development Goals (MDGs) depends on fair and equitable access for the most vulnerable to basic livelihood assets, including water, for domestic consumption and productive use. Indeed, access to water impinges upon possible achievement of all of the MDGs, for example through the impacts of water scarcity on agriculture and food security (MDG 1), the impact of drought and the collection of water supplies (especially for female children) in disrupting education (MDG 2), and the impacts of water on nutrition, enhanced immunity to diseases, and wastewater management to reduce to the transmission risks of mosquito-borne illnesses (MDGs 4, 5, and 6). While access to water is not a sufficient condition for development and the eradication of poverty, it is a necessary one.

19. ***Water scarcity, agricultural production, and food security:*** Due to the reliance of agriculture on freshwater resources, food security is inextricably linked to water security. With increased water scarcity, communities that are not food-insecure may become so, and those who are already food-insecure may become even more vulnerable. Noting that agriculture – at a level of only 10 percent irrigation – currently consumes 70 percent of the world's fresh water supply globally, and up to 95 percent in some developing countries, water management is fundamental to the stability of global food production.

An increase in food production would necessarily imply a rise in water usage, which could further aggravate water shortages that already affect some 1 billion persons (a number expected to reach 2 billion in 2025 if present trends continue). Yet, the challenge of feeding everyone in 2050 – including the undernourished and the additional 3 billion expected with population growth – is expected to require 50 percent more water than is needed now.

20. Rain-fed agriculture, covering 96 percent of all cultivated land in sub-Saharan Africa, 87 percent in South America, and 61 percent in Asia, will be particularly hard-hit by the effects of climate change. But irrigation in large river basins and deltas are also at risk from a combination of reduced run-off, salinity, increased flooding and sea level rise. The contamination and loss of arterial freshwater supplies, such as the Nile, the Ganges, and the Indus, as well as the salination of freshwater supplies in Delta regions will debilitate irrigation-dependent food production. It is with a view toward this risk that adaptive measures are being tested, for example to cultivate rice crops in semi-saline water in Myanmar. A recent FAO study also points to the risks of warming ocean temperatures for fish populations given that many fish cannot tolerate swift rises in temperature; yet, fisheries and aquaculture play a crucial role for food security given that fish is a major source of protein in many poor people's diets, which are dominated otherwise by starches.

21. Moreover, drought – combined with other effects on freshwater availability, such as melting glaciers and rising sea levels – is expected to yield dire consequences for agricultural production. Drought ranks as the predominant cause of severe food shortages in developing countries and long-term drought can cause irrevocable land damage. While drought itself does not necessitate increased humanitarian response, when combined with existing levels of vulnerability, it can result in 'slow-onset' disasters characterized by emergency levels of malnutrition, human mobility, and a breakdown of community coping mechanisms. Many refugee and humanitarian beneficiary populations already reside in marginal land areas. In some African countries, rain-fed agricultural production is projected to halve by 2020, with the most populated regions of the Sahel and Southern Africa among the worst affected, with projections that the Sahel will face a drought-driven famine every seven years. The area of Eastern Africa in the Horn affected by drought is expected to double by the end of the century. 70 percent of Africans rely on rain-fed agriculture for their livelihood sustenance, and even a slight shift in rainfall patterns or temperatures could be disastrous. Reduced agricultural productivity will automatically result in reduced food availability leading to increased food insecurity, especially in the context of higher demand for food and food price volatility.

22. ***Water scarcity and health:*** Diseases and ailments common to poor health and sanitation may plague communities lacking freshwater supplies. With increased water scarcity, generally healthy communities may face health risks, and the weak or ill are made increasingly vulnerable. More than 85 percent of major diseases are related to exposure to environmental risk factors, such as poor sanitation, air pollution, and a lack of access to clean water. Globally, diarrhea is the leading cause of illness and death, and 88 percent of diarrhea-related deaths stem from lack of access to clean water and

sanitation. Furthermore, filariasis, schistosomiasis, guinea worm, and other water-borne diseases affect 200 million people across 74 countries worldwide. Currently, 1.1 billion people live more than one kilometer from their nearest safe water source, and are forced to risk exposure to bacteria by collecting water from drains, ditches, or streams. With increased physical water scarcity, it is projected that more than 5 billion people – or 67 percent (over two-thirds) of the world's population – will be without access to adequate sanitation in 2030. The challenge of containing disease outbreaks such as cholera and tuberculosis becomes increasingly difficult without adequate sanitation facilities. Finally, with an estimated 5 billion people predicted to be living in urban settlements by 2025, the rapid formation of slums that will accompany this urban boom promises to further strain water and sanitation facilities, whilst increasing the risk of disease outbreaks.

Impact on operational environments

23. It is evident that water scarcity may exacerbate conflict, food insecurity, and poor health and sanitation, thereby increasing the incidence and depth of humanitarian caseloads. At the same time, however, that heightened global water scarcity may increase the need for humanitarian assistance leading to a call for scaled-up operations, water scarcity may also impose increasingly strained conditions in which the humanitarian community must deliver assistance. It is crucial, therefore, that OCHA and the humanitarian community further its understanding of where water scarcity will create or intensify vulnerability and, consequently, inform its operations. Below is a non-exhaustive list of some initiatives to prepare the humanitarian system for the constraints that growing water scarcity may impose.

24. ***Investing in preparedness and contingency planning:*** On the policy side, in order to be fully equipped to respond to global water scarcity, the humanitarian community will need to continue to **incorporate an emphasis on preparedness** in order to ready itself for increased needs and to plan for how it will alleviate pressure on already strained water infrastructure. This may require developing **contingency plans** that consider water scarcity and include assessment plans, incorporating water scarcity profiles in the IASC Early Warning/Early Action report, promoting tipping point analysis, forging private sector partnerships to increase water efficiency and conversation in humanitarian settings, and strengthening linkages with early warning and monitoring systems.

25. ***Integrating water scarcity considerations in funding criteria:*** In terms of advocacy for financing, it could be worthwhile exploring how to better link World Bank and other development assistance to the severity of a country's water scarcity. As a point of reference, nearly one-third of the World Bank's total lending – more than US$54 billion – was linked to water shortages between 1997 and 2007, but there was little correlation between the amount of funding and the depth of water stress. Moreover, in 1997, 8 percent of net overseas development assistance went to water and sanitation versus five percent in 2008, despite widespread knowledge that investments in sanitation and water yield the greatest public health returns. As monies become available for climate change adaptation, it is important to bear in mind that the greatest impacts of

climate change will be felt through water as a medium and water conservation and generation programs must be funded accordingly.

26. ***Understanding slow-onset disasters and vulnerability:*** In recent years, OCHA has advocated for greater attention and funding for slow-onset disasters and for preparedness and disaster risk reduction, arguing that responses to slow-onset disasters are too slow and, that when they do occur, they are too similar to those for rapid-onset contexts. Research suggests that water scarcity may manifest in increased slow-onset disasters, thus encouraging OCHA and the humanitarian community to invest further in research in this area. Projections of water scarcity also point to the increased possibility that water scarcity-related humanitarian caseloads may emerge in what are traditionally perceived as developmental settings. This may increase pressure for humanitarians to enhance collaboration with development actors to allow for simultaneity, not merely sequencing, of interventions. Particularly given that the root causes of slow-onset disasters are often linked to structural policies, partnerships between humanitarian and development actors are fundamental. A recent OCHA-commissioned study on slow-onset disasters made the following recommendations, among others: encourage operational contingency planning for early response to emerging slow-onset events to avoid treating them like rapid-onset ones; promulgate IASC guidelines and forge consensus around what the planning process for slow-onset disasters should entail; evaluate the impact of early response actions through evidence-based monitoring; and, advocate for the creation of flexible funding mechanisms for early response to impending slow-onset disasters.

27. While water scarcity may result in a higher incidence of slow-onset disasters, the humanitarian architecture will be slow to respond to increasing needs in these contexts unless it shifts from a shock-driven to a needs-based entry point for humanitarian action. This shift is partly cultural or attitudinal, but also requires concrete investment in understanding better the interplay between water scarcity, other global trends, slow-onset disasters, and vulnerability.

28. ***Embracing opportunities and technological innovations:*** While resource scarcity poses new challenges, it also encourages the development of technologies that allow for the discovery of new reserves and provide unexpected tools and capacities to cope with these challenges. For example, current research suggests that innovations in satellite imagery and improved telecommunication mapping systems may increase the ability to assess humanitarian caseloads that are beyond immediate reach earlier and with heightened accuracy. Other promising advancements include efforts to refine processes that could ultimately lead to widespread use of deep-sea desalination technologies to supplant freshwater supplies, or the development of crops designed for arid environments. A number of drought-plagued countries have endeavored to build reservoirs, introduce artificial rainfall, adopt new, less water-intensive farming technologies, and take other measures. Here, partnerships with non-traditional allies and the private sector are essential to find new, innovative, and efficient ways to deliver assistance and to provide for water needs.

IV. POTENTIAL USES OF THIS OCCASIONAL BRIEF

29. This paper aims to provide a starting point to prompt initial discussion and advance joint analysis within OCHA and among other key actors to understand better and project with more accuracy the implications of water scarcity for international humanitarian action. As more knowledge, analysis, field inputs, and data become available, it will be updated accordingly.

30. Addressing water scarcity requires an inter-sectoral approach and a major challenge to doing so is the institutional fragmentation of responsibilities within the water development sector. Here, OCHA with its convening ability, in partnership with the UN-Water consortium, could play an instrumental role. Given the potential impacts of water scarcity on humanitarian action, OCHA and the humanitarian community may want to consider the following actions:

- Continue to engage in both forecasting and highlighting the implications of global challenges like water scarcity on vulnerability and humanitarian need to enable the humanitarian system to be proactive in preempting water scarcity-driven humanitarian need.

- Pursue further research and analysis on slow-onset disasters, and advocate for disaster risk reduction and adaptation funds to build bottom-up resiliency and meet the challenges of water security under climate change.

- Establish a baseline data inventory of water availability and need in fragile and emergency contexts.

- Promote tipping point analysis to establish clarity on indicators of acute vulnerability, assessment methodologies, and thresholds.

- Strengthen linkages with early warning and monitoring systems, including national and regional monitoring capacities, to capture existing and emerging scenarios of water scarcity.

- Review current strengths and capacities to adapt and evolve to these implications of water scarcity and to identify where flexibility is hindered either practically in terms of gaps in expertise and resources, or structurally in terms of mandates and operational parameters.

- Dialogue with UN water-related and other key stakeholders to generate system-wide awareness of global water scarcity and to participate in integrated country planning that takes into account water scarcity concerns for humanitarian action.

- Support the organization of a Working Group on water to undertake contingency planning for the impacts of water scarcity on humanitarian need.

- Undertake advocacy efforts on the specific implications of water scarcity for vulnerability and humanitarian need, perhaps even capitalizing upon the "Water for life" decade as a platform to do so.

- Forge private sector partnerships to urge for investment in water technology and desalination processes to provide for water needs in humanitarian responses.

- Investigate the creation of flexible pooled funding mechanisms to enable early response to slow-onset disasters.

KEY FACTS ON GLOBAL WATER SCARCITY

- In the past 100 years, while world population has tripled, water consumption sextupled. **(WB)**
- Feeding everyone in 2050 – including the undernourished and additional 3 billion people expected – could require 50 percent more water than is needed now. **(FAO)**
- Around 1.2 billion people, or almost one-fifth of the world's population, live in areas of physical scarcity, while another 1.6 billion people, or almost one quarter of the world's population, face economic water shortage. **(UN-Water)**
- It is projected by 2030, 47 percent of world population will be living in areas of high water stress. **(OECD)**
- 1.4 billion people do not have access to safe water (a number that could double by 2025). **(WHO)**
- By 2020, up to 250 million people could face more severe water shortages across Africa. **(IPCC)**
- Over one-third of the world's population (2.6 billion) has no access to sanitation facilities. In developing countries, about 80 percent of illnesses are linked to poor water and sanitation conditions. One out of every 4 deaths under the age of 5 worldwide is due to a water-borne disease. Ant any one time, half of the world's hospital beds are occupied by patients suffering from water-borne diseases. At any one time, half of the world's hospital beds are occupied by patients suffering from water-borne diseases. **(WHO)**
- 93 percent of African communities do not have groundwater access and depend entirely on variable rainfall for their water needs. Only 7 percent of African land and 4 percent of sub-Saharan African land is irrigated overall. **(FAO)**
- There are 215 "international" rivers and more than 300 water basins shared by 2-3 countries, all providing potential conflict zones as resources are debilitated. **(IEA)**
- The provisional 2010 Sphere Project standards for water use recommend that the average per capita water consumption be at least 15 liters per day, which equals 5,475 annually. **(Sphere Project)**