

China Demonstration Site

Towards harmony of man and nature through conservation of ecosystem services

The Yangtze River stretches 6,300 kilometers from the high Tibetan plateau to the East China Sea, winding through the heart of China. The upper watershed is a particularly critical supplier of ecosystem services to the nearly one-tenth of the world's population who live in the basin. This fragile environment is changing rapidly, due to population growth and infrastructure development such as mining, road-building, and exploitation of regional hydropower resources. Over the next five years, government leaders will be making critical conservation and development decisions for the region.

Unprecedented economic growth and 1/5 of the world's population depend on China's natural capital

This "Mother River" of China is not alone in the challenges it faces. While China harbors 10% of the world's plant and animal species, it is also home to 1.3 billion people with needs that exert high pressure on resources. This most populous country in the world is experiencing unprecedented growth – roughly a 10% increase per year for over two decades. This rapid development must be balanced with conservation of biodiversity and life support systems to improve and sustain human well being, especially in the wake of devastating floods, severe water shortages, and increasing desertification and dust storms. Better information on ecosystem services, their values, and the tradeoffs among them can help support the myriad of policies, programs, and plans that the Chinese face as they seek harmony between nature and society. Given the eagerness of the Chinese to find and embrace new and innovative solutions, there is no better country in which to make the link between nature and human well being a central tenet of land and water use policy.



The Natural Capital Project in China is:

- 1) Collaborating with Chinese experts to advance tools and approaches to map and value ecosystem services tailored to the Chinese context;
- 2) Cultivating on-the-ground models of application of an ecosystem services approach at local and regional scales, focusing initially on the Upper Yangtze River (UYRB) and Pearl River basins;
- 3) Communicating about the essential linkages between humans and the critical life-support systems that nature provides.



Early Results

- Initiated engagement with numerous government stakeholders to introduce the Natural Capital Project and our tools and approaches. These included: the State Forestry Administration (SFA), Ministry of Environmental Protection Agency (MEP), Poverty Alleviation Bureau, Nature Reserve staff, Baoxing and Jinxiu County governments, and the Beijing Olympic Committee.
- Co-sponsored an ecosystem services modeling workshop with MEP, the Chinese Research Academy of Environmental Sciences (CRAES), and the Institute of Mountain Hazards and Environment (IMHE) of the Chinese Academy of Sciences, attended by scientists, conservation practitioners, and government officials. The week involved peer review and discussion of methodologies, assessment of data needs in China, and application of approaches to the Upper Yangtze River Basin.
- Established long-term collaborations with 2 key CRAES and IMHE to adapt the InVEST (Integrated Valuation of Ecosystem Services & Tradeoffs) tool to China, spearheading policy applications. Technical manuals have already been translated into Chinese.



China's Life-Support Systems

- **Carbon Sequestration:** Upper Yangtze River basin forests sequester an estimated 7.8 billion tons/year of carbon
- **Drinking Water and Flood Mitigation:** Regional watersheds filter drinking supplies and retain water and soil to reduce flood hazards.
- **Biodiversity:** The Upper Yangtze River Basin, encompassing alpine meadows and shrublands, forests, and wetlands, hosts more than 5,000 species of medicinal and otherwise economically valuable plants.
- **Size of Upper Yangtze River basin:** Roughly 1 million sq km
- **Population Affected:** 400 million in the Yangtze River basin, 32 million in the Pearl River basin, including Hong Kong; 1.3 billion for national efforts across China

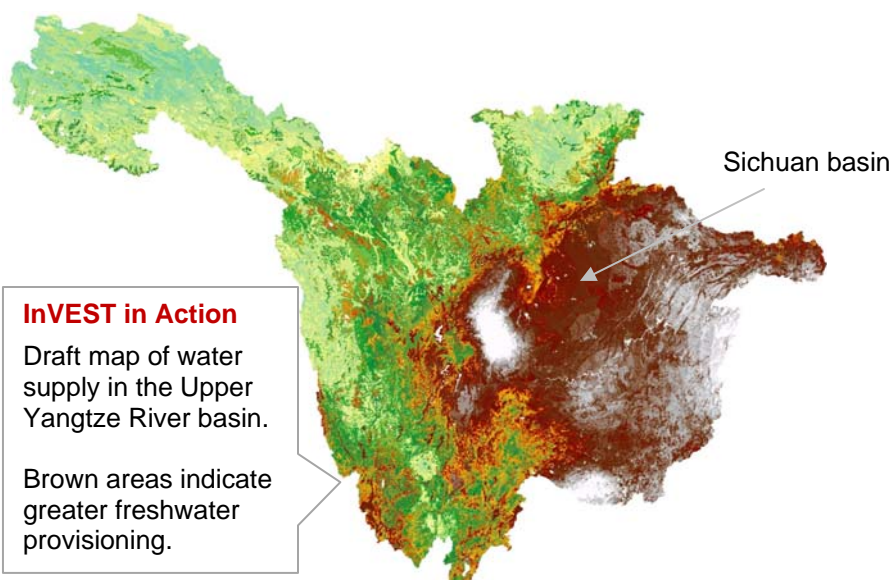
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River basin conservation and development planning

Working with partners, we are using InVEST to map critical ecosystem services (e.g., water retention, soil stabilization, carbon sequestration) to overlay with biodiversity priorities for the Upper Yangtze River Basin. This information, impacting a basin of over 400 million people, will feed into provincial conservation and development planning efforts, most notably Master Planning for biologically diverse Baoping County and for the Yangtze River by the Yangtze Water Resources Commission (CWRC) as well as Biodiversity Action Plan development by the Sichuan and Qinghai provincial governments.

Payments for ecosystem services (PES) models

We are informing improvement and expansion of PES programs in the Pearl River Basin. The Pearl River carries valuable water resources from poor, biologically-rich mountain areas in south central China to the wealthy economic powerhouses of Guangzhou, Shenzhen, Macau and Hong Kong in the southeast. The state-level Poverty Alleviation Leading Group and the Ministry of Environmental Protection (MEP) are interested in developing policies to meld biodiversity conservation with protection of ecosystem services and reduction in poverty, as well as laying out scientifically-credible guidelines for ecological compensation to reward suppliers of services.

Building science capacity

We are cultivating partnerships with influential scientific academics and institutes that specialize in ecosystem service sciences in China, building on the strong technical foundation the Chinese already have. This will include learning exchanges, trainings, and workshops with Stanford to ensure the science that is being applied is robust, practical, and tailored to the Chinese context. We are also working to better understand factors associated with existing markets for ecosystem service schemes in China, culling lessons learned to help identify appropriate enabling conditions.

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