Climate Change: A Future of Less Water and More people - Strategies for a Water Constrained World

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Today, the fact that the Earth is warming is indisputable. The evidence of climate change is already all around us, with the occurence of ever more intense weather events, droughts, heat waves, floods and sea level rise. Predictions of greater calamities in the future without swift action must be taken seriously. However, while international summits have focused on means to reduce greenhouse gas emissions, these are largely strategies of containment, not of cure. Even if emissions were to cease today, the current effects of climate change would remain with us for millenia. This is clear from the 2007 report of the Intergovernmental Panel on Climate Change. The world must not only tackle the causes of global warming; it must adapt to the damage already done. This need is most acute where water supply is concerned. The world already faces daunting chalenges. According to United Nations' reports, even today 1.8 million children under 5 die from water related diseases every year; 900 million people lack access to safe drinking water; and 2.6 billion go without basic sanitation. In the developing world, 90% of sewage is discharged to water bodies without adequate treatment contributing to "dead zones". Population increases will make matters worse (an addition of around 3 billion people by 2050 is expected) and climate change will compound the crisis. It is forecast that, as the Earth warms, deserts will expand and droughts will intensify causing demographic shifts even as the world's population burgeons. We are already seeing different regions react to water shortages. Many countries are pursuing seawater desalination. However, seawater desalination has numerous drawbacks; it remains the most expensive of water treatment options and the most energy intensive. Some societies may have no choice but to turn to the sea; others should look to other alternatives first. Such frontrunners could include: (1) enhanced conservation, utilizing public education programs, price signals, and progressive building codes; (2) wastewater recycling for potable and non-potable uses, employing technological advances such as reverse osmosis, micro-filtration and UV radiation, as well as other creative approaches, such as phyto-remediation where feasible; (3) rainfall capture, through urban planning that exploits rainfall as an asset to replenish aquifers instead of exacerbating urban run-off by the indiscriminate construction of impervious surfaces; (4) groudwater remediation, deploying

proven techniques to clean and reuse contaminated groundwater; and (5) where possible, underground storage programs to mitigate the cycle of heavy precipitation followed by harsh drought, which may be a by-product of climate change in certain areas. The foregoing methodologies comprise the Water Supply Plan of the City of Los Angeles which is located in a semi-arid area and is largely dependent on imported water from sources located far from the City, some of which depend, in turn, on snow pack which may diminish as a result of climate change. The Water Supply Plan recognizes that the City's population will grow even as its present water resources may shrink and that the City must act to confront a possible future of less water and more people.

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