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The Role of Water in Avoiding Conflict and Building Prosperity

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Thank you for the invitation to speak today on the role of improved water and sanitation services in avoiding conflict and building economic prosperity. I would like to make three points.

First, there is good news from the public health field: in developing countries childhood mortality rates are declining & the rate of decline is accelerating (Rajaratnam et al. 2010, Lozano et al., 2011). As we look ahead over the next few decades, it is likely that economic growth will enable East Asia, Southeast Asia, and Latin America to solve their water supply and sanitation problems, and WASH-related mortality will be a thing of the past in these regions (Jeuland et al., 2013). The remaining challenges will be in South Asia and Sub-Saharan Africa, but even here childhood diarrhea and mortality rates are falling rapidly.

However, the economics benefits of investments in water and sanitation infrastructure consist of both health and nonhealth outcomes. There is a shift occurring in the relative magnitude of these two components, with the health benefits declining and the nonhealth benefits—especially time savings and other quality-of-life improvements—increasing.

The nonhealth-related benefits of improved water services vary depending on local conditions, but can be surprisingly large. A recent study of households living in communities outside of Meru, Kenya, found that the total costs associated with coping with poor quality, unreliable water supplies were approximately US$20 per month on average, almost 5% of reported monthly cash income (Cook et al., 2015). These coping costs include the value of time spent collecting water from outside the home, investments in water storage and in-house treatment, and expenditures to water vendors. Coping costs were greater than 10% of income for one-quarter of the households in the study. They were also higher among poorer households. These coping costs are higher than average household water bills in some communities in the United States and much higher than average household water bills in Nairobi. Investments in improved water services that reduce or eliminate these coping costs free up a household's time and money for other priorities, and may increase economic growth.

As another example, in a recent study conducted in Kathmandu, Nepal, researchers at the Institute of Water Policy at the Lee Kuan Yew School of Public Policy, National University of Singapore, found that from 2001 to 2014, the costs households were incurring coping with water shortages and intermittent, contaminated supplies doubled in real terms from about US$7 per month to US$14 per month (Gurung et al. 2015). Even incurring coping costs of US$14 per month did not alleviate all of stress and discomfort that a household experienced trying to obtain water from contaminated wells, tanker truck vendors, and piped connections that supply water only a few hours a week. It is hard for an urban economy to function efficiently if people are worried about getting home from work to meet a tanker truck in order to have sufficient water for a week.

This shift from health to nonhealth benefits has important implications for donor assistance in the WASH sector. In places where coping costs are high, one can be

confident that the economic benefits of improved water supplies also will be very high. But the coping costs will not be high everywhere, and careful economic analysis of water and sanitation infrastructure projects is needed to ensure that assistance is targeted to communities where it will have the greatest economic impact.

This call for greater economic analysis of water and sanitaiton investments will be controversial because it is hard to quantify all of the benefits of WASH projects. This is in part because the causal links between water-related investments and economic growth run in both directions. Water-related investments can increase economic productivity and growth, and economic growth provides the resources to finance capital-intensive investments in water-related infrastructure. Moreover, water-related investments result in two conceptually different types of economic benefits. They can reduce the losses experienced from water-related hazards and at the same time produce valued goods and services (Sadoff et al. 2015). Water-related investments also increase human well-being without increasing national income or economic growth as conventionally measured.

The relationship between water and economic growth varies with the local context. As in other sectors of the economy, there are investments with both high and low economic returns. Although the economic analysis is difficult, it is urgently needed because piped network infrastructure is very capital intensive and poor investment decisions are costly. The challenge is to determine the timing and sequencing of investments in a particular location that will yield the highest economic returns. Assistance needs to include building local institutions and analytical capacity to find these economically attractive water and sanitation investments. A simple focus on WASH technology, such as drilling more wells and building more toilets, will not maximize economic benefits.

My second point is that as the world's population becomes increasingly urbanized, the largest economic benefits of improved water and sanitation infrastructure usually will be in cities in developing countries. If the objective is to promote economic growth, then it is important to prioritize water supply and sanitation investments in these cities—especially in poor neighborhoods with the worst services. It is there that the nonhealth economic benefits are likely to be greatest because time savings can be most easily converted into productive labor and increased income.

Large economic benefits can be obtained not only from infrastructure investment, but also from policy reforms. Utilities in cities low and middle-income countries almost always provide piped water and sanitation services to customers far below cost. Utilities have no financial resources to expand and improve services, or to adapt to climate change. They rely on subsidies from higher levels of government and donors to pay for their operations. Recent research has shown that these subsidies are very poorly targeted, and the majority does not reach poor households (Whittington et al. 2015; Fuente et al., 2015).

Not only do current tariff structures fail to target subsidies effectively to poor households, but also they fail to send the correct price signal about the economic value of water, resulting in inefficient water use and poor capacity expansion decisions.

Assistance that helps build local institutions and analytical capacity can enable utilities to both adopt improved tariff structures and design mechanisms to better target available subsidies to poor households.

For my third point I will shift from the economic benefits of water supply and sanitation investments to the relationship between water and conflict on international rivers. I want to focus on the evolving situation on the Nile.

Construction of the Grand Ethiopian Renaissance Dam (GERD) started in 2011, and is now about 40% complete. This dam is located on the Blue Nile in Ethiopia near the Ethiopian-Sudanese border. When it is finished, the Nile riparians and the global community will face a new situation in transboundary hydro-politics. A recent report from the Massachusetts Institute of Technology (2014) describes the challenges this new dam poses for Egypt, Sudan, and Ethiopia. There will be two very large dams (the Aswan High Dam and the GERD) with over-year storage capacity on the same river in different countries in a water-scarce basin.

Presently there is no plan for coordinating the operation of these two large storage facilities. Egypt, Sudan, and Ethiopia signed a "Declaration of Principles" in Khartoum this past March, and this was an important step toward cooperation on the Nile. But there has been little concrete progress made on an agreement for filling the GERD and for the coordinated operation of the GERD and the Aswan High Dam. The countries have even failed to reach agreement on the team of technical consultants to be engaged to help them with this task.

This evolving situation on the Nile deserves the international community's full attention. The United States should do whatever it can to assist the Nile riparians in reaching a fair, equitable agreement on joint operation of the Aswan High Dam and the GERD based on best global practices and experience. This is a matter of considerable urgency. Ethiopia will likely begin filling the GERD in 2016. Without a well-developed, carefully designed joint operating agreement, there is an increasing risk of conflict due to misunderstanding and ambiguity surrounding the different riparians' motives and actions (Whittington et al, 2014).

In summary, I have four recommendations.

First, in order to promote economic growth, the United States Agency for International Development's (USAID) assistance in the water supply and sanitation sector should be largely focused on South Asia and Sub-Saharan Africa, and on cities.

Second, if USAID wants water and sanitation investments with high economic returns, it must assist countries and cities do the economic analysis necessary to identify where the economic returns will be greatest. Assistance with building local institutions and analytical capacity is needed to improve this investment planning process.

Third, USAID's Global Water Coordinator and the Department of State Special Advisor for Water Resources should give high priority to the reform of municipal water pricing

and tariffs to improve the targeting of available subsidies to poor households and to promote economic growth.

Fourth, the United States Department of State should increase its diplomatic efforts in the Nile basin and encourage international organizations such as the World Bank to seriously reengage in the Nile. The lack of an agreement on the coordinated operation of the Aswan High Dam and the Grand Ethiopian Renaissance Dam creates unacceptable risks of future conflict.

Thank you.

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