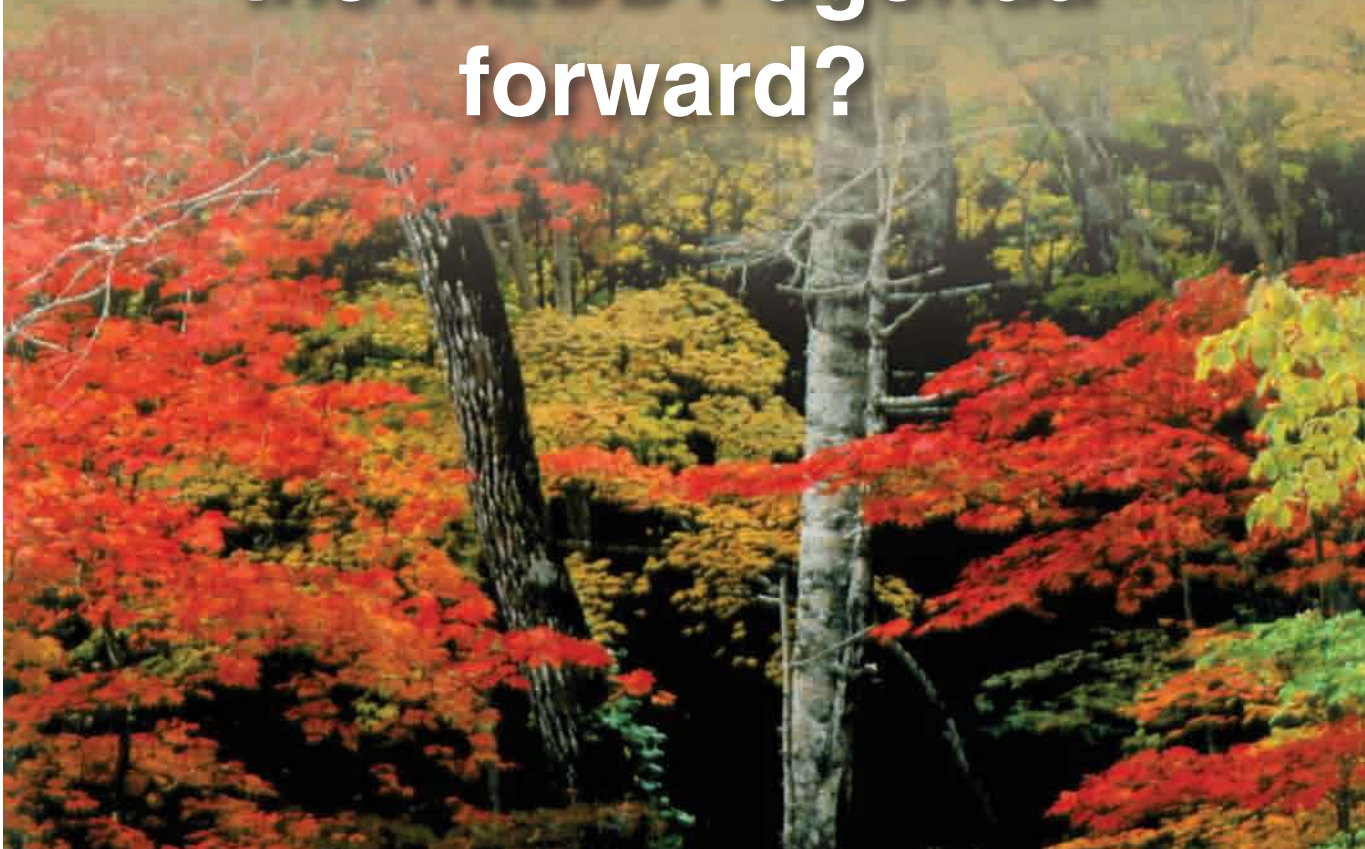


China and UN-REDD Programme, what they can do together to move the **REDD+** agenda forward?



This paper was drafted by

Authors:

Chao Fu, Postdoctoral Research Fellow, International Ecosystem Management Partnership (IEMP), UNEP/Institute of Geographic Sciences and Natural Resources Research, CAS

Guoqin Wang, Assistant to the Director, IEMP, UNEP

Jian Liu, Director, IEMP, UNEP

Review Editors:

Catherine McMullen, Senior Consultant, IEMP, UNEP

Shenggong Li, Professor, Institute of Geographic Sciences and Natural Resources Research, CAS

Chunfeng Wang, Chief, Office for Combating Climate Change, SFA

Ravi Prabhu, Senior Officer, Forests and Climate Change Programme, UNEP

Yemi Katerere, Head, UN-REDD Secretariat

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There is strong willingness of both UN-REDD Programme and China to work together to support the readiness of developing countries for REDD+ activities.

Purpose

The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme) is an opportunity to support and advance the REDD+ mechanism negotiated under the United Nations Framework Convention on Climate Change (UNFCCC). China is the largest developing country in the world with a sizable domestic economic and social development program and a record of great efforts to contain the increase of greenhouse gas emissions and protect the global climate. There is strong willingness of both UN-REDD Programme and China to work together to support the readiness of developing countries for REDD+ activities. To provide policy support for cooperation between China and the UN-REDD Programme, this policy paper explores several key issues on demands and supplies, mutual benefits, and a draft framework for the cooperation.

Key Messages

- In the elaboration and implementation of National REDD+ Strategies, UN-REDD developing countries have paramount needs for support on technology and capacity in measurement, reporting, and verification (MRV) and monitoring; national REDD+ governance; and multiple benefits of forests and REDD+; among other issues. Developing country partners need exposure to experiences and good practices from other developing countries through South-South (S-S) cooperation, including through cooperation with China.
- China could provide technology and capacity support to UN-REDD pilot countries through cooperation with UN-REDD.

In China, several key research and government institutions, such as the Chinese Academy of Sciences (CAS), the National Development and Reform Commission of China (NDRC), and the State Forestry Administration (SFA), have made great efforts and demonstrated strong scientific expertise and governance capacity on fixing carbon through integrated ecosystem management. For example, the Chinese Ecosystem Research Network (CERN) and the Chinese Terrestrial Ecosystem Flux Research Network (ChinaFLUX) have been established and in place to disseminate technical expertise and knowledge on REDD+ to other developing countries.

Several major national programs, such as the Six Key Ecological Forestry Programs (SKEFP) and the 'Go West' Strategy, have been

implemented by the Chinese government. There also have been 3 registered afforestation and reforestation (A/R) Clean Development Mechanism (CDM) projects that produce annual certified emission reductions (CERs) 116,272 tonnes of carbon dioxide equivalent (CO₂-eq.) for China.

Valuable lessons drawn from these programs and projects could contribute to REDD+ on issues such as cross-sector coordination, planning, ecological compensation, and so on.

- Cooperation between China and the UN-REDD Programme will be mutually beneficial.

For the UN-REDD Programme, the cooperation with China would be a new dimension of facilitation, by introducing China and other developing countries into S-S relationships, as well as contribute to the capacities of the Programme.

For China, cooperation with the UN-REDD Programme would provide a great opportunity to demonstrate its political will to combat climate change, facilitate the contribution of China's knowledge and good practices to the international REDD+ agenda, and enable China to learn from the Programme and expand its own capacities on REDD+.

- A draft framework has been suggested for the cooperation between China and the UN-REDD Programme, including potential areas and possible ways to advance cooperation.

Examples of potential areas of cooperation include technical and capacity needs analysis for developing countries to be ready for implementation of REDD+ activities and capacity building for monitoring forest ecosystems, carbon and greenhouse gas (GHG) fluxes, and land use change in other developing countries.

Examples of cooperation paths include organization of a workshop/ dialogue between China and the UN-REDD pilot countries to identify specific demands and supplies, as well as appropriate working mechanisms, and organization of project-based training and capacity building.

- In light of the framework, the short term anticipation is for the Chinese government to become an observer country to the Programme, the middle term is to start a cooperative project between China and one of the UN-REDD pilot countries, and the longer term is to deepen and broaden the cooperation with more concrete actions.

China could provide technical and capacity building support to UN-REDD Pilot countries through cooperation with UN-REDD.

REDD+ is a critical contribution for achieving the ultimate objective of the UNFCCC and to holding the global temperature below 2 degrees Celsius over pre-industrial levels.

1. Background

'REDD' stands for Reducing Emissions from Deforestation and Forest Degradation and '+' for enhancing carbon stocks through conservation and sustainable management of forests. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) indicates that forestry and other land use sectors that lead to deforestation and forest degradation contribute about 17% of global GHG emissions, the second largest source, or about 5.8 billion tonnes of CO₂-eq. per year¹. These forest-related emissions are mainly released in tropical developing countries. REDD+ is a critical contribution for achieving the ultimate objective of the UNFCCC and to holding the global temperature below 2 degrees Celsius over pre-industrial levels.

In recent years, REDD+ has gained important momentum from the UNFCCC's Conference of the Parties (COP), through Decisions 1/CP.13 (Bali Action Plan), 2/CP.13, 2/CP.15 (Copenhagen Accord), 4/CP.15, and 1/CP.16 (The Cancun Agreements). As negotiated under the UNFCCC, the REDD+ mechanism receives strong support from a number of NGOs, development agencies, research institutes, international organizations, and some national governments. The UN-REDD Programme, the World Bank's Forest Carbon Partnership Facility (FCPF), the REDD+ Partnership, and Norway's International Climate and Forest Initiative are examples of the breadth of initiatives established to promote REDD+. These multilateral and bilateral initiatives help developing countries engage in REDD+ activities by building capacity and readiness to address the multiple challenges associated with REDD+. REDD+ is expected to play a crucial role in a future successor agreement to the Kyoto Protocol.

China is the world's largest developing country and it supports a sizable domestic economic and social development program. Over the past 20 years and more, in the spirit of responsibility for the global environment and meeting the needs of sustainable development, China has made positive contributions to relieving the increase of greenhouse gas emissions and to protecting global climate by changing its economic structure, improving its energy efficiency, developing hydropower and other renewable energy sources, and aggressively implementing afforestation policies and measures². China will further integrate actions on climate change into its economic and social development plans. China plans to increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters

¹ Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007: Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK: Cambridge University Press, 2007.

² National Development and Reform Commission (NDRC). The People's Republic of China Initial National Communication on Climate Change. Beijing: China Planning Press, 2004.

by 2020 from the 2005 levels; to further develop its green economy, low-carbon economy, and circular economy efforts; and to enhance research, development, and dissemination of environmentally-sound technologies³.

As a non-Annex I Party to the UNFCCC, China always attaches great importance to international cooperation in the field of climate change and has conducted extensive exchanges and cooperation with a number of countries and international organizations. At the First Asia-Pacific Economic Cooperation (APEC) Meeting of Ministers Responsible for Forestry held in Beijing on 6-7 September 2011, China proclaimed that it would continue to support forestry-related activities and green growth of other APEC economies through the Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet)⁴.

In terms of REDD+ implementation, China holds that REDD+ shall neither be used to offset developed countries' emission reduction targets nor to introduce mitigation commitments for developing countries, and that developed countries should provide adequate financing, technology, and capacity-building support to enable developing countries to take voluntary actions on REDD+. China welcomes discussions on both non-market and market-based mechanisms related to policy approaches and positive incentives and it encourages demonstration activities at both sub-national and national levels⁵. A scoping meeting in 2010, co-hosted by the NDRC and the UN-REDD Programme, demonstrated strong willingness of both China and the UN-REDD Programme to work together to support readiness of developing countries for REDD+ activities⁶. In the spirit of 'common but differentiated responsibilities', China is ready to collaborate with the UN to provide technical and capacity-building support to pilot countries of the UN-REDD Programme, especially those in Africa and Asia.

2. Needs of developing countries in the implementation of UN-REDD Programme

The UN-REDD Programme was launched in September 2008 to assist developing countries prepare and implement national REDD+ strategies to achieve REDD+ readiness, and it builds on the convening power and expertise of the Food

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³ Hu J. 2009. Statement at UN Climate Summit 2009: Join Hands to Address Climate Challenge. Accessed online September 30, 2011: <http://www.ccchina.gov.cn/en/NewsInfo.asp?NewsId=20838>.

⁴ Hu J. 2011. Speech at the First APEC Meeting of Ministers Responsible for Forestry: Closer Regional Cooperation for Green Growth. Accessed online September 30, 2011: http://www.apfnet.cn/index.php?option=com_k2&view=item&layout=item&id=253&Itemid=179.

⁵ Parker C, Mitchell A, Trivedi M, et al. The Little REDD+ book: An Updated Guide to Governmental and Non-Governmental Proposals for Reducing Emissions from Deforestation and Degradation. Oxford: Global Canopy Programme, 2009.

⁶ International Ecosystem Management Partnership (IEMP). 2010. Communiqué, China-UN-REDD scoping meeting. Accessed online September 30, 2011: http://www.cnern.org/ceorn_en/web/news/news_detail.aspx?NodeID=55&id=329.

The Programme's strategy for delivering readiness is based on a country demand and context-driven principle. Quick Start support to the nine initial pilot countries has already yielded valuable lessons on country needs

and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The Programme currently supports 14 pilot countries and 21 observer countries in Africa, Asia, and Latin America. The Programme's strategy for delivering readiness is based on a country demand and context-driven principle. Quick Start support to the nine initial pilot countries has already yielded valuable lessons on country needs⁷, including:

- **Relatively expeditious access to funds** is critical in allowing countries to rapidly set up their readiness activities and gain internal political support to move forward.
- **Formulation of REDD+ 'roadmaps'**, with support to setting up the initial institutional arrangements and coordination channels with the different governmental departments and agencies, including initial stakeholder engagement channels, can provide critical aid to the development of national REDD+ strategies.
- **Developing a REDD+ strategy nested within broader national development strategies** should describe key activities to be undertaken, set time-bound and quantifiable targets, and build consensus at the national level when identifying and assessing the relative importance of the key deforestation drivers.
- **Cross-sectoral coordination within multiple government agencies**, including forestry and environmental authorities, land management authorities, finance ministries, and sub-national government agencies, is required for sharing responsibility in the process of developing a REDD+ strategy.
- **Adequate stakeholder participation and engagement**, which is critical to developing viable REDD+ strategies and implementation frameworks, should begin as early as possible when a country begins considering participation in REDD+.
- **Discussion of tradeoffs at various scales in REDD+ strategies** helps to fully take into account the social and environmental costs (including opportunity costs) and benefits of retaining and restoring forests, and to ensure that these benefits continue to accrue to local communities and Indigenous Peoples dependent on them for their livelihoods and well being.
- **An on-going process of Free, Prior and Informed Consent (FPIC)** for

⁷ UN-REDD Programme Secretariat. 2011. UN-REDD Programme 2011–2015 Strategy. Accessed online September 30, 2011: http://www.unredd.net/index.php?option=com_docman&task=doc_download&gid=4598&Itemid=53.

REDD+ provides adequate time to be allowed for the careful management of awareness raising and engagement with local authorities and other key stakeholders.

- **Consideration of previous experience** allows the design of national REDD+ strategies to build upon what has been learned on forest conservation and restoration, payment for environmental services, and integrated conservation and development projects.
- **Improvement of technical and institutional capacities in potential REDD+ countries** helps to building a solid governance structure that is fundamental for REDD+, the success of which depends on the country's capacity to coordinate and collaborate with different governmental and non-governmental bodies, channel important amounts of funds, fight corruption, and deliver transparent data on GHG emissions from the forestry and other related sectors.

It is obvious that, in the elaboration and implementation of National REDD+ Strategies, the needs of forested developing countries are paramount. As priorities to support the national readiness process, the Programme has identified six interlinked work areas, including associated outcomes, during the period 2011-2015. The defined work areas include MRV and monitoring; national REDD+ governance; stakeholder engagement; multiple benefits of forests and REDD+; transparent, equitable, and accountable management of REDD+ payments; and sector transformation to green economies. They reflect country needs expressed in the National Programme documents of the pilot countries, the comparative advantages of the UN-REDD Programme agencies, and the capacities of the Programme as a whole.

There is a great deal that countries can learn from each other as they develop and implement their REDD+ strategies. By hosting relevant workshops, maintaining its online workspace platform, and developing communication materials of national-level achievements, the Programme provides a venue for countries to interact with each other, with the objective to promote S-S exchange. China is not yet a partner country of the UN-REDD Programme. However, China has about 20 years of experience in practicing and promoting sustainable development, especially in designing and implementing major integrated projects that cover the field of forest conservation and restoration, payment for ecosystem services, and regional conservation and development. Cooperation between China and the UN-REDD Programme will allow developing countries to benefit from China's experience which will not only save them time and expense in their design of

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national REDD+ strategies, but also strengthen their voice internationally. With a unique position in S-S cooperation, China has the potential to be an important advisor and excellent partner country in the UN-REDD Programme.

3. Experiences to share: fixing carbon through integrated ecosystem management in China

3.1 Key institutions

To promote its sustainable development strategy and mitigate greenhouse gas emissions, China puts great effort into fixing carbon through integrated ecosystem management, which has led to remarkable progress in research on carbon sequestration in terrestrial ecosystems, as well as designing and implementing relevant policies and measures at the national scale. The following information provides an overview of key institutions in China and their importance within this progress.

- **Chinese Academy of Sciences**

The CAS is a leading academic institution and comprehensive research and development center in natural science, technological science, and high-tech innovation in China. In the field of ecosystem management research, CAS offers services of monitoring, research, demonstration, capacity building, and policy support through the Chinese Ecosystem Research Network (CERN) and undertakes GHG relevant studies and analysis through the Chinese Terrestrial Ecosystem Flux Research Network (ChinaFLUX).

CERN was established by CAS in 1988. It serves as a functional network performing long-term investigation of typical ecosystems in China. It consists of 40 field research stations engaged in monitoring, experiment, research and demonstration; five disciplinary sub-centers responsible for the calibration of monitoring instruments and data quality control; and one synthesis center with the function of data exchange and inter-disciplinary research. Based on the CERN field stations, CAS has established several key national research programs on issues of global change and biodiversity protection. The latest one is the "Strategic Priority Research Program - Climate Change: Carbon Budget and Relevant Issues" sponsored by CAS (2011–2015), which is expected to produce countermeasures and technologies aimed at increasing the sinks of carbon and reducing the emission of carbon.

ChinaFLUX is an observation and research network that applies eddy covariance techniques as main research methods to provide long-term and continuous measurements of the fluxes of carbon dioxide, water vapor and energy between terrestrial ecosystem and the atmosphere in China. Since 2002, ChinaFLUX has established more than 20 flux observation towers, supported greatly by CERN sites, in major terrestrial ecosystems of forest, grassland, and cropland in China. It has become an important facility to conduct observation and research on the ecosystem status and climate change, as well as provide service for regional carbon budget evaluation in China.

- **National Development and Reform Commission**

The NDRC acts as the leading government agency in formulating and implementing strategies, plans, policies, and major programs of national social and economic development, including those related to sustainable development, climate change, energy saving, and emission reduction. Specifically, the NDRC is responsible for undertaking routine work of the Leading Group Office for Western Region Development of the State Council, which is taking a lead in coordinating the implementation of major projects on key infrastructure development and ecological environment conservation in the Western Region. The NDRC also undertakes routine work of the National Leading Group Office for Climate Change, Energy Conservation and Emission Reduction, which is responsible for formulating major climate change strategies, plans, and policies, coordinating climate change international cooperation and capacity-building work as the focal point for the UNFCCC, and organizing the implementation of CDM projects.

- **State Forestry Administration**

The SFA is a specialized government agency responsible for forest resource management, including afforestation and greening of the country's territory, forest resource monitoring and evaluation, rural forestry reform and development, and wildlife conservation and nature reserve management as the focal point for the Ramsar Convention on Wetlands and the United Nations Convention to Combat Desertification, as well as for the design of policies and guidelines concerning forestry and its ecological conservation. In terms of tackling climate change, SFA is experienced in the preparation and use of the national forest inventory, the monitoring of forest carbon stock and relevant technical training, and the coordination and operation of forestry CDM projects.

The sample programs include the SKEFP, which have been implemented in succession since 1998, and the 'Go West' Strategy since 2000.

- **Other institutions**

There are other important institutions engaged in efforts to fix carbon through integrated ecosystem management. In the past 10 years, the Ministry of Science and Technology (MOST) and National Natural Science Foundation of China (NSFC) have both provided significant funds for research projects conducted by CERN and ChinaFLUX. The Ministry of Agriculture (MOA) has responsibility for the design and implementation of policies and measures to promote sustainable development and mitigate GHG emissions in the agriculture sector. The Ministry of Environmental Protection (MEP) is responsible for achieving national targets on emission reduction, as well as coordinating and supervising activities related to ecological conservation and restoration as the focal point for the Convention on Biological Diversity. The Ministry of Land and Resources (MLR) has various responsibilities relating to land management and natural resources utilization.

3.2 Sample programs

Based on the strong scientific expertise and governance capacity of the above-mentioned institutions, several major national programs have been carried out in recent years addressing forest conservation and restoration, payment for environmental services, and regional conservation and development. The sample programs include the SKEFP, which have been implemented in succession since 1998, and the 'Go West' Strategy since 2000. Moreover, several forestry CDM projects have been implemented by the local government since 2006. The below information seeks to provide an overview of their implementation and to share lessons that could contribute to the UN-REDD Programme.

- **Six Key Ecological Forestry Programs**

To promote sustainable development in the forestry sector and address a wide range of environmental issues and socioeconomic challenges in China, in 1998 the State Council began to initiate the SKEFP with the recombination of former forestry programs. The six programs are the Natural Forest Conservation Program (NFCP), the Sloping Land Conversion Program (Grain to Green Program, GTGP), the Sand Control Programs for areas in the vicinity of Beijing and Tianjin (SCP), the Shelterbelt Forest Development Program (SFDP), the Wildlife Conservation and Nature Reserve Development Program (WCNRDP), and the Forest Industrial Base Development Program (FIBDP). According to plan, the SKEFP cover 97% of counties in China, with a total investment of CNY hundreds of billion. Some of the main policies adopted in the SKEFP include strengthening of management and protection of forest resources in the NFCP, ecological compensation (such as

grain and living allowances) for farmers in the GTGP, and substitution industry development strategies in all of the programs. Excluding the WCNRDP, which focuses on wildlife species restoration, the cumulative investment in SKEFP by 2009 had reached CNY 319.5 billion, the acreage of plantation (by direct planting and air seeding) had reached 38.926 million hectares, and the acreage of hillsides restricted to natural tree growth had reached 20.168 million hectares⁸. As a result, the SKEFP have reversed the trend of ecological deterioration in China, with a substantial increase in forest coverage and with multiple environmental benefits, such as preventing water loss and soil erosion. The current forest coverage in China amounts to 20.36% of the country's total area: 195.45 million hectares, of which 61.69 million hectares are conserved artificial forests.

The Natural Forest Conservation Program (NFCP) was initiated in 1998. The program covers 724 counties, 160 major enterprises, 14 nature reserves in the upper reaches of the Yangtze River, the upper and middle reaches of the Yellow River, northeast China, and Inner Mongolia. The main objectives of the program are to rehabilitate and revitalize natural forests and ultimately to realize harmonized development of resources, economy and society in forest regions. By the end of the year 2009, the program had afforested 2.662 million hectares by direct planting, 3.193 million hectares by air seeding and 12.079 million hectares by hill closure. Besides, it had resettled 621 500 laid-off workers successfully. The cumulative investment had reached CNY 83.6 billion.

The Sloping Land Conversion Program (Grain to Green Program, GTGP) was initiated in 1999, with an aim to reduce soil erosion by planting trees or maintaining pasture on cropland with steep slopes. The GTGP is expected to improve degraded ecosystem services and generate socio-economic returns from ecosystem restoration, especially in regions such as the Loess Plateau. The main policies adopted in the GTGP include grain and living allowance, seedling and planting allowance, tax preference and payment transfer. By the end of the year 2009, 23.1998 million hectares had been afforested by direct planting and 2.662 million hectares of lands by hill closure. The grain and living allowances had amounted to CNY 161.046 and 19.532 billion, respectively.

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⁸ State Forestry Administration. China Forestry Statistical Yearbook (1998–2009). Beijing: China's Forestry Press, 1999–2010. (in Chinese)

The Sand Control Program for areas in the vicinity of Beijing and Tianjin (SCP) was launched comprehensively in 2001. Its objective was to reduce the hazard of sandstorms in areas surrounding Beijing, through measures of vegetation protection, tree and grass planting, land conversion from cropland back to forestland, integrated catchment and grassland management and ecological resettlements. Its scope covers 75 counties of 5 provincial administrative regions of Beijing, Tianjin, Hebei, Shanxi and Inner Mongolia. By the end of the year 2009, 2.7996 million hectares had been afforested by direct planting, 0.6559 million hectares by air seeding, and 1.8730 million hectares by hill closure. A total of 8.1475 million hectares of sand sources had been under control. The cumulative investment had reached CNY 24.0 billion.

Shelterbelt Forest Development Program in Three-north, Yangtze River Basin and other Regions (SFDP) was initiated in 2001, with an aim to rehabilitate of degraded and desertified land. The program includes Phase 4 of the extensive Three-North Shelterbelt Forest Program, Phase 2 of the Yangtze River, the Pearl River, and the Coastal Shelterbelt Programs, and Phase 2 of the Taihang Mountains and the Plain Regions Afforestation Programs. It covers 2105 counties of 28 provincial administrative regions in China. By the end of the year 2009, 5.921 million hectares had been afforested by direct planting, 0.2911 million hectares by air seeding, and 3.5553 million hectares by hill closure. The cumulative investment had reached CNY 26.4 billion.

The Wildlife Conservation and Nature Reserve Development Program (WCNRDP) has been implemented since 2001, with an aim to increase conservation of critical species. Short-term priorities (by 2010) had been given to implementing 15 key wildlife rescue projects and establishing 15 centers for domestication and breeding of wild animals and 32 wildlife monitoring centers (stations). By the end of the year 2009, The number of nature reserves in the forestry sector had amounted to 2012, with a total area of 123 million hectares.

The Forest Industrial Base Development Program in Key Regions with a Focus on Fast-Growing and High-Yield Timber Plantations (FIBDP) was aimed to ease the shortage of timber supply and reduce the pressure of timber demands on forest resources in China. It plans to establish 13.33 million hectares of fast-growing, high-yield timber plantations with a total investment of CNY 71.8 billion between 2001 and 2015. It covers 886 counties and 114 forest farms of 18 provincial administrative regions in China. By the end of the year 2009, 0.2035 million hectares had been afforested by direct planting. The cumulative investment had reached CNY 1.7 billion.

- **'Go West' Strategy**

As a decision from the Central Economic Working Conference in 1999, the Chinese government initiated the 'Go West' Strategy in 2000, with the goal to promote the development of the western region, which covers 71.4% of the national area but contained 28.8% of the national population. At the first working meeting of the Leading Group for Western Region Development of the State Council in January, 2000, five working priorities of the 'Go West' Strategy during the first decade were identified, and the infrastructure development and ecological conservation were regarded as the most important breakthrough points. Since then, the Strategy has been steadily pushed forward by a series of plans and key policies issued by central and local governments and more than 100 major projects, such as the Qinghai-Tibet Railway and the West-to-East natural gas and electricity diversion projects, as well as key ecological forestry projects in the West.

In terms of ecological conservation, by the end of 2009, a total of 30.65 million hectares had been afforested, among which 23.90 million hectares by direct planting, 4.00 million hectares by air seeding, and 2.75 million hectares by hill closure. The number of newly built nature reserves reached 395, with a total area of 39.72 million hectares. Ecological conservation was prioritized during the construction of infrastructure⁹. The efforts on ecological conservation during the ten years improved the ecological environment and contributed to better production and living conditions in rural areas of the western region. To promote these efforts, the working priorities of the 'Go West' Strategy during the second decade, identified in the 2010 working meeting of the Leading Group for Western Region Development, include the demonstration and establishment of ecological compensation mechanisms in major catchment basins, mineral resource areas, and ecological zones.

- **CDM projects in China**

According to the Kyoto Protocol, CDM is a project-based mechanism that allows developed country Parties, in cooperation with developing country Parties, to acquire CERs generated by the projects implemented in developing countries. The Chinese government regards the CDM projects as an effective approach and a potential funding resource to address climate change and promote sustainable development. In recent years, local governments and enterprises have energetically conducted CDM projects with foreign partners. By the end of August, 2011, 3155 CDM projects have been approved by the NDRC, among which 1541 registered and 531 issued with CERs by the CDM Executive Board.

The efforts on ecological conservation during the ten years improved the ecological environment and contributed to better production and living conditions in rural areas of the western region.

⁹ Peng C, Ouyang H, Gao Q, et al. 2007. Building a Green Railway in China. Science, 316: 546–547.

Much of the experience in practical and technical measures for A/R CDM project activities can be translated to the REDD+ activities.

According to the pertinent articles of Measures for Operation and Management of Clean Development Mechanism Projects (issued on Oct. 12, 2005 and revised on Aug. 3, 2011), the Government of China has established the CDM Fund, using the revenues levied on the CER transfer benefits from CDM projects, to support the country's activities on climate change such as raising national adaptation and mitigation capacities.

In terms of A/R CDM projects, only 4 projects had been approved and 3 registered by the end of August, 2011. The estimated annual CERs of the approved and registered projects are 117,396 tonnes of CO₂-eq. and 116,272 tonnes of CO₂-eq., respectively¹⁰. A/R CDM projects often require longer project cycles and more complex measurements and monitoring than those on energy efficiency improvement, development and utilization of new and renewable energy, or methane recovery and utilization, which are the priority areas for CDM projects in China. However, A/R CDM projects not only achieve high-quality emission reductions that can be measured, reported and verified, but also enhance biodiversity conservation by increasing the connectivity of forests adjacent to nature reserves, improve soil and water management, and generate income for local communities. Much of the experience in practical and technical measures for A/R CDM project activities can be translated to the REDD+ activities.

3.3 Valuable lessons

China's implementation of major integrated projects can offer valuable information for the design and implementation of REDD+ programs. For example, an insightful analysis of the NCFP and GTGP provided ecosystem service lessons that can be applied to REDD+¹¹. These include:

- Systematic planning is critical to moving the programs forward. It would be more productive to carry out systematic planning at multiple government levels, such as overall strategic planning at the central government level and detailed planning at the local government level where better integration can be achieved.
- Diversified funding is a safeguard for sustainability of the programs. So far, key national programs in China have been largely financed by the central government, but still have caused financial hardships for some local governments. Market-based mechanisms should also be explored with

¹⁰ Department of Climate Change, NDRC. 2011. Clean Development Mechanism in China. Accessed online September 30, 2011: <http://cdm.ccchina.gov.cn/english/index.asp>.

¹¹ Liu J, Li S, Ouyang Z, et al. 2008. Ecological and socioeconomic effects of China's policies for ecosystem services. *Proceedings of the National Academy of Sciences of the United States of America*, 105(28): 9477–9482.

assistance and support from the central government and other stakeholders. Direct beneficiaries could be approached for funding.

- Effective compensation should be achieved for livelihood benefits. The amount and duration of compensation should be determined by multiple factors, such as risks to ecosystem services and income level of the households. Offering job information and training to farmers and employees of forest enterprises to develop new skills are indirect compensation approaches and are sometimes more effective than grain and cash.
- Interdisciplinary research is important for facilitating the interface between science and policy. A national network of interdisciplinary research could coordinate and promote integrated social and ecological research on important questions from local to national levels. For example, spatially explicit modeling tools could help evaluate long-term ecological and socioeconomic impacts under various policy scenarios.
- Comprehensive monitoring can help provide timely feedback for adjusting and refining large programs. A combination of remote-sensing data, social surveys, or third-party involvement could help ensure accurate monitoring on ecological and socioeconomic effects of these programs. A web-based nationwide database would facilitate the synthesis and dissemination of all relevant information for adaptive management of these programs.

4. Mutual benefits of the cooperation between China and the UN-REDD Programme

At a minimum, the UN-REDD Programme will benefit from the cooperation with China in the following two ways:

- First, cooperation with China would be a new dimension of facilitation, by introducing China and other developing countries into S-S relationships. As mentioned above, the developing countries in particular that are pilots of the UN-REDD Programme have critical needs for previous experiences and good practices through cooperation with China. The UN-REDD Programme is well positioned as a facilitator for such S-S cooperation, and its catalyzing role has been well recognized.
- Second, cooperation with China would contribute to the capacities of the Programme. The Programme aims for enhanced ecosystem and other social and environmental benefits from REDD+, such as sustainable forest management, biodiversity conservation, and poverty alleviation. The delivery

An insightful analysis of the NCFP and GTGP provided ecosystem service lessons that can be applied to REDD+.

A good example is the Democratic Republic of the Congo (DRC), a UN-REDD pilot country that has gained substantial experience on forest monitoring to advance the implementation of its national REDD+ policies and measures

of these co-benefits depends largely on the capacities within the Programme agencies and strategic partners. China's expertise and extensive experiences could provide a valuable reference for such a delivery.

China will benefit from the cooperation with the UN-REDD Programme in the following ways:

- First, cooperation with the UN-REDD Programme would provide a great opportunity for China to demonstrate its political will to combat climate change. To effectively address climate change, China has the good will to strengthen international cooperation with all other countries. The UN-REDD Programme would be a significant platform for China to demonstrate this will and interact with other partners.
- Second, cooperation with the UN-REDD Programme would facilitate the contribution of China's knowledge and good practices to the international REDD+ agenda. Sharing China's experience and continuing innovation with other developing countries through the Programme places China in a position to inspire environmentally-sound development not only at home but also around the world.
- Third, China would learn from the UN-REDD Programme and expand its own capacities on REDD+. Though keen to provide technical and capacity building support to UN-REDD pilot countries in the best way possible, China also needs to improve its own capacity in understanding the REDD+ mechanism and learn from other countries. A good example is the Democratic Republic of the Congo (DRC), a UN-REDD pilot country that has gained substantial experience on forest monitoring to advance the implementation of its national REDD+ policies and measures¹². UN-REDD can help expand the capacity of some Chinese experts to work in other developing countries.

¹² UN-REDD Programme Secretariat. 2011. DRC Advances its National REDD+ Forest Monitoring System. Accessed online September 30, 2011: <http://www.un-redd.org/Newsletter20/DRCNationalREDDForestMonitoringSystem/tabid/54366/Default.aspx>.

5. Draft framework for cooperation between China and UN-REDD Programme

Taking into account the six work areas of the UN-REDD Programme during 2011-2015, potential areas of cooperation between China and the UN-REDD Programme are suggested as follows:

- To perform country-specified analysis of demands and supplies, identify appropriate working mechanisms, and probe potential funding sources to lay the groundwork for cooperation. The relevant work will include:
 - » analysis of technical and capacity needs of specific developing countries for implementing REDD+;
 - » analysis of China's capacity to respond to needs of specific developing countries for implementing REDD+;
 - » proposing appropriate working mechanisms, including taking advantage of existing bilateral cooperation frameworks such as the Sino-Africa forum which has successfully worked on CDM cooperation;
 - » locating funding sources through S-S cooperation and from Chinese agencies, the UN-REDD Programme, donor countries, as well as recipient countries.
- To assist REDD+ countries in developing and implementing MRV and monitoring through technical and scientific support. The relevant work will include:
 - » capacity building in other developing countries on monitoring forest ecosystems, carbon and GHG fluxes, and land use change;
 - » capacity building in China on the most recent IPCC guidelines as a basis for estimating forest-related GHG emissions.
- To develop methodologies, indicators, and tools to help REDD+ countries consider multiple benefits in the design and implementation of REDD+.
- To share China's knowledge, experience, and good practice with other developing countries through multiple approaches.
- To raise REDD+ awareness in both China and other developing countries.

In accordance with the key areas listed above, the possible ways of cooperation, which could in the future be expanded as appropriate, include:

- To initiate China as an observer country to the UN-REDD Programme.

- To organize a workshop/dialogue between China and the UN-REDD pilot countries to identify specific demands and supplies, as well as appropriate working mechanisms.
- To launch a pilot cooperation project between China and one of the UN-REDD pilot countries, within existing cooperation frameworks, such as S-S cooperation or the Sino-Africa forum.
- To convene regional training workshops for use of remote sensing for forest area change assessments and establishment of baseline deforestation rates.
- To convene regional training workshops for communication of the IPCC's Good Practice Guidance.
- To launch pilot projects in developing countries on monitoring and data collection through remote sensing and field survey verification.
- To launch pilot projects in China with a focus on '+' under the UN-REDD program.
- To convene capacity building workshops to help developing countries unlock the economic value of multiple benefits.
- To set up a scientific panel with expertise from different agencies for communication with UN-REDD and NDRC, which is the lead agency in China on climate change related issues.
- To share knowledge, experience and good practice through international and regional workshops and the Programme's workspace.
- To conduct exchange visits of developing country experts (e.g. with DRC).
- To develop educational material and other factual communications on REDD+ related issues.

6. Conclusions and Recommendations

In the elaboration and implementation of National REDD+ Strategies, UN-REDD developing countries have paramount needs for support on technology and capacity in MRV and monitoring; national REDD+ governance; and multiple benefits of forests and REDD+; among other issues. Developing country partners need exposure to experiences and good practices from other developing countries through South-South (S-S) cooperation, including through cooperation with China.

In China, several key research and government institutions, such as the CAS, NDRC, and SFA, have made great efforts and demonstrated strong scientific expertise and governance capacity on fixing carbon through integrated ecosystem management. For example, the CERN and ChinaFLUX have been established and in place to disseminate technical expertise and knowledge on REDD+ to other developing countries. Several major national programs, such as the Six Key Ecological Forestry Programs and the 'Go West' Strategy, have been implemented by the Chinese government. There also have been 3 registered A/R CDM projects that produce annual CERs 116,272 tonnes of CO₂-eq. for China. Valuable lessons drawn from these programs and projects could contribute to REDD+ on issues such as cross-sector coordination, planning, ecological compensation, and so on. Therefore, China could provide technical and capacity building support to UN-REDD pilot countries through the cooperation with UN-REDD.

Cooperation between China and the UN-REDD Programme will be beneficial for both sides. For the UN-REDD Programme, cooperation with China would be a new dimension of facilitation, by introducing China and other developing countries into S-S relationships, as well as contribute to the capacities of the Programme. For China, cooperation with the UN-REDD Programme would provide a great opportunity to demonstrate its political will to combat climate change, facilitate the contribution of China's knowledge and good practices to the international REDD+ agenda, and enable China to learn from the Programme and expand its own capacities on REDD+.

A draft framework has been suggested for cooperation between China and the UN-REDD Programme, including potential areas and possible ways to advance cooperation. In light of the draft framework, the short term anticipation is for the Chinese government to become an observer country to the Programme, the middle term is to start a cooperative project between China and one of the UN-REDD pilot countries, and the longer term is to deepen and broaden the cooperation with more concrete actions.

**Cooperation
between China
and the UN-REDD
Programme will be
beneficial for both
sides.**







United Nations Environment Programme
P.O. Box 30552 Nairobi 00100 KENYA
Tel: +254-20-762 3753
Fax: +254-20-762 3917
Email: depi@unep.org
Website: www.unep.org/depi