Internal Ex-Post Evaluation for Technical Cooperation Project

Country Name	**Project on Forest Restoration after the Earthquake in Sichuan Province**
People's Republic of China	

I. Project Outline

Background	The Sichuan Earthquake, which occurred in Wenchuan County in Sichuan Province in China on May 12, 2008, caused a great deal of damages to forest vegetation. As measures to restore the disaster-affected forests, the Government of China launched a policy to restore multiple functions of forests in stages through combining natural regeneration and artificial restoration. Through JICA's technical cooperation project "The Model Afforestation Project in Sichuan" (2000-2007), technologies such as "Chisan" technologies using simple work methods had been developed in Sichuan Province. However, because of diverse geographical conditions of the areas affected by the Sichuan Earthquake, it was difficult to determine the precise measures for each condition. In addition, technical and management capacity of the related agencies was not sufficient for restoration of forest vegetation which had been destroyed in an unprecedented scale in China.
Objectives of the Project	The project aims at improving technical capacity of the related agencies of Sichuan Province, engaged in restoration projects for typical disaster-affected forests in the project areas[1] in the earthquake-stricken areas in Sichuan Province in China, through development of restoration plans for the typical disaster-affected forests, establishment of technological system concerning major forest restoration work methods, and enhancement of contents and system of technical training necessary for implementation of restoration works for the disaster-affected forests, thereby enabling sustainable and self-reliant implementation of restoration projects for the disaster-affected forests. 1. Overall Goal: Restoration projects for the disaster-affected forests are implemented in the earthquake-stricken areas in Sichuan Province in a sustainable and self-reliant way. 2. Project Purpose: Technical capacity of the related agencies of Sichuan Province, engaged in restoration projects for typical disaster-affected forests in the project areas, is improved.
Activities of the Project	1. Project Site: Wenchuan County, Beichuan Qiang Autonomous County (Beichuan County), and Mianzhu City 2. Main Activities: 1) Selection of pilot sites[2] in the project areas, identification of earthquake damage type in the pilot sites, implementation of study to develop restoration plans for the disaster-affected forest, and development of the restoration plans for the pilot sites; 2) Selection of test construction sites[3], design of restoration work methods for the disaster-affected forests, implementation of and monitoring of the restoration work and evaluation of the introduced work methods, improvement of the methods based on the evaluation results, development of technical guidelines on the restoration work methods for the disaster-affected forests; 3) development of curriculum and textbooks for training on restoration technologies for the disaster-affected forests, planning and implementation of training, evaluation of effects of the training and improvement of the training contents as necessary 3. Inputs (to carry out above activities) **Japanese Side** 1) Experts: (Long-term) 6 persons; (Short-term) 7 persons 2) Trainees Received: 64 persons 3) Equipment: Vehicles, video cameras, personal computers, etc. 4) Local Costs: Cost for test construction, technical training, etc. **Chinese Side** 1) Staff Allocated: 50 persons (Sichuan Provincial Forestry and Grassland Administration (former Sichuan Provincial Forestry Department)[4], Sichuan Provincial Institute of Forestry Research and Planning, Sichuan Provincial Institute of Forestry Science Research, Sichuan Provincial Academy of Forestry, Wenchuan County Bureau of Forestry, Beichuan County Bureau of Forestry, Mianzhu City Bureau of Forestry, Pengzhou City Bureau of Forestry, and Mao County Bureau of Forestry) 2) Land and Facilities: Project Offices (Sichuan Provincial Forestry and Grassland Administration (former Sichuan Provincial Forestry Department), Wenchuan County Bureau of Forestry, Beichuan County Bureau of Forestry, Mianzhu City Bureau of Forestry, Pengzhou City Bureau of Forestry) 3) Local Costs: Cost for activities of counterpart personnel (C/P), expenditures of Project Offices, etc.
Project Period	February 2010 - January 2015	Project Cost	(ex-ante) 600 million yen, (actual) 567 million yen

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[1] Wenchuan County, Beichuan Qiang Autonomous County, and Mianzhu City.

[2] The sites in the project areas, for which restoration plans for the forests damaged by the earthquake are developed.

[3] The sites where restoration work for the disaster-affected forests is tested.

[4] The name was changed in November 2018 after completion of the field survey of this ex-post evaluation. In Result of the Evaluation, the name at the time of the field survey (i.e. June 2018) is utilized,

Implementing Agency	Sichuan Provincial Forestry and Grassland Administration (former Sichuan Provincial Forestry Department), Sichuan Provincial Institute of Forestry Research and Planning, Sichuan Provincial Institute of Forestry Science Research, Sichuan Provincial Academy of Forestry, Wenchuan County Bureau of Forestry, Beichuan County Bureau of Forestry, and Mianzhu City Bureau of Forestry. (From 2012) Pengzhou City Bureau of Forestry and Mao County Bureau of Forestry (Note: these city and county were not included in the project areas)[5]
Cooperation Agency in Japan	Forestry Agency, Ministry of Agriculture, Forestry and Fisheries

II. Result of the Evaluation

<Special Perspective Considered in the Ex-Post Evaluation>

・　The Indicators of the Project Purpose only measure the degree of improvement of technical capacity of the related agencies (implementing agencies) as a whole. Therefore, at the time of the terminal evaluation, the degree of improvement of technical capacity of each implementation agency related to the project areas was set as an additional study item, and the achievement of the Project Purpose was judged based on the achievement status of the Indicators and the results of the additional study. To maintain consistency with the terminal evaluation, this additional study item shall be utilized as supplemental information, which shall be taken into consideration in judgement of achievement at the time of the ex-post evaluation. The continuation status of the supplemental information at the time of ex-post evaluation shall be confirmed with the information collected under sustainability.

・　Sustainability at county/city levels shall be assessed based on the results of the survey to the county/city bureaus of forestry of the project areas (i.e. Wenchuan, Beichuan, and Mianzhu), taking into consideration the level of participation in the project and the relative importance in the continuation of the effects.

1 Relevance

<Consistency with the Development Policy of China at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation, the project was consistent with "Restoration and Reconstruction Plan for Forestry Ecology after the Wenchuan Earthquake" (2008-2010) developed by the Provincial Government of Sichuan based on "State Council's Overall Plan for Post-Wenchuan Earthquake Recovery and Reconstruction" issued by the Government of China after the Sichuan Earthquake. At the time of project completion, the project was consistent with the development policy prioritizing ecological environment because forestry Chisan technologies applied in the project were included as model technologies in "Outline Plan for Ecological Civilization Construction in Forestry in Sichuan Province" (2014-2020) developed by the Sichuan Provincial Forestry Department based on "Ecological Civilization Construction" (2013-2020) of the Government of China.

<Consistency with the development Needs of China at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation, as described in "Background", it was urgent to improve technical and management capacity for restoration of forest vegetation in view of the large-scale destruction of forest vegetation caused by the Sichuan Earthquake. At the time of project completion, local and social needs for restoration of the disaster-affected forests were further increased since an earthquake occurred in Lushan, Ya'an City in Sichuan Province in April 2013.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's assistance measures for reconstruction following the Sichuan Earthquake confirmed at the Japan-China summit meeting on July 9, 2008, which included support in disaster prevention field.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose had been achieved by the time of project completion. As for area pass rate[6] of the disaster-affected forest restoration work at test construction sites and the "independent construction" sites (i.e. the sites where restoration work, using the technologies of the project (forestry Chisan technologies), was implemented by the related agencies independently) in the project areas, the target value was set to be 90%. Overall, target was mostly achieved because the area pass rate was 99.7% in Beichuan, and 97.8% in Mianzhu (target achieved) while it was 69.4% in Wenchuan (i.e. 77% of the target: target partially achieved) (Indicator 1). In each project area, the total area of independent construction work ranged from 20ha to 50ha, which was well beyond the target (i.e. 1ha) (Indicator 2)[7]. Both in the test and independent construction, planning, including selection of sites for forest restoration, was carried out by the county/city bureaus of forestry; survey and design by Provincial Institute of Forestry Research and Planning, Provincial Institute of Forestry Science Research, and the county/city bureaus of forestry; and construction supervision by the county/city bureaus of forestry. At each implementing agency related to the project areas, technical capacity for the disaster-affected forest restoration work was improved through these works (Supplemental Information).

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[5] In this project, forestry Chisan technologies were applied to forest restoration. In the first half of the project period, importance of dramatically increasing awareness on Chisan technologies was recognized since the concept of Chisan was not common in China. As a result, Pengzhou City and Mao County were added as the implementing agencies which were "not included in the project areas" at the third Joint Coordinating Committee (December 2011). "Not included in the project areas" means "not included in the evaluation of achievement of the Project Purpose". After that, Pengzhou City Bureau of Forestry and Mao County Bureau of Forestry participated in technical training on restoration of disaster-affected forests organized by the project. The project planned to implement additional activities for test construction in Mao County in 2012, but it was canceled in the same year because approval of the local government could not be obtained. Additional test construction was implemented in Pengzhou City, but the number of works and the area of construction were limited compared to three project areas.

[6] Percentage of the area where survival rate reaches the standard set by Sichuan Provincial Forestry Department.

[7] This is attributable to the following factors: Mianzhu City Bureau of Forestry had started forestry restoration projects before the commencement of this project with the financial support of Obuchi Fund of Japan and European Investment Bank; and after that, the county/city bureaus of forestry in the project areas implemented the independent construction work with the financial support of "Post-Earthquake Ecological Restoration Trial Model Project in Sichuan Province" (2012-2013) implemented by Sichuan Provincial Forestry Department..

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been continued. In the project areas, forest restoration works using forestry Chisan technologies have been continued under the ecological restoration projects ("Project for Comprehensive Ecological Restoration in Arid and Semi-arid Area in Sichuan Province" (2015-2016) and "Project for Restoration of National Priority Ecological Areas"). As for the "Project for Comprehensive Ecological Restoration in Arid and Semi-arid Area in Sichuan Province", for which the data was available, the total area of forest restoration of each project area (ranging from 133ha to 267ha or more) and the area pass rate of each project area (100% in all areas) exceeded the level achieved during the project. At each implementing agency, technical capacity necessary for forest restoration work using forestry Chisan technologies has been maintained (See "Sustainability"). At Sichuan Provincial Academy of Forestry, technical training for forest restoration work, which was strengthened by the project, has been continued. For example, a training for 73 directors of county/city bureaus of forestry was conducted in 2016, utilizing the curriculum, materials and manuals developed by the project and the instructors trained by the project[8].

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved by the time of ex-post evaluation. In the earthquake-stricken areas in Sichuan Province, the total area of forest restoration, using forestry Chisan technologies, greatly exceeded the target (i.e. 200ha): the restored area was more than 3,000ha after the project completion[9], and 3,100ha, including the one during the project period. It was attributable to the following factors: technical guidelines ("Local Standard") on forestry Chisan technologies were approved and adopted by the Province through the project activities; forestry Chisan technologies were included as model technologies in "Outline Plan for Ecological Civilization Construction for Forestry in Sichuan Province" (2014-2020); and Sichuan Provincial Forestry Department and Provincial Bureau of Finance jointly implemented "Project for Comprehensive Ecological Restoration in Arid and Semi-arid Area in Sichuan Province" and "Project for Recovery of Industry and Ecosystem to Escape Poverty in Arid Valleys" (2017-2018) (Indicator).

<Other Impacts at the time of Ex-post Evaluation>

In Sichuan Province, forestry Chisan technologies have been widely applied to restoration of forests other than those affected by the earthquake[10]. In addition, the cost estimation standard of forestry Chisan has been introduced to afforestation budget. As a result, it has become possible to make the cost estimation based on the needs, and the ceiling, which was 1,000 yuan per 1 mu (1/15ha), has been abolished[11]. In the forest restoration work, local people, including women, have been employed, which has promoted improvement of their income. The impact of the project has been expanded to another province. Upon the request by the people's government of Guye District in Tangshan City in Hebei Province, the former C/Ps at Sichuan Provincial Academy of Forestry and Institute of Forestry Research and Planning have been dispatched to provide guidance on vegetation restoration in the former mining site. Meanwhile, no negative impacts of the project have been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Technical capacity of the related agencies of Sichuan Province, engaged in restoration projects for typical disaster-affected forests in the project areas, is improved.	(Indicator 1) Area pass rate is 90 % or above at the test construction sites and the sites of restoration work for the disaster-affected forests independently implemented by the related agency of each project, using the technologies of the project	Status of the Achievement: mostly achieved (continued) (Project Completion) <Area pass rate for planting during 2010-2013 period at the test construction sites and the independent construction sites (as of July 2014)> _See sub-table below_ (Ex-post Evaluation) <Area pass rate of restoration work for the disaster-affected forests using forestry Chisan technologies after the project completion (planting in 2015-2016) > (as of January 2018) _See sub-table below_
	(Indicator 2) Related agencies in each project area implement restoration work for at least 1ha of disaster-affected forests independently.	Status of the Achievement: achieved (continued) (Project Completion) <Area of forest restoration work independently implemented by the related agencies in the project areas> _See sub-table below_

Sub-table (Indicator 1, Project Completion):

	Project area			Non-project area (for reference)
	Wenchuan	Beichuan	Mianzhu	Pengzhou (test construction only)
Area pass rate	69.4%	99.7%	97.8%	100.0%

Sub-table (Indicator 1, Ex-post Evaluation):

	Wenchuan	Beichuan	Mianzhu
Area pass rate	100%	100%	100%

Sub-table (Indicator 2, Project Completion):

Wenchuan	Beichuan	Mianzhu
20.3ha	20.0ha	59.1ha

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[8] In addition, Sichuan Provincial Academy of Forestry is coordinating with Jiuzhaigou County Bureau of Forestry to conduct training on restoration technologies for the forests damaged by the Jiuzhaigou Earthquake in August 2017. It also has a plan to organize a training for officers in charge of forestry in developing countries involved in "One Belt, One Road Initiative" in September 2018.

[9] As described in footnote 7, forestry Chisan technologies are also applied to ecological restoration project after the Jiuzhaigou Earthquake and the total area of 10,000 mu (approximately 667ha) is covered by the project. (At the time of ex-post evaluation, designing was already completed, and construction work is under preparation.)

[10] For example, "Project for Recovery of Industry and Ecosystem to Escape Poverty in Arid Valleys" jointly implemented by Sichuan Provincial Forestry Department and Bureau of Finance, etc..

[11] For example, budget for ecological restoration projects after the Jiuzhaigou Earthquake is estimated with the rate of 30,000 yuan per 1 mu according to Sichuan Provincial Forestry Department.

		(Ex-post Evaluation) <Area of forest restoration work independently implemented by the related agencies in the project areas using the technologies of the project > (as of April 2018) <table><tr><td>Wenchuan</td><td>Beichuan</td><td>Mianzhu</td></tr><tr><td>267-333ha</td><td>133-200ha</td><td>267-333ha</td></tr></table>
(Overall Goal) Restoration projects for the disaster-affected forests are implemented in the earthquake-stricken areas in Sichuan Province in a sustainable and self-reliant way.	(Indicator) In three years after project completion, the area of forest restoration, using technologies of the project, reaches 200ha in the earthquake-stricken areas	(Ex-post Evaluation) Achieved <Area of forest restoration using technologies of the project (forestry Chisan) in the earthquake-stricken areas> Total: 3,191–3.591ha (as of April 2018)

<Area of forest restoration using technologies of the project (forestry Chisan) in the earthquake-stricken areas>
Total: 3,191–3.591ha (as of April 2018)

	Wenchuan	Beichuan	Mianzhu	Pengzhou	Others*	Total**
Test construction by the project	5.2ha	5.6ha	9.2ha	1.2ha		21.2ha
Independent construction during the project implementation	20.3ha	20.0ha	59.1ha			99.4ha
Construction between project completion and ex-post evaluation (March 2015 - April 2018)	267-333ha	133-200ha	267-333ha	0	2,403 -2,603ha	3,070 -3,470ha

*Others: 1 city, 17 counties (including Mao County), and 2 districts in the affected areas of Wenchuan Earthquake and the earthquake in Ya'an City, covered by "Project for Comprehensive Ecological Restoration in Arid and Semi-arid Area in Sichuan Province" and "Project for Recovery of Industry and Ecosystem to Escape Poverty in Arid Valleys". In the above table, the area in Wenchuan, Beichuan, and Mianzhu restored through "Project for Comprehensive Ecological Restoration in Arid and Semi-arid Area in Sichuan Province" is shown in the column of each county.

**Total may not match due to rounding off.

Source: Terminal Evaluation Report, Project Completion Report, questionnaire and interview to Sichuan Provincial Forestry Department, field observation by ex-post evaluators

3 Efficiency

Both the project cost and period were within the plan (ratio against plan: 95%, 100%). Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Policy support to sustain the project effects is established. In Sichuan Province, forest restoration applying forestry Chisan technologies is implemented through ecological environment restoration projects and, therefore, is consistent with the "13th Five-Year Plan for Economic and Social Development of the People's Republic of China" (2016-2020), which lists ecosystem conservation as one of the priority strategies. In addition, in Sichuan Province, "Outline Plan for Ecological Civilization Construction for Forestry in Sichuan Province", in which forestry Chisan technologies are included as model technologies as a result of the project, and the technical guidelines (Local Standard) on forestry Chisan technologies, developed through the activities of the project, are still effective as described in "Effectiveness/Impact". It is noted, as another result of the project, a draft amendment to the "Forest Law" was prepared as the legal basis of "Forestry Chisan", and invitation for public comment was made throughout the country in 2016. For finalization and promulgation of the amendment, review and approval by the Standing Committee of the National People's Congress is required, and its timing is not fixed yet. According to Sichuan Provincial Forestry Department, it will continue to implement forest restoration applying forestry Chisan under ecological environment restoration projects even if the amendment is not approved and enforced. However, with the amendment approved and enforced, the budget specialized for forestry Chisan could be secured, which would promote implementation of Chisan projects further.

<Institutional Aspect>

There has been no major change in organizational structure and roles of the implementing agencies in terms of forest restoration. At provincial level, Institute of Forestry Science Research and Institute of Forestry Research and Planning mainly engage in project planning and designing, and provision of technical guidance on consignment from counties. Academy of Forestry implements forestry Chisan training under the project item of ecological restoration. Provincial/city bureaus of forestry select project sites, develop plans, outsource design and construction work, and supervise the construction work, among others. At the implementing agencies, the number of the staff is considered sufficient to sustain the project effects since restoration of the disaster-affected forests using forestry Chisan has been implemented with the pace higher than the target of the Overall Goal.

<Number of staff members engaged in forest restoration work using forestry Chisan (including training) at the implementing agencies>

Sichuan Provincial Forestry Department			County/City Bureaus of Forestry in the project areas		
Institute of Forestry Research and Planning	Institute of Forestry Science Research	Academy of Forestry	Wenchuan	Beichuan	Mianzhu
28	20-30	4	6	4	13

Source: Questionnaire and interview with implementing agencies

<Technical Aspect>

After the project completion, some C/Ps have been transferred but necessary information and knowledge have been handed over to their successors. The C/Ps of the implementing agencies at provincial level have been engaged in forest restoration projects applying forestry Chisan, utilizing the knowledge and skills accumulated by the project and the deliverables such as manuals. The implementing agencies consider that their staff have sufficient knowledge and skills to implement their work as these projects have been implemented smoothly. As for the staff of county/city forest bureaus, according to Sichuan Provincial Forestry Department, it is important to understand the philosophy of forestry Chisan, which is required to outsource planning, designing and construction properly. It is considered that, at the county/city bureaus of forestry in the project areas, technical capacity necessary to outsource designing and construction work has been secured as the area pass rate of the respective forest restoration work is 100% after the project completion.

<Financial Aspect>

Forest restoration applying forestry Chisan has been implemented, utilizing the budget for various ecological restoration projects, as the legal basis for forestry Chisan has not been established yet. Although the detailed budget data is unknown, it can be inferred that necessary budget has been secured since the actual result of the Overall Goal greatly exceeds the target value. As to ecological restoration project budget at the Sichuan Provincial Forestry Department (including the budget allocated to counties), the budget for "Project for Comprehensive Ecological Restoration in Arid and Semi-arid Area" was 30.15 million yuan in 2015 and 20.15 million yuan in 2016, and the budget for "Project for Recovery of Industry and Ecosystem to Escape Poverty in Arid Valleys" was 60.9 million yuan in 2017. The expenditures of these projects were the same as the budget. Institute of Forestry Research and Planning and Institute of Forestry Science Research have implemented ecological restoration projects commissioned by counties, and basically there have been no budget deficits according to both institutes. The budget from the counties varies depending on the scale of project. For example, the budget for an ecological restoration project commissioned to Institute of Forestry Research and Planning after the project completion has ranged from 19 million yuan to 500 million yuan. The budget data for Institute of Forestry Science Research is not available. At the Academy of Forestry, the budget for the training related to ecological restoration project in 2016 was 150 thousand yuan and the amount was sufficient as the training was implemented within the allocated budget. The budget data for the county/city bureaus of forestry in the project areas is not available, but, according to them, the budget has been sufficient because the budget for ecological restoration projects applying forestry Chisan is calculated based on the area requiring countermeasures and the budget is allocated as is calculated. No major change in financial sources is expected at the implementing agencies in near future. It is expected that the budget for ecological restoration projects will be continuously utilized until a new budget item for forestry Chisan is created through enforcement of the amendment of the "Forestry Law".

<Evaluation Result>

Therefore, the sustainability of the effect through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose ("Technical capacity of the related agencies of Sichuan Province, engaged in restoration projects for typical disaster-affected forests in the project areas, is improved"). The project effect has been continued and the Overall Goal ("Restoration projects for the disaster-affected forests are implemented in the earthquake-stricken areas in Sichuan Province in a sustainable and self-reliant way") has been achieved. Regarding the sustainability, although, in financial aspect, the budget data of some implementing agencies was not available, no problem has been observed in terms of the policy, institutional, and technical aspects to maintain the project effect. Considering all of the above points, this project is evaluated to be highly satisfactory. Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Lessons Learned for JICA:

Through implementation of the project, the philosophy and technologies of Chisan were introduced in China, where the concept of Chisan had not been common. Although legal basis to secure the budget for implementation of Chisan projects was not available, the implementing agencies of Sichuan Province disseminated the philosophy and technologies of Chisan introduced by the project, utilizing the budget for ecological environment restoration projects. One of the contributing factors is technical guidelines ("Local Standard") on forestry Chisan technologies developed through the project and approved and adopted by the province. When introducing an activity, for which legal basis and/or budget item is not established, through technical cooperation project with the target area at provincial level in China, it would be possible to secure effectiveness/impact of the project by facilitating utilization of the existing budget through incorporation of development of technical guidelines ("Local Standard") in the project activities and inclusion of its approval/adoption in the Indicators at the planning stage as in the case of this project.

Test construction site of the project in Beichuan County

Independent construction site using the technology of the project
in Beichuan County
(constructed during the project period)