An essay on China's Yellow River water management

Long Western tradition cherishes the believe in freedom. Democracy is preferred, if not the only accepted form of government in our Western societies. 'The people' rule and so it may be expected that law making efforts are supported by a majority of the people. Acceptance of making new law is one of the pillars for legitimacy of a government.

China, as a rising supranational power, is a country quite to the contraire of Western societies. The One Party rule is something Western societies could never accept. However, it, China's One Party rule, may be posing a difficult question to a Western society with regard to governmental issues. Let's see in what way!

The Chinese government understands it needs to develop fast to keep their citizens happy. As long as it inspires the millions of poor that one day they will live the 'Chinese dream', its leaders keep a civil revolution at bay. China has lifted more people out of poverty single-handedly than any other country before in history (see Millennium Development Goals on poverty). Year after year, China's growth has been tremendous. To keep doing so, it needs **effective** policies, also on water. The Chinese government cannot afford 100's of millions unhappy Chinese people distorting into revolution.

China is thus a particular interesting case to study **effectiveness** of (water policy) measures as **opposed to** the perceived **legitimacy** of that same policy. Popular view holds that measures taken by the autocratic government are highly effective, but may very easily lack legitimacy. However, the Chinese government may well see this different than their own people and most certainly different than Western society.

So, what is effectiveness? A brief definition of effectiveness is: the degree to which objectives are achieved and targeted problems are solved. It is about 'doing the thing right' and without regard e.g. costs or considering when a result is enough.

When effectiveness is specifically applied for water management things become more complicated. As Young and Haveman said in their famous 1985 survey *Economics of Water Resources*: '*water has unique physical properties, complex economic characteristics and important cultural features that distinguish it from all other resources*'. Apparent is that every society has its own way of dealing effectively with water management, depending on its exact use and this will be important in this essay.

Now, what is (lack) of legitimacy? The term refers to how law making by authorities is perceived as right and therefore obey to this law. Legitimacy can be based on very different sources such as charisma or tradition. The funny thing is: legitimacy does not equal legal. Laws can be legal but lack legitimacy and visa versa. This is the second important denotation in this essay.

As Young and Haveman put it: '*water resource management depends on the government's ability to establish an appropriate (legitimate) legal, regulatory and administrative framework. In fact, markets are based on a system of enforceable private property rights. Private water markets require secure and transferable property rights, including the right to exclude other users.*'

So how do the effectiveness and legitimacy compare in water management in The Netherlands (European Water Framework Directive) and Chinese water management of the Yellow River?

The Yellow River is China's 'mother river', the sixth longest river in the world with an estimated 5464 km. Throughout history it is seen as the cradle of Chinese civilization, but is also known for it less glamorous deadly effects such as floods and course changes. Yellow River gets its name from the muddy colour it gets from all the loess being carried downstream. Nowadays it carries much more than the sediments that make the river so unpredictable (slow build up of sediments causes the river to change its course suddenly).

Its main characteristics speak volumes, 1) it carries 34 times more silt than the next river, 2) heavy irrigation cause parts of the river to run dry, 3) it is used for electricity generation either as cooling water or dams, 4) it is used as the waste disposal system by industry and households. The river basin is home to an estimated 110 – 190 million people.

As for the latter: a 2008 report carried out by the Yellow River Conservancy Committee shows that up to 1/3 of the river is deemed unusable even for agricultural or industrial use. Only 12% was deemed safe for domestic drinking water by U.N. Environment Program health standards.

The Yellow river carries an overload of waste of all those business next to the river or near the river. Yet the Chinese seem to be used to it, as a proverb says 'When the Yellow River flows clear' is akin to the English expression 'when pigs fly'. It is (deemed) impossible.

The difficulty of river management authority is illustrated by the following: in 2007 the council in the city of Wuxi had ordered over a thousand factories to clean up production or be closed down within a year. That year the local economy declined by 15%.

This shows there is a delicate balance; a vibrant economy needs safe drinking water supply, whereas investments in safe drinking water need that same strong economy. This can either become a very virtuous or a very vicious circle.

Luckily, the World Bank in a 2007 report stated that between 1990 and 2005 there have been major financial investments in water infrastructure. Urban water supply coverage increased from 50% to 90%. Water usage by the growing population has increased but it has decreased by industry causing a stabilization of the water usage. Wastewater treatment of urban wastewater more than tripled from 15% to 52%.

The rule of law in water management was made possible by the new constitution in 1982. The constitution caused a shift towards legal methods for guiding action and decision making and also because it reiterated the state ownership of water resources.

As we can imagine developments go fast in China. The 1990's are also called the New Water Decade and it extends into this new millennium. The 1990s witnessed a new water era in China based on the reforms and their economic impacts. The reforms have had two major impacts related to water management and use in the Yellow River.

First, the rule of law was given added relevance. Second, economic growth placed increasing demand on water resources, both in quantitative and qualitative terms. Together, these and other factors caused changes in water policy and management. The impact of legal reform was showing results in the 1990s.

Still, two perennial issues remain: water quality and water quantity. Currently, the government has embarked on a multi decade infrastructure project to divert water from the rainy south to the needy north. The idea is to create three additional artificial routes for water. This should solve the problem of water quantity and rivers attached to the Yellow river running dry. The problem is that such long term large scale projects do not immediately increase legitimacy. Its construction actually decreases legitimacy and its effect is only apparent after tens of years of construction. It is thus not an appropriate response to the problems the Yellow River faces today.

It is well known that every developing nation follows an environmental Kuznet curve. (The original Kuznet curve applies to economic inequality). This curve states that in the early years or decades of development the environment is allowed to degrade significantly in order to allow easy economic expansion. Somewhere along the curve, the developing society gets rich enough to pay for waste disposal and this allows taking care of the environment and not letting it degrade anymore. From this moment on environmental quality is improved. One could even argue that environmental improvement is a necessary step to continue economic growth.

So what does history show us for a well developed country such as The Netherlands? A drinking water system in The Netherlands was slowly being built as of the end of 19th century. However, this was not without a fight as some people tried to profit as much as possible from a water source. The price of water was set as high as possible so the owners would get rich as fast as possible. Already in the 1920's the first standards for quality of tap water were set. Then the Great Depression set in and The Netherlands was hit hard in terms of economics.

As of 1957 the Tap Water Act was introduced, which guarantees access to safe drinking water. This law has been very effective in providing enough and good quality water to Dutch citizens. In this respect China is still about half a century behind on The Netherlands.

The Tap Water Act was passed in economic prosperous times of the 1950's and 1960's. After the destructive Second World War, the socialist party began amongst else, a program of building housing for everyone. It is this sort of solidarity that inspires and enables to build the fundamentals of a well functioning society. One of these fundaments is (access to) clean water.

China is still a developing country and currently engaged in similar programs, albeit on a much grander scale. The development programs are massive and envisioned for the long term. They seem very effective, but only after their completion a decade later. They are the vision of a very technocratic approach.

The Chinese people should start demanding legitimacy today and by their own participation create it at the same time. They should demand similar fashion Western style of legitimacy of governmental handling of water management.

The sustained strong overall economic performance (growth rates 7% annually) should allow upgrading the basics needs of its society. This will in the longer term allow for even more economic growth. If this fails the environmental degradation will implode the Chinese society.

For China it is not anymore so much the lack of legal possibilities to enforce water management. One of the necessary basics steps for this is taken: the creation of rule of law. Yet this has still to be translated into results. As we have seen in the example of the city of Wuxi, the enforcement of rule of law is not without societal or economic consequences. In China a tragedy of the commons is taking place, so individuals and businesses can profit. It is profit by compromising the solidarity principle.

The Chinese society will need to demand more from themselves with regard to water quantity and quality, even if this comes at an economic sacrifice. Legitimacy is the acceptance of the rule of law, but this also means one must be willing to accept it and possibly put in their own effort.

There are plenty of programs to participate into more efficient water use for businesses and households. This can partially solve the water scarcity problem along the Yellow River during the driest months. The reasoning should be that each individual put in their own maximum effort and that the collective effort makes the difference.

Secondly, all Chinese businesses and households should pay pollution taxes. The lowest income families and small business could be supported by the government by subsidies. The pollution taxes get everybody used to 1) minimize waste production and 2) internalize the costs of waste treatment. Especially the latter is important; because Chinese society should not kid themselves into thinking that dumping of waste has no costs. Ultimately the external costs are shouldered by the society and they are higher than waste treatment.

These two actions, efficient water use and taxes, will in turn create more legitimacy as people become to understand water issues better. People become more involved with the water management practice and at the same time contribute to its solutions.

The effectiveness of large scale projects is not enough. China will need to bolster the softer side of policy approach in which they try to engage and influence behaviour of the people as well. It is the local residents that can now make a lasting impact on water management in China.