

Dr. Laurent Baechler, Director of the MAEIS, Cife, on “The Water-Energy Nexus in Central Asia”

The water-energy nexus situation in Central Asia is a perfect illustration of a prisoner dilemma situation. This situation has been created by two parameters: nature and the collapse of Soviet Union. Along the two basins of the Amu Darya and Syr Darya rivers, upstream and downstream countries face very different situations. Upstream countries (Kyrgyzstan and Tajikistan) are water rich and energy poor countries, while downstream countries (mainly Uzbekistan and Kazakhstan) are energy rich countries dependent on water provision from upstream countries to meet their huge water needs to sustain their agricultural activities (main crops being cotton and rice, highly water consuming crops).

Under Soviet rule, natural resources management was centralized and conceived along regional development schemes, according to which upstream countries' water resources should be used to help downstream countries become the bread basket of Soviet Union, while downstream countries' energy resources should flow partly to upstream countries to sustain their development capacities. In this perspective, the collapse of Soviet Union created a quite anarchic situation under which resources location, infrastructures and respective resource needs in Central Asian countries did not change, while newly sovereign countries tried to retain as much as possible of their own resources, refusing to abide by the former Soviet rules of resource exchanges, fearing to become losers in the « barter game ». This barter is supposed to rely on an « energy for energy » exchange : upstream countries provide downstream countries with water in summer, and then accept not to overuse hydropower in winter to produce needed electricity resources to cover their heating needs; downstreaming countries accept in return to buy excess electricity capacities from upstream countries in summer, and to provide them with fossil fuels in winter to cover their energy needs (electricity cannot be stored). But the deal has to rely on mutual trust which is lacking in the region. Consequently, Central Asian countries have to face a situation in which they prefer not to cooperate because of a lack of trust in their potential partners, leading them to a lack of water resources in downstream countries in vegetation season, and a lack of energy resources in upstream countries in winter. That is why the situation can be best conceived as a perfect illustration of the prisoner dilemma game, in which actors should cooperate to optimize their respective outcomes in a given situation of strategic interaction, but fail to do that because of mistrust, and finally end up with lowest possible outcomes as a result of common defection.

Several institutional arrangements have been tried over the past two decades to overcome the obstacles to cooperation, some of them with the help of external actors like the US. But broadly speaking, the Soviet period status quo in terms of water/energy sharing arrangement still dominates the situation, while mistrust between neighbouring countries in the region regularly fuels political tensions between them. A recent parameter adding tensions and fueling a growing risk of escalation is the conception of two dam projects upstream in Kyrgyzstan (Kambarata 1 and 2) and Tajikistan (Rogun dam), whose size present a real threat for downstream countries in terms of access to water resources (the fact that dams exist in downstream countries as well does not change the simple truth that upstream countries can hurt downstream countries by building new dams, as the reverse cannot be true for simple technical characteristics).

To get out of this conundrum, Central Asian countries need to adopt (or more precisely need help to adopt) a sustainable development perspective for a rational long term management of common resources. The current status quo is cruelly lacking such a long term management approach of water and energy resources to take into account many features of the situation. One of them is the differences that can occur along years between wet, dry and normal seasons (with consequences such as reduced long term capacity of water storage, excess of water capacity for downstreaming

countries in wet years leading to reduction of energy provisions to upstream countries who will have a tendency to retaliate by increasing pressure on water capacities in winter to compensate for a lack of energy provision from downstream countries, ...).

Another feature is the timing of agreements currently not able to reduce uncertainties as regards the quantity, quality and prices of imported energy resources for upstreaming countries, and the same for the quantity of water going to downstream countries. These uncertainties fuel at the same time wastes of resources and political tensions between countries.

One of the main problems is the fact that water resources are not considered as they should be in the current status quo. Downstream countries feel entitled to free access to these resources, whatever the cost of managing and providing them, while upstream countries want to retain full sovereignty over these same resources. A proper deal should acknowledge that water resources are scarce resources like any other natural resources, and that they should be priced accordingly to take into account the cost of management in upstream countries; at the same time upstream countries should recognize the right of access to these vital resources for downstream countries, provided they receive proper compensation for easing this access. To sum up, the current « energy for energy » barter situation should be replaced with an « energy for water » exchange, with proper calculation of costs and prices of the respective resources.

Another crucial feature of the current situation is the fact that both water and energy resources are hugely wasted in Central Asian countries: irrigation systems waste more than 50% of water resources used in agricultural activities, while the level of energy efficiency of Central Asian economies is one of the lowest in the world. Needless to say, this situation fuels the lack of cooperation between countries who have a greater incentive to retain as much resources as possible for their respective economy.

Last but not least, climate change will take its toll in the long term in terms of resource availability. Among many other impacts, the main one is estimated to be a slow shift in the seasonality of runoff along the two main rivers, with less water availability during vegetation season as the main consequence in the long run. Every country would then become a loser in the situation, with no possibility to go back to the previous status quo.

Central Asian countries should then be persuaded that in a sustainable development perspective, proper long term water and energy resource management should lead to a positive sum game for all partners. But the problem they face is the absence of political incentives to adopt this perspective, which is why once again we can conceive the situation as a textbook case of prisoner dilemma game.

There is clearly a need for an external mediator in this situation, since nothing seems to be able to change by itself to help Central Asian countries switch from a non cooperation to a cooperation situation. The European Union seems to be a good candidate for this role. The US do not yet consider the region as a strategic priority, and China and Russia have too many vested interests in this area to play the neutral role of the mediator (Russia for example contributes to the financing of the two controversial dam projects in upstream countries). The EU can then help substitute political tensions and lack of cooperation with proper long term resource management for three main reasons: it can be considered as a neutral partner in the water-energy nexus situation in Central Asia, since it does not have direct vested interests in it; it has a certain credibility when it comes to sustainable development approach to resource management, having committed itself to ambitious objectives in this domain; it has a long experience and thus a huge expertise to share in the domain of international water course management, with among other institutional arrangements two conventions to manage the Danube and Rhine rivers' resources.

Laurent BAECHLER
Director of CIFE MAEIS, anglophone branch