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What does the Paris climate agreement mean for water policy?

By Ines Dombrowsky, Steffen Bauer & Waltina Scheumann,
German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)

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Bonn, 22 March 2016. The United Nations will hold the 23rd World Water Day on 22 March, highlighting the importance of water to humanity. This is the first World Water Day since the adoption of the UN Sustainable Development Goals (SDGs) in September 2015 and the Paris climate agreement in December of the same year. The focus of this year's event will undoubtedly be SDG 6 on Clean Water and Sanitation. But what does the Paris climate agreement mean for water policy?

The vital importance of water and water-related trade-offs with climate policy has largely been ignored to date. At first glance, water plays no role in the Paris agreement. Upon closer examination, however, we see that climate policy will have far-reaching implications for the availability of water and vice versa. This affects efforts to adapt to climate change as well as activities to reduce greenhouse gas emissions.

The Paris climate agreement has for the first time made the enhancement of adaptive capacities and the strengthening of climate change resilience a global goal. As a result, climate change adaptation is now given the same priority as climate change mitigation. However, climate and water policy often disregard the importance of water as the medium through which climate change exerts its clearest and most direct impact on our livelihoods and on numerous economic sectors (e.g. agriculture, energy and tourism). This impact is felt in a number of ways, including through climate-related increases in droughts and flooding, seasonal changes in rainfall, the growing scarcity of local water resources (e.g. as a result of glacial melt) and deterioration in water quality (e.g. the salinisation of freshwater as a consequence of rising sea levels). If climate change causes people to migrate, then it will be because of increased drought and flooding. Consequently, we must gear water policy towards addressing the rise in extreme weather events, the scarcity of resources and the deteriorating quality of water resources as a result of climate change. Key climate change adaptation measures in the water sector include the retention of water by forests, wetland and artificial storage facilities, improved soil and water management in rain-fed agriculture, and flood protection. At the same time, other adaptation measures, such as the expansion of irrigation farming, may even reduce the availability and quality of water resources.

Even less attention has been paid so far to the fact that mitigation measures can also involve high levels of water consumption. The central goal of the Paris climate agreement is to keep long-term global warming well below 2°C and, if at all possible, to limit it to 1.5°C. To this end, the parties to the agreement "aim to reach global peaking of greenhouse gas emissions as soon as possible, [...] and to undertake rapid reductions thereafter" in order "to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century" at the latest. Almost all IPCC scenarios where there is a high likelihood of limiting global warning to 2°C rely heavily on technologies with negative emissions, that is, technologies that sequester atmospheric carbon dioxide (CO_2) in carbon sinks. Such sinks can be created through reforestation, as well as through the use of bioenergy with carbon capture and storage (BECCS). BECCS involves first growing biomass, including wood or crops such as maize and then combusting it to generate energy. These two steps together are essentially emission neutral. Finally, the carbon emissions released from combustion are separated and stored using carbon capture and storage (CCS) technology. In this way, energy is produced with negative net carbon emissions. It is here that a trade-off becomes evident between the goals of climate change mitigation and water resource conservation. Bioenergy production especially, but also CCS technology, uses considerable quantities of water, which can exacerbate existing regional water shortages in particular. The massive amounts of water and land used for BECCS mean the method is also in competition with food production processes. The alternative to BECCS would be to take swifter, more radical steps to make our societies carbon neutral. If, on the other hand, we choose not to adhere to the 2°C limit, then we would be jumping from the frying pan into the fire in water policy terms: A warmer world would similarly increase pressure on water resources considerably.

If we are too late in taking seriously the trade-offs between the goals of climate change mitigation and those of water resource conservation, then climate policy may jeopardise the achievement of the water SDG. This would in turn put at risk other SDGs such as the "Zero Hunger" (SDG 2), "Sustainable Cities and Communities" (SDG 11) and "Life on Land" (SDG 15) goals, which depend on a sufficient supply of water. In water policy terms, this means that sustainable water resource management as per SDG 6 will become increasingly important in future in light of both climate change adaptation and climate change mitigation.