On the grasslands of the Tibetan plateau, one sometimes hears a strange chattering -- an excited buzz that seems to emanate from the earth itself. Anyone who stops to look for the source will quickly realize that the ground is marked by a series of holes, from which small, shy creatures are likely to be watching.

The labyrinthine burrows made by these mammals, called pikas, provide them security. But they provide China and much of Asia security as well. By digging holes in the ground, pikas allow rainwater to percolate into the earth and replenish the water table. Without the humble pika, the water simply runs along the surface, triggering floods and soil erosion. So it is no coincidence that, when the pikas became the target of a state-led poisoning campaign beginning in the mid-twentieth century, waters began, slowly, to dry up across the country. The pika was accused of being a pest that destroyed grasslands. Scientists have pointed out that the pika prefers long grass and that its visibility is a symptom, not a cause, of grassland degradation. But policy is slow to catch up with science; pika killings continue today.

The pikas’ plight illustrates China's difficulties in confronting its water crisis. The economic development on which Beijing depends to keep the population in check poses a dire threat to the fragile ecosystems that the country and the continent depend on for water. It might thus seem politically impossible for China to enact any of the far-reaching environmental reforms that it needs. In the long term, though, absent any policy changes, China is likely on the path to serious civil strife, and perhaps even civil war.

THE WILD WEST

Most of China’s most important rivers originate in the plateaus of Tibet and the surrounding mountain ranges, an area
known by scholars as the Third Pole because of its plentiful ice. The rivers flowing from the Third Pole -- among them, the Mekong, the Yangtze, and the Yellow River -- traditionally satisfied the majority of China’s water needs. But those waters, along with China’s other supplies, have been steadily disappearing. Since the 1950s, 27,000 rivers have vanished from China. China has only seven percent of the world’s freshwater to meet the needs of about one-fifth of the world’s population. Of that water, only 23 percent is located in northern China, which, as home to most of the country's major industries, uses much more water than China’s south. Meanwhile, much of the country's available water supply has been rendered unusable by pollution.

The rapid economic development of western China in the last decade and a half has put even more pressure on China’s water supply. Beijing has supported this economic development in spite of its pernicious ecological consequences, though, because it believes that economic growth is the key to calming the restive minorities in the west. (If Kazakhs, Tibetans, and Uighurs have plenty of employment opportunities, the theory holds, they will be less likely to rebel against Communist Party rule.) But Beijing’s control over what goes on in western China is limited. Grand engineering projects designed in Beijing and implemented in distant provinces do exist: think of the railway to Tibet or the Three Gorges Dam. But lately, the process of development in western China has mostly been ground-up -- cities have mushroomed out of nowhere, almost entirely unnoticed by the central government.

These cities are a byproduct of increasing unemployment in the country’s east, sharpened in the aftermath of the global financial crisis that began in 2008. Out of work even in the larger cities such as Beijing, Shanghai, and Guangzhou, many young Chinese moved to existing cities in western China, such as Lanzhou, Xining, and Urumqi. When those cities grew too crowded, they ventured into what had once been virtually untouched land. Some of them went in search of caterpillar fungus, which serves as an aphrodisiac in Chinese medicine; those who were adept at finding the fungus in the wilds of western China could afford to live in small towns by working only a few weeks a year. Others believed that they would be part of a new tourism industry; wealthy tour groups from eastern China pay considerable money to see the snowy peaks of Tibet, even if the tourism infrastructure that has been built to accommodate them considerably diminishes their beauty.

With these new residents has come haphazard new infrastructure. In Qinghai province, the government is building a barrage of new roadways from the capital of Xining to the southern city of Yushu. In the Tibet Autonomous Region, Beijing is planning to build additional railways linking Lhasa and Shigatse, and extending to the border of Nepal.

The problem is that this development is taking place in ecosystems that hold the headwaters for China’s water supply. And the pressures that urbanization puts on the headwaters -- through overuse, grassland degradation, pollution, and threats to species that have a role to play in maintaining the health of the river ecosystem -- is already having consequences downstream. On the Tibetan plateau, streambeds are dry and glaciers have melted into dead rock.

Similar threats confront China’s other water sources. The Pearl River in Southern China is drying. In China’s northeast, burgeoning construction projects are swallowing the wetlands that replenish the region’s groundwater. As a result, water shortages have plagued the country in recent years, and experts predict that water demand will exceed supply by 2030. Given the unreliability of Chinese statistics and how swiftly ecosystems can shift course, that crunch could arrive even sooner than anticipated.

THE CHAIRMAN’S DELUSIONS

Rather than trying to conserve water, the Chinese government has endorsed a massive project inspired by China’s first
communist leader, Mao Zedong. The south had plentiful water, Mao reasoned in 1952, whereas the north did not; therefore, water should be diverted from the south to the north. In 2002, the Communist Party initiated a massive engineering project in order to realize this vision: a series of canals that will draw approximately 45 billion cubic meters of water from the south to the north. The first canal has already opened in eastern China. Two more -- including a western route that will cut across the Himalayas -- are underway.

It is true that water resources are distributed unevenly, with the south home to 77 percent of the country’s total water resources. Of the total water resources available in northern China, about 45 percent get used; the south needs to use only about 20 percent of its water resources. It is also true that as the north continues to grow, so will its demand for water. But there are several problems with Beijing’s water diversion policy. First, the ecological risks are immense. It is quite possible that the project will disrupt the river systems and exacerbate water shortages, rather than solve them, by triggering soil erosion and eliminating species responsible for maintaining a healthy river. The Three Gorges Dam provides a cautionary tale about tampering with natural forces: research shows that the dam caused an increase in seismic activity and landslides. Downstream of the infamous project, water shortages disrupted irrigation.

Second -- and more important -- the project solves nothing in the long term. If northern China’s inefficient water use continues unchecked, the 45 billion cubic meters piped in from the south will eventually be too little -- especially with the rivers’ sources drying out. As Beijing diverts more and more water to the north, it will expose a long-standing political rift. In its long history, China has often split along north-south lines. Already, in southern places like Chongqing and Yunnan, one hears a growing complaint: Why should we southerners go thirsty so that the northerners can grow rich? As southern crops fail and people there feel the burden of water shortages, such complaints will only increase.

More generally, Beijing has yet to confront the many historical examples that suggest that water shortages can be a grave threat to national security. Persistent drought led to the collapse of Mayan civilization between 760 and 930 AD. In China, the Ming dynasty collapsed in the seventeenth century largely due to years of successive droughts. More recently, in the Middle East and South Asia, water shortages have led to political unrest. The recent swell of environmental protests in China indicates that it will not be immune to the trend.

A historian looking back in 2040 might well tell a story in which Beijing, unable to curb the state’s relentless water use, condemned it to growing water shortages. As the south grew parched, political grievances flared into violent opposition, which became increasingly difficult to put down as angered military commanders joined in and residents of the desiccated third pole -- Tibetans, Uighurs, Kazakhs -- went into revolt. Like the Ming dynasty before it, the historian would conclude, China had collapsed because thirst spawns violence.

WAR ON DROUGHT

To avoid serious ecological and political calamity, China’s central government will have to curtail its economic goals. Fortunately, Beijing’s recent climate change policies suggest that it may be prepared to make such a compromise. Ahead of the United Nations climate change talks to be held in Paris in 2015, the Chinese government has talked of initiating a “war on pollution” and reducing its carbon emissions. There are plenty of signs, from the investment in renewable energy to discussing emissions with the US in the Strategic Economic Dialogue, that at least some in the Chinese government are serious.

But cutting carbon emissions without a plan to address water issues -- and other problems like soil contaminated with
Toxins -- is futile. Beijing needs to develop a plan that addresses the entirety of its environmental woes. For one, it has to mandate sustainable development, which will require strengthening the central government against the local governments. Cities can no longer be allowed to spring up in western China without Beijing’s knowledge -- the effects on water supply are simply too great. The government will also have to bring locally administered industries, which emit more pollutants and use more water than they report, under control. To aid these efforts, the Chinese government should also try to rally popular support around sustainable development. The Chinese public is tired of the water shortages, unsafe drinking water, and soil contamination caused by haphazard urban development. Xi Jinping could present environmental reform as the next chapter of China’s glorious history and as part of the new model of great power relations that he has touted.

Once it has popular support in place, China could make other major changes. First, it would be worth putting a halt to the south-to-north water diversion project -- perhaps even going so far as to undo the existing canal in eastern China -- and insisting on water and energy efficiency in the north instead. As experts have pointed out, simple measures like water recycling and water price increases could help immensely. This would likely lead to vociferous complaints from provincial officials and industrial barons, but that should be preferable to steadily alienating the southern swath of the country and allowing the root causes of the problem to persist.

Second -- and this too would lead to some political backlash -- Beijing should move to curb, and perhaps even stop, development in the country's most ecologically sensitive areas. The Chinese government needs to treat the protection of the Tibetan plateau as a key to national security, not an impediment to economic growth, even if that means finding other ways of easing social tensions in western China. One possibility would be to stanch the flow of Han migrants, which feeds the resentment that ethnic minorities often feel.

Beijing should also consult the platoon of conservation biologists, both Chinese and foreign, who have long been warning of looming ecological catastrophe. China’s water security depends on a complex and subtle balance -- the forests that enrich the watersheds, the alpine grasslands that limit soil erosion, the relationships between myriad organisms which maintain healthy waterways -- that is extremely difficult to understand. The Chinese state may need to swallow its pride in reaching out to foreign experts, but that shouldn't be an impediment. China desperately needs to comprehend its environment in all its intricacy, and the country’s officials should be open to reaching out to anyone who might be able to help. Even the diminutive pika, after all, has a critical role to play.

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