A crisis is coming in trade and water, part 1

A coming water crisis, driven by climate change, neglect of infrastructure, and misguided policies, is threatening global economic growth in countries struggling to develop, and in developed countries, too.

The water crisis is partly due to climate change and the increasing unpredictability of weather, but a lot has to do with the behavior of global trade, trade policies, and institutions that believe water is inexhaustible.

It is not.

By 2050, global demand for water will have risen by 55% from current levels, and wastewater discharges of growing urban populations will increase nitrogen effluents into rivers and seas by 180%—almost triple—compared with today's rates, creating severe water stress that will affect the livelihoods of 4 billion people.

Alexandre le Vernoy, a consultant at Groupe d'Economie Mondiale, identifies four major concerns about water: scarcity aggravated by climate patterns, declining water quality, weak management and regulations, and infrastructure gaps that make it hard to get water to where it is most needed.

For Le Vernoy, water is gold, spent as pennies.

> There is a water crisis, that is for sure. The water crisis has three main ingredients. The first one is growing population, so it puts to bear locally on when demand is growing, not just because population is growing but also the expectation of wealthier population is growing. So there is one correlation—the wealthier you get, the more water you consume and not just from the tap but the products you consume. Basically, when you become wealthier, your diet changes and then your diet is more water intensive. So, the first issue is population and population growth. The second problem is about quality. The quality of water is deteriorating quite significantly although even countries like China are making a huge effort to fight this, but quality is a major issue. And the third one is infrastructure. How do you get the water to where it's needed? You have countries where it is abundant, but people don't get to the water because they don't have the infrastructure to get the water and to be developed. What it is creating is a huge gap between demand and availability going forward that we are going to expect more than what we have.

If nothing changes, he says, by 2030, the demand for water will outpace supplies by 40% on average and by more than 50% in countries that are developing most rapidly. Agriculture

uses 70% of water and farmers will suffer the most. The coming decade is likely to see cereal production—wheat, corn, barley, rice—fall 30% short of demand. Industrial production will be affected. In 2015, power plants in India suffered long shutdowns because dams and reservoirs were empty, and monsoon seasons have become erratic.

> It is an emergency. Many countries, not just developing countries, that literally are shutting down. You can think of Australia you can think about California, you can think about France. Last summer, agricultural production was literally shutting down because water was lacking.

A lack of water in all its forms could reduce the world's gross domestic product by 2.6%.

Le Vernoy says droughts and water shortages in South Africa, California, Australia, and southern parts of the People's Republic of China show this is not just an issue for developing economies.

Countries need to look at what they produce for international trade against how much water they have, but disasters are already common: irrigated cotton production for export by Uzbekistan, among other Central Asian countries, has caused the almost irreversible depletion of the Aral Sea; Kenya's exports of cut flowers drained Lake Naivasha.

Through heavy subsidies, Saudi Arabia had long been a top-10 wheat exporter, leading to the overuse of the country's ancient aquifers, but, recognizing the severe strain on its groundwater resources, it recently decided to phase out subsidized cereal production and rely on international food markets.

International trade can partly solve the lack of water by directing water-intensive production toward those countries with sustainable water supplies through pricing mechanisms that give a value to what is too easily considered free.

> It's not there yet in terms of how countries regulate the labeling of products' water content. But the private sector is thinking about this as a way to raise awareness of products' water content. At a supermarket you could determine a product's CO_2 content and also its water content. If the product is from Senegal, for example, then my CO_2 footprint is this much, besides which perhaps Senegal uses water extra efficiently because it only uses rainwater. It could happen sometime, but we're absolutely not there yet in terms of raising consumers' awareness.

But how to balance that mechanism so as not to punish water-scarce countries? Many Middle Eastern and North African countries, due to a lack of water, import food, without which food security would be impossible.

What is needed is more concerted openness to international flows of goods and services and a balance between adopting hard and soft strategies.

Hard approaches refer to infrastructure, operation and maintenance, traditional water storage systems, storage management, water reuse, desalinization, and integrated flood management.

These contrast with soft interventions aimed at curbing inefficient uses or establishing proper institutional frameworks.

They focus on demand-oriented approaches and use instruments such as pricing mechanisms, efficient technologies, a culture of conservation, land-use planning, and education and communications.

Another soft strategy involves trade and "virtual" water. Virtual water is the volume of water used—and embedded—in the production of goods and services.

Each production process requires dissimilar amounts of water, which may vary from country to country.

While products are traded regionally or globally, movements of goods involve virtual transfers from one trading partner to another of the water used in their production process.

This water is said to be virtual because it is not present as such in the product, but was required for its production.

Using the data on the water content of world trade, gross virtual water flows amount on average to 1,624 cubic kilometers, with 61% of the total virtual water trade associated with international trade in crops, 17% with livestock, and 22% with industrial products.

> Water is literally given away. It's so cheap that you can't really signal the scarcity of the resource, so you don't get the right incentives or right behavior. Some progress is being made in finding the right price and the right values for water, which usually goes beyond how much it costs to distribute a cubic meter of water. It's not just what you can do with it in terms of mining the ground or producing a tomato. It's also what you take out of the environment. Value in water is extremely complex, but tools are being developed to understand it a bit better. There is no direct correlation between the price of the products and the amount of water in the country where it's produced. There is a correlation between the amount of available water and production. Less water means less production, more water means more production. Up to a point: where you have a flood, a lot of water but no way to process it. But there is a correlation and that relationship is translated as price. If there is less water, there is less production. Hence, the price is higher in the international market.

This is the first part of a two-part interview with Alexandre le Vernoy, a consultant at Groupe d'Economie Mondiale. He explains these concerns further in *Win-Win—How International Trade Can Help Meet the Sustainable Development Goals*, a landmark study by ADBI.

Listen to podcast

- https://soundcloud.com/adbinstitute/a-crisis-is-coming-in-trade-and-water-part-1/

Read the chapter

- http://bit.ly/2EmIRgo

Know more about ADBI's work on trade

- http://bit.ly/2oTzgng
- http://bit.ly/2D3NTJH