



EDITORIAL
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在云南省大理市苍山双鸳溪工程实施之前，双鸳溪还是一条自由流淌的、具有自我调节与净化能力、拥有丰富乡土物种的美丽溪流（左图）。而后却遭遇硬化和渠化，被九道水泥坝拦截开来（右图），双鸳溪的生态韧性大大降低，乡土栖息地大量丧失，美丽的景观也随之消逝。然而，令人匪夷所思的是，类似的河流硬化渠化及拦河筑坝工程仍旧不断在中国上演。孰是孰非，对于具有自然情怀、懂得自然审美、了解基础生态学原理的人来说，答案似乎是一种常识；但在另一部分人的眼中，这样的灰色基础设施建设工程不仅是科学的、正确的，也是美的！这种分歧在本质上正是两种文明——生态文明与工业文明——之间斗争的体现。

Date August 13, 2016 (left); April 20, 2020 (right) Location Shuangyuan Stream at Cangshan Mountains, Dali City, Yunnan Province Photographer Xi Zhinong

The Shuangyuan Stream in the Cangshan Mountains, Dali City, Yunnan Province, was a free-flowing and self-regulating and -purifying stream system full of native species before its channelization (left). Unfortunately, it was channelized and cut off by nine concrete dams (right). With the disappearance of the beautiful scenery, the ecological resilience of the Shuangyuan Stream was largely compromised, together with the heavy loss of native habitats. Incredibly, similar river channelization and damming projects continue all over China. For those who respect the nature, appreciate the natural aesthetics, and have basic ecological knowledge, these types of projects are ecologically damaging. For some others, shockingly, they are scientific, reasonable, and even beautiful! This is, in the end, a conflict between ecological civilization and industrial civilization.

两种文明的斗争： 基于自然的解决方案

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摘要

生态文明与工业文明之间存在世界观、方法论和技术论层面的对抗。笔者曾参与了4次与工业文明相抗争的行动：云南大理双鸳溪河道硬化和渠化工程反对运动，但最终未能挽救这一积累了千万年的自然资产的流失；同样以失败告终的北京河流工程化抵制行动，揭示了河流工程化对城市生态韧性的巨大破坏力；圆明园湖底防渗工程“大辩论”的初步胜利象征着对中国“基于自然的解决方案”的一次启蒙；2012年“7·21北京特大暴雨”事件使人反思城市排水系统问题，推动了利用自然途径建立“绿色海绵”的全国性运动。基于此，笔者认为，保护自然和基于自然来解决中国城镇化和工业化进程中所产生的诸多环境问题将是一条充满艰辛的城市发展必由之路，也是解决全球性生态环境问题的有效措施。人类终将借助自然力量——而非依赖工业文明的工程技术手段——缓解环境危机、塑造城市韧性并实现社会进步。

关键词

生态文明；工业文明；基于自然的解决方案；文明冲突；城市韧性；非工程措施

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这里所讲的“两种文明的斗争”有别于塞缪尔·亨廷顿所著《文明的冲突与世界秩序的重建》一书中的内容，而特指生态文明在发展进程中，与工业文明的世界观、方法论和技术论之间的对抗——这是人类社会进步过程中的一种搏斗与突围。尽管人类走向生态文明是一种必然，但要实现这一目标却需要无数人、无数次的艰苦奋斗，从某种意义上来说，这是一场革命。人类终将通过尊重、保护、适应和利用自然，以更加经济有效的方式回应自身的社会和经济诉求，最终实现思想方法和技术手段的进步。在应对诸如气候变化、洪涝灾害、水土污染等环境危机时，尤其应当借助自然力量来塑造城市的生态韧性^[1]，而非依赖工业文明的工程技术手段。

2017年3月14日，野生动物摄影师奚志农突然打电话向我求助：“大理双鸳溪的溪底正在‘抹水泥’，要建九道水泥坝，好惨呐！怎么才能救救她？”奚志农已经在这里居住了近10年，经常带女儿们到溪谷中感受清凉的溪水，闲坐于巨大的卵石之上，欣赏四季的野花。他无法容忍这一切的消失，也不愿看到心爱的溪流被钢筋水泥所捆绑。透过他发来的视频可以看到，河道治理工程就在他家门前进行着，几台挖掘机正在粉碎他和女儿们经常蹲坐的磐石，溪谷中的植被也已荡然无存；他哽咽的声音让人感受到欲哭无泪的痛楚。

他之所以打电话向我求助，是因为我们在2005年圆明园湖底防渗工程中的共同立场——让自然呼吸。于是，我们分头行动，说服了大理市政府，并借助当地媒体的力量，使正在进行中的河道治理工程得以暂停。然而遗憾的是，我们终究没能成功解救这条河流——一年之后，工程再次启动，河道的硬化和渠化以更猛烈的方式卷土重来，双鸳溪最终还是被九道水泥坝切割开了。相关部门以“保障人民生命财产安全”的名义聚集了诸多“专家”和行政力量，彻底无视了生态专家们的抗议。在此项工程中，上级政府完成了数百万元的融资，当地政府实现了GDP的增长，工程公司则获得了巨额收益。这一看似皆大欢喜的工程葬送了积累千万年的自然资产，奚志农和女儿们再也无法拥有苍山溪谷的美好生态体验。

2020年4月20日，在世界地球日前夕，已三年未联系的奚志农再一次来电：“又来了！这回可不再是用几百万的投资去硬化一条溪流，而是要花将近三个亿去硬化和渠化‘苍山十八溪’的其中5条。看看三年前在双鸳溪实施的硬化工程，不但原本的自然溪流被毁，后建的水坝基础也逐渐被加速的水流掏空。快救救苍山五溪吧！”而后，致力于守护自然的志愿者们再次发起了行动。时至今日，这场关于如何治理洱海以及如何对待苍山溪流的两种文明间的搏斗仍处于胶着之中。但令人欣慰的是，相较20年前，这一次政府的态度谦逊且鼓舞人心。

对于20年前那场反对北京河流工程化的行动，我记忆犹新：在那场对抗中，环保人士与学者的抗争最终以被扣上“冲击政府”的帽子而告终。在“防洪”“治污”“改善人居环境”等堂而皇之的口号下，北京城区几乎无河不被裁弯取直、无河不被硬化渠化、无河不被设坝安闸。环保人士与学者只得无奈表示：你们一定会后悔的，届时将要花费更多的金钱来将它们拆掉。果不其然，不到10年时间，北京就开始了拆除硬化水泥河道的行动——这看似是一项惠民工程，但令人匪夷所思的是，某些河道硬化工程却仍在同步进行着^[2]。反观这两次行动，河流工程化不但没能实现洪涝防治、污染治理、美化环境等目标，反而使城市原有的生态韧性消失了，水资源与环境问题愈发严重。

THE CONFLICT BETWEEN TWO CIVILIZATIONS: ON NATURE-BASED SOLUTIONS

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ABSTRACT

Conflicts, upon the author's four experiences, exist between the methods, technologies, and world views of ecological and industrial civilizations. The movement against the channelization of the Shuangyuan Stream in Dali City, Yunnan Province failed to rescue the loss of natural assets that have accumulated for tens of thousands of years. Due to the indifference to the protest from environmentalists and scholars, Beijing's river channelization projects resulted in severe damages to the city's ecological resilience. A same conflict occurred over the anti-seepage project of Yuanmingyuan Park in Beijing, which marked a beginning of China's "nature-based solutions." Moreover, the heavy storm attacked Beijing on July 21, 2012, urged municipal managers to reflect on urban drainage system design, and promoted the spread of "Green Sponge," a nature-based solution, to the problem of urban waterlogging nationwide. Only by taking the tough journey to utilize nature-based solutions can China tackle ecological and environmental problems caused by urbanization and industrialization, and contribute to the world. Natural forces, instead of the engineering approaches praised by industrial civilization, may help improve urban resilience in their ingenuity addressing environmental crises and for a greater social advance.

KEYWORDS

Ecological Civilization; Industrial Civilization; Nature-Based Solutions; Civilization Conflict; Urban Resilience; Non-Engineering Measures

The conflict between ecological and industrial civilizations here, different from what was presented in Samuel Huntington's *The Clash of Civilizations and the Remaking of World Order*, is about the methods, technologies, and world views. This is a tortuous struggle in which humans battle generation to generation for civilization to survive. The envisioned beautiful ecological civilization requires ideological reform and technological advance—a true revolution, in some sense, by solutions supported by the nature, which can respond to the social and economic demands of change more cost-effectively. That is to say, natural forces, instead of the engineering approaches symbolized by industrial civilization, may contribute to the urban resilience^[1] in their ingenuity addressing crises such as climate change, flooding, and water and soil pollution.

On March 14, 2017, I got a sudden call from Xi Zhinong, a wildlife photographer for help: "They are cementing the riverbed of the Shuangyuan Stream in Dali. Nine concrete dams are to be built. It is cruel! How can I protect the stream?" Having lived near the stream for about ten years, Xi and his daughters enjoyed the cool water, rocks, and wildflowers that bloomed in different seasons. This cementing project would deprive them of the joy their beloved natural stream brought. I noticed in the video he sent that both the rocks and plants in the stream were being shattered and removed by excavators near his house. His choked voice made me feel the pain he was suffering.

Xi called me because in 2005 we had worked on an anti-seepage project for Yuanmingyuan Park in Beijing, and had shared similar feelings about "letting nature breathe." For the Dali case, we reached out the local press and persuaded the local government to halt the cementing project. Unfortunately, we failed to rescue the stream. A year later the project started again in a more violent way and the Shuangyuan Stream was finally cut apart by the nine concrete dams. The authorities had gathered many so-called "experts" and administrative forces in the name of "guaranteeing the safety of people's lives and property," yet they ignored the protests of ecological experts. From this project, higher-level government financed several million yuan and the local government achieved GDP growth, while engineering enterprises received huge profits. However, the economically beneficial project was achieved at the cost of natural ecosystems whose worth had accumulated for dozens of centuries. Xi and his daughters could no longer have access to the eco-experience in the beautiful valley of the Cangshan Mountains.

On April 20, 2020, the eve of World Earth Day, Xi called again. I had not heard from him for three years. "They come again!" he cried, "Instead of millions of RMB invested to the Shuangyuan Stream, they will channelize other five streams of 'the Cangshan Eighteen Streams'." This time, the project would cost three hundred million yuan. "Did not they notice the loss of natural resource and the accelerated water flow speed due to the dam construction three years ago? We must act at once to save these five streams!" He sounded desperate. Shortly afterwards, volunteers who dedicated themselves to nature protection launched an effort to save the river. So far, the conflict between the industrial civilization and ecological civilization about how to approach the Erhai Lake and the streams of the Cangshan Mountains are at a deadlock. Today, the authority's response to nature protection is unassertive and inspiring, compared with 20 years ago.

I still remember the conflict 20 years ago between the government and environmentalists and scholars who opposed Beijing's project on river management. That standoff ended in failure and was labelled as an interference in public affairs. Almost all the rivers through the downtown of Beijing were cutoff, channelized, or dammed in the name of "flood mitigation," "pollution control," and "improvement of living environment." Environmentalists and scholars had warned that they would pay for this recklessness. Ironically, in less than ten years, Beijing began to dismantle the cement along rivers under a strategy of "bringing nature back," but urban rivers keep getting channelized^[2]. In the cases of both Dali and Beijing, no goals of flood control, pollution treatment, or environmental beautification were achieved. Instead, urban resilience was consumed while water and environmental problems were only becoming more severe.

同样的斗争在2005年的“圆明园防渗大辩论”中再次上演。那场“大辩论”可以视作是对中国“基于自然的解决方案”（nature-based solutions）的一次启蒙。当年3月22日，我接到对环境保护情怀满满的生态学家张正春的电话，他心急火燎地告诉我，圆明园福海湖底被铺上了防渗土工布，悲叹之气与奚志农一模一样。就此，我便参与到一场旷日持久的抵制防渗工程的斗争中，同时参与这场斗争的还有王如松（已故）、梁从诫（已故）、崔海亭等生态和环保领域的专家。3月28日，人民网率先就此事发声，由此掀起了一场全民生态启蒙运动^[3]，并促使国家环境保护总局举办了圆明园遗址公园湖底防渗工程公众听证会，引发了全社会的广泛关注。尽管最终圆明园管理处还是以折中的方式完成了防渗工程，但在这场运动中，官方部门（国家环境保护总局）和官方媒体（人民网等）几乎都站到了生态环保人士的一边，局部利益的代表人士遭到了强烈声讨和孤立。事件历时数月，媒体报道铺天盖地，可以说是中国民间生态保护运动的一次大胜利。

2012年7月21日是一个值得铭记的转折点。这天夜里，一场暴雨将北京市脆弱的城市韧性暴露无遗，79条鲜活的生命消逝在街道上、立交桥下、汽车里、河水中……治理了几十年、在水利工程上堪称铜墙铁壁的首都，何以如此不堪一击？这绝非学术问题，而是公众意识，特别是决策者的意识问题。为此，4天后我便向相关决策者提交了题为《关于建立“绿色海绵”解决北京雨洪灾害的建议》的报告^[4]，并借助大众媒体以公开信的形式进行了传播^[5]。

2012年8月25日，在中央电视台编导胡劲草女士的推动下，“新闻调查”栏目播出了《会呼吸的河道》访谈节目，通过官方媒体的报道传播了利用自然途径建立“绿色海绵”来解决城市雨涝问题的正确方法，在某种程度上代表了“民间”声音向“官方”声音的转变。这种声音的转变在一年后再次出现：2013年12月12日，习近平总书记在《中央城镇化工作会议》的讲话中强调“在提升城市排水系统时要优先考虑把有限的雨水留下来，优先考虑更多利用自然力量排水，建设自然存积、自然渗透、自然净化的海绵城市”^[6]。

20年的时间对于个人来说是漫长的，但对于推动一种文明的发展来说却是短暂的。从北京市的河流工程化抵制行动，到全国性的海绵城市运动，保护自然和基于自然来解决中国城镇化和工业化进程中所产生的诸多环境问题（包括河湖污染、土壤毒化、栖息地消失等），将是一条布满荆棘却也充满希望的光明之路，更会是保证中国城市健康发展的必由之路——这也许是中国可以为解决全球性生态环境问题所能做出的最大贡献！ **LAF**

A same conflict between ecology and industry occurred in 2005 over the anti-seepage project of Yuanmingyuan Park. This experience highlights a beginning of China’s “nature-based solutions.” On March 22, 2005, I received a call from Zhang Zhengchun, an ecologist. With the same emotion as Xi in the Dali case, he anxiously told me that the lakebed of Fuhai Lake in Yuanmingyuan Park was being covered with anti-seepage geotextile. Because of this call I joined in a prolonged protest against the project. Other experts in the fields of ecology and environmental protection, including Wang Rusong (deceased), Liang Congjie (deceased), and Cui Haiting, were also involved in this effort. On March 28, People.cn took the lead to speak on this matter which promoted the State Environmental Protection Administration to hold a public hearing on the lakebed anti-seepage project. This coverage brought wide-spread attention to the project and helped create a national ecological enlightenment movement.^[3] Although the Administrative Office of Yuanmingyuan Park completed the anti-seepage project in a compromised way, the official departments of the State Environmental Protection Administration and the official media, such as People.cn, all stood with the environmentalists. This months-long effort ended up with a big win for the ecological protection movement led by the public.

The night of July 21, 2012 was also a moment to remember when a heavy storm exposed the fragile resilience of Beijing, as 79 lives were lost to flooding streets, underpasses, and cars. After decades of hydrological management, how did Beijing’s water flow become so volatile? This is by no means an academic issue, but a matter of public awareness—especially the one for the decision makers. To this end, four days later, I submitted a report entitled “Recommendations on the Establishment of a ‘Green Sponge’ to Solve the Flood Disaster in Beijing” to government official^[4]. The report quickly spread in the form of an open letter through mass media^[5].

On August 25, 2012, Ms. Hu Jincao, a television director at China Central Television, helped broadcast a program for the “Breathing River.” The segment interviewed several officials and landscape architects advocating for a “green sponge” approach to issues of urban waterlogging. This marked a leap from grassroots movement to official policy. Such a change appeared a year later. On December 12, 2013, President Xi Jinping spoke at the Central Working Conference of Urbanization on the need for upgrading urban drainage systems. President Xi emphasized that we should give priority to retaining rainwater and leveraging natural forces to drain water, so as to build Sponge Cities where stormwater can be naturally conserved, infiltrated, and purified^[6].

Twenty years, though a long time for individual efforts, is short for the development of civilization. The road from protesting engineering projects in Beijing to implementing nationwide Sponge Cities will be a tough journey, also for developing nature-based solutions responding to other pressing environmental problems (water and soil pollution, habitat loss, etc.). But this work is needed. China must take this route to realize healthy development for all cities. This might also become China’s greatest contribution in tackling global ecological and environmental problems! **LAF**

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