G-1.2.2 Assessment of Socio-Economic Factors Affecting Dsertification and Land Degradation in China

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Abstract This study aims at clarifying socio-economic factors affecting desertification and land degradation based on three case studies in China, namely Naiman Banner in Inner Mongolian Autonomous Region, Yuanmou County in Yunnan Province and Lanxi city in Zhejiang Province. Socio-economic analyses were made to identify major factors that triggered and accelerated land deterioration in the surveyed areas. The result shows that among those factors are rural poverty, population increment at an alarming rate and environmentally-unconscious policy intervention. However, new policy climate finally arrived in late 1979 when the Reform and Opening Policy was introduced so that policies combating desertification became government's concern. It has, thus, been found that there are a few cases where careful policy execution coupled with enough financial means have brought out successful results in stabilizing local agricultural ecosystems. The policy implication of these findings is that central policy efforts with environmental concern and people's participation are instrumental to promote land utilization in conformity with resource conservation.

Key Words Poverty, Population Increase, Environmental Concern, Appropriate Policy, Farmers' Participation

1. Introduction

Desertification including land degradation is often triggered and accelerated by human activities resulting in the depreciation of vegetative, soil and water resources as well as the depletion of land productivity. It is also said that desertification will bring out deterioration of human habitat and negative affect on food supply. Sustained economic activities should therefore be dependent on sound and sustainable resource use systems by humans. The starting point of ecologically-sound and economically-rational land use is to understand the acceptable level of human intervention into agricultural land ecosystem and the degree of impact of resource degradation on human lives. It is said that the land area which has already been seriously affected by desertification on the earth is now reaching several thousands km^2. Human knowledge on the real situation and process of desertification is still limited and a lot of research activities on these themes have yet to be made to assess the relationship between desertification and human activities.

2. Research Objective

Study areas in semi-dry and semi-humid China were selected decided according to the climatic condition as well as the level of human impacts on land. It was then intended to understand the changing situation of agricultural resources in these study areas and to identify major socio-economic factors that have brought out such changes there. Analyses included clarifying socio-economic factors of desertification, influence of desertification on human life, and economic assessment of various technological methods for anti-desertification and the development of deserted land.

3. Research Method

This study employed the following approach to analyze socio-economic aspects of desertification based on three case studies in different parts of China.

(1) The factors affecting desertification and effects of desertification on human activities were surveyed according to the existing statistics and available written documents.

(2) Field observation and interviews were conducted in three different study areas to understand the problems involved in the implementation of anti-desertification projects and their positive and/or negative effects.

(3) Effects of policy change, namely the Responsibility System in Agricultural Production (RSAP), on preventing land from desertification and promoting environmentally-sound use of land resources were identified based on field observation.

(4) Finally, an analysis was made to identify socio-economic factors which are instrumental to promote protection and conservation of land resources from desertification in China.

4. Result

(1) Desertification in China and Policy Factors

The land area affected by desertification and soil erosion in China now reaches 1,533 thousand km^2. Annual rate of the increase of degraded land area was 1,560 km^2 during the two decades from 1950, but it increased to 2,100 km^2 in the 1980's. National statistics shows that areas suffering from soil erosion increased after the introduction of the Reform and Opening Policy (ROP) in 1979, thus the recorded high rate of annual increment of eroded areas was observed in 1985 and 1991. This tells us that such policy changes accelerated development without enough environment- conscious methods to utilize land resources in the country.

Policy intervention that expanded desertification and soil erosion in a nationwide scale in China is identified to be population policy, the Great Foreword Movement Policy (GFMP) and food production-first policy. It is already a well-known fact that, though China became an over-populated country in the 1950's, no fundamental change in population policy was introduced until the Great Cultural Revolution was proved to have produced various unfavourable and unexpected effects. GFMP can be identified to be among the factors that has promoted desertification, because it allowed to employ ineffective technology to rapidly expand industrial production with neglecting environmental conservation. The food production-first policy concentrated efforts on producing more food in order to feed the ever-increasing population with the result that enforced, inappropriate land use increased areas under serious soil erosion throughout the country. In addition, these policy executions involved two important shortcomings: (a) individual economic interest of the farmers was not seriously taken into

account for the sake of national economic development and state interest; (b) this government attitude toward the farmers has brought in their great distrust to the government and its policy execution.

(2) Anti-Desertification Policy

Intensified desertification and soil erosion finally resulted in policy awakening so that the government started taking measures with environment-consciousness and popular participation. Among them are strong family planning policy, Reconverting Farm Land into Forest (RFLF), national tree-planting campaigns, and Responsibility System in Forestry Production (RSFP).

Land conservation policies are also taken by the Chinese government and they can be classified into several categories according to policy objectives: (a) conservation of forest resources, (b) land prevention from becoming barren, (c) land protection from soil erosion, (d) legal protection of farm landholdings, and (e) regulation of mining operation.

Various laws have been enacted to provide the bases for policy formulation. Specific goals for policy realization are already set. Among them are the Guideline for the National Afforestation and Greening Programme from 1989-2000, the Outlines for Combating Desertification from 1991-2000 and the All-China Water and Land Preservation Ten-year Project 1991-2000. Related projects currently under operation are the Three-North Shelterbelt Development Program, which is often called as the Green Great Wall of China, the Programme on Soil and Water Conservation Forest in the Upper and Middle Reaches of the Yangtze River, the Coastal Shelterbelt Programme which includes tree-planting at Mt. Taihang Shan, and the Plains Afforestation Programme. In addition to these, Nationwide Compulsory Tree Planting Movement is also in progress under which every Chinese national is compelled to plant three to five trees per annum.

(3) Major Findings of Field Observation

Field observation was conducted in three different parts of China and the major findings are as follows:

(a) Naiman Banner in Inner Mongolian Autonomous Region

This area falls in the semi-arid climate and low income region among the surveyed areas. It was in the 1960's when the area started suffering from desertification at a perceptible rate, but no effective measures were taken until the central government changed its policy direction in the early 1980's so as to cope with environmental issues in the countryside. The total land area under desertification is said to be over 500 thousand hectares (63% of the total land area). Since then new agricultural practices and improved methods of sheep rearing were introduced with a result of wide dissemination of feed production and settled animal-keeping. Large-scale tree planting is a popular method for land conservation in the area and has already produced a noticeable effect of stabilizing sand movement, but lack of financial resources in the local authorities concerned was found to be a major constraint for expanding the operation. It was also revealed that consolidated efforts to develop both agricultural and non-agricultural sectors are so weak that the local government could not but concentrate its attention only on afforestation projects.

(b)Yuanmou County in Yunnan Province

The study area is located in semi-humid, inland and mountainous region, and stands for the

middle income district among the surveyed areas. Soil erosion prevails in the region, the total area damaged by it being 150 thousand hectares (74% of the total county's land). Its result includes a large decrease of cultivable land, soil fertility and forest resources. Population increase and excessive extraction of fuelwood resources were pointed out to be two major factors for these resource depreciation. It was not until 1989 when the county was included in the Programme on Soil and Water Conservation Forest in the Upper and Middle reaches of the Yangtze River, which gave a big push of afforestation campaign to this poor county. Lack of local financial and institutional capacity due to a less developed economy of the area was identified to be one of the major causes of delay of effective implementation of anti-desertification programme.

(c) Lanxi City in Zhejiang Province

This area is located in semi-humid , lowland region with the highest level of per capita income among these three areas. It was found also in this City that socio-economic causes that have accerelated soil degradation are rural poverty, uncontrolled fuelwood collection from nearby forest lands and extension of cultivation even to marginal and slope lands. In 1978 the local authorities first introduced a Reconverting Farm Land into Forest project. This was made possible because of the development of the local industrial production from which local fund for public investment was accumulated. There is also a case in which a well-organized project with heavy public investment has been successful to turn a large tract of eroded land into a large-scale tea farm. It may be mentioned that a certain level of economic viability is required to cope with problems such as preventing land degradation, that needs massive public expenditure, in a economy like China.

5. Discussion

The characteristics of promoting China's policy to prevent degradation of land can be categorized into two salient points: one is that policy promotion is led by the central government; another is that in China any policy aimed at protecting the interests of farmers and giving them advantages will be highly effective.

Firstly, the People's Republic of China features a political system wherein the Communist Party decides all policies and promotes them. In this manner, the core leaders of the Communist Party are in a position to make policy decision. Measures for preventing the country's land from degradation are not exception to this. For the past several years, provincial organs responsible for environmental conservation, such as those in charge of forestry, the utilization of water, etc., repeatedly tried to imbue party leaders with the realization of how urgent it is for China to take action to prevent land degradation, but their efforts fell on deaf ears. Thus no decisions concerning policy making were issued from provincial or local levels of administration. Recently, China's top party leaders began to realize the dire need for initiating action, and a certain amount of the nation's budget, although small, has been allocated for the purpose. Accordingly, promoting activities to guard against degradation of the country's land as effected at the provincial level should unfold much more effectively than in the past.

Secondly, the policy has been drafted and set in motion by China's highest authority. Who, then, will actually promote it so as to achieve policy goals as established? It is no exaggeration to say that the weakest part of the land conservation policy pronounced by the Communist Party in the past was that it had nothing to do with protecting the interests of the farmers. A distinctive

feature of the present policy as dictated by party leaders is its calling for protection of farmers' interests and awarding them certain profits. For instance, the party is trying to advance a responsibility of system of forestry production, one which comprises three elements: (a) the establishment of ownership of mountain land and trees, (b) the allocation of usufruct right of local public land, and (3) the promotion of contract afforestation.

The Chinese government policy for attacking land degradation and resultant active involvement of the farmers in afforestation programmes have just begun and successful cases have already reported and observed in our field observation. The land area covered to date is, however, fairly limited in comparison with the established goals. One of the main reasons for this is insufficient funds.

6. Concluding Remarks

This study tried to shed light on the problem of desertification and land degradation in China and to identify major socio-economic factors which triggered and accerelated the depreciation of land resources. In the final analysis, this research has made clear the following points:

(a) The fundamental socio-economic cause of desertification in China is identified to be population policy which rendered heavy pressure on limited areas in a poor state of national economy.

(b) This factor (a) has been intensified by the fact that total lack of environmental concern both by the governmnet and pepole in China has been exisited until the most recent years.

(c) The above-mentioned two facoters have not been altered until the government decided to chage its basic policy orientation in late 1979.

(d) Once the government introduced the new Reform and Opening Policy, environmental concious projects started to be implemented with a purpose of combating land degradation.

(e) Such conservation projects have been found to be effecive to protect land from erosion only when they are supproted with enough financial and technical means.

(f) In order to prevent desertification in China it is necessary that anti-desrtification policy should be taken seriously into consideration by the central government.

(g) It should be mentioned that any national policy need be oriented toward satisfying farmers' interests in order to make policy execution productive, attractive and fruiteful.

(h) It is also important that anti-desertification programme need be taken as an integral part of whole development projects for the area concerned.

7. Articles

(1) Kazuyoshi SHIRAISHI, "The problem of soil erosion in China", paper presented at the Research Seminor of the Japan Modern China Study Association, Tokyo, 1994.

(2) Kazuyoshi SHIRAISHI, "Agricultural Policy for Attacking Land Degradation in China", paper presented at the International Workshop on Land Use System for Combating Land Degradation in East Asia, Tsukuba, 1995.