

## Summary of the Terminal Evaluation

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| <b>I. Outline of the Project</b>  |  |
| Prefecture : the Peoples' Republic of China   | Project Title: The Project on Eco-environment Rehabilitation and Poverty Reduction in Yanmenguan Region, Shanxi Province |
| Sector : Nature Conservation—Sustainable Use of Natural Resources   | Cooperation scheme: Technical Cooperation Project  |
| Office in charge: JICA China Office   | Cost (as of November 2010) : Three hundred and ninety million yen  |
| Period of Cooperation: (R/D) March2007-March 2011   | Implementing Organization in China: The Shanxi Science and Technology Department   |
|   | Supporting Organizations in Japan: Ministry of Agriculture and Fisheries   |
| Related Cooperation:  |  |
| <p><b>1-1 Summary and Background of Corporation</b></p> <p>In China, reduction of disparity between economically growing urban areas and rural areas that host 70 % of the national population has been a significant issue. In rural areas, ecological environment is severely damaged due to overwhelming agriculture, livestock, and deforestation. The Yanmenguan Region, the target area of this project, locates in the Loess Plateau of the Northern China and is a region of arid sandy terrace where rain-fed farming (wheat, potato, sesame, and livestock farming) is the major style of agriculture. Net income per capita among the farmers is 150 USD, and 18 prefectures out of 30 in the region are designated the nation's poorest prefecture, indicating concentration of poor population in this region. In lands where reclamation reaches to mountain summits, soil erodes after each heavy rainfall in summer, and this reduced land productivity further accelerates poverty.</p> <p>In consideration of these circumstances, the Shanxi Provincial Government developed a regional development strategy in an aim to protect ecological environment and sustainable economic development, and in 2001, proposed the Yanmenguan Ecological Livestock Economic Zone Construction Plan(hereinafter Yanmenguan Construction Plan) that targeted improvement of ecological environment and of farmers' livelihood. This project aimed to improve livelihood of the farmers by increasing the ratio of livestock farming, protecting soil surface through cultivation of perennial plants mainly on the sandy lands as well as slopes, and promoting grass-fed livestock farming in this agriculture-dependent region.</p> <p>Nevertheless, this region lacks human resources capable of initiating and implementing the above project, as well as grass seeds, livestock, and initial investment cost for livestock-house construction, causing major delays on transition from agriculture to livestock farming. Thereupon, this project was designed to support project expansion for protection of ecological environment and livelihood improvement by project planning based on natural resource availability and farmers' needs and by establishment of technological diffusion system, followed by proposal of this implementation as a model system.</p> |  |

## 1-2 Project Overview

This project aims at eco-environment rehabilitation and poverty reduction in Yanmenguan Region, Shanxi Province, through promoting grass-fed livestock farming and building technical support system.

### (1) Overall Goal

To diffuse the model system created in the project, improve the ecological environment, and to improve livelihood of the farmers in the Yangmenguan Region.

### (2) Project Purpose

To construct a model\* system for improvement of both ecological environment and livelihood of farmers and to establish a system for diffusion in the Yangmenguan Region.

\*This Project's Model : The Model refers to a series of activities including project planning through the participatory approach, improvement of ecological environment and of livelihood through transition of livestock farming from grazing to housing.

### (3) Outputs(O/P)

O/P1: The prefectural land utilization plans are formulated to promote improvement of ecological environments and sustainable development of livestock farming.

O/P2: The village development plans are formulated in a participatory manner, in order to realize improvement of ecological environment and sustainable development of livestock farming based on the prefectural land utilization plans, and to establish activity plans of the pilot project.

O/P3: Pilot Project is implemented based on the village development plan.

O/P4: The technical support system for the model villages is strengthened.

O/P5: Outcome of the project activities are consolidated and then shared among organizations concerned improvement of both ecological environment and livelihood in the Yangmenguan region.

### (4) Outputs (as of November 2010)

Japanese Side : Cost (as of November 2010) : Three hundred and ninety million yen

Short-term Experts - 6(Project Coordinator/Rural Development, Livestock Promotion, Participatory Development, Pasture Management/Market Research, Water Utilization, Soil Conservation)

Trainees received – 25 (20 from the Province, 2 from Youyu Prefecture, and 3 from Loufan Prefecture)

Equipment - 12,848,000 yen (eq. 1,056,232 Yuan by JICA official rate November 2010)

Project Cost - 66,050,000 yen (eq. 5,429,957 Yuan by JICA official rate November 2010)

### Chinese Side

Counterpart(herein after C/P) – 52\*<sup>1</sup> (31 from the Province, 11 from Youyu Prefecture, and 10 from Loufan Prefecture)

Land and Facilities – 3 Office spaces and necessary facilities and its' utility costs

Local Cost – 6,560,000yuan\*<sup>2</sup> (eq 79,795,840yen)

The China side also paid for costs for project implementation (i.e. construction of livestock facilities, sheep purchase, water facilities and road construction)

\*1 : total number of members in the Project Offices and the Instruction & Coordination Group

\*2: Total Direct Input Cost to this project paid by the Shanxi Science and Technology Department, Ministry of Agriculture Livestock Department, Department of Science and Technology Taiyuan City, Department of Science and Technology Shuòzhōu City, and Loufan Prefecture.

## II. Evaluation Team

|                            |  |                    |                     |
|----------------------------|--|--------------------|---------------------|
| Members of Evaluation Team | Chinese Side   |                    |                     |
|                            | <p>Mr. Zhang Yuan Gong (Deputy Director, International Cooperation Office, Shanxi Science and Technology Department)</p> <p>Mr. Sun Zhen (Director, Office of Science and Research, Shanxi Academy of Agricultural Sciences)</p> |                    |                     |
|                            | Japanese side:   |                    |                     |
|                            | Mr. Masaru Uoya, Team Leader (Senior Representative, JICA China Office)  |                    |                     |
|                            | Dr. Masahiko Ohkubo (Environmental Management and Poverty Reduction ), Emeritus Professor(Animal Production), Hokkaido University  |                    |                     |
|                            | Ms. Kanako Adachi, Cooperation Planning, (Representative, JICA China Office)   |                    |                     |
|                            | Ms. Tang Jian, Assistant Cooperation Planning, (Assistant Resident Representative, JICA China Office)  |                    |                     |
|                            | Ms. Naomi Ichimiya(Evaluation Analysis), Program Officer, Dept.of Planning and Program, FASID  |                    |                     |
| Period of Evaluation       | 9/Nov/2010 – 18/Nov/2010   | Type of Evaluation | Terminal Evaluation |

## III. Results of Evaluation

### 1 Project Performance

#### (1) Achievement of Project Purpose

The Project Purpose is expected to be achieved before termination of the project according to attainment level of indicators.

**[Indicator 1]** Based on the village development plan, indicators of improvement of ecological environments and of residents' livelihood in the model villages are simultaneously achieved. Two sub-indicators attached to this Indicator 1 were archived.

Sub-indicator1-1 Planted grassland areas increase by 50 % compared to the 2006 level has already been achieved since the increase rate of the planted grassland in the six model villages was 53 % compared to the 2006 level. This indicator is on improvement of ecological environment. In the project, in the scope of promoting soil conservation and house farming of sheep, areas of planted grassland had been expanded through encouraging cultivation of livestock-feed plants, mainly the perennial alfalfa. At the time of post evaluation survey, the planted grassland areas had shown an increase from 2010 m in 2006 to 3080 m in 2009, an increase by 1070 m, whose increase rate is of 53 %.

Sub-indicator1-2 Income from livestock farming par capita in model farmer increases by 50 % has been achieved. Income from livestock farming par capita in model farming households was 1808 yuan in 2009, an increase of 84 % compared to the 2006 level (the figure was collected through project monitoring). This indicator is related to livelihood improvement. The project aimed to increase farmers' income by incorporating house farming of sheep into farming activity. At the time of post evaluation survey, actual farming income par capita increased from 985 yuan in 2006 to 1,808

yuan in 2009, recording an increase rate of 84 %. The income record of 2010 is to be obtained at the end of the year 2010, which necessitates inclusion of the 2010 record in the project's final-year report.

**[Indicator 2]** C/Ps acquires skills to diffuse the project outcome throughout the Yangmenguan Region through active implementation of project activities at the provincial, municipal, and prefecture levels.

Sub-indicator2-1 At least One teaching material is produced for each project activity areas was achieved. One or more than one teaching material has been produced in each subject. The total number of produced teaching materials is 32. In the project, through the participatory approach, establishment of models for rehabilitation of ecological environment and livelihood improvement had been implemented. After identification of necessary technical fields, all activities in the fields were done as On-Job-Training for technology transfer from the Japanese experts to the provincial as well as prefecture C/Ps. Materials produced through these processes were put into guidelines and technical guidance by the Japanese experts and the C/Ps as follows: i) Rural Development - Guideline, ii) Livestock Farming - Sheep Breeding and Raising, iii) Grassland Utilization - Cultivation and Utilization of Grass plants, iv) Participatory Development - Formulation of Participatory Planning, v) Soil Conservation - Planting of Shrub and Monetary Timbers and vi) Water Utilization Plan - Maintenance of Water Facility.

Sub-indicator2-2 At least six training sessions targeting at the model villages and prefectures are held annually by the Chinese C/Ps was achieved. At least one training session was held in each year in above mentioned six technical fields, resulting in at least six times of training sessions par year throughout the project duration, and the total of 47 times of training sessions in four years were held. In this project each level of C/P implemented technical training on farmers in the model villages for structural establishment for technological transfer (from the Japanese experts to the provincial and prefecture C/Ps) and diffusion (from the provincial C/P to prefecture C/P, or from the provincial/prefecture C/Ps to the farmers).

**[Indicator 3]**To set up roles of each related agency for diffusion, which is done by the Diffusion Office composed mainly of Ministry of Science and Technology, Shanxi Province.

At the time of post evaluation survey, the Diffusion Plan had been formulated, specifying roles on diffusion of project outputs, and is currently waiting for an approval by the Joint Coordination Committee. It is expected to be approved by the end of the project.

## **(2) Achievement of Outputs**

**Output1** The two indicators in the third version of PDM have been achieved, consequently presuming achievement of Output 1. In both Youyu and Loufan prefectures, through negotiation with province C/Ps, prefecture C/Ps formulated prefecture plans including land utilization plans and livestock farming plans. These plans were later approved by the prefecture governments after negotiations with related agencies (August 2010).

**Output2** The two indicators in the third version of PDM have been achieved, consequently presuming achievement of Output 2. In the six villages that had been selected as model villages, the village development plan were formulated through participatory assessment methods such as Participatory Rural Assessment (PRA), and the plans were approved by village committees

(February 2008). Also, based on the village-level development plan, plans of operation for pilot projects (hereinafter referred to as PP) were formulated through the participatory approach (January 2008).

**Output3** The two indicators in the third version of PDM have been achieved, consequently presuming achievement of Output 3. The PP was implemented in duration between June 2008 and September 2010. Also, monitoring on the PP was done on a monthly basis by the prefecture C/Ps. Results were recorded on monitoring sheets, and submitted from the country C/P to Japanese experts, based on which the Japanese experts developed monthly reports, progress reports, and annual reports, and also reported to the Joint Coordination Committee. Additionally, depending on areas of monitoring, results were reported from the country C/P to the province C/P.

**Output4** The two indicators in the third version of PDM have been achieved, consequently presuming achievement of Output 4. 10 kinds of training materials were produced. Training sessions for improvement of ecological environment and for diffusion of a model system for livelihood improvement were held in the model prefectures, which were attended by 300 farming households out of 593 in the six model villages.

**Output5** Presuming from the current status of the two indicators in the third version of PDM, it is highly probable that the output 5 is to be achieved by the end of the project period. The project had produced, at the time of post evaluation survey, drafts for the following documents: one guideline, five sets of technical guidance, and 16 sets of diffusion tools, and these documents would be finalized after reflecting results of post evaluation survey on them. At the time of post evaluation survey, a seminar had been held for three times aiming to introduce contents of the project and its outcomes. By the time of the project termination, two times of seminar sessions were planned to be held.

## **2 Summary of Evaluation Results**

### **(1) Relevance**

The relevance of this project is high for the following reasons:

#### **1) Priority**

This project is in accordance with the Yanmenguan Ecological Livestock Economic Zone Construction Plan which the Shanxi Province places as its regional development strategy and the model establishment for diffusion and system construction are necessary assistance for the activities in the Yanmenguan Region. In Japan's Development Plan for China, assistance for global issues such as environmental problems is set out as one of the prioritized areas, and this includes conservation of ecological environment in the arid areas.

#### **2) Needs**

Ecosystem deterioration and poverty are serious threats in the Yanmenguan Region, which has many prefectures designated the nations' poorest prefecture and contains concentrated population of the poor making needs of this project, which aims to rehabilitate the ecological environment and reduction of poverty, very high.

#### **3) Approach**

This project made use of participatory approach for formulation of the village development plan,

purposing a model construction to incorporate farmers' needs. There are two land types in Yanmenguan Region and one prefecture was selected for each land type as a model prefecture, and three villages of different economic levels in each of the model prefecture were selected as model villages. In each model village, in a purpose to study model cases for development of livestock farming and poverty reduction, model farmers were selected from three categories according to their relative economic status: the upper-class households, the lower-class households, and the ones in between the two classes. Verification of the diffusion model by implementing pilot projects is considered an appropriate approach to assure diffusion in the Yanmenguan Region.

## **(2) Effectiveness**

Effectiveness of this project is considered high for the following reasons:

### **1) Achievement of the Project Goal**

Judging from the progress (or predicted progress in part) of the project' s indicators, it is probable that the project goal would be achieved by the end of the project duration. This project aimed to construct a model that would realize dual purposes: improvement of ecological environment and of livelihood among the farmers in poverty. In so doing through a participatory approach, the project plan was designed in such a manner to meet national policy on forest rehabilitation, regional specifications, and farmers' necessities. The project progressed with plantation of livestock feeds, transfer of the style of livestock farming from grazing to housing, forestry plantation of shrubs and economic timbers, water resource development, and training sessions. The C/Ps understood the series of methodologies and techniques, major objectives (such as income increase through sales of raised sheep, soil conservation, and water resource development) were achieved in the model villages, and models for both improvement of ecological environment and poverty reduction were developed. Additionally, the above approaches and techniques verified through the PP were put together in *the China-Japan Technology Jointed – Rehabilitation of Ecological Environment and Poverty Reduction in Yanmenguan Region, Shanxi Province Project Manual* is soon to be complete. This manual includes diffusion plans that make use of the models constructed in the project.

### **2) Contribution of the Outputs**

The project goal is brought about by achievements of the five outputs: the prefecture land utilization plan, development plan of the model villages, implementation of the PP to practice the development plan, training for capacity development of C/Ps and production of training programs, and consolidation of project outputs. This composition is appropriate to construct model, which was the major objective, and to construction diffusion system, in terms of its contents as well as chronological arrangements, and therefore, contribution of outputs for the goal achievement is high.

## **(3) Efficiency**

Efficiency of this project is high for the following reasons:

### **1) Timing, quantity, and quality of inputs**

Inputs from both Japan and China were mostly done as planned in terms of contents, quantity, and quality.

### **2) Achievement of outputs**

Judging from the current OVI achievement status and predicted achievement status, outputs

were produced almost as planned.

#### **(4) Impact**

As for impacts of this project, positive impacts were observed.

##### 1) Impacts at the Overall-Goal Level

The Overall Goal is “To improve ecological environment and livelihood of farmers through diffusion of a model developed in the project in the Yangmenguan Region.” From the below indicators achievement prediction, probability of the project outputs diffusing to outside the target group is high. First indicator “To implement a case referring to this project in prefecture(s) and/or village(s) of the Yangmenguan Region”, has already produced two such cases, and so forecast of this OVI to be achieved is very high (Case 1: in the Youyu prefecture a poverty reduction plan in reference to this project constructed a livestock housing facility. Case 2: in the Youyu Prefecture an activity for poverty reduction aided by Hong-Kong was initiated in reference to this project’s participatory approach).

For second indicator “Income from livestock farming per capita increases by 50 % in three years in villages in Yangmenguan Region after incorporation of this project’s model\*”, considering the 84 % increase of income of livestock-farming households practically in three years, the probability of this indicator to be achieved is high if large scale natural disaster does not occur and mean price does not fall sharply.

For third an indicator, “The area of planted grassland increases by 10 % in three years in villages in Yangmenguan Region that incorporated this project’s model”, considering that livestock house facility for sheep and cultivation of livestock feed are in accordance with such policies of the Chinese government as prohibition of grazing and rehabilitation of ecological environment, the probability of achievement is high if large scale natural disaster does not occur.

##### 2) Additional Impacts

In the model villages, as a result of livelihood improvement, school attendance is improving. Through planning by the participatory approach, ownership of the farmers was promoted. This project ran in the cycle of plan-do-monitor-feedback-modify, through which the project plan continued to increase its practicality. Project members such as prefecture C/P have shown their intentions to apply this approach in different fields, spreading the concept of project cycle management.

#### **6.5 Sustainability**

Sustainability of this project is considered high for the following reasons.

##### 1) Institutional Aspects

As for the institutional aspects, as discussed in 6.1(1), the Yanmenguan Construction Plan is expected to continue.

##### 2) Organizational Aspects

As for the organizational aspects, each agency that worked for the project is expected to utilize the project outputs. The Shanxi Science and Technology Department is currently considering a permanent organizational system for diffusion of the outputs.

##### 3) Financial Aspects

As for the financial aspects, to reduce disparity in the rural areas, the Chinese government has been implementing the New Rural Village Construction Plan and the Poverty Reduction Plan, and

also the Yanmenguan Construction Plan possesses its own budget. In these related programs, it is possible to utilize outputs of this project that aimed rehabilitation of environment and poverty reduction (In the Youyu Prefecture, an implemented case is on-going).

#### 4) Technical Aspects

As for the technical aspects, sustainability of techniques and approaches adopted in this project is high. Prefecture C/Ps are familiar with needs assessment through the participatory approach and how to identify specific activities and to design action plans for improvement of ecological environment and of livelihood. Technical training on farming households is also being appropriately done. The diffusion manual, which consolidates the project outputs, discusses how to cope with ecological rehabilitation and poverty reduction simultaneously and how to train on techniques, and though still in a process of drafting, the manual is very well received by the model farmers and prefecture C/Ps with such comments as “comprehensive” and “always in hand for reference”. The manual is expecting a wide range of users as a diffusion catalyst.

### **3-3 Factors that promoted realization of effects**

#### (1) Factors concerning to Planning

N.A.

#### (2) Factors concerning to the Implementation Process

##### 1) Utilization of Participatory Approach

In this project, planning of the pilot project was established after comprehension of farmers' needs through participatory research methods. So, the ownership and participation of the farmers were promoted through planning upon needs of the farmers, and this led to the remarkable outcomes.

##### 2) PDCA Cycle

In this project, monitoring was regularly conducted and monitoring results were reflected on revision of the project plan. This use of the PDCA cycle allowed planning to be more practical and appropriate.

### **3-4 Factors that impeded realization of effects**

#### (1) Factors concerning to Planning

N.A.

#### (2) Factors concerning to the Implementation Process

N.A.

### **3-3 Conclusion**

This project, in terms of the 5 evaluation criteria, is superior in relevance, effectiveness, and efficiency. Possibility of project outputs to be achieved is high, from a perspective of this project's genre on rehabilitation of ecological environment and livelihood improvement. Positive impacts are already observed in improved school attendance and promoted awareness among the farmers and the C/Ps, and therefore, sustainability is also high. From above, the project is conclusively expected to achieve its project goal.

### **3-6 Recommendations**

#### **(1) Actions to be done by the end of the project**

##### 1) Completion of the Diffusion Plan

At the present moment, the Diffusion Plan is being designed mainly by the Shanxi Science and Technology Department. It is desired that the Shanxi Science and Technology Department completes this Diffusion Plan by the end of the project and roles of each agency responsible for diffusion of outputs are clarified.

##### 2) Completion of the Diffusion Manual

At the present moment, in the project, production of a diffusion manual is taking place by integrating project-produced teaching materials and a draft of this manual has been made. It is desired that Japanese experts and Chinese counterparts examine and complete its contents by the end of the project to be utilized for the diffusion described above.

##### 3) Output Report Seminars and Publicity Strengthening

This project is yielding notable outputs for income increase for farmers and rehabilitation of ecological environment, attracting interests from areas of similar land characteristics. Therefore it is desired that by the end of the project, Japanese experts and Chinese counterparts hold seminars to report outputs widely, following production of such publicity tools as DVDs and pamphlets.

#### **(2) Factors to assure sustainability of project outputs after project termination.**

##### 1) Implementation of the Diffusion Plan.

By the end of the project the Joint Coordination Committee is expected to approve the Diffusion Plan for project outputs, which was designed mainly by the Shanxi Science and Technology Department. After project termination, based on this plan, related agencies on the Chinese side are expected to disseminate the outputs.

##### 2) Output Diffusion in the Loufan and Youyu Prefectures

In this project, income increase among the farmers and rehabilitation of ecological environment have been observed in the six model villages, and improvement of farmers' skill and knowledge is remarkably apparent. Already these villages host study tours from other villages. Cases of utilization of this project's outputs are already seen in some of other projects by the Chinese Government. Even after project termination, it is desired that through such exchange programs, each prefecture diffuses project outputs into areas other than these model villages in the two prefectures. It is even better if Shanxi Science and Technology Department and other related organizations take necessary measurements to facilitate output diffusion by each prefecture.

### **3-7 Lessons Learned**

#### **(1) Utilization of Participatory Approach**

In this project, planning of the pilot project was established after comprehension of farmers' needs through participatory research methods. This type of methodology was done for the first time in the model prefectures but the ownership and participation of the farmers were promoted through planning upon needs of the farmers, and this led to the remarkable outcomes.

#### **(2) PDCA Cycle**

In this project, monitoring was regularly conducted and monitoring results were reflected on revision of the project plan. This use of the PDCA cycle allowed planning to be more practical and appropriate.