CLIMATE ADAPTATION IS WATER ADAPTATION

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Significant climate change is now written into our future. And water is a principal medium through which people, ecosystems and economies will experience its impacts.

While climate change mitigation will be achieved by transforming the way we produce and use energy, effective adaptation will come about in part by transforming the way we manage and use our water resources.

There is no alternative to water

However, the water challenges due to climate change are very different from those of energy. Unlike energy, water is difficult to transport over large distances. And where we can look to alternatives to fossil fuels for energy, such as wind or solar power, there is no alternative to water.

Sound water management is a key to adaptation. While *mitigation* efforts are critically important for minimising the degree of change, *adaptation* efforts are absolutely vital if we are to reduce the detrimental impacts of this change on lives and livelihoods. Take some examples:

- Shifting rainfall and river flow patterns will affect crop yields and challenge existing farming practices. In Kenya, flood and drought have cost the country more than 10 per cent of annual GDP.

Credit: Björn Guterstam, Global Water Partnership

Boat in dry Aral Sea

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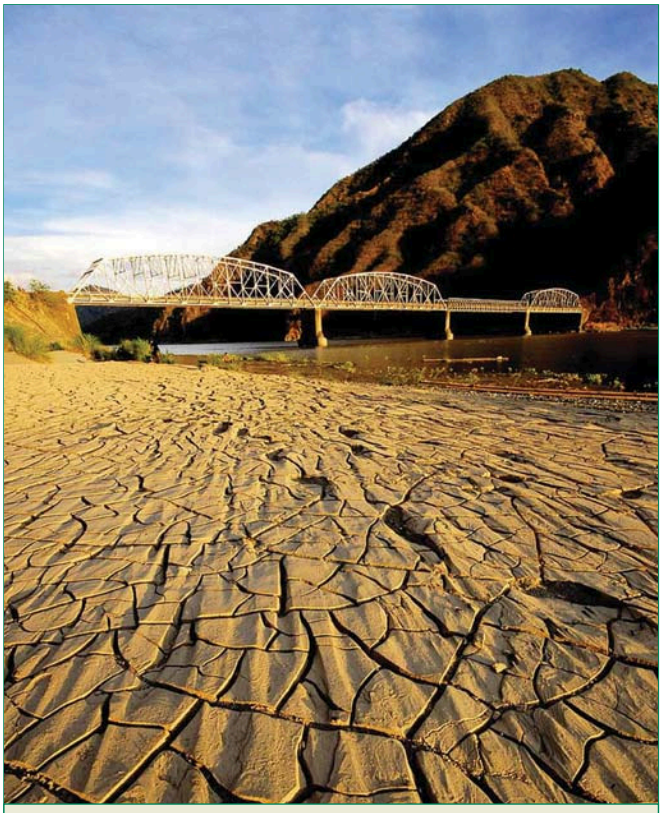
- Variations in water distribution will alter the incidence and patterns of water-related diseases. New areas of Latin America, Africa, and Asia will become vulnerable to malaria and dengue fever due to changes in rainfall and temperature.
- Intensifying typhoons, monsoons, and sea-level rise will make many more people more vulnerable to disaster particularly in low-lying areas. For island countries like the Maldives this can present a real danger.
- Glaciers melting and glacier-lake outburst floods will increase flood risks and affect fresh water availability in unpredictable ways. Glacier melt in Peru is already having a severe impact on drinking water supplies.

In light of these impacts, investment in national water resources management capacity, institutions and infrastructure must become today's priority for mainstream aid. Investing in water is sustainable development financing that will deliver substantial adaptation benefits and help build more resilient societies.

Credit: Global Water Partnership



Credit: Global Water Partnership

WATER SECURITY: FOCUS FOR ADAPTATION AND FRAMEWORK FOR ACTION

Adapting to climate change means understanding the role that water plays in the global economy, development, and the health and wellbeing of people everywhere. Adapting means acting to ensure that measures are taken to make all sectors more resilient and robust.

Adaptation responses to climate change must therefore converge on the goal of *water security for all* - which, broadly defined, means harnessing water's social and productive potential and limiting its destructive force. Water security provides a focus for adaptation strategies and a framework for action.

The path to a water secure future requires governments to move water higher up the development agenda to support the adoption and promotion of appropriate water management strategies worldwide. For countries that have not achieved a reasonable level of water security, climate change will make it harder to do so. Countries that have enjoyed significant levels of water security may find that climate change makes it hard to sustain.

What does water security require? There are precious few development issues that can be talked about without reference to water, whether it is poverty, hunger, health, energy, or the environment. In fact, the world community will have great difficulty reaching the Millennium Development Goals if it does not place water security front and centre.

Credit: Global Water Partnership

Flood in South Asia

Achieving a water secure world requires:

- Water policies and plans be incorporated into national and international development processes.
- World leaders and funding agencies appreciate that, in the long-term, investment in water, like water itself, is an opportunity rather than a problem.
- Partnerships for action and innovation at all levels among communities, nations, river basins, and globally.
- Going beyond what is normally considered "water business" which will entail major changes in the way that sectors (e.g. water supply and sanitation, agriculture, energy, industry) and human settlements are managed.
- Balancing social, environmental and economic priorities as well as balancing "soft" (institutional and capacity) and "hard" (infrastructure) solutions such as investments, small and large scale, in storing and transporting water.

An integrated approach to water resources management takes into account the interconnectedness between water users at different scales: locally, regionally and globally - and integrates multi-sectoral considerations of the needs of different uses with sensitivity to potential conflicts, threats and vulnerabilities.

Two key strengths of the integrated approach commend it as a means of addressing climate change. First, it integrates the activities of a wide range of sectors that use water, have an impact on water, or are impacted upon by water, ensuring that activities in one sector do not undermine those in

Credit: Global Water Partnership

Credit: GWP Philippines GTZ and NWRB

another and that overall use does not compromise the sustainability of the resource itself. Second, it recognises that managing the trade-offs among different activities and interests requires effective institutions.

The future resilience (or vulnerability) of human communities to climate change-related impacts depends, in large measure, on the success of these water resource management interventions.

ADAPTATION NOW FOR A SECURE FUTURE

Water security requires a mix of investments in hard and soft interventions alongside robust scientific research. The right mix will be a function of hydrological, economic, socio-political and environmental factors. Of course many of these challenges and responses are neither new nor the product of climate change alone. *But climate change exacerbates the challenge and throws into relief the advantages of pre-emptive solutions:*

- Investments in enhanced knowledge of the dynamics of climate change as it affects water and its uses, and in hydrological and meteorological information systems, are crucial prerequisites to informed and directed interventions.
- More visible water resource management interventions in the "hard options". Storage dams, for example, can retain and store river flows that are in excess of user requirements and release them during periods when low flows are insufficient to meet user needs. They can also stem peak flows during floods and harness water to generate low carbon hydropower.
- Knowledge will also guide the "soft options": the institutional mechanisms that help plan and maintain water for people, industries, farms and ecosystems. These "soft" tools help to manage demand as well as supply through such mechanisms as water allocation, conservation, tariffing, and land use planning. As climate change unfolds, new and innovative institutional solutions will need to be found. For example, integrating disaster management systems with the broader institutions of water management will be needed as the frequency of disasters increase.
- Other areas such as the global trade system have substantial impacts (positive and negative) on water use, as does land use planning and urban planning.

INVESTING IN WATER DELIVERS IMMEDIATE BENEFITS AND LONG-TERM RESILIENCE

Financial resources are needed to build a water-secure world. Sound water management is a key to building greater resilience in the poorest countries where there is greatest climate variability today and most threatened by climate change. Better water resources management is cost-effective: delivering immediate benefits to vulnerable and underserved populations, while strengthening systems and capacity for longer-term climate risk management. ■

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