A Strategy to Improve Ecological Security in the National Core Grain Growing Area of the Henan Province of China

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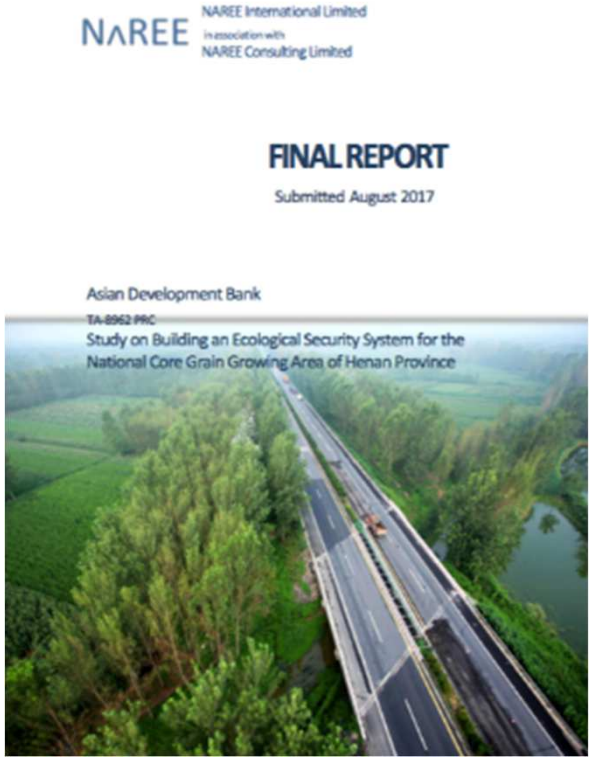

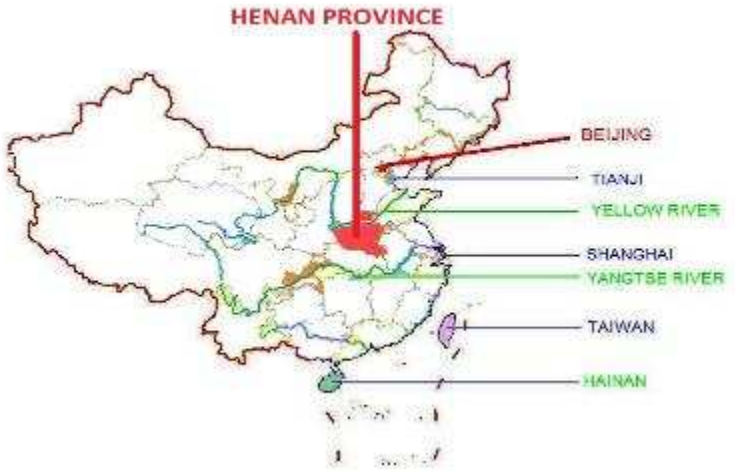

Objectives of the Strategy

- Lessening the impacts of six drivers of ecological security degradation (with long-term negative effects on crop productivity)
  - Soil and water pollution from excessive use of agrochemical inputs;
  - Lessening of ground water availability for irrigation and human consumption due to excessive pumping from existing aquifers;
  - Reduction of the protective effects of farmland protection forests;
  - Uncertain but likely negative impacts of climate change in absence of ecological protection from forestry-related structures;
  - Inadequate policy and institutional environment;
  - Absence of modern information and communication tools and strategy to overcome the somewhat negative attitude of farmers towards agroforestry and extend ecological security best practices, including ecological agriculture.

Degradation of the farmland protection forest network established during the collective time

By the early 1970's, Henan had already planted about 200 million of trees along "four sides", including 20 trees for each household on average, forests belts along roads and water courses and intercropping, which, all together, provided noticeable ecological, economic and social benefits and were instrumental in 12 years od continuous increase in grain production – 60.7 million tons in 2015

The Strategy

- Four strategic line of actions are prescribed to improve ecological security:
  - Establishment of an agricultural NPS control system;
  - Development of water conservation system;
  - Rehabilitation of the agroforestry ecological system; and
  - Adapting agriculture to climate change
- Those four strategic lines of actions are complemented by five policy and institutional measures including:
  - A three-tier ecological monitoring and evaluation system;
  - Compulsory policies such as chemical fertilizer and water resource quota systems
  - Coordination mechanisms to improve horizontal and vertical inter-sectoral collaboration and coordination;
  - Incentive policies (eco-compensation measures) to enhance farmers' participation; and
  - The development of ICT-based ecological security extension strategies

Farmland Status in the Core Grain Growing Area of Henan

- Farmland in China (and in core grain production areas) are divided into two categories: basic and regular farmland;
- Basic farmland are governed by the Basic Farmland Protection Regulation passed in 1994, which prohibits the conversion of basic farmland into other land use type (e.g. such conversion to non-agricultural use such as urbanization, industry, including conversion to forestry, agroforestry, etc.)
- Description of basic farmland:
  - Only grain crops, cotton, edible oils and other high-quality agricultural products, which are approved by the government at the central level;
  - Infrastructure to improve productivity, such as irrigation facilities and erosion control measures;
  - Experimental fields for science and education purposes
- Such definition of basic farmland, based mainly on existing soil productivity may, for the time being, curtail efforts towards the development of agroforestry systems and ecological agriculture.

Land tenure status in the core grain growing area of Henan

- HRS or the Household Responsibility System (1979/1983 – present), a two-tier land tenure system of collective ownership coupled with household land-use, under which:
  - Household are the primary unit of agricultural production but they do not legally own the land;
  - The production and management of land (farmland/forest land) are entrusted to households through long term individual contracts (e.g. in theory 30-40 years);
    - However, collective land management still exists, notably on pastoral areas in western China;
  - Under such system, households are:
    - Free to make own operating decisions within the limits set by contract agreements and land-use regulations (basic/regular farmland); and
    - Free to dispose of surplus production over and above national/provincial production quotas;
    - Free to rent (transfer land use rights) and use their land as collateral for loans (still on a pilot basis);
    - Not able to sell their land, notably to agribusinesses or financial institutions;
    - However, households still face reallocation or readjustment and/or expropriation risks, notably to ensure compliance with contractual production goals;
  - In spite of those advancements in land tenure security, a majority of farmers continued to express low confidence in their tenure security and therefore not inclined at making investment whose return would be medium term (e.g. agroforestry, ecological agriculture, tree plantation, etc.);

Land tenure in the context of the forest sector

- With the issuance of the HRS, forest land tenure also gradually evolved towards transferring the ownership rights and management from the collectives to rural households and communities (cooperatives) through contracting, auctions or leasing (called forest responsibility systems);
- However, household forestry still faces numbers of institutional challenges (in particular in agriculture landscapes):
  - The lack of legislative and policy framework to support the development of household forests, notably in agricultural landscapes – many elements of the forestry legislation are still oriented towards strict forest management principles;
  - Lack of inter-sectoral policy dialogue and horizontal collaboration (forestry - agriculture);
  - Limited opportunity for household to participate in management activities, thus limiting households rights over forest (farmland protection forests) or tree component of agroforestry resources;
  - Inflexible legislation and policy, which, in the case of core grain growing areas, cannot adapt well to agriculture production objectives;
  - Absence of policies specifically devoted to agroforestry development;
- In this context, farmers remain reluctant to invest in long-term forestry-related activities (e.g. farmland protection forests, agroforestry, etc.) to improve ecological security in core grain growing areas, which may prove risky and less efficient than agriculture activities

Farmers' attitudes towards farmland protection forests and agroforestry

March 2016 Attitude survey

to assess willingness, constraints, preference and issues faced by farmers to maintain and develop farmland protection forest system and agroforestry.

Constraints	Farmers	Technicians	The most serious one (farmers)
Lack of labor force	3.13	6.15	0.28
Lack of incentive mechanism	25.33	33.33	18.77
Availability of land resource	24.02	19.67	14.57
Land policy limit	6.01	21.99	1.68
Impede mechanization	13.84	17.21	4.48
Low benefit planting tree	4.44	1.64	5.32
Tree's negative influence to farmland	14.10		14.01
Conflict producing grain & wood	1.31		0.56
Long rotation period	1.31		1.12
No planning	2.87		0.84
No better management	0.78		0.84
Different perception	0.52		0.84
No need planting tree	1.83		0.84
Don't know	0.52		0.56
Frequently land regulation			0.28

Suggested options to resolve constraints	Farmer (%)	Technician (%)
Build incentive mechanism	16.00	28.40
Build suitable compensation	47.33	36.38
Tree selection	13.67	20.42
Raise technique level for technical person	1.33	13.26
Suitable planning and no need of arable land	5.33	1.53 (other)
Consummate land policy	0.67	
Shorter rotation period	3.33	
More management	1.33	
National condition education	0.67	
No method (don't plant tree in farmland)	7.67	
Don't know	2.67	

Eco-compensation policy development in China

- The concept of eco-compensation in China in its official policy documents dated 20 years (notably in the context of the concept of Ecological Civilization – re: harmony between development and the environment);
- Stipulations related to eco-compensation are included in the Environmental Protection Law and related regulations, but without specific implementation (only regulations in principles);
  - Eco-compensation areas covered include the protection of natural reserve, marine environment, watershed, wetland, returning farmland to forest, forest eco-compensation, ecological environment restoration, compensation for mining areas, and regional ecological protection construction;
- By end of 2016, not less than 16 laws, 91 regulations and 277 department rules are referring to eco-compensation for environmental protection, and notably in;
  - Agriculture law (2012)
  - Forest Law (2009)
  - Water Law (2016)
  - Grassland Law (2013)
  - Soil and Water Conservation Law (2010)
  - Land Management Law (2004)
  - Water Pollution Law (2008)
  - Law on Desert Prevention and Transformation (2001)
- By March 2016, at least 6 provinces have issued comprehensive eco-compensation regulations, all referring to compensation for protection.

Examples of eco-compensation programs in China

Existing major national eco-compensation schemes in China can be divided into three broad categories:

- Ecological protection projects:
  - Watershed Eco-compensation Program;
  - Conversion of Cropland to Forest and Grassland Program (Grain for Green program); 25 provinces – RMB: 181 billion
  - Key Shelterbelt Development Programs (2001- 2010); 31 provinces – RMB: 15 billion
  - Wetland conservation program (2005-2010)
- Ecological grants and subsidies:
  - Natural Forest Protection Project (2000-2010); 17 provinces – RMB 77 billion
  - Returning Pastureland to Grassland Project;
  - Subsidy and Rewards for Ecological Protection of Grasslands Program
- Ecological damage restoration projects:
  - the Beijing–Tianjin Sandstorm Source Control Program (2001-2010); 5 provinces – RMB 21 billion
- From 2001 to 2012, central government funding for eco-compensation increased from US$341.4 million to US$11.6 billion, and totaled US$37.1 billion over that period.
- These eco-compensation programs have been (and will be) instrumental in reforesting and restoring 150 million ha of deforested and degraded land by 2020 and 350 million ha by 2030
- However, there are, so far, no eco-compensation payment programs that would encourage farmers to improve the ecological security of grain growing areas in adopting environmentally-friendly and carbon sequestration management practices.

Key issues affecting the efficiency of eco-compensation program in China

(Based on the ADB 2011-2013 Study)

- In practice, eco-compensation payments in China are coming from transfer payments from the center, often supplemented by provincial budgets, without due consideration given to:
  - The ecological value of natural resources to be protected;
  - Range and methods of payments;
  - Adequate compensation standards (often to small to induce full and long-term participation of protectors);
  - Adequate implementation and supervisory power and instructive regulations (generally variable as stipulated by involved administrative technical departments;
  - Absence of interdepartmental coordination (e.g. between economic/fiscal and technical departments)
  - Absence of adequate performance supervision, monitoring and evaluation systems to evaluate/assess the impacts and benefits of eco-compensation payments;

Basic features of the proposed eco-compensation policy for the development of farmland protection forests to improve ecological security in the core grain growing area of Henan

- Basic principle
  - Those who would benefit and those who would be affected by ecological security construction should be the beneficiaries of eco-compensation.
- Basic features – Eco-compensation policy should:
  - Only be paid for ecological security and environmental protection activities that could not be paid by the market;
  - Be linked to the value of ecological services resulting from environmental protection activities;
  - Be based on either the ecological service value of ecological protection or the opportunity costs of it; and
  - Eco-compensation payments should not be linked to production loss due to ecological protection construction, which should be contemplated as part of opportunity costs;
  - Opportunity costs should be considered as the basis for the calculation of eco-compensation payments.
- Basic requirements - Eco-compensation payments should:
  - Respond to protection needs – farmland protection forests/agroforestry should only be established where needs arise notably in view of restoring soil fertility, decreasing adverse impacts of weather-related disasters, stabilizing (or increasing) grain yields; improving farmers' incomes; mitigating the impacts of climate change, etc.;
  - Meet protection efficiency – the design, setting and composition of farmland protection forests should maximize their protection efficiency and effectiveness, in particular with regard to improving grain yields and farmers' incomes; and
  - Not being harmful to surrounding farmlands and households.

Thank you for your attention

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