The Japan-China Friendship Environmental Protection Center Project (Phase 2)

Project Sites Beijing

1. Background of Project

Following the rapid economic growth in China, many environmental problems such as air pollution, water pollution, noise pollution and waste contamination arose in the 1980s. To cope with these problems and further realize sustainable development, the Chinese Government adopted "Chinese Agenda 21" following the United Nations Conference on Environment and Development, held in 1992, and announced environmental preservation as an important measure in its national policy.

Under these circumstances, Japan provided grant aid for establishing the "Japan-China Friendship Environmental Protection Center", followed by a project-type technical cooperation, "The Japan-China Friendship Environmental Protection Center Project Phase I," from September 1992 for three years, for the purpose of transferring basic technologies on environmental protection.

The Government of China, confirming the outcome of the technical transfer of basic technologies through the above-mentioned cooperation, further requested Japan to carry out Phase II of the project with the objective of promoting the Center as playing the guiding role in research, training, monitoring, and public education in the environment field.

2. Project Overview

(1) Period of Cooperation

1 February 1996 − 31 January 2001

(2) Type of Cooperation

Project-type Technical Cooperation

(3) Partner Country's Implementing Organization

National Environmental Protection Agency, Japan-China Friendship Environmental Protection Center

(4) Narrative Summary

1) Overall Goal

The situation of environmental problems in China is improved.

2) Project Purpose

The Center plays a guiding role in areas such as research, training, monitoring and public education in the environment field within China.

3) Outputs

(a) A management system in the Center is established.
(b) Observation technology is standardized, triggering practical research outputs.
(c) Research outputs on prevention of pollution in the areas of air, water and solid waste are realized, applied and diffused.
(d) Information related to the environment is collected, accumulated, analyzed, evaluated and utilized.
(e) A strategic policy on the environment field is proposed.
(f) A leading role in environment education is taken, and people are motivated to participate.
(g) Technical exchange and training amongst environment technicians, researchers and administrators of each field are conducted.
(h) Joint studies involving domestic and international organizations are arranged.

4) Inputs

Japanese Side

Long-term experts	20
Short-term experts	53
Trainees received	30
Equipment	160 million yen

Chinese Side

Counterparts	356
Land and facilities	
Local cost	approx. 76.3 million yuan (approx. 1.09 billion yen)

3. Members of Evaluation Team

Team Leader:
Yumiko TANAKA, Executive Director, Social Development Cooperation Department, JICA

Sub Team Leader/Environmental Management:
Takashi OSHIMA, Director, Osaka Bay Regional Offshore Environmental Improvement Center

Antipollution:
Masaaki OYA, General Manager, Thermal Energy and Combustion Engineering Department, National Institute for Resources and Environment

Environmental Measurement:
Eiichi KITAJIMA, Chief, Water Science Section, Niigata Prefectural Institute of Public Health and Environmental Sciences

Environmental Cooperation:
Hiroyuki TAGUCHI, Chief, Director, Office of Overseas Environmental Cooperation, Global Environment Department, Environment Agency

Cooperation Planning:
Tsuyoshi KANDA, First Technical Cooperation Division, Social Development Cooperation Department, JICA
Evaluation Analysis:
Ryo TABATA, Suuri-Keikaku Co., Ltd.
Interpreter:
Satomi TAKARA, Japan International Cooperation Center

4. Period of Evaluation

4 September 2000 − 14 September 2000

5. Results of Evaluation

(1) Relevance

Environmental problems are considered to be a serious issue in the Chinese Social Economy Development Plan. Through the reform of the science technology structure of China, the system of the Environmental Protection Center has been strengthened, and part of the functions of the National Environmental Protection Agency were transferred to the Center. Thus, the Center plays an important role in policy and organization related to environmental preservation, therefore the relevance of this project is high.

(2) Effectiveness

Due to the technology transfer by the experts and the self-efforts of the Chinese counterparts, a total of 72 tasks that are relevant to the project purpose were successfully carried out. These tasks include areas of environmental observation, research and investigation, technology development, provision of environment information, policy proposal and human development. The Center acquired basic knowledge and technology to play a guiding role in the environment preservation field. However, it left room for improvement in the capability and number of lecturers.

(3) Efficiency

The timing of dispatching Japanese experts was appropriate, and therefore efficient, for the project. Cooperation performed by the long-term experts was superior in quality, with flexible support based on good communication with the Chinese side. However, owing to the short dispatch period of the Japanese short-term experts, there were some cases where technology transfer was not effectively done.

For the provided equipment, although there were slight delays in arrival which affected training sessions, it did not create major problems, due to the flexible countermeasures taken by both the Japanese and the Chinese.

(4) Impact

The Center is currently proposing environmental policy guidelines to the National Environmental Protection Agency, and contributing greatly to the environmental administration in China. Through the counterpart training sessions, a network between the Center and various organizations in Japan was established. In accordance with the improvement in its capacities, the Center became the contact point in environmental cooperation with Japan. It also assumed functions as a research organization for international joint studies.

On the other hand, ISO14000 related activities resulted in increasing the number of certified organizations and enterprises acquiring ISO14000 although those activities were not planned originally. Other than this project, which was supported by the Japanese long-term experts, there are

An expert instructing the engineers of the Japan-China Friendship Environmental Protection Center

46 activities of environmental cooperation being implemented between Japan and China or independently by the Center. Collaboration with other organizations and joint research has also been strengthened.

(5) Sustainability

The Center has enough capacity to sustain research activities independently. In the financial aspect, although some sections suffered shortage in funds, many sections are becoming capable of self-sustaining their business with 20% support from the government. There were no serious technical problems in the maintenance of equipment.

6. Lessons Learned and Recommendations

(1) Lessons Learned

To increase the efficiency of technology transfer by short-term experts, it is important to dispatch the same experts repeatedly. In areas where research requires advanced knowledge, it is desirable to build a system for securing such experts in Japan.

(2) Recommendations

To increase technical sustainability, it is necessary to strengthen the capacities of equipment maintenance, and to create a system liable to cope effectively with the advanced-level research. Also, it is necessary to tackle complicated environmental themes by flexibly arranging the organizational structure and form inter-sectional task teams for each of the themes.

7. Follow-up Situation

Although all activities were due to be completed within the project period, some activities could not fully be completed due to the delay of some required equipment. Additionally, follow-up cooperation was carried out from February 2001 to March 2002, to support other inter-governmental cooperation outside the scope of this project, yet started within the project period, such as acid rain measures and yellow sand measures. Furthermore, a Phase III cooperation, in order to further strengthen the Center's function to address new environmental problems, was started from April 2002, with a duration of four years.

China

The Research Center of Mineral Resources Exploration Project

Project Sites Beijing

1. Background of Project

China has experienced an increase of demand in mineral resources, caused by its recent economic development. However, its capability of supplying mineral resources domestically was limited, and it was unable to keep up with the demand. China, with its vast size, is believed to have a potentially large amount of mineral resources buried underground. As exploration-related technologies advance by the comprehensive use of current science and technology, these advancements would greatly contribute to the discovery of mineral resources. The Research Center of Mineral Resource Exploration, which has taken on the main task of mineral resource exploration by geochemical methods, was established by the Chinese Academy of Sciences. China requested that Japan implement Project-type technical cooperation for the purpose of transferring exploration and research techniques using geochemistry.

2. Project Overview

(1) Period of Cooperation

1 September 1994 – 31 August 1999
1 September 1999 – 31 August 2001 (extension)

(2) Type of Cooperation

Project-type Technical Cooperation

(3) Partner Country's Implementing Organization

Chinese Academy of Sciences, Research Center of Modern Geosciences, Chinese Academy of Science, The Research Center of Mineral Resource Exploration

(4) Narrative Summary

1) Overall Goal

Mineral resources within China (particularly copper, gold, silver, rare metals and rare soils) are discovered.

2) Project Purpose

Exploration into the geochemical methods of mineral resources (particularly copper, gold, silver, rare metals, rare soil) is conducted at the Research Center of Mineral Resources Exploration, China Science Institute.

3) Outputs

a) Basic research skills necessary for mineral resources exploration in such fields as geology, petrology, mineralogy, mineral deposit and geochemistry are mastered.
b) Abilities to examine the composition and isotope characteristics for fluid forming mineral deposits and to determine the geologic formation age of mineral deposits are developed.
c) Abilities to distinguish minerals of useful metals and to estimate the quantity of deposits by geochemical methods are developed.
d) The ability to identify exploration area(s) that have development potential is developed.
e) Organizational and operational systems for implementing mineral resource exploration using geochemical approaches are facilitated.
f) Equipment necessary for implementing mineral resource exploration using geochemical approaches is provided.

4) Inputs

Japanese Side

Long-term experts	12
Short-term experts	57
Trainees received	19
Equipment	425 million yen

Chinese Side

Counterparts	50
Center facilities and maintenance	
Local cost	230 million yen

3. Members of Evaluation Team

Team Leader:
Norihiko MATSUMOTO, Special Technical Assistant to the President, JICA
Mineralogy:
Yoshimasu KURODA, Professor Emeritus, Shinshu University
Resources Science:
Hirokazu FUJIMAKI, Professor, Tohoku University
Ore Science:
Takahiko MARUYAMA, Professor, Akita University
Evaluation Cooperation:
Tomoaki SAKURAI, First Technical Cooperation Division, Social Development Cooperation Department, JICA
Evaluation Survey:
Kenichi KUMAGAI, Industrial Service International Inc.

4. Period of Evaluation

27 March 2001 − 7 April 2001

5. Results of Evaluation

(1) Relevance

The increase of demand and the inability to sufficiently supply mineral resources within China still remain. The Chinese Government has emphasized the importance of copper ore exploration through its 10th Five-Year Development Plan.

China was behind in terms of exploration of mineral resources by geochemical methods, due to the lack of equipment. However, by adopting geochemical methods, efficient ore deposit exploration will be ensured, by narrowing down specific exploration areas from the vast size of land. Therefore, this project is in line with the Chinese policy and needs, and can be considered as relevant.

(2) Effectiveness

The establishment of the managing system including arrangement of counterpart personnel and budgeting, together with the preparation of facilities was delayed. Moreover, obtaining topographical maps was difficult. Those factors resulted in a delay of the commencement of basic studies for approximately two years. Later, field geological surveys and sample analyses were done, and further examination through analysis of various data was implemented. As a result, the report on "ore deposit formation model" was published. Thus, although the activities were delayed, the domain of basic research as partly required in the project purpose, "exploration using geochemical methods", was attained.

(3) Efficiency

The equipment provided was highly utilized, and greatly contributed to analyses and surveys. The Chinese specialists had high capabilities and the Japanese experts had high academic skills and techniques, which contributed to smooth transfer of technology.

Through training sessions in Japan, the counterparts gained understanding on the way of Japanese research institutions work, thus deepening mutual understanding between technicians in charge of measurement and analysis, and the researchers in charge of judging and utilizing the analyzed results. As a result, the accuracy in measurement and analysis was improved.

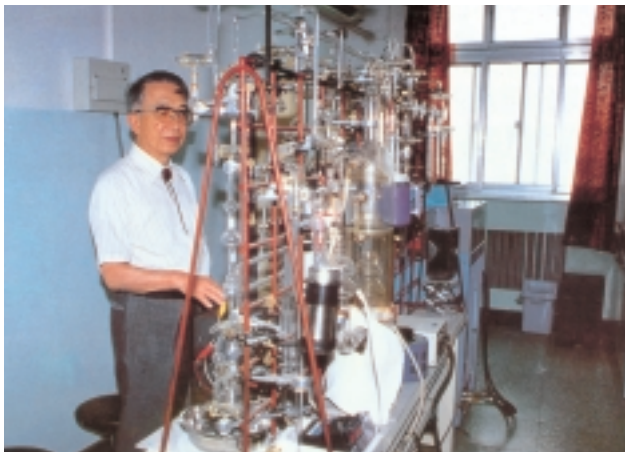
Therefore, although there were some delays in the beginning of the project, it can be said that the process of converting project inputs to outputs was efficient.

(4) Impact

As a result of providing explanation on the importance of geochemical survey through publications and reports, various domestic organizations have started to contact the Center to ask for joint analysis and research.

Through the high perception of the research results, contrary to the movement of restructuring organizations and personnel in the Chinese Academy of Science under the Government's policy, the number of personnel at the Center has increased, and research budget has expanded.

However, the effect of the project has not reached the China Copper-Zinc Group Company, China Rare Metal Rare Earth Group Company and local governments, where explorations are actually done.



Hydrogen extracting apparutus from mineral crystal

(5) Sustainability

Equipment is well managed and the technology improvement is in progress at the Center. Therefore, the Center has capacities to continuosly build up research and skills after the Project completion. The Chinese Academy of Sciences will continue to support the Center by maintaining its staff and financing the Center. If these conditions continue, the sustainability of the Center is secured. However, unless establishing a system to countermeasure the degradation of equipment, activities are liable to be stagnated.

Also, in order to extend geochemical methods in exploration, companies actually handling the exploration, such as the China Copper-Zinc Group Company, need to interested in them, and study the possibility for actual usage.

6. Lessons Learned and Recommendations

(1) Lessons Learned

Buildings, facilities and staff were newly prepared for this project, and due to the delay of establishing the organization and management structure of the new organization, the project purpose could not be accomplished within the expected period of five years. The project was extended for two years as a result. When cooperation is made to a newly established organization as part of the project, it is necessary to consider a preparation period beforehand.

(2) Recommendations

When measuring and analyzing microelements, special caution is needed in all processes to have accuracy in the data for exact judgment. To raise the Center's academic standards to international levels, it is essential that the researchers have responsibilities in the most prudent factors in experiments, and that technicians and researchers have further mutual understanding, as those in developed countries do.

In order to utilize the provided equipment efficiently in the future, it is necessary to secure expendable supplies and spare parts, to create repair and replacement plans, and to receive financial and human resource support from the Chinese Academy of Sciences.

China

Hubei Province Forest Tree Improvement Project

Project Sites Hubei Province

1. Background of Project

Afforestation is being promoted in China, which has a very small forest area covering only 13% of the total nation and amounting to 1.29 million square kilometers. There was a plan to conduct afforestation for approximately 1.3 million hectares from 1991 to 2000 in Hubei Province, but because the quality of seeds and nursery trees was low, and because mass-production technology was not yet established, securing good quality seeds and nursery trees was difficult.

Hubei Province has natural forests, such as the Shennongjia natural reserve. In such natural forests, the existence of quality breeding materials and rare species of plants are recognized. However, technologies for preserving genetic resources were not established.

In such circumstances, the Government of China made a request to Japan for a project-type technical cooperation. China considered developing technologies for breeding forests, and preserving genetic resources in order to maintain the quality of nursery trees. Moreover, China was attempting to make this case of Hubei Province serve as a model case for afforestation in the southern provinces of China.

2. Project Overview

(1) Period of Cooperation

15 January 1996 − 14 January 2001

(2) Type of Cooperation

Project-type Technical Cooperation

(3) Partner Country's Implementing Organization

State Forestry Administration
Forestry Administration of Hubei Province

(4) Narrative Summary

1) Overall Goal

Genetically improved seedling species are produced in large quantities and used to forest through the technology developed in the Forest Tree Improvement Center of Hubei Province. Also, the diffusion of forest tree breeding technologies are spread to southern provinces of China and the preservation of genetic resources is progressed.

2) Project Purpose

The genetic improvement of major afforestation species is progressed in the Forest Tree Improvement Center of Hubei Province while the basis of technology to preserve genetic resources applicable for continuous breeding in the future is established.

3) Outputs

(a) The following breeding-related technologies are acquired by the Forest Tree Improvement Center of Hubei Province
- Selection, hybridization, examination of elite trees
- Tissue cultivation
- Preparation and management of seed orchards and scion gardens
- Accumulation, preservation and evaluation of genetic resources

(b) For the targeted five species, genetic material are accumulated and preserved in a utilizable condition for breeding materials.

(c) The Forest Tree Improvement Center of Hubei Province maintain and utilize necessary facilities and materials for the promotion of breeding.

4) Inputs

Japanese Side

Long-term experts	8
Short-term experts	30
Trainees received	15
Equipment	1.83 million yen
Local cost	0.68 million yen

Chinese Side

Counterparts	18
Land and facilities	
Local cost	1.69 million yen

3. Members of Evaluation Team

Team Leader:
Satoru WATANABE, Forest Tree Breeding Center, Kyusyu Regional Breeding Office

Breeding Technology:
Takashi KATAYOSE, Forest Tree Breeding Center, Kansai Regional Breeding Office

Genetic Material:
Hiroshi HOSHI, Forest Tree Breeding Center, Hokkaido Regional Breeding Office
Evaluation Planning:
Hitoshi HORI, Forestry and Natural Environment Department, JICA
Evaluation Analysis:
Ayako WATANABE, Regional Planning International Co., Ltd.
Translator:
Miyoko MIYAGAWA, Japan International Cooperation Center

4. Period of Evaluation

17 July 2000 − 29 July 2000

5. Results of Evaluation

(1) Relevance

The Forest Act was amended in 1998 and the importance of quality seedlings have been emphasized. However, seedlings have been insufficient as a whole and securing quality seedlings has been difficult because of the delay in breeding projects and lack of seeds. Considering these aspects, this project was relevant to the policy of China.

(2) Effectiveness

The project was successful in improving technology in the fields of genetic improvement and the accumulation and preservation of genetic resources and breeding materials for the five targeted species. The project has not yet been able to bring up leaders in this field. However, it has shown some success in training skilled technicians. These trained technicians will bring further development in the field. Concerning "systematic accumulation and the preservation of genetic resources and genetic improvement" given as output b), there is a prospect for the genetic improvement of poplars. Therefore, achievement of the project goals are expected.

(3) Efficiency

The experts were dispatched at the appropriate time as was planned. Their qualifications were sufficient and highly evaluated by their counterparts and there were not many significant problems in the maintenance and utilization of machinery. Overall, adequate input was conducted in terms of machinery, including those that will be used in the future.

As for the input of the Chinese side, the number of counterparts increased as the project progressed. Moreover, since China conducted Japanese language training sessions in advance of the project, the project was carried out very smoothly.

On the other hand, research funds of the Chinese side were always insufficient. Even though they were supplemented by the local costs of Japan, insufficient research funds were cause for inefficiency in the daily research.

(4) Impact

The ideas of forest tree breeding have been widely recognized. It has even led to the establishment of regulations and seed control standards in Hubei Province as well as such systems as the Committee for Superior Forest Tree Species.

Also, the project has promoted the study of forest tree breeding in other research institutions in the nation. Beijing University began considering setting up a new research field, the Ecological Genetic Studies of the Forest. The Nanjing Forestry University opened hybridization breeding as a research field, and began to advocate the establishment of a preserve for a genetic resource of poplars as well as accumulation and preservation of the genetic resource of poplars, which are indigenous to China.

(5) Sustainability

Overall, basic skills were smoothly transferred to the counterparts through the project. It is believed that as they gain more experience, they will be able to acquire the necessary skills to eventually conduct their research activities on their own. The government of China recognizes the importance of this project, and is thus willing to maintain and develop the outputs from the project.

6. Lessons Learned and Recommendations

(1) Lessons Learned

Japanese language training for counterparts, which was conducted in advance of the project, made a great contribution to enhancing the outcome of the project. It also helped to strengthen the relationship between the Japanese experts and the counterparts.

(2) Recommendations

In consideration of maintaining, developing, and spreading the knowledge and skills of breeding trees, it is also necessary to strengthen organizations in the breeding sector and to set up laws and regulations to standardize the level of activities associated with breeding.

Generally speaking, it will require a number of years until income is generated as a result of the project in the forest-breeding sector. Therefore, continuous financial support is necessary.

Basic skills were mostly transferred through the project, however, in order for the Forest Tree Improvement Center of Hubei Province to keep their leading position in forest tree breeding, it is necessary to adopt new methods in the next generation and to improve breeding materials such as through additional selection, improvement of scion gardens and creation of test plantations.

7. Follow-up Situation

Based on the achievements and experience of this project, the Japan-China Cooperation Science and Technology Center for the Forest Tree Improvement Project is taking place. The project is planned for five years from October 2001. It aims to develop further preservation technologies of forest tree genes, breed new species and extend those technologies to the southern provinces of China.