Katoomba XVIII: Forests, Water, and People
Beijing, China – May 2013

Participant Recommendations for Catalyzing Innovation for Sustainable Watersheds

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Policymakers, natural resource managers, researchers, and expert practitioners from 13 Chinese provinces and 15 countries recently convened at Katoomba XVIII: *Forests, Water, and People* in Beijing to advance investments in natural infrastructure for water security in an urbanizing world. The setting reflected China's global leadership in eco-compensation as well as local opportunities to improve the efficiency and effectiveness of investments in watershed services.

Over the four-day meeting, participants delved into ongoing investments in Beijing's watershed, focusing on efforts led by the neighboring Beijing Municipality and Hebei Province. To date, these activities have focused primarily on reforesting the watershed and supporting a transition in cultivation to less water-intensive crops, and the design and management of programs has largely been contained within government offices, with little systematic community engagement. While these programs have been remarkably successful in changing land use, their impacts on downstream water supply and rural livelihoods – both target areas the programs – have not been as clear. In 2012, Forest Trends, the Beijing Forestry Society, and IUCN China began to work together to design and implement a pilot project in the watershed that could demonstrate to policymakers how their investments upstream could be strengthened to achieve these important hydrological and social objectives.

Drawing on insights and observations during the meeting as well as experience from around the world, meeting participants developed recommendations for action for three audiences (see Figure 1). Recommendations for regional policymakers and pilot project developers are the focus of this document; recommendations for the global community of practice may be accessed at http://www.forest-trends.org/katoombachina.php.

Figure 1. Three nested levels of action for strengthening investments in watershed services

Strengthening Institutional Coordination

REGION ▶ **Create robust mechanisms for cross-boundary coordination, including a multi-stakeholder working group** to coordinate and help align the objectives of the multiple programs and interests in the watershed**.** This working group could help prioritize investments within broad terms of cooperation established in the agreement between Hebei Province and Beijing Municipality.

PROJECT ▶ **Map stakeholders and develop a stakeholder engagement strategy**. Identify each stakeholder group's primary agency or authority in the watershed, potential contribution to project and program efforts, and potential interest in the process. Develop a strategy for engaging these groups, which should address the suite of obstacles that currently prevent sharing of information or engagement by stakeholders at a meaningful level. Special consideration must be made to engage stakeholders, like local government officials, whose time may need to be compensated to ensure participation.

PROJECT ▶ **Organize a multi-stakeholder working group for the pilot project**, which could set goals that precisely articulate what a successful pilot will accomplish as well as encourage freer flow of information. The working group should drive and guide the design, implementation, and monitoring of the pilot.

PROJECT ▶ **Recognize and support the role of the lead NGO (Beijing Forestry Society) in coordinating** implementation of the pilot and attracting outside technical and financial resources. Water authorities from both the US and South Africa have found this role of a local NGO to be helpful for ensuring the success of watershed projects.

REGION ▶ **Commit to sharing data and analysis.** Official stakeholders should negotiate a memorandum of understanding to share data using consistent procedures and formats for data collection and reporting. This will facilitate more effective watershed interventions and contribute to adaptive management across programs. This data sharing could be facilitated by the creation of a data repository, housed in a national research institute.

PROJECT ▶ **Create consistent procedures and formats for data collection and reporting** for all involved in the pilot project, and propose these procedures and formats as a basis for regional information sharing among all stakeholders in the watershed.

REGION ▶ **Clarify legal rights and responsibilities.** Assess the regulatory and legal framework affecting watershed management and consider improvements to support coordinated policy and eco-compensation efforts between Hebei and Beijing to improve watershed health. This could lead to a system of water quality legislation, abstraction permits and a registry of surface and ground water use rights, all reinforced by equitable economic incentives and penalties to govern water quality and flow across administrative boundaries. The legal and incentive system should balance upstream and downstream water needs, encourage proper wastewater treatment as well as source water protection, and provide for minimum flows and water quality to maintain basic ecological functions of rivers.

PROJECT ▶ **Assess and recommend improvements** to land and water rights and responsibilities based on the needs in both Hebei and Beijing.

Assuring Hydrological and Livelihood Benefits

REGION ▶ **Develop a watershed-wide system of hydrological monitoring** to build the scientific understanding necessary for designing effective watershed interventions Monitoring data should be consistently collected across key indicators for both surface waters and groundwater, in accordance with international best practice. Data should be available to the public and should inform adaptive program management.

PROJECT ▶ **Establish specific hydrological targets and baseline conditions for the Miyun pilot project.** These targets should address the priority water quality, flow, and livelihood concerns established with stakeholders.

PROJECT ▶ **Facilitate development of hydrological models and project impact calculations**. Pilot program and data managers must estimate the impacts of various investments in the watershed on the key indicators of water quality, flow, and livelihoods and other outcomes of priority concern.

PROJECT ▶ **Establish a monitoring system** with hydrological data collection points at key inlets and outlets in pilot sub-basins.

REGION ▶ **Engage key stakeholders, including local communities and farmers, in program design, implementation, and monitoring.** Robust community engagement can build a sense of fairness, encourage buy-in and co-operation with program objectives, support the design of more effective and efficient investments, and help to avoid negative impacts—ultimately enhancing both hydrological and livelihood impacts.

PROJECT ▶ **Ensure community participation throughout pilot process**. In addition to participating in surveys and planning exercises, members of the communities in pilot sub-basins should be selected as part of the working group tasked with overseeing project design, implementation, and monitoring.

PROJECT ▶ **Agree on agricultural best practices**. The pilot should convene farming communities to develop a common set of regional best farming practices that optimize livelihood and ecological function over the long term.

REGION ▶ **Stimulate economic diversity and opportunity in upstream communities.** The working group and community consultation process should contribute to a vision for the future of the watershed including sustainable business. Some compensation in the watershed could be structured to promote tourism and other activities that could represent economic opportunities, especially for young families, to avoid long-term dependence on eco-compensation payments. Economic impacts of the project should be monitored in the long term.

REGION ▶ **Provide adequate training and technical assistance**. The recommended participatory approaches imply a strong need for capacity building at all levels, especially for promoting agricultural best practices

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Moving toward Coordinated, Performance-Based Financing

REGION ▶ **Consider establishing a financial mechanism that coordinates resources.** A fund could coordinate activities as well as pool and leverage resources for greater impact.

PROJECT ▶ **Develop further the proposal from Fengning County regarding the creation of a fund for investments at the watershed level.** A framework should be established to evaluate proposed watershed interventions based on hydrological and livelihood benefits. This pilot water fund, including its framework for prioritizing investments, could then become a model for a watershed-wide fund.

REGION ▶ **Move toward program design that pays for performance** against desired outcomes, connecting the design and implementation of interventions to the targets and monitoring of programs.

PROJECT ▶ **Clarify and communicate the relative costs and benefits** of interventions to help to secure performance-based support for scaling up pilot design. This can be done by identifying the risks versus benefits of action over inaction, comparing the costs and benefits of green versus gray infrastructure, highlighting opportunities for complementarity between green and gray infrastructure, and assessing the value of co-benefits of watershed interventions (such as climate mitigation or aquatic habitat).

REGION ▶ **Explore performance-based incentives at the provincial level.** Financial rewards could be offered to Hebei Province for meeting pre-established water quantity and quality targets, thereby incentivizing performance.

Planning and Adaptive Management

REGION ▶ **Build adaptive management into the next 5-year agreement between Beijing and Hebei**, creating flexibility around metrics of success and intervention activities, allowing programs to respond to new issues or understandings of the watershed.

PROJECT ▶ **Incorporate adaptive management into the Miyun project** to allow for adjustments in management practices or program strategies based on monitored results. The adaptive management process used in the Miyun project can be a model for scaling up to the entire watershed and the Beijing-Hebei agreement.

REGION ▶ **Support independent assessments** of eco-compensation programs in the watershed. Undertaking an independent assessment of the eco-compensation programs and the Miyun pilot project every few years could provide an outside perspective on proposed outcomes, outputs, and activities. This could possibly help adjust the program, troubleshoot challenges, and increase efficiency.

PROJECT ▶ **Undertake an independent assessment of the Miyun pilot** after the first year of implementation; implement regular assessments every few years thereafter.

PROJECT ▶ **Consider implementation of project activities in partnership with the State Forestry Administration**, which owns land in the watershed and has rich experience with watershed protection.