

Terminal Evaluation

Latin America and the Caribbean

1. Outline of the Project

- Country: United Mexican States
- Project Name: Environmental Education in the Semi-desert Area of Sierra Gorda Biosphere Reserve
- Sector: Nature Conservation
- Cooperation Scheme : Community Empowerment Project
- Division in Charge : JICA Mexico Office
- Total cost : 1,032,390 Mexican pesos
- Period of Cooperation
(R/D):
From March 1, 2002 to February 28, 2005
(Extension): -
(F/U): -
(E/N) (Grant Aid) -
- Partner Country's Implementing Organization : Grupo Ecológico Sierra Gorda I.A.P.
- Supporting Organization in Japan : None
- Related Cooperation :

1-1 Background of the Project

Sierra Gorda Biosphere Reserve is located in the northern part of the state of Querétaro in the central region of Mexico, and was designated as a Biosphere Reserve by the federal government of Mexico in 1997. In 383,567 hectares of its area, diverse ecosystems are formed ranging from xerophyllous (semi-desert) shrubs in the semi-desert zones to cloud forests in the wet zones. As a result, the Reserve is considered to be endowed with the richest biodiversity among the all protected areas in Mexico. At the same time, the Reserve is inhabited by the human population of about 100,000. Most inhabitants are economically poor and make their living with subsistence agriculture and livestock grazing but these activities severely affect the ecosystems of the Reserve. Therefore, enabling the coexistence of the valuable ecosystems and the 100,000 people is the biggest challenge for the Reserve management.

This Project was requested under the scheme called Community Empowerment Project that was intended to implement such model projects that were designed to directly benefit the local people and undertaken in cooperation with a local NGO (non-governmental organization) with a proven record of grass-root activities in the region concerned. The Project provided assistance to 11 communities in the semi-desert area that accounted for 15% of the total area of the Reserve, for the purpose of nurturing a culture in favor of harmony and coexistence with the surrounding nature. The Project cooperation period was 3 years from March 2002, and the project activities were entrusted to Grupo Ecológico Sierra Gorda I.A.P. (hereafter, it is referred to as "GESG") that had abundant experience of carrying out environmental conservation activities in the Reserve.

1-2 Project Overview

(1) Overall Goal

The biodiversity of the Sierra Gorda Biosphere Reserve is conserved.

(2) Project Purpose

A culture of living in harmony with nature and environment is formed among the residents of the 11 target communities in the semi-desert area of the Sierra Gorda Biosphere Reserve

(3) Outputs

1. Environmental education at schools: the knowledge of students about environmental issues is improved.
2. Sanitation in the communities: the residents of the communities sustainably undertake activities of waste collection and recycle.
3. Sustainable management of natural resources: the knowledge of small-scale agricultural producers regarding the sustainable management of non-timber natural resources in the semi-desert region is improved.
4. The monitoring system: information on forming a culture of living in harmony with nature and environment is collected through a system of monitoring community activities.

(4) Inputs

Japanese Side:

Long-term Expert :	0	Equipment :	161,700 Mexican pesos
Short-term Expert :	0	Local cost :	870,690 Mexican pesos
Trainees received:	0	Others :	
		Total Cost :	1,032,390 Mexican pesos

Mexican Side :

Counterpart :	8		
Land and Facilities	Project Office	Local Cost:	1,403,811 Mexican pesos
Others	In-kind contribution by GESG equivalent to 459,123 Mexican pesos		
	In-kind contribution by the 11 communities equivalent to 987,951 Mexican pesos		

2. Evaluation Team

Members of Evaluation Team :

Takayuki Ando (Vice Resident Representative of JICA Mexico Office)

Ichiro Sato (Assistant Resident Representative of JICA Mexico Office)

Period of Evaluation:

22/ 05/ 2005 - 26/ 05/ 2005

Type of Evaluation :

Terminal evaluation

3. Results of the Evaluation

3-1 Summary of the results

(1) The degree of achievement of the "Project Purpose"

The following are the indicators to measure the degree of achievement of the "Project Purpose" specified in the Project Design Matrix (PDM) of this Project, and the evaluation results with regard to respective indicators.

Indicator 1: The proportion of the community residents in favor of the environmental conservation

GESG carried out questionnaire surveys to test the awareness and knowledge of the environmental conservation of 231 students with their age between 10 and 15 years in 2002 (the first year of the Project) and 2004 (the third year of the Project). However, no significant difference was observed between the survey results in the both years and, therefore, it was not able to detect the effects of the Project in this survey.

Indicator 2: The proportion of the community leaders in favor of the environmental conservation

GESG carried out questionnaire surveys on the leaders of the target communities in 2002 and 2004. The questionnaire was composed of 15 questions, and 7 of them were to look at their positions on the environmental conservation. For each one of those 7 questions, the number of respondents in favor of the environmental conservation increased in the survey results of 2004 compared to that of 2002. The average of the increases in the number of such respondents for the 7 questions was 26.37%, and it is considered that the proportion of the community leaders in favor of the environmental conservation increased.

Indicator 3: The number of communities that requested for services and assistance related to the environmental conservation and/or the sanitation

In the first year of the Project, i.e. 2002, only 2 communities requested for such services and assistance to GESG or local authorities concerned whereas all the 11 communities requested in the final year 2004.

Indicator 4: The number of community-level projects related to the environmental conservation

Apart from this Project, there had been 13 community-level projects related to the environmental conservation whose total costs totaled approximately one million Mexican pesos during the three-year cooperation period of the Project.

The above description of the achievement is based on the data collected by the monitoring activities by GESG, and although there was no apparent effect of the Project regarding the Indicator 1, positive effects were observed in relation to the other Indicators. The field survey by the evaluation team through the interviews with GESG staff, the interactions with local residents, and the direct observation of the on-going community activities related to sanitation and the environmental conservation (e.g. recycling activities and clean-up campaigns of public spaces) also confirmed the positive attitude of community residents toward the environmental conservation. Therefore, it is considered that the perception in favor of conservation of and coexistence with nature has been formed among the residents of the target communities, which means the Project Purpose has generally been attained.

(2) The degree of achievement of the "Outputs"

The following are the indicators to measure the degree of achievement of the respective "Outputs" specified in the PDM, and the evaluation results with regard to those indicators.

"Output 1"

Indicator 1.1: The level of students' knowledge about the environmental issues measured by tests

As already mentioned above, GESG carried out questionnaire surveys on 231 students with their age between 10 and 15 years in 2002 and 2004. However, the questions asked in the surveys were not appropriate for testing their level of knowledge about environmental issues. Because there was no other tests data available, it was not possible to evaluate objectively the achievement against this indicator. Nonetheless, considering the fact that GESG carried out 698 classes of environmental education at schools in the 11 communities, and a number of other educational events such as nature observation tours and playing films with themes relevant to environment (more details of the activities are described below) during the cooperation period, it would be reasonable to deduce that the knowledge of students must have increased. The interactions with the students of 6 classes of 3 primary schools by the evaluation team confirmed that the level of their knowledge about environmental issues was sufficient considering their respective ages.

Indicator 1.2: The level of participation of students in activities of the environmental conservation

GESG carried out subjective assessments of the level of participation of students every 6 months in each target community, applying an assessment scale developed beforehand, which gave qualitative descriptions for each level of participation ranging from 10% to 90% (the higher is the better) at 10% intervals. Although there is uncertainty about the accuracy of the assessment data due to the subjectivity of the assessment method, the results of the assessments showed increases in the level of participation in the final assessment compared to the first assessment in all the 11 communities. The increases ranged from 10.25% to 19.50% depending on the community, and the average increase of 11 communities was 15.43%.

Indicators 1.3: The number of activities with reference to "Output 1"

The achievement in terms of this Indicator can be found in the section (3) below.

"Output 2"

Indicator 2.1: The level of cleanliness in public spaces to be assessed by an assessment scale

Prior to initiating periodical assessments, GESG developed an assessment scale which gave qualitative descriptions for each level of cleanliness ranging from 10% to 90% (the higher is the better) at 10% intervals. Based on this scale, GESG undertook

subjective assessments of cleanliness of squares, principal roads, and schools every 6 months in each target community. In the first assessment, the average value of the 11 communities was 27.27% whereas it was 83.33% in the last assessment. Although there might have possibly been some bias in the assessment data, the evaluation team considered that there must have actually been the improvement in cleanliness because of such a significant change in the assessment values.

Indicator 2.2: The number of centers for accumulation of recyclable materials

Nine huts in total as local centers for accumulation of recyclable materials were newly constructed.

Indicator 2.3: The amount of materials collected and recycled

Approximately 30.0 tons of materials were collected and recycled in 11 communities during the 3 years of the cooperation period.

Indicators 2.4: The number of management committees established for the centers for accumulation of recyclable materials

Nine management committees were established corresponding to the nine centers constructed.

"Output 3"

Indicator 3.1: The number of small-scale agricultural producers who participate in the workshops for sustainable management of natural resources

Totalling 956 producers participated in the workshops in the 3 years of the cooperation period.

Indicator 3.2: The number of small-scale agricultural producers who apply practices of sustainable management of natural resources

Totalling 956 producers applied the practices of sustainable management of natural resources.

Indicator 3.3: The area under the sustainable natural resources management

The total area of about 1,000 hectares had become under the sustainable management of natural resources by the end of the cooperation period.

Indicators 3.4: The number of workshops on the themes related to the "Output 3"

The total number of 32 workshops were held during the three years.

"Output 4"

Indicator 4.1: The system of monitoring the progress regarding the "Activities", the "Outputs", and the "Project Purpose" of the PDM produces information necessary for the project management

The GESG prepared an operational manual for its promoters, and the promoters were obliged to monitor the progress against the indicators of the "Project Purpose" and the "Outputs" and to report the implementation of "Activities". The system worked well since the promoters followed the operational manual and, consequently, necessary information was accumulated.

Judging from the results mentioned above, the degree of attainment of "Outputs" was considered to be high although some Indicators were not appropriate for measuring the degree of attainment.

(3) Implementation of the "Activities"

All the planned activities were undertaken, and the summary of the activities implemented are as follows. It should be noted that the numbers in the round brackets indicate the number of corresponding activities originally planned. Generally speaking, the numbers of activities actually implemented exceeded the numbers originally planned.

- Classes of environmental education at primary and middle schools: 698 classes (170 classes)
- Tree planting at school and home as a part of the environmental education: 16,479 trees planted
- Showing films relevant to environment: 79 films shown
- Classes of crafts with themes relevant to environment: 56 classes (15 classes)
- Tours of nature observation: 56 tours (30 tours)
- Clean-up campaigns at schools: 25 campaigns (10 campaigns)

- The establishment of nature protection vigilance groups composed of local residents: 4 groups established
- Explanatory meetings for raising awareness of the community residents toward sanitation: 30 meeting held (30 meetings)
- Clean-up campaigns in public spaces of the communities: 31 campaigns (25 campaigns)
- Clean-up campaigns in water source areas and creeks: 13 campaigns (10 campaigns)
- The construction of accumulation centers for recyclable materials and establishment of management committees to operate them: 9 centers and their committees established (6 centers and committees)
- Campaigns for collecting recyclable materials: 35 campaigns (10 campaigns)
- Painting murals with themes on environment: 13 murals painted (7 murals)
- Implementation of the "Earth Festivals": 15 Earth Festivals held (6 Festivals)
- Planning workshops for sustainable management of non-timber natural resources: 3 workshops
- Development and distribution of a document explaining the sustainable management of non-timber natural resources: 1 document (1 document)
- Workshops on the sustainable management of oreganos and damianas: 29 workshops (9 workshops)
- Workshops on the pest control of the forests: 3 workshops (1 workshop)
- Forest management workshops: 1 workshop

3-2 Analyses of the results from 5 evaluation perspectives

(1) Relevance

All the 11 communities that participated in the Project had expressed their willingness to participate at the beginning of the Project, having known the objectives and the approaches of the Project. Therefore, it is considered that the Project appropriately engaged in fulfilling the needs and necessity of the participating communities. In addition, the National Plan of Development (2001-2006) specified the social and human development in harmony with nature as one of the basic policies of the national development, which was consistent with the objectives of the Project. Therefore, there was no concern in terms of the inconsistency between the Project and the national policies. Furthermore, the nature conservation was one of the priority issues for JICA's development assistance plan for Mexico, and the Project was also consistent with the Japanese policies of technical cooperation in Mexico. In these respects, the objectives of the Project were considered to be relevant.

The semi-desert area of the Sierra Gorda Biosphere Reserve, which was the target area of the Project, seemed to be a sterile land but, in fact, it sustained valuable arid ecosystems whose ecosystem functions supported the life of the local human population. However, because the local residents had not necessarily been aware of the value and the fragility of the surrounding ecosystems and a culture of conserving the local ecosystems as common assets had not been formed yet, unnecessary destruction and disturbance of the ecosystems occurred which could have been avoided or mitigated. This project helped the community residents including children develop a culture of conserving and caring nature by means of helping them become aware of the preciousness and the wonder of their surrounding nature and become affectionate to it. Forming such a culture is an indispensable condition that enables the coexistence of human societies and natural ecosystems, and such an approach is superior to short-sighted and passive approaches to environmental protection and rehabilitation in terms of the range of influence as well as the sustainability of its effects. Therefore the approach employed by the Project was also considered to be relevant.

Since GESG, the direct implementing body of the Project, had experienced the methodology of project planning, monitoring and evaluation using JICA Project Cycle Management Method through the implementation of this Project, and had become capable of applying this methodology to the planning and management of their own projects, there was at least an element of technical assistance from Japan in this Project. Nevertheless, the Project did not include such components of technical assistance as the dispatch of Japanese experts and the training in Japan taking the advantage of Japanese technology and experience. Therefore, certain unclearness remained as to the relevance of the Project in reference to its suitability to the Japanese technical cooperation.

(2) Effectiveness

It was very difficult to objectively measure the extent to which a culture of living in harmony with nature and environment had been formed in the 11 target communities, in other words, the extent to which the Project Purpose was attained. However, as a result of the observation of the activities of the residents and children as well as the interactions with them, the evaluation team perceived the presence of attitudes among the community residents for conserving the local natural environment and paying attention to the sanitation of their community.

Although the absence of measurable goals in the Indicators to assess the level of attainment of the Project Purpose did not allow to assert whether or not it had been attained, it seemed to be reasonable to consider that the Project was effective due to the fact that there had generally been improvements in the end-of-the-project assessment data of the Indicators compared to those collected in the beginning of the Project.

Nonetheless, continuous efforts are necessary to consolidate the eco-friendly culture because a culture requires a long period of time to change and to be consolidated.

(3) Efficiency

This Project implemented activities at larger scale than had originally been planned at relatively low cost, and accomplished considerable achievements. Consequently, it could be concluded that the Project had a very high cost-efficiency.

As to the timeliness of the inputs, no particular problem was observed. As to the contents of the inputs, as it has already been pointed out in the "Relevance" section, there was no input that made use of Japanese technology or experience. The principal reason for the lack of such an input was that locally available technologies were enough to reach the Project Purpose. There might have been further impacts if Japanese experience and perspectives had been deployed for giving advisory to, for example, the methodology and materials of environmental education. Nevertheless, it is difficult to tell whether the extra impacts obtained by sending Japanese experts and/or providing training in Japan could have matched with their expenses and, therefore, the absence of those inputs can not necessarily be regarded as a problem of Efficiency.

(4) Impact

Despite the fact that the Project targeted at the semi-desert area which accounted for only 15% of the total area of the Sierra Gorda Biosphere Reserve, the "Overall Goal" of the Project was to conserve the biodiversity of the entire Sierra Gorda Biosphere Reserve, which seemed to be too ambitious. In other words, there was a considerable gap between the "Overall Goal" and the "Project Purpose". According to the PDM, two conditions were specified as "important assumptions" to be satisfied for the accomplishment of the "Overall Goal", that is, the Reserve administration office appropriately manage the Reserve, and a big project funded by the Global Environment Facility (GEF) mainly targeted at the areas outside the semi-desert takes the anticipated effect. Although this logic makes sense, "the important assumptions" are much more influential in the attainment of the "Overall Goal" than the results of this Project itself, and, therefore, it was considered to have failed to set a proper "Overall Goal" in the planning phase of the Project. Due to this problem of the planning, the contribution of the Project toward the accomplishment of the "Overall Goal" could no help but being fairly limited.

As for the unexpected impacts of the Project, no particular negative impacts were observed. On the other hand, some unexpected positive impacts were observed. As a result of participating in the project activities, people in the 11 target communities realized the benefits of working together in groups and improved their group-work skills. This would take positive effect, beyond the environment conservation, on a wider range of social and economic activities in the communities. Besides, there was increasing interest in the activities related to environmental conservation expressed by the surrounding communities of the 11 target communities, and some communities had actually requested to GESG for support. The municipal government that administrated the target area had begun to take more seriously the issues of collection, transport and treatment of garbage as well as recyclable materials than ever as a result of the request for support from the communities that had participated in the Project.

(5) Sustainability

First, the policy/institutional environment of this Project will continue to be favorable. In Mexico, there will be the presidential election and the consequent change of the administration. The question is whether the present policy environment, which is supportive to the Project, of promoting environmentally sustainable development will be sustained. It is unlikely that the next administration would discard such policy or adopt contrary policies and, therefore, the present policy for sustainable development will be succeeded.

Secondly, stable organizational development is expected to the project implementing body, i.e. GESG. GESG presently has 42 staff members and it has attracted capable young personnel. The organizational management capacity of GESG is strong considering the facts that quarterly activity reports and financial reports were always submitted on time and their contents were appropriate throughout the project cooperation period; operational manuals for staff were prepared at the early stage of the Project and each staff member complied with the manuals; and they independently carried out the project monitoring in accordance with the evaluation indicators that had been set in the PDM. The sense of ownership of GESG over the Project is very strong, and GESG is determined to continue the Project as long as financial and human resources are available. As to the fiscal foundation of GESG, its revenue (mainly coming from Mexican government organizations, international organizations, and international NGOs) in the past three years from 2002 to 2004 were stable at around 6 million Mexican pesos (around 60 million yen) per annum, and there is not much concern about the sustainability from the fiscal aspect. However, most financial contributions from various national and international organizations have their own limited uses and available periods, and little

financial resource can be used for the activities in the semi-desert area as long as the past trend of little interest of donors in the semi-desert area continues. Therefore, securing the fund to support the semi-desert communities is a challenge, and it is an aspect of concern.

Overall, the "Sustainability" of the Project was considered to be sound.

3-3 Factors that contributed to producing the effects of the Project

(1) Factors concerning the Planning

The biggest factor that contributed to producing the effects was the participation of GESG who had abundant experience of undertaking activities in the locality, profound local knowledge of the natural and socio-economic conditions, extensive connections with local people, and the strong capability of project management.

(2) Factors concerning the Implementation Process

The important factor in this respect was that GESG independently undertook appropriate monitoring of the activities, and solved the problems promptly and timely when they occurred.

3-4 Factors that impeded producing the effects of the Project

(1) Factors concerning the Planning

Although the absence of technical inputs from Japan did not hinder the realization of the expected results, the Project could have gained better results if there had been such inputs.

(2) Factors concerning the Implementation Process

There was nothing in particular.

3-5 Conclusions

This Project gained significant achievements at relatively low cost, and resulted in a success. The most important factor for the success was to have selected GESG as the project implementation body, who had strong capability of project management and profound roots in the locality.

3-6 Recommendations

Although this Project had resulted in a success, a new culture of conserving and caring local nature will require many years before it will have been assimilated and consolidated in the respective communities. Due to the resource constraint, it will be difficult to sustain the interventions in the project target communities at the same level as during the project cooperation period but GESG are recommended to continue follow-up support, even though with lower intensity, to the communities.

GESG currently relies on financial contributions from various governmental and non-governmental organizations within the country and beyond, flowing into on the project by project basis. In order to increase the flexibility of the resource distribution according to the diverse needs for support existent in the Reserve, however, it is recommended to explore regular and stable funding sources by, for example, collecting membership fees from individuals and companies who are supportive to the activities of GESG.

3-7 Lessons Learned

The approach to induce the behavior change of community residents through the formation of a new culture in the target communities increases its importance, given the current trend of increasing number of projects that provide direct assistance to the ultimate beneficiaries. This approach, if successfully applied, will considerably enhances the effectiveness and the sustainability of the project but, on the other hand, requires a long-term perspective because it takes long before a new culture is formed and consolidated in the communities. Therefore, it is an effective option to collaborate with local NGOs with long experience in the target area, just as this Project actually did, for the purpose of securing the continuous support to the communities after the assistance from Japan has ended. Hence, when planning a project that is designed to provide direct support to communities, the collaboration with local NGOs should be considered.