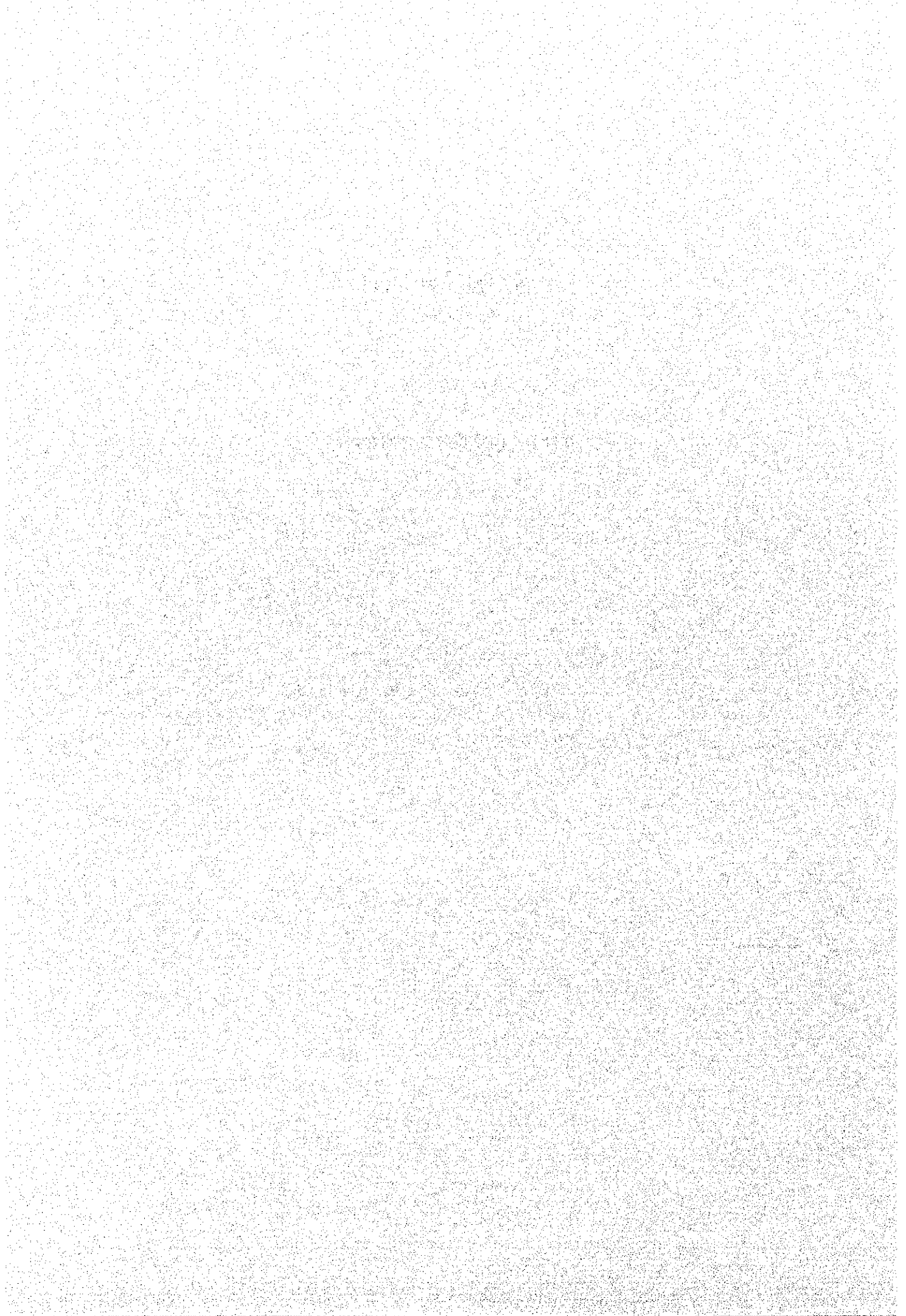


付 属 資 料

資料 1 ミニッツ (英文)

資料 2 国家農牧農村開発計画



MINUTES OF DISCUSSIONS
ON THE JAPANESE TECHNICAL COOPERATION PROGRAM
BETWEEN THE JAPANESE SPECIALISTS FOR SUPPLEMENTARY STUDY
AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE REPUBLIC OF BOLIVIA
REGARDING THE PROJECT FOR THE IMPROVEMENT OF DISSEMINATION
OF HIGH-QUALITY RICE SEEDS FOR SMALL-SCALE FARMERS
IN BOLIVIA

As described in the document attached to the minutes of discussions of the Preliminary Study Team on the Project of Development and Transfer of Technology for Rice Production in Bolivia signed in Santa Cruz on July 22nd, 1999, the Government of Japan dispatched Japanese specialists for the Supplementary Study (hereinafter referred to as "the specialists") headed by Mr. Kenji Kaneko, from November 15th, 1999 to December 6th, 1999. The specialists were dispatched through the Japan International Cooperation Agency (hereinafter referred to as "JICA") for preparation of the Project Type Technical Cooperation Program. The project name has been modified to "The Project for the Improvement of Dissemination of High-Quality Rice Seeds for Small-Scale Farmers in Bolivia" (hereinafter referred to as "the Project"), to reflect the actual Project objectives.

During their stay in the Republic of Bolivia, the specialists carried out a field survey, exchanged views, and had a series of discussions with officials from the Ministry of Agriculture, Livestock, and Rural Development (hereinafter referred to as "MAGDR"), the Vice-Ministry of Public Investment and External Finance (hereinafter referred to as "VIPFE"), the Prefecture of Santa Cruz through the Tropical Agriculture Research Center (hereinafter referred to as "CIAT"), and the Technological Center on Agriculture and Livestock in Bolivia (hereinafter referred to as "CETABOL", an agricultural research and experimental institute attached to the JICA Bolivia Office) so as to understand the background and to define the Project more clearly and concretely.


As a result of the discussions and the field survey, the specialists, MAGDR, VIPFE, CIAT, and CETABOL agreed to recommend to their respective governments the Tentative Framework of Technical Cooperation referred to in the document attached hereto.



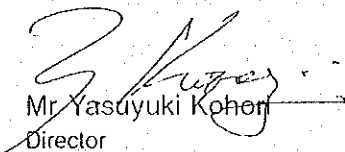
These texts were done in sextuplicate in Spanish and English, respectively, with both the Spanish and English texts being equally authentic. In case of any divergence of interpretation, the English text will prevail.

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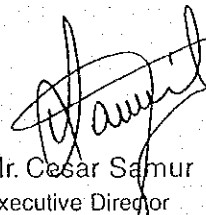
Mr. Kenji Kaneko
Leader
Japanese Specialists for Supplementary Study,
Japan International Cooperation Agency,
Japan



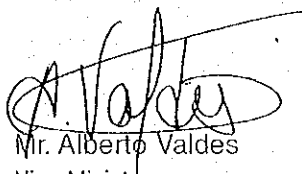
Mr. Ramón Prada Vaca Díaz
Governor
Department of Santa Cruz,
Republic of Bolivia



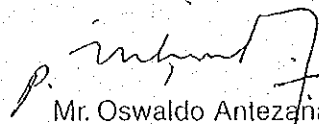
Mr. Yasuyuki Kohen
Director
Technological Center on Agriculture and Livestock
in Bolivia,
Japan International Cooperation Agency,
Japan



Mr. César Samur
Executive Director
Tropical Agriculture Research Center,
Republic of Bolivia



Mr. Alberto Valdes
Vice-Minister
Vice-Ministry of Public Investment and External Finance,
Ministry of Finance,
Republic of Bolivia



Mr. Oswaldo Antezana
Minister
Ministry of Agriculture, Livestock and
Rural Development,
Republic of Bolivia

Santa Cruz, December 2nd, 1999



THE ATTACHED DOCUMENT

I. INTRODUCTION

The areas of rice cultivation and rice production in Bolivia are increasing year by year; the areas of rice cultivation in 1996 reached 131,000 hectares, and rice production in 1996 reached 344,000 tons. In particular, the eastern plain areas surrounding the Department of Santa Cruz are the main rice-producing districts (altitude from 350m to 480m), accounting for 67% of the cultivated area and approximately 82% of total rice production in Bolivia. Rice is an irreplaceable crop for domestic migrators (small-scale farmers). Rice is a cash crop in terms of suitability for slash-and-burn agricultural methods, high storability, and also important as a self-sufficient food source.

One of the main reasons for increased rice production is that the rice consumption of the indigenous peoples who live in the suburbs of big cities has gradually increased, replacing potatoes and maize as a dietary staple. In addition, domestic migratory farmers have moved from the mountainous highlands due to difficult living conditions. These farmers are cultivating rice as an appropriate crop for slash-and-burn agriculture in the lowland areas.

Annual rice consumption per person in Bolivia is estimated to be 30 kg. As rice has become very popular in Bolivia as an ingredient of soup, cheese rice porridge, etc., the annual consumption of rice has grown to 150 kg (polished rice), according to the field survey conducted regarding small-scale rice farmers using slash-and-burn agricultural methods.

As previously mentioned, the potential for rice production to increase is great, so promotion of rice cultivation is very critical in terms of maintaining a stable food supply. It can be said that the stable production of rice is one of the most important national policies (for securing food security making use of on-site conditions) of Bolivia. In addition, according to a survey report of the Food and Agriculture Organization of the United Nations (hereinafter referred to as "the FAO"), it can be acknowledged that rice is one of the most important grains for the future of Bolivia, because it has high storability and nutritive value compared with potatoes, and can be cultivated consistently.

According to the CIAT in 1995, there were 34,000 rice farmers in the Department of Santa Cruz. Out of these, the medium- and large-scale mechanized farmers in areas populated by immigrants (including chiefly Japanese-Bolivian farmers with more than 100 hectares of cultivated land) account for 8.2% of all farmers, and small-scale farmers (consisting of domestic migratory farmers from highlands with less than 20 hectares of cultivated land) account for 91.8%.

There are great differences in technical levels between medium- and large-scale rice farmers and small-scale rice farmers, so the average yearly paddy harvest per hectare of medium- and large-scale farmers is more than 3 tons, whereas the paddy harvest per hectare of small-scale farmers is approximately 1.5 tons. The low-yield of small-scale farmers can be attributed to land use methods, quality of rice seed, the rice variety used, control methods of diseases and pests, soil fertility management, post-harvesting, etc.

In Bolivia, rice cultivation technologies and the living conditions of small-scale farmers are very poor, due to a lack of technical and financial support. Further support of



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these small-scale rice farmers is urgently required for improving food production in Bolivia.

Based on the above-mentioned circumstances, the Government of the Republic of Bolivia requested project-type technical cooperation entitled "Development and Transfer of Technology for Rice Production in Bolivia" from the Government of Japan in August 1998 for the purpose of developing a high-quality variety of rice suitable for the eastern plain area (as the main rice production area), improving rice seed production systems and research and development activities, developing appropriate rice varieties, and producing and distributing high-quality rice seeds, thus stabilizing and improving farming management of rice farmers in the eastern plain area and securing the stable production of food.

In response to the above-mentioned request, the Government of Japan (through JICA) dispatched a Preliminary Study Team from July 9th, 1999 to July 25th, 1999, to clarify the background of the request and to identify actual situation and potential problems in order to study the feasibility of the proposed technical cooperation program.

As a result of the preliminary study, the Japanese Preliminary Study Team and the Bolivian side studied in detail the background and contents of the request, and the actual circumstances, potential problems, and technical issues of rice production in Bolivia. At the same time, both sides clarified technical issues in rice breeding, rice seed production, rice cultivation and agricultural extension. In addition, both sides confirmed that the outcome to be obtained through the implementation of the Project will result in an increase of rice productivity.

A Project Cycle Management (hereinafter referred to as "PCM") workshop was held in order to do problem analysis and objective analysis for formulating a tentative Project Design Matrix (hereinafter referred to as "PDM"). Based on the results obtained through the PCM workshop held during the preliminary study, the PDM is expected to be completed in order to clearly define the Project approach intended to increase rice production in the eastern plain area of Bolivia.

Based on the suggestions and comments presented by the Preliminary Study Team, specialists were dispatched by JICA for the following purposes:

- (a) To confirm the project implementation system of the Ministry of Agriculture, Livestock and Rural Development, the Department of Santa Cruz, and the CIAT,
- (b) to confirm the implementation and cooperation systems of CETABOL as the partner institution of the Project,
- (c) to confirm the cooperation systems of farm cooperatives as the cooperating organizations of the Project,
- (d) to formulate the tentative project framework,
- (e) to define the function and role of the respective Project organizations, and to define the concrete cooperation systems between the executing organization, CETABOL, and farmers' associations,
- (f) to design a detailed activity plan that would be implemented at the respective Project sites,
- (g) to prepare a definite plan for the provision of equipment for the Project,



- (h) to formulate a draft of the Tentative Schedule of Implementation composed of an Annual Program and a Technical Cooperation Program,
- (i) to formulate a draft of the PDM.

The specialists and the Bolivian side reviewed the contents of the tentative PDM formulated in the preliminary study conducted from July 12th to 26th, 1999, with the objective more effective and efficient implementation of the Project.

As a result of the field survey and discussions, this report has been prepared to summarize matters studied by the specialists and the Bolivian side.

II. RATIONALE OF THE PROJECT

1. Expectations for increased rice production in Bolivia

As mentioned in the previous section, the most common farming system used in Bolivia is still small-scale non-sustainable agriculture using conventional slash-and-burn methods. Because Bolivia is located in an inland area of the South American Continent and depends upon imports for agricultural inputs such as a fertilizer and pesticides, medium-and small-scale farmers do not use very much fertilizer and chemicals; thus the level of utilization of fertilizers and pesticides is the lowest of the Andes countries. In addition, the percentage of irrigated areas is less than 10% and infrastructure for agricultural production such as farm roads, irrigation facilities and market facilities, etc. is under developed.

The area of Santa Cruz is equivalent to the area of Japan. Although 70% of the area is arable land, the actual cultivated land is no more than 30%. However, the Department of Santa Cruz produces 82% of the rice, 98% of the soybeans, 83% of the sugar, 56% of the wheat and cassava, and 54% of the corn grown in Bolivia.

Rice is cultivated in ten of the 15 provinces in Santa Cruz, and it is noteworthy to add that more than 80% of the rice production is concentrated in four provinces: Sara, Ichilo, Santiesteban, and Nuflo De Chávez. Santa Cruz has great potential to develop these agricultural provinces in the future and also has the potential to become a grain-exporting grain belt. The major portion of soybeans produced in Bolivia are exported to foreign countries.

Rice is suitable for this tropical region because of climate, and there are vast areas of agricultural land in the eastern plain area. Therefore, the promotion of rice cultivation has great potential considering the actual circumstances of Bolivia, and it is thought that the implementation of the Project will have great significance in attaining national food security through an increase in rice productivity and production, as well as in achieving the goals of the national agricultural development plan.

The living standards of the Bolivian people have been improving, and at the same time the staple food is shifting from potatoes and corn to rice; also, the individual rate of food consumption has been increasing steadily. Taking into account the above-mentioned circumstances and the increase of demand for rice in Bolivia due to growth in Bolivian's population (which will exceed 10 million in 2010), the increase in rice production has become an extremely important issue for Bolivia.



2. Relations with the National Agricultural Development Plan

The Government of Bolivia formulated and announced the Agricultural Sector Policy Program (1994-2003) as a ten-year plan for agricultural development consisting of: food security, rural poverty alleviation, and diversification and expansion of agricultural exports.

On the other hand, the present government announced "the Political Action Plan between 1997 and 2002" on November 1997 on matters related to the agricultural sector, which include environmental and natural resources conservation, reorganization of land tenure, protection of indigenous peoples, generation of employment, increase of income, rural development, improvement of productive communities, and strengthening support for the disadvantaged classes in rural areas.

In order to attain agricultural self-sufficiency and food security mentioned in the development plan, food sufficiency should be increased as planned. To achieve this, it is crucial for Bolivia to expand food production in the eastern plain area surrounding the Department of Santa Cruz. Among all crops, rice will become one of the most promising in terms of local climatic conditions.

In addition, the most important matters for Bolivia are how to increase the productivity of rice and how to strengthen its competitiveness. Although Bolivia is an inland country surrounded by large agricultural countries such as Brazil, Argentina, Peru and Chile, the level of Bolivian agricultural technology is low compared to these other countries.

3. Implementation systems of the CIAT as the executing organization of the Project

The CIAT was created in 1975. The CIAT is being managed with investment from Santa Cruz Prefecture as the main financial source under the steering committee, which currently consists of members from Santa Cruz Prefecture and farmers' associations, for the purpose of providing technical assistance for agricultural districts of the Department of Santa Cruz.

The CIAT has been promoting research and dissemination activities, without the major influences caused by political changes.

The CIAT has an Agricultural Experimental Station with approximately 500 hectares located in General Saavedra Municipality, and 11 Regional Experimental Centers located mainly in settlements.

It can be noted that the CIAT has a staff of about 204 including 100 qualified technicians. Research and technology transfer at the CIAT are now implemented through the programs clearly defined. Since 1995, the CIAT has been working on the basis of interdisciplinary projects under a farming system approach. The CIAT has four main departments: the Research Department, the Technology Transfer Department, the Production and Services Department, and the Planning Department. All of these departments implement and/or support multidisciplinary projects on main grains, vegetables, fruits, forestry, etc., to obtain results for farmers to use.

The CIAT's annual budget in 1999 amounted to US \$3.2 million, and the sources of this budget can be broken down as follows: 54% comes from the Prefecture of Santa Cruz, 3% from the contributions of farmers' associations, 3% from income generated from



the sale of seeds and agricultural products, and 36% from financial support from various international organizations.

The Government of Japan, through JICA, has provided agricultural machinery such as combines and tractors in 1984, and this machinery is maintained by the CIAT staff up to the present. Taking into consideration the current maintenance conditions of the above-mentioned machinery, the CIAT has the capability and stability to serve as the implementing organization of the Project. It is expected that the CIAT will continue this technology transfer and utilization of machinery and equipment.

4. The active involvement of CETABOL as a partner organization for the successful implementation of the Project

CETABOL, located in the second Okinawa settlement, is carrying out technical support for Japanese-Bolivian agricultural producers in the areas of livestock, upland field crops and perennial crops. In CETABOL, a survey on the occurrence of and damage caused by main rice diseases is currently being conducted at both the Okinawa and the San Juan settlements. In addition, CETABOL provided cooperation to the CIAT regarding the variety adaptability test for wheat, and the local adaptability test for corn.

Furthermore, CETABOL has been conducting a character survey of local corn varieties and green manure varieties, and an information exchange on crop cultivation. It also has well-equipped research facilities for chemical analysis of soils and plant disease and pest analysis. It also conducts analysis of animal feed nutrients with its capable staff; therefore CETABOL is expected to provide technical assistance and guidance for the Project.

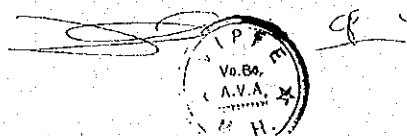
5. Japanese technical cooperation conducted by JICA for the CIAT in the past

In total, eight (8) experts in the fields of rice cultivation (breeding, rice cultivation techniques, rice seed production), vegetables, tropical fruits, temperate fruits, plant disease and agricultural machinery have been dispatched by JICA to the CIAT. The main reasons are the following: the Department of Santa Cruz has great potential for agriculture, and the CIAT plays an important role in agricultural research; in addition, the CIAT has been conducting activities which are sustaining and distributing the results obtained by past cooperation programs.

Between 1991 and 1994, a mini-project entitled "The Upland Rice Cultivation Techniques Improvement" was carried out by JICA, aimed at developing cultivation techniques of upland rice and improving the quality of rice. Now, the results obtained through the above-mentioned mini-project are being utilized, and CIAT researchers are continuing research activities regarding the development of rice production.

6. Technical assistance of other bilateral and multilateral donors for the CIAT

The United Kingdom has been providing continuous support for the CIAT since its establishment. Until this time, The UK has been providing support focusing on the fields of livestock, agricultural economy, soils, crop rotation, agroforestry, etc. On the other hand, the FAO has been cooperating with the CIAT in the field of post-harvest technologies. In the field of rice production, the CIAT of Colombia has been providing



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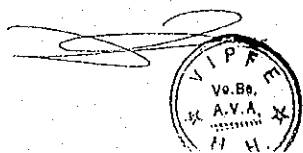
assistance concerning the introduction of varieties and rice breeding.

7. Technical issues for increasing rice production of small-scale rice farmers in Bolivia

The following are major constraints to the promotion of rice production of small-scale farmers in Bolivia from the technical viewpoint as found by the Team:

- (a) The high-yield, drought-tolerant, and good-tasting rice varieties suitable for the farming systems of local small-scale rice farmers have not yet been developed and selected. Although the CIAT has recommended rice varieties, most small-scale rice farmers do not have access to varieties released by the CIAT due to a lack of technical information. Therefore, the renewal rate of rice seeds of small-scale rice farmers is relatively low, and the quality of rice is not competitive in the market.
- (b) Rice seed production and distribution, as well as adequate seed supply, has not yet been established for small-scale farmers. The CIAT has not sufficiently produced and supplied the certified seeds of recommended varieties for small-scale rice farmers (such as SACIA 3, SACIA 4 and JASAYE) due to a lack of seed production facilities and distribution systems. In accordance with the national seed production program, private companies, including farm cooperatives, are allowed to produce the certified seeds as seed growers. Therefore, it will be crucial for rice production districts to set up seed farms by training leading small-scale rice farmers capable of becoming seed growers to ensure the availability of high-quality seeds to small-scale rice farmers.
- (c) Rice-based farming systems for small-scale rice farmers have not yet been established. The introduction of improved rice cultivation technologies will be required for improving the rice yield of small-scale rice farmers. The development and introduction of a new cropping system, including crop rotation for weed control, to small-scale rice farmers is also required for more effective land use and to increase the income of small-scale rice farmers.
- (d) Although there are several extension workers who are in charge of the technology transfer of rice production at both the CIAT and farm cooperatives, the Department of Santa Cruz does not have an agricultural dissemination institution, nor does it have agricultural extension officers for promoting technology transfer of recommended rice varieties and rice production technologies. In addition, high cost is the main constraint in the use of quality seeds for small-scale rice farmers in Bolivia. Non-availability of seeds, non-popularity of the use of quality seeds, and farmers' preference for traditional varieties are other reasons.

Of these above-mentioned problems, the first problem (a) will be solved by introducing rice varieties and lines from both home and abroad, and by selecting high-yield, drought-tolerant, and good-tasting rice varieties through the local adaptability tests in the selected pilot area(s). Moreover, in order to demonstrate the potential yields of recommended varieties using improved rice production techniques and processes, rice technology demonstration activities should be carried out in both the CIAT experimental fields and farmers' fields on an on-farm basis. Therefore, the Project will be expected to



make an important contribution to small-scale rice farmers in the selected pilot area(s), providing them with increased access to high-quality seeds and rice production technologies.

The second problem (b) will be solved by strengthening both the rice seed production technologies and distribution system at both the CIAT and rice production districts, and by training leading small-scale rice farmers capable of becoming seed growers to produce the certified seeds in the selected pilot area(s). Rice seed production technologies should be further improved in order to increase the production of breeder's stock seeds and foundation seeds of recommended varieties for small-scale rice farmers at the CIAT, and to meet the increased seed requirements of small-scale rice farmers. Rice seed distribution should be promoted through the rice technology demonstration activities at both the CIAT and farmers' fields. Thus it is imperative to implement a seed production project that would ensure the availability of high-quality seeds to small-scale rice farmers in areas where there are no seed growers.

The third problem (c) will be solved by improving rice production technologies focusing on cultural management approaches such as fertilizer application, pests and disease control, and appropriate pre- and post-harvest handling, processing and storage technology, which contribute to the strengthening of rice-based farming systems of small-scale rice farmers in the selected pilot area(s).

In addition, the fourth problem (d) will be solved by demonstrating the potential yields of recommended varieties using improved rice cultivation technologies at both the CIAT's experimental fields and farmers' fields, as well as promoting the use of high-quality seeds and the improved cultivation technologies for potential seed growers, extension workers of farm cooperatives and non-government organizations, and small-scale rice farmers in the pilot area(s).

In addition to the above-mentioned issues, the Team determined that the small-scale rice farmers are not adequately benefiting from the CIAT due to an insufficient flow of appropriate technologies. In this context, the results of past technical cooperation programs have yet to reach an ideal level that meets the needs of small-scale rice farmers.

In conclusion, it can be judged that the implementation of the Project will be justified from the viewpoint of improving rice production in Bolivia, thus promoting food security through increased rice production of small-scale rice farmers in the eastern plain area of Bolivia.

III. TENTATIVE PROJECT FRAMEWORK

The Team and the Bolivian side jointly formulated the following tentative framework of the Project based on the request made by the Bolivian side, taking into account the findings of the Team and the results gained through the PCM workshop held by the previous study.

The framework that follows is subject to change through the coming discussions and studies.



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A. TENTATIVE NAME OF THE PROJECT

The Project for the Improvement of Dissemination of High-Quality Rice Seeds for Small-Scale Farmers in Bolivia

Note: The specialists and the Bolivian side agreed to modify the project name to reflect the Project activities established through this study, taking into consideration the national policy on seed production.

B. BOLIVIAN ORGANIZATIONS INVOLVED IN THE PROJECT

1. Supervision Organization : Ministry of Agriculture, Livestock and Rural Development
2. Responsible Public Administrative Organization of the Project : Prefecture of Santa Cruz
3. Executing Organization of the Project
Tropical Agriculture Research Center (CIAT)

C. PARTNER ORGANIZATION OF THE PROJECT

Technological Center on Agricultural and Livestock in Bolivia (CETABOL)

D. COOPERATING ORGANIZATIONS

- 1) Regional Seed Office in Santa Cruz
- 2) Yapacaní Municipality
- 3) Rice Farm Cooperatives, and Non-Governmental Organizations (hereinafter referred to as "NGO s")

E. CONCEPT OF THE PROJECT

The Project aims at strengthening existing rice seed multiplication at the CIAT and establishing the local rice seed production system focusing on certified seeds in the selected pilot area(s) by training leading small-scale rice farmers to become seed growers.

In addition, the Project will focus on rice technology demonstration and training activities, which will be carried out at both the CIAT and farmers' fields of the selected pilot area(s), for showcasing the yields of rice seeds of recommended varieties using the improved rice cultivation technologies to be developed by the Project. Another goal is to disseminate rice seeds to be produced by the Project, and to make use of recommended rice varieties and the rice varieties to be selected by the Project for small-scale rice farmers in the selected pilot area(s).

The above-mentioned activities will be implemented under the initiative of the CIAT and its own regional research center in Yapacaní in cooperation with CETABOL, regional seed office, and other rice farm cooperatives.

F. PROJECT SITES

1. Saavedra Agriculture Experimental Station of Tropical Agriculture Research Center (CIAT) located in General Saavedra Municipality, Department of Santa Cruz, will be the main site of the Project. The CIAT's headquarters will be the



- liaison office of the Project.
2. The Regional Experimental Center of CIAT, located in Yapacaní, Department of Santa Cruz, will be the sub-site of the Project.
 3. CETABOL, located in Okinawa, Department of Santa Cruz, a subsidiary agricultural research and experimental institute attached to the JICA Bolivia Office, will act as the partner organization of the Project.
 4. Yapacani will be the pilot area.

G. TERM OF COOPERATION

Five Years

H. MASTER PLAN

1. Project Objectives

a. Overall Goal

Rice productivity in the selected pilot area(s) is increased.

b. Project purpose

The dissemination systems of high-quality and high-yield rice seeds for small-scale rice farmers are established in the selected pilot area(s).

2. Expected output of the Project

a. High-quality rice varieties and lines suitable for small-scale rice farmers are selected.

b. The rice seed production technologies which contribute to the strengthening of rice seed multiplication for small-scale rice farmers are improved.

c. The high-quality rice seeds and improved rice cultivation technologies are introduced to leading small-scale rice farmers (progressive rice farmers) capable of becoming seed growers AND small-scale rice farmers through the technology demonstration and training activities.

3. Functions of the Project Organizations

a. Main site : Saavedra Agriculture Experimental Station of the CIAT, Department of Santa Cruz

i. Selection of high-yield and high-quality rice varieties and lines suitable for small-scale rice farmers through the tests for eco-physiological character and performance

ii. Research and experimentation on improvement of the stable rice seed cultivation technologies and rice seed processing technologies at paddy fields of the CIAT for improving high-quality rice seed production

iii. Research and experimentation on the high-quality variety cultivation technologies such as management practices, weed control, pests and disease control, and amelioration and retention of soil fertility, using the high-quality rice seeds

iv. Dissemination of the high-quality seeds and improved rice cultivation



technologies for leading small-scale rice farmers, extension workers of rice farm cooperatives and NGOs, and small-scale rice farmers in the selected pilot area(s) through communication media and training activities

b. Sub-site : Regional Experimental Center of the CIAT, located in Yapacaní, Department of Santa Cruz

- i. Selection of appropriate rice varieties through the local adaptability tests
- ii. Demonstration of rice seed production technologies in the upland rice fields
- iii. Demonstration of recommended varieties using the improved rice cultivation technologies
- iv. Research and experimentation on the improvement of rice cultivation technologies using the high-quality seeds
- v. Technical guidance on rice seed processing technologies
- vi. Dissemination of the high-quality rice seeds and improved rice cultivation technologies to leading small-scale rice farmers, extension workers of rice farm cooperatives and NGOs, and small-scale rice farmers through the training activities

c. Partner organization of the Project: CETABOL, located in Okinawa, Department of Santa Cruz

CETABOL will be responsible for technical cooperation with the CIAT through the following Project activities :

- i. Technical guidance and advice on research and experimentation concerning the rice cultivation technologies using the high-quality seeds to be carried out at both the CIAT Saavedra Agriculture Experimental Station and CIAT Yapacaní Experimental Center, focusing on soil diagnosis, diagnosis and identification of disease and pests, and improvement of soil fertility through improved cropping systems to enhance the research capabilities at the CIAT
- ii. Technical training on the above-mentioned research and experimentation for the researchers and extension officers of the CIAT, as well as extension workers of rice farm cooperatives and NGOs

d. Cooperating organizations of the Project :

1) Regional seed office, located in Santa Cruz, Department of Santa Cruz

- i. Technical support on the certified seed production for potential rice seed growers in the pilot area(s)

2) Yapacaní municipality, located in Ichilo Province, Department of Santa Cruz

Yapacaní municipality act as the cooperating organization for the following Project activities :

- i. Organizing leading small-scale rice farmers capable of becoming seed growers to promote the production of the certified seeds in the pilot area
- ii. Technical support on the certified seed production for potential rice seed growers in the pilot area



- 3) Rice farm cooperatives and NGOs
- i. Strengthening of the seed dissemination system for small-scale rice farmers in the pilot area(s) through their own extension workers

The assignment of the Project activities at the Project organizations is attached as ANNEX 1.

4. Activities of the Project

(1) High-yield and high-quality rice varieties and lines for small-scale rice farmers will be selected through the following activities:

- a. Introducing and selecting high-yield and high-quality rice varieties and lines with drought-tolerance and disease- and pest-resistance; and
- b. Evaluating rice gene-resources.

(2) High-yield and high-quality rice seed production technologies based on the certified seed production Rules of Bolivia will be established through the following activities:

- a. Improving the rice cultivation technologies for stable high-purified seed production and improvement of seed quality;
- b. Establishing stable high-purified breeder's stock seed and foundation stock seed production technologies through twice annual cropping system at paddy fields of the CIAT;
- c. Improving rice seed production technologies in the upland rice fields; and
- d. Improving pre- and post-harvest technologies for high-quality rice seed production.

(3) The high-yield and high-quality rice seeds and improved rice cultivation technologies will be disseminated to leading small-scale rice farmers, extension workers of farm cooperatives and small-scale rice farmers in the pilot area(s) through the following activities to be conducted by both the CIAT and CETABOL in conjunction with farm cooperatives, and NGOs:

- a. Improving rice cultivation technologies using the high-quality rice seeds for small-scale rice farmers at upland rice fields;
- b. Demonstrating recommended rice varieties and rice cultivation technologies in the CIAT's regional center and leading small-scale rice farmers' fields of the pilot area(s) through trial demonstration activities and communication media for the purpose of disseminating the high-yield and high-quality rice seeds;
- c. Conducting technical training for small-scale rice farmers, extension workers of farm cooperatives and NGOs, etc. in the pilot area(s); and
- d. Training potential rice seed growers in the pilot area(s).



I. ORGANIZATIONAL SET-UP OF THE PROJECT

The Project is planned to be implemented under the supervision of the Ministry of Agriculture, Livestock and Rural Development, so as to strengthen institutional linkages to CETABOL, and under the overall responsibility of the Department of Santa Cruz.

Needless to say, ensuring the CIAT's 'ownership' of the Project is the most important factor for implementing the Project successfully, as well as for securing its sustainability. The CIAT, as an executing organization of the Project, is responsible for the rice seed multiplication and dissemination to small-scale rice farmers in the pilot area(s) along with Santa Cruz Prefecture. Japanese technical cooperation will be focused on technical assistance in strengthening the rice seed multiplication and dissemination systems for small-scale rice farmers in the selected pilot area(s). For the smooth implementation of the Project, the following organizational set-up and improvement will be considered.

The CIAT should focus on clearly communicating with farmers' organizations, etc., to promote the dissemination of the rice seeds to be selected and the rice production technologies to be improved. The strengthening of rice seed production and its distribution systems for small-scale rice farmers will be pursued from the viewpoint of rice seed production technologies, including rice cultivation technologies, and the transfer of necessary information on rice varieties and their seeds through the set-up of the trial and demonstration farms in leading small-scale farmers' fields.

Fundamentally, the CIAT will be strengthened technically and financially in order to carry out the Project under the bilateral technical cooperation program.

The Organizational Chart of the Project is attached as ANNEX 2.

J. MEASURES TO BE TAKEN BY THE JAPANESE SIDE

(1) Dispatch of Japanese Experts

Japanese experts in the following fields will be dispatched:

a. Long-Term Experts

- 1) Chief Advisor
- 2) Coordinator
- 3) Long-term experts in the following fields:
 - a) Rice Varietal Selection
 - b) Rice Seed Production
 - c) Agricultural Technology Extension

b. Short-Term Experts

Short-term experts may be dispatched, if necessary, for the smooth implementation of the Project.

(2) Acceptance of Counterpart Personnel in Japan for training

Acceptance of counterpart personnel by the Japanese experts for training or study tour in Japan shall be arranged during the cooperation period.

(3) Provision of Machinery and Equipment

The Government of Japan will provide such machinery, equipment, and other materials (hereinafter referred to as "the Equipment") necessary for the



implementation of the Project. The Equipment for the implementation of the Project will be provided within the budgetary limitations.

K. MEASURES TO BE TAKEN BY THE BOLIVIAN SIDE

(1) Provision of buildings and facilities necessary for the implementation of the Project.

- a. Land, buildings, and facilities needed for the implementation of the Project;
- b. Rooms and space necessary for installation and storage of the Equipment;
- c. Office space and necessary facilities for the Japanese Chief Advisor, Coordinator and other Japanese experts; and
- d. Other facilities mutually agreed upon, if necessary.

The Construction Work Plan made by the Bolivian side is attached as ANNEX 3.

(2) Assignment of the necessary number of full-time counterpart personnel to work with the Japanese long-term experts.

All the Bolivian counterparts will work mainly with the Japanese experts to be dispatched to the CIAT. At the same time, in order to obtain specific technical guidance on the technical matters to be carried out by CETABOL, the above-mentioned Bolivian counterparts will be assigned to work with the Japanese experts dispatched to CETABOL as well as the locally recruited staff of CETABOL. This will facilitate the transfer of technology and knowledge developed by CETABOL to the Bolivian counterpart personnel, with the active participation of such personnel in research and experimentation activities to be conducted by CETABOL.

The Tentative Plan of Assignment of Counterparts and Other Administrative Personnel is attached as ANNEX 4.

(3) Sound budgetary allocation for the smooth commencement and successful implementation of the Project.

- (a) Expenses necessary for domestic transportation of the Equipment in the Republic of Bolivia, as well as for installation, operation and maintenance;
- (b) Customs, duties, internal taxes and other charges imposed on the Equipment in the Republic of the Bolivia;
- (c) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment; and
- (d) All running expenses necessary for the implementation of the Project.

The Tentative Annual Plan of Budgetary Allocation for the Project is attached as ANNEX 5.

(4) Coordination and harmonization of related institutions



L. ADMINISTRATION OF THE PROJECT

1. The Minister of Agriculture, Livestock and Rural Development, as the Project Supervisor, will bear responsibility to give instruction to Project personnel on technical matters in terms of the National Policy, as well as to extend the results of the Project not only to the Department of Santa Cruz, but also throughout the country through related organizations.
2. The Governor of the Department of Santa Cruz, as the Project Director, will bear overall responsibility to fund, coordinate, monitor and evaluate the Project in order to secure the smooth implementation of the Project.
3. The Director of the CIAT, as the Project Manager, will be responsible for managerial and technical matters of the Project, in consultation with the Director of CETABOL on the matters related to the activities of CETABOL.
4. CETABOL will act as the partner organization, bearing partial responsibility for the Project's activities and supporting the self-help efforts of the CIAT through the enhancement of its research capabilities, by both offering technologies and knowledge that have been accumulated, and by allowing effective use of its well-equipped laboratory facilities and experimental fields.
For the purpose of achieving the Project's aims as soon as possible, CETABOL will undertake soil diagnosis, diagnosis and identification of disease and pests, and improvement of soil fertility through improved cropping systems which will contribute to the dissemination of the results of the Project to small-scale rice farmers, based on CETABOL's technical capacity to handle those activities. During implementation of the Project, CETABOL will disseminate the results of research and experimental activities, and provide technical guidance and advice to the Bolivian counterpart personnel associated with the Project, and extension workers of farm cooperatives and NGOs.
5. The Japanese Chief Advisor will provide the necessary recommendations and advice on technical and administrative matters regarding the implementation of the Project to the Project Director and the Project Manager.
6. The Japanese experts will provide the necessary guidance and advice on the technical matters regarding the implementation of the Project to the Bolivian counterpart personnel.

M. JOINT COORDINATING COMMITTEE

The joint coordinating committee composed of those members listed in section 2 below will meet at least once a year and whenever the need arises.



1. Function

- a. To formulate the Annual Work Plan under the framework of the Record of

Discussions.

- b. To review the overall progress of the technical cooperation program as well as achievement of the Annual Work Plan of the Project.
- c. To review those measures taken by the Government of Japan:
 - a) Dispatch of Japanese experts
 - b) Acceptance of Bolivian counterpart personnel in Japan for training
 - c) Provision of machinery and equipment
- d. To review those measures taken by the Government of Bolivia:
 - a) Allocation of necessary budget (including local cost expenditures)
 - b) Allocation of necessary counterpart personnel
 - c) Utilization and administration of machinery and equipment provided by the Government of Japan
- e. To make recommendations to the respective Governments about:
 - a) Budgetary matters
 - b) Recruitment and appointment of the Bolivian counterpart personnel
 - c) Selection and effective utilization of machinery and equipment
 - d) Appropriate dispatch of Japanese experts
 - e) Acceptance of Bolivian counterpart personnel in Japan for training
 - f) Other

2. Committee Composition

a. Chairperson:

Governor of the Department of Santa Cruz

b. Members:

Bolivian side

- a) Representative from MAGDR
- b) Director of the Productive Development of Santa Cruz Prefecture
- c) President of the National Committee of Rice(CONARROZ)
- d) Executive Director of CIAT
- e) Head of Research Department of CIAT
- f) Head of Technology Transfer Department of CIAT
- g) Head of Planning Department of CIAT
- h) Head of Production Department of CIAT
- i) Representative from Yapacani Municipality

Japanese side

- a) Chief Advisor
- b) Director of CETABOL
- c) Coordinator
- d) Experts assigned to the Project
- e) Other Japanese experts and personnel concerned, dispatched by JICA if necessary
- f) Resident Representative of JICA Bolivia Office

Notes:

- 1. Officials of the Embassy of Japan may attend the Joint Coordinating Committee meeting as observers.



2. Persons who are nominated by the Chairperson may attend the Joint Coordinating Committee meetings.

N. Steering Committee

The Steering Committee will be responsible for the planning, management, monitoring, coordination and evaluation of the practical Project activities and will meet once a month in principle.

The Steering Committee will be composed of:

1. Chairperson : Executive Director of CIAT
2. CIAT counterpart personnel
3. Representative from National Federation of Rice Producer (FENCA)
4. Chief Advisor
5. Coordinator
6. Japanese experts assigned to the Project
7. Japanese experts assigned to CETABOL

Note: Persons who are nominated by the Chairperson may attend the Steering Committee meetings.

O. Draft of Tentative Project Implementation Schedule

The specialists and the Bolivian side have jointly formulated a draft of the Tentative Schedule of Implementation of the Project as shown in ANNEX 6.

This has been formulated on the condition that the necessary budget will be allocated for the implementation of the Project by both sides, and that the schedule is subject to change within the Project framework to be defined through the coming study.

P. Draft of Tentative Project Design Matrix

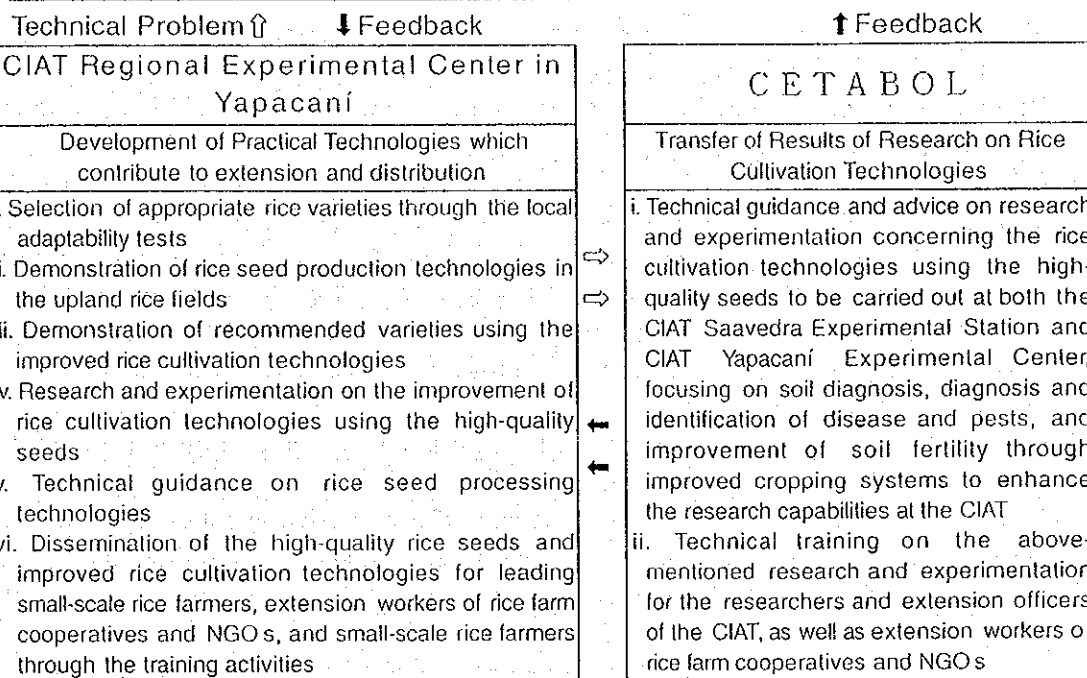
Based on the findings of the study, the Team and the Bolivian side jointly formulated a draft of the Project Design Matrix (attached as ANNEX 7) which summarized the outline of the project activities. In the course of Project implementation, the PDM will be utilized for effective monitoring and evaluation of the implementation of the Project.

The Team explained to the Bolivian side that the PDM will be finalized during the first stage of technical cooperation through discussions on the detailed activity plan of the Project to be held between the Japanese experts to be dispatched and the Bolivian counterparts.



Tentative Assignment of the Project Activities

Saavedra Agriculture Experimental Station of the CIAT
Development of rice seed production technologies
<ul style="list-style-type: none"> i. Selection of high-yield, and high-quality rice varieties and lines suitable for small-scale rice farmers through the tests for eco-physiological character and performance ii. Research and experimentation on improvement of the stable rice seed cultivation technologies and rice seed processing technologies at paddy fields of the CIAT for improving the high-quality rice seed production iii. Research and experimentation on the high-quality variety cultivation technologies such as management practices, weed control, pests and disease control, and amelioration and retention of soil fertility, using the high-quality rice seeds iv. Dissemination of the high-quality seeds and improved rice cultivation technologies for leading small-scale rice farmers, extension workers of rice farm cooperatives and NGOs, and small-scale rice farmers in the selected pilot area(s) through the communication media and training activities



Technical Problem ↑ ↓ Feedback	Technical Problem ↑ ↓ Feedback
Pilot area(s) (Yapacaní of Ichilo Province, etc.)	
Disseminating high-quality rice seeds and rice cultivation technologies Training of potential rice seed growers	
<ul style="list-style-type: none"> i. Demonstration of recommended rice varieties and the improved rice cultivation technologies in the farmers' fields ii. Dissemination of rice cultivation technologies with high-quality seeds using the farmer's fields as the training fields iii. Training of potential seed growers (Selection of seed growers, transfer of post-harvest technologies including the selection and processing technologies and storage technologies, establishment of rice seed dissemination system) 	

For Small-scale Rice farmers
Dissemination of high-quality rice seeds
Dissemination of improved rice cultivation technologies



IV. SUGGESTIONS AND COMMENTS MADE BY THE SPECIALISTS

(1) Project activities will concentrate on the strengthening of rice seed production at the CIAT and the rice seed dissemination system in the selected pilot area(s), taking into consideration the possible progress within the period of cooperation and the potential impact upon the rice production of small-scale farmers in the pilot area(s). The specific activities corresponding to those of the Project, established in the Tentative Project Framework, will be studied and formulated based on the small-scale rice farmers' needs and the sustainable rice seed production, and distribution systems for small-scale rice farmers in Bolivia. In order to secure sustainable rice seed production, it is important to establish a rice seed production system at the local level, setting up rice seed growers for producing certified seeds of small-scale rice farmers.

(2) In order to promote the rapid and intensive dissemination of rice seeds and improved rice cultivation technologies, the CIAT's technical and organizational capacities must be improved. Therefore, the CIAT must give its full attention to the following points during the cooperation term of the Project:

- a. Establishing a smooth flow of rice seeds and technological information among the CIAT, CETABOL and small-scale rice farmers in the selected pilot area(s).
- b. Strengthening the practical training for both the extension workers of farm cooperatives and NOG's, and small-scale rice farmers (through activities that will be set up and implemented at the CIAT Yapaçani Experimental Center and farmers' fields in the pilot area(s)), as well as improving the CIAT's institutional capacity to train extension workers.
- c. Utilizing the existing rice seed distribution systems through rice milling traders for disseminating rice seeds efficiently.
- d. Building close linkages to both the relevant NGOs and farm cooperatives dealing with rice seed production in the local level through training potential seed growers, for the purpose of promoting rice seed production.

(3) The Construction Work Plan at the Project sites is attached as ANNEX 3. It is expected that the establishment of a project office at the Saavedra Experimental Station will be completed before the start of the Project for the smooth commencement of the Project activities.

(4) The allocation of necessary counterpart personnel is indispensable to implement the technical cooperation program smoothly and successfully, and to accomplish the aims of the Project. It is expected that the Bolivian side will allocate a sufficient number of qualified and enthusiastic counterpart personnel, particularly in the fields of rice varietal selection, rice seed production, and agricultural technology extension. Simply put, CIAT should appoint at least three full-time counterparts to each Japanese expert, and take suitable steps to settle them into the CIAT, and retain them over the course of the Project for ensuring the smooth implementation



and the sustainability of the Project.

(5) Both Santa Cruz Prefecture and the CIAT should take the necessary measures to secure ample funding and the adequate disbursement in a timely manner for the Project's implementation, especially, funding for personnel expenses and operational expenses for securing the sustainability of the Project, as well as improving its institutional capacity.

(6) The Santa Cruz Prefecture should take greater initiative in promoting the certified rice seed production at the local level, as well as establishing an adequate seed distribution systems for small-scale rice farmers. To ensure the availability of high-quality seeds to small-scale rice farmers, it will be crucial to encourage leading small-scale rice farmers capable of becoming seed growers, as well as farm cooperatives and NGOs, in order to produce more certified seeds of rice varieties suitable for local conditions. The CIAT, as a progressive agricultural research and technology transfer institution, should provide necessary technical assistance to the potential seed growers by training them, providing registered seeds, and monitoring the seed production. In connection with training for potential seed growers, the CIAT must maintain direct links with the local communities, farm cooperatives, NGOs, and the regional seed office.

(7) For the appropriate administration and effective utilization of machinery and equipment that will be provided by the Government of Japan for the transfer of technology, there should be close consultation between the Japanese Chief Advisor and the Project Manager.

(8) The specialists considered that it would be preferable for the Japanese Government through JICA to supplement a portion of the local cost expenditures necessary for the construction of trail demonstration fields, laboratory facilities and training facilities at the sub-site in Yapacaní within the budgetary limitations, in order to proceed smoothly with the Project.

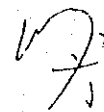
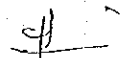
In order to develop a precise schedule of the construction of the physical infrastructure composed of trail demonstration fields, laboratory facilities and training facilities, etc., the Japanese experts will consult with their Bolivian counterparts.

(9) The Japanese experts dispatched to CETABOL will provide technical guidance and advice on soil diagnosis, diagnosis and identification of disease and pests, and improvement of soil fertility through improved cropping systems to the CIAT's counterpart personnel and extension workers of farm cooperatives and NGOs associated with the Project, based on the knowhow accumulated at CETABOL. The specialists considered that it would be advisable for CIAT and the above-mentioned organizations to send their persons concerned with the Project to CETABOL for the specialized technical training. In addition, the Japanese experts to be dispatched to



the CIAT and all the CIAT's personnel associated with the Project are expected to exchange actively the technological information on the rice cultivation with the Japanese expert dispatched to CETABOL and the locally recruited staff of CETABOL through the training on specialized technologies at CETABOL.

(10) The specialists emphasized that it would be advisable to strengthen CETABOL's agricultural research system, which will provide support to the Project. To this end, the CIAT will allocate to CETABOL a portion of the equipment and material necessary for the transfer of technology and funds for enhancing the effectiveness of the technology transfer activities. These will be supplied by the Government of Japan, in order to promote the research and experimental activities that CETABOL will administer, and to facilitate the transfer of technology and knowledge developed by CETABOL to the Bolivian counterpart personnel. At the same time, the specialists proposed to set up and strengthen a research cooperation network between the CIAT and CETABOL for effective and efficient implementation of the Project.



ANNEX 1 . Assignment of the Project Activities at the Project Sites

Project Activities	Project Sites		Partner Organization
	Main Site	Sub-Site	
1. High-yield and high-quality rice varieties and lines for small-scale rice farmers will be selected through the following activities:			
a. Introducing and selecting high-yield and high-quality rice varieties and lines with drought-tolerance and disease- and pest-resistance	X	X	
b. Evaluating rice gene-resources	X		
2. High-yield and high-quality rice seed production technologies based on the certified seed production Rules of Bolivia will be established through the following activities:			
a. Improving the rice cultivation technologies for stable high-purified seed production and improvement of seed quality	X	X	
b. Establishing stable high-purified breeder's stock seed and foundation stock seed production technologies through twice annual cropping system at paddy fields of the CIAT	X		(X)
c. Improving rice seed production technologies in the upland rice fields		X	(X)
d. Improving pre- and post-harvest technologies for high-quality rice seed production	X	X	

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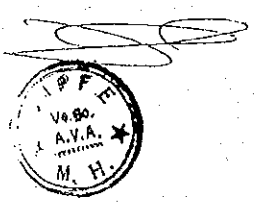
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Assignment of the Project Activities at the Project Sites

Project Activities	Project Sites		Partner Organization
	Main Site	Sub-Site	
3. The high-yield and high-quality rice seeds and improved rice cultivation technologies will be disseminated to leading small-scale rice farmers, extension workers of farm cooperatives and small-scale rice farmers in the pilot area(s) through the following activities to be conducted by both the CIAT and CETABOL in conjunction with farm cooperatives, and NGO s:			
a. Improving rice cultivation technologies using the high-quality rice seeds for small-scale rice farmers at upland rice fields '		X	X
b. Demonstrating recommended rice varieties and rice cultivation technologies in the Yapacani experimental center of the CIAT and leading small-scale rice farmers' fields of the pilot area(s) through trial demonstration activities and communication media for the purpose of disseminating the high-yield and high-quality rice seeds	X (including CIAT headquarters)	X	
c. Conducting technical training for small-scale rice farmers, extension workers of farm cooperatives and NGO s, etc. in the pilot area(s)	(X)	X	(X)
d. Training potential rice seed growers in the pilot area(s)		X	

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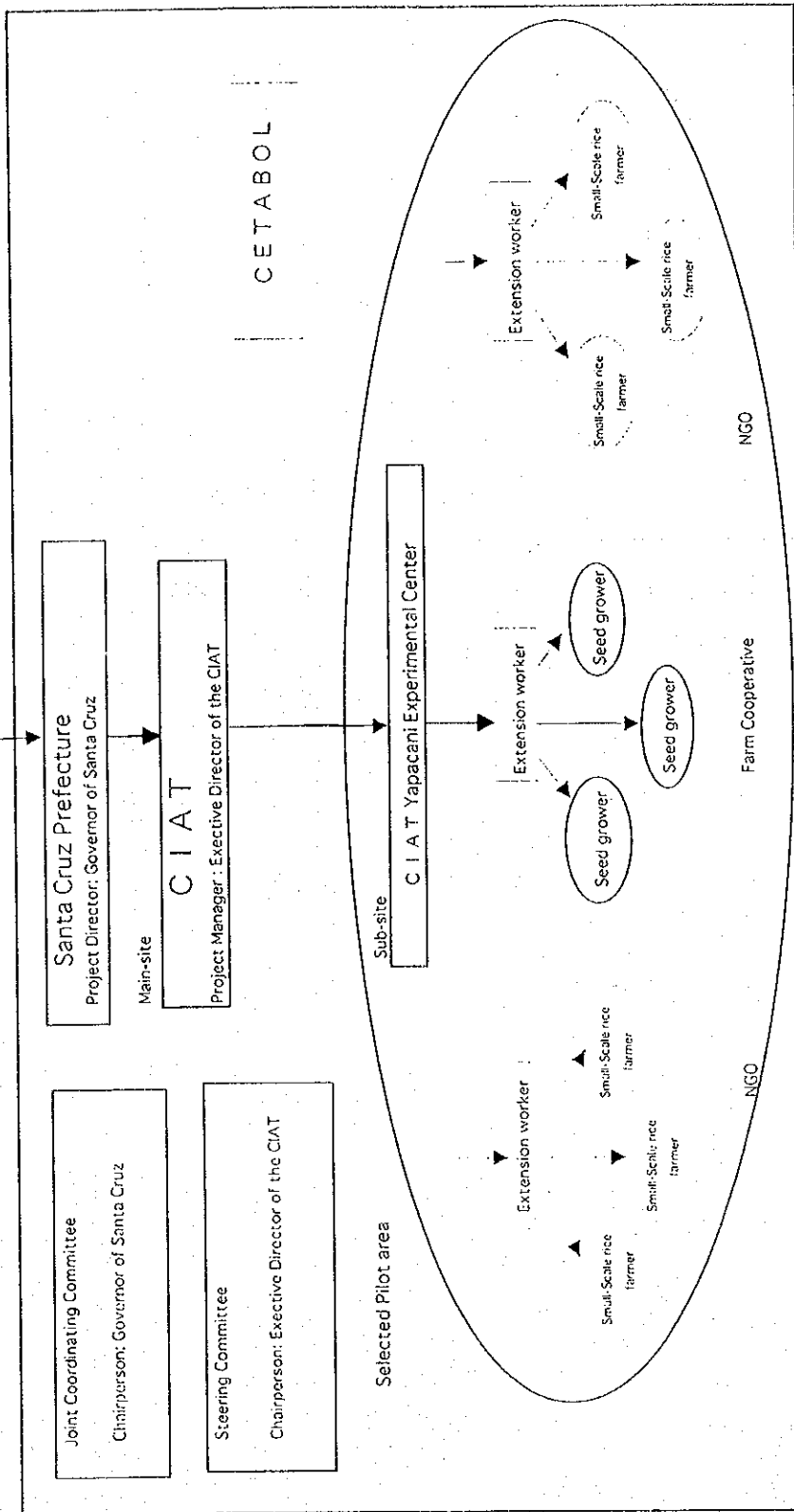
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ANNEX 2. Organizational Chart of the Project

Ministry of Agriculture, Livestock and Rural Development



ANNEX 3. Construction Work Plan

a. Saavedra Experimental Station of the CIAT

Construction Work	Beginning	Completion (Estimated)
1. Interior finish work of project office	January/2000	May/2000
2. Installation of telephone lines	January/2000	May/2000

b. Yapacaní Experimental Center of the CIAT

Construction Work	Beginning	Completion (Estimated)
1. Installation of electricity	January/2000	May/2000
2. Installation of telephone lines	January/2000	May/2000
3. Preparation of experimental fields	January/2000	May/2000



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ANNEX 4. Tentative Plan of Assignment of Counterparts and Other Administrative Personnel

1) Field of Rice Varietal Selection

Project Activities	Bolivian Counterpart Personnel
a. Introducing and selecting high-yield and high-quality rice varieties and lines with drought-tolerance and disease- and pest-resistance	Ing. René Guzmán Ing. Agr. Victor Hugo Callaú
b. Evaluating rice gene-resources	Ing. Roger Taboada (part-time, 50%) *

2) Field of Rice Seed Production

Project Activities	Bolivian Counterpart Personnel
a. Improving the rice cultivation technologies for stable high-purified seed production and improvement of seed quality	Ing. Edgar Iturrichar Tec. Adolfo Justiniano
b. Establishing stable high-purified breeder's stock seed and foundation stock seed production technologies through twice annual cropping system at paddy fields of the CIAT	Ing. Edgar Iturrichar
c. Improving rice seed production technologies in the upland rice fields	Ing. Mario Zankis (part-time, 50%)
d. Improving pre- and post-harvest technologies for high-quality rice seed production	Ing. Lorgio Dominguez Tec. Agr. Adolfo Justiniano



3) Field of Agricultural Technology Extension

Project Activities	Bolivian Counterpart Personnel
a. Improving rice cultivation technologies using the high-quality rice seeds for small-scale rice farmers at upland rice fields	*
b. Demonstrating recommended rice varieties and rice cultivation technologies in the Yapacaní experimental center of the CIAT and leading small-scale rice farmers' fields of the pilot area(s) through trial demonstration activities and communication media for the purpose of disseminating the high-yield and high-quality rice seeds	Ing. Willam Holters Ing. Emilio Chileno Tec. Wildo Abán (part-time, 30%)
c. Conducting technical training for small-scale rice farmers, extension workers of farm cooperatives and NGOs, etc. in the pilot area(s)	Ing. Pablo Andrade (part-time, 50%) Ing. Willam Holters Lic. Claudia Peña (part-time, 30%)
d. Training potential rice seed growers in the pilot area(s)	Ing. Emilio Chileno * Ing. Willy Rioz (part-time, 30%)

4) Administration

a) Main Site

Position	No.
1) Administrative Personnel : Ing. Tito Guzmán	1
2) Supporting Personnel	Secretary Field Worker
	1 4
Total	6

b) Sub-Site

Position	No.
1) Administrative Personnel : Ing. Emilio Chileno	1
2) Supporting Personnel	Field Worker
	3
Total	4

*: Under the selection of the most suitable person



ANNEX 5.

Tentative Annual Plan of Budgetary Allocation for the Project

US \$

Expense Items	Budget
(1) Personnel Expenses	
9 Agricultural Engineers	140,000.00
2 Technicians	15,600.00
6 Supporting Staff	28,080.00
1 Administrative Staff	7,800.00
1 Secretary	3,900.00
8 Field Workers	26,000.00
Field Workers on a temporary basis	5,280.00
Administrative Supporting Staff	10,920.00
Sub-Total	237,580.00
(2) Operational Expenses	
1) Transportation and Insurance	
Traveling Allowance	6,000.00
Insurance	12,000.00
2) Basic Services	
Electric Charges	12,000.00
Water Charges	3,000.00
Telephone Charges	2,000.00
3) Maintenance and Repair	
Interior finish work of project office	5,000.00
4) Taxes	
Toll	500.00
5) Fuel, Lubricant and Chemicals	
Fuel	6,000.00
Lubricant	1,500.00
Chemicals	2,000.00
Sub-total	50,000.00
Grand Total	287,580.00

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ANNEX 6. Draft of Tentative Schedule of Implementation of the Technical Cooperation.

1. Annual Program

Project Activities	Year				
	1st	2nd	3rd	4th	5th
1. Selection of high-yield and high-quality rice varieties and lines for small-scale rice farmers					
a. Introducing and selecting high-yield and high-quality rice varieties and lines with drought-tolerance and disease- and pest-resistance					
b. Evaluating rice gene-resources					
2. Establishment of high-yield and high-quality rice seed production technologies based on the certified seed production Rules of Bolivia.					
a. Improving the rice cultivation technologies for stable high-purified seed production and improvement of seed quality					
b. Establishing stable high-purified breeder's stock seed and foundation stock seed production technologies through twice annual cropping system at paddy fields of the CIAT					
c. Improving rice seed production technologies in the upland rice fields					
d. Improving pre- and post-harvest technologies for high-quality rice seed production					

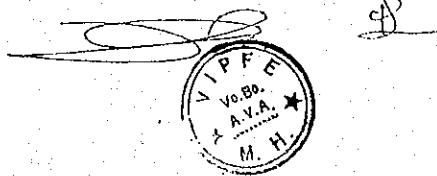
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1. Annual Program

Project Activities	Year				
	1st	2nd	3rd	4th	5th
<p>3. Dissemination of high-yield and high-quality rice seeds and improved rice cultivation technologies to leading small-scale rice farmers, extension workers of farm cooperatives and NGOs, and small-scale rice farmers in the pilot area(s)</p> <p>a. Improving rice cultivation technologies using the high-quality rice seeds for small-scale rice farmers at upland rice fields.</p> <p>b. Demonstrating recommended rice varieties and rice cultivation technologies in the Yapacani experimental center of the CIAT and leading small-scale rice farmers' fields of the pilot area(s) through trial demonstration activities and communication media for the purpose of disseminating the high-yield and high-quality rice seeds</p> <p>c. Conducting technical training for small-scale rice farmers, extension workers of farm cooperatives and NGOs, etc. in the pilot area(s)</p> <p>d. Training potential rice seed growers in the pilot area(s)</p>					

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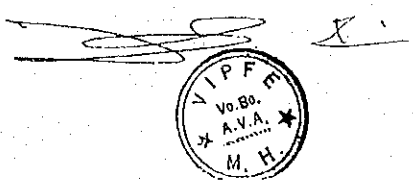


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2. Technical Cooperation Program

Project Activities	Year				
	1st	2nd	3rd	4th	5th
<p>I . <u>Japanese side:</u></p> <p>1. Dispatch of Japanese experts</p> <p>(1) Long-term experts</p> <p>(a) Chief Advisor</p> <p>(b) Coordinator</p> <p>(c) Rice Varietal Selection</p> <p>(d) Rice Seed Production</p> <p>(e) Agricultural Technology Extension</p> <p>(2) Short-term experts</p> <p>2. Provision of equipment, machinery and materials</p> <p>3. Training of Bolivian personnel in Japan</p> <p>4. Dispatch of study teams</p> <p>II . <u>Bolivian side:</u></p> <p>1. Counterpart personnel</p> <p>(1) Project Director</p> <p>(2) Project Manager</p> <p>(3) Counterpart personnel of Japanese Experts</p> <p>(4) Administrative personnel</p> <p>(5) Other necessary supporting personnel</p> <p>(6) Secretaries for Japanese experts</p> <p>2. Provision of land, buildings and other facilities</p> <p>3. The supply or replacement of equipment, machinery, vehicles, instruments, tools and other materials other than those provided by the Government of Japan</p> <p>4. Necessary measures to meet all current expenses</p>					



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ANNEX 7. Draft of Project Design Matrix for the Project for the Improvement of Dissemination of High-Quality Rice Seeds for Small-Scale Farmers in Bolivia

Narrative Summary	Verifiable Indicator	Means of Verification	Important Assumptions
<p>Overall Goal The rice productivity in the selected pilot area(s) is increased.</p>	<p>The rice yield in the selected pilot area(s) is increased from 1.5 tons per hectare to 2.0 tons.</p>	<p>National statistics report on agriculture information from MAGDR</p>	<p>1. National policy on rice production does not change considerably. 2. Abnormal weather patterns do not occur and unexpected diseases and pests do not appear.</p>
<p>Project Purpose The dissemination systems of high-quality and high-yield rice seeds for small-scale rice farmers are established in the selected pilot area(s).</p>	<p>The renewal rate of rice seeds of small-scale rice farmers in the selected pilot area(s) is increased from 0% to 40%.</p>	<p>Information from MAGDR Record of CIAT</p>	<p>1. Both the central and prefectural governments maintain a high priority for food security through increased rice production. 2. The relevant research and experimental facilities are utilized efficiently. 3. The quality and quantity of researchers and extension officers are improved. 4. The financial conditions of CIAT remain stable.</p>
<p>Outputs a. The high-quality rice varieties and lines suitable for small-scale rice farmers are selected. b. The rice seed production technologies which contribute to strengthen the rice seed multiplication for small-scale rice farmers are improved. c. The high-quality rice seeds and improved rice cultivation technologies are introduced to leading small-scale rice farmers (progressive rice farmers) capable of becoming seed growers AND small-scale rice farmers through the technology demonstration and training activities.</p>	<p>a. The yield of rice varieties to be selected increases by 10% in comparison with traditional rice varieties. b. The production of high-purified foundation stock seeds, registered seeds and certified seeds at CIAT is increased from 0.5 ton to 30 tons. c-1. 70% of small-scale rice farmers in the selected pilot area(s) plant recommended rice varieties. c-2. 200 demonstration farms in the farmers' fields will be set up in the selected pilot area(s). c-3. 30% of small-scale rice farmers are trained. c-4. 50 leading small-scale rice farmers are trained to become seed growers.</p>	<p>a. Record of CIAT b. Record of CIAT c. Record of CIAT Attendance list of field day training courses</p>	<p>1. The seed offices, farm cooperatives, and non-governmental organizations actively participate and support the Project. 2. The trained technicians and extension workers remain in CIAT. 3. CIAT retains the function of research and technology transfer on rice production. 4. Economic and social conditions remain stable in the selected pilot area(s).</p>
<p>Activities 1. Selection of the high-yield and quality rice varieties and lines for small-scale rice farmers a. Introducing and selecting high-yield and high-quality rice varieties and lines with the drought-tolerance and disease- and pest-resistance b. Evaluating rice gene-resources 2. Establishing of the high-yield and high-quality rice seed production technologies based on the certified seed production rules of Bolivia a. Improving the rice cultivation technologies for stable high-purified seed production and improvement of seed quality b. Establishing the stable high-purified breeder's stock seed and foundation stock seed production technologies through twice annual cropping system at paddy fields of CIAT c. Improving rice seed production technologies in the upland rice fields d. Improving pre- and post-harvest technologies for high-quality rice seed production 3. Dissemination of the high-yield and high-quality rice seeds and improved rice cultivation technologies to leading small-scale rice farmers, extension workers of farm cooperatives and NGOs, and small-scale rice farmers in the pilot area(s) a. Improving the rice cultivation technologies using the high-quality rice seeds for small-scale rice farmers at upland rice fields b. Demonstrating recommended rice varieties and rice cultivation technologies in CIAT's regional stations and leading small-scale rice farmers' fields in the pilot area(s) through trial demonstration activities and communication media c. Conducting technical training for small-scale rice farmers, extension workers of farm cooperatives and NGOs, etc. in the pilot area(s) d. Training rice potential seed growers in the pilot area(s)</p>	<p>Inputs <BOLIVIAN SIDE> 1. Bolivian counterpart personnel 1-1. Project Director, 1-2. Project Manager, 1-3. Counterpart personnel for Japanese Experts (at least 3 each), 1-4. Administrative and other staff to support the Project activities 2. Physical facilities 2-1. Building, facilities, experimentation fields, and other space for the Project, 2-2. Space for machinery and equipment, 2-3. Electricity, water and communication facilities, 2-4. Other land, buildings and facilities necessary for the Project 3. Running expenses 1) Travel Cost for Field Study and Supervision 2) Budget for research and extension activities 4. Others Establishment and management of the Joint Coordinating Committee and Steering Committee. <JAPANESE SIDE> 1. Japanese experts 1-1. Chief Advisor, 1-2. Coordinator, 1-3. Rice Selection, 1-4. Rice Seed Production, 1-5. Agricultural Technology Extension Short-term experts (if necessary) 2. Technical Training of Bolivian counterpart personnel in Japan. 3. Equipment and Machinery 3-1. Agricultural machinery, equipment and spare parts, 3-2. Teaching materials and communication equipment including audio-visual equipment, 3-3. Technical instrument and equipment, 3-4. Vehicles for Field Survey and supervising farmers, 3-5. Other equipment necessary for Project activities 4. CETABOL</p>	<p>1. The relevant research facilities including experimental fields in the main site and sub-site, are improved rapidly and precisely, and administered appropriately by the Bolivian side. 2. Customs formalities do not hinder the delivery of Equipment. 3. The CIAT's budget is available for the implementation of the Project. 4. A sufficient number of CIAT's full-time counterpart personnel are assigned. Pre-conditions 1. The central and prefectural governments, research institutions concerned with the Project such as CIAT and CETABOL, rice farm cooperatives, non-governmental organizations, etc., cooperate with each other. 2. Small-scale rice farmers in the selected pilot area(s) agree with the objectives of the Project.</p>	

