CHEMONICS
INTERNATIONAL CONSULTING DIVISION

PROGRESS REPORT
JANUARY THROUGH JUNE 1982

SUBMITTED TO

THE MINISTRY OF RURAL AFFAIRS AND AGRICULTURE

BY

CHEMONICS INTERNATIONAL CONSULTING DIVISION

CONTRACT GOB/AID 511-059-008-HCC

NOVEMBER 1982

CHEMONICS

CONSULTING DIVISION

La Paz, November 22, 1982

Eng. Carlos Roca
Subsecretary of Agricultural Affairs
Ministry of Rural Affairs and
Agriculture
La Paz

Eng. Roca:

Our company is pleased to present to you its semiannual report corresponding to the period January through June 1982. According to Article III B of Appendix B of Contract GOB/AID 511-059-008-HCC, MACA should organize a meeting regarding the results of our work within 15 days after receiving this report.

Also enclosed herewith is the semiannual report corresponding to the period July through December 1981. Twenty copies of that report were previously delivered to MACA, however, we understand that they were misplaced. Therefore, it is necessary to send it a second time to the institutions we work with.

Chemonics will take the responsibility for distribution of these reports to the following:

- Minister
- Director General of Agriculture
- USAID
- Direction of Sector Planning
- Statistics Division
- Department of Agricultural Marketing
- National Director of IBTA
- Communications Unit of IBTA
- Bolivian Catholic University
- Regional Chief of IBTA in Yacuiba
- Soils Department of MACA
- Seeds Department of MACA, La Paz, Cochabamba and Santa Cruz
- CIAT in Santa Cruz
- ANAPO in Santa Cruz
- "Gran Chaco" Integral Cooperative
- CODETAR in Tarija and Yacuiba
- Regional Office of BAB in Yacuiba
- MACA Library

We hope you will let us know of any reactions that might be expressed about the work performed by our company and the objectives for next semester.

We remain,

Sincerely yours,

Preston S. Pattie

Preston S. Pattie
Chief of Party

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SECTION I

INTRODUCTION

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INTRODUCTION

The responsibilities of Chemonics under Agricultural Sector II Project and Contract 511-059-008-HCC signed with the Ministry of Rural Affairs and Agriculture include five different technical areas which cover two agricultural zones of Bolivia besides planning at the national level. This progress report covers the activities of our company in the five technical areas during the period January through June 1982. In addition, some activities performed by Chemonics under special agreements with MACA, which were not part of the above mentioned Contract, are included in this report.

During this semester, five long-term and four short-term advisers provided their services under the Contract between MACA and Chemonics. Briefly, a list of advisers by technical area is presented as follows:

Technical Area	Advisers	
	Long-Term	Short-Term
Seed Improvement	Dr. Adriel E. Garay	Eng. Jorge Suárez Dr. Benjamín Garnica
Maintenance of Equipment and Machinery	Mr. Leslie Ríos Mr. Terrence McCarthy	
Soil Conservation	Dr. E. Don Hansen	
Sector Planning	Dr. Preston S. Pattie	Dr. Luis Ampuero R.
Organization and Methods		Lic. Jorge Montealegre

It should be noted that the role of Dr. Pattie as Chief of Party of the Project is in support of work in all technical areas of Chemonics, besides supervising Project resources.

Long-term advisers worked six months each, except Dr. Hansen, who became

seriously ill at the end of January and had to be evacuated from post until March 15th.

Among the short-term advisers, Eng. Suárez worked three and a half months beginning March 15 and Dr. Garnica worked a total of 15 days during April and May. Dr. Ampuero worked the entire semester, and Lic. Montealegre was employed for three months beginning May 28, therefore, he fulfilled one month of work during the period covered by this report.

In addition to the above mentioned advisers, and at the request of MACA, a special job related to organization and methods was initiated, for which Chemonics hired four local advisers. Chemonics accepted these additional responsibilities according to the terms of a Letter of Understanding signed between MACA and PL 480 Program. Progress in this area is included in the section regarding organization and methods, but is separate from the work financed under the Agricultural Sector II Project.

Annex I to this report presents a summary of the months of service provided by all advisers in the various technical fields since the beginning of the Project through June 30 of this year.

Following the organization of previous progress reports, the next section refers to the achievements reached in technical areas in the field, followed by section III which corresponds to the achievements obtained in institutional strengthening at the national level. Then section IV reports on progress in supervision and administration of technical work. Finally, section V gives conclusions and projections for the period July through November 1982. These forecasts are extended only until November 24, the date presently in force for the expiration of the Contract between MACA and Chemonics.

SECTION II

PROGRESS IN FIELD ACTIVITIES

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PROGRESS IN FIELD ACTIVITIES

A. Seeds

1. Background and Objectives

The semester began after a successful campaign of soybean seed production in winter of 1981, during which around 600 MT of soybean and corn seeds were processed. This had raised the interest and expectation of producer associations and MACA and CIAT personnel, however, there were several serious factors which limited the seed program from progressing towards the next stage (See Progress Report July through December 1981). With the purpose of overcoming these problems, and at the request of MACA, Chemonics had prepared a special report to help in planning and guiding the T-059 Project.

The objectives for this semester were:

a) complete the production cycle of soybean, corn and wheat seeds in summer 1981-82,
b) increase efficiency in the utilization of the Warnes Plant,
c) carry out an evaluation and complementary designs for the Seed Plant in Warnes,
d) support MACA, CIAT and producer associations in the organization of the Regional Seed Certification Service.

During the semester it became necessary to satisfy four additional objectives:

e) support MACA and USAID in reprogramming the T-059 Project in relation to the seed program,
f) give advice in conditioning wheat seed produced by CIAT,
g) support MACA in the transference of the plant to a regional institution (CIAT),
h) establish Regional Seed Councils in several departments.

2. Progress

Besides production of seeds in the campaign of summer 1981-82,

efforts during this semester were oriented in large part toward the creation of the necessary elements and institutional development that would permit subsequent progress related to the seed program in Bolivia.

a. Production of Soybean, Corn and Wheat Seed

During the summer climatic factors were favorable to the production of high quality soybean seed. However, before March a functional certification service was not established due to lack of operative capacity in the Regional Office of MACA. At the beginning of harvest season some fields were inspected; however, mechanisms were not available to take advantage of all the high quality seed produced in the area, especially that produced in the southern part of Santa Cruz. In spite of these limitations 672 MT of soybeans, 29 MT of corn, 16 MT of rice and 296 MT of wheat seeds were harvested and processed.

This campaign was again carried out with the seed private sector, where the personnel of MACA and the Seed Plant provided only technical support and services. This method of work has proved to be successful since it encourages the organization of a private seed industry as a result of the support given by both governmental institutions and farmer associations.

The production of wheat seed was under the responsibility of CIAT in the high valley areas of Santa Cruz and under MACA in Cochabamba, Zudáñez, Potosí and Tarija. It was not possible to provide support to CIAT in the field due to lack of certification personnel and problems with the roads during the rainy season. However, increased support is planned for following semesters.

At the end of this semester (May-June) a campaign to produce winter soybean seed was initiated. One thousand hectares of three recommended varieties--UFV-1, BOSSIER and CRISTALINA--were registered.

b. Increase in Efficiency and Utilization of the Warnes Plant

Prior to the installation of the Plant in Warnes there was no conditioned seed in Santa Cruz. In 1981, which was the first year of work (August-December only), approximately 600 MT were conditioned; during the first

six months of 1982, a total of 1,021 MT were conditioned; and a total of 2,500 MT are projected to December 1982. This increase in utilization of the plant is attributed to the establishment of a private seed sector with adequate government support. Contrastingly, in Cochabamba, where no permanent technical assistance exists and the strategy of work does not permit initiative by the private sector, only 30 MT of seed were conditioned during 1982, despite the fact that the plant was installed in 1976 and is the best equipped in the country.

This fact indicates that, parallel to the installation of processing plants, technical assistance is necessary in order to organize seed programs which involve production of foundation seed, conditioning, certification, organization of seed companies (enterprises which work in seed production and marketing)and of seed producers, etc. Otherwise, there is no possibility obtaining returns on the investment in new plants. The Warnes Plant worked an average of two shifts of eight hours in May, but, there still exists an opportunity to increase utilization and efficiency by strengthening the Certification Service, which works as a liaison between field activities and the Plant.

The efficiency and effectiveness of the Plant is in direct function to the demand for its services, which is being strengthened through increasing the quantity of hectares of seeds produced. However it also depends on the capabilities of the Plant. The latter requires adapting the Plant to the kind of services required by seed companies. Due to the successful experience in the production of soybean and wheat seed, it is necessary to equip and organize the Plant as soon as possible in order to provide the services required for these crops. For this purpose, in November 1981, the support of an expert from the Mississippi State University was requested.

c. Evaluation and Complementary Designs for Seed Plants

During the previous semester, the adviser recommended the need for short-term support in the design of conditioning plants. Regretfully, the former National Director of Seeds did not approve this request, and as a result no action was taken during the semester covered by this report. However, this recommendation has received constant follow-up; hence the support of an expert is expected in August 1982.

d. Organization of Regional Seed Certification Service

Chemonics' progress report corresponding to previous semester contemplated a preliminary plan to create this service in Santa Cruz. Necessary steps were taken, but as of the end of the semester the recommendation was not carried out because it depended upon the creation of the Regional Seed Coordination Council and also of the transfer of the Warnes Plant to a regional decentralized institution.

During this semester certification services were practically non-existent because the only available personnel was from the Seed Department of MACA. These people were fully occupied in the Warnes Plant. As a consequence, field inspections were not done on time and were disorganized, causing confusion among producers. However, there are possibilities to improve on certification services during the semester July-December.

e. Reprogramming of the T-059 Project

The Subsecretary of Agricultural Affairs indicated to Chemonics the need to support the Commission constituted by MACA and USAID for reprogramming T-059 loan funds, together with T-0481 grant funds and counterpart funds of the Bolivian Government. This reprogramming was done as a follow-up to the report prepared by Chemonics during the previous semester. For this purpose detailed evaluations were carried out in-situ of production areas, personnel, and seed conditioning plants. A document was prepared which indicates the strategy for development of seed programs in Cochabamba, Chuquisaca, the Gran Chaco, Potosí, Santa Cruz and Tarija. The document points out the quantity of personnel required, training needs, improvements needed in buildings and equipment of the seed conditioning plants, equipment required for laboratories, and other aspects. National counterpart funds were calculated by the Administrator of the National Seed Department. At the end of the semester this information was ready to be presented to the reprogramming commission.

f. Conditioning of Wheat Seed

Production of wheat seed by CIAT in the areas of Valle Grande and Comarapa has strengthened the supply of wheat seed to the Santa Cruz area.

Earlier, the only supplier of wheat seed was the Seed Department of MACA which had serious limitations in satisfying the demand. CIAT's production has been a success and has incorporated peasant farmers of the high valleys into a profitable activity which requires higher levels of technology. Needs for conditioning of wheat seed were responded too rapidly in the seed processing plant; but to provide adequate service, it will be necessary to install the gravity table, the cylinder and purchase another complete set of screens for the air-screen classifier before August 1982.

The harvest seasons of wheat and soybeans coincide and converge on the Warnes Seed Plant. This situation can be improved in the future with the installation of soybean seed dryers by individual producers and implementation of some phases of wheat seed processing in the area of production.

g. Transfer of the Plant to CIAT

At the beginning of the season of seed processing there were problems with lack of personnel, administrative delays and other limitations. It was seen that the plant ran the risk of being under-utilized at the same time that it restrained the initiative shown by the private seed sector. Therefore, it was recommended that the plant be rented to an institution with independent managerial capacity, preferably of mixed nature involving participation of the Government and the private sector. Following instructions of the Subsecretary of Agricultural Affairs, Chemonics hired a legal adviser, Dr. Benjamín Garnica, to prepare a rental agreement between MACA and CIAT. The terms of the contract were discussed between representatives of these institutions and then presented to MACA's legal adviser and the Bolivian Controllers Office for revision and approval. This process took from April through the end of the semester, anticipating that the transfer would be done in July.

h. Establishment of the Regional Seed Council

The short-term adviser in seeds in La Paz prepared a plan for the establishment of Regional Councils to coordinate seed programs. MACA approved this plan by Resolution No. 189/82, in accordance with which the Regional Council in Santa Cruz was created. Steps were then taken to

create Councils in Potosí, the Gran Chaco and Cochabamba.

i. Training and Other Activities

A plan was prepared for in-service training of MACA and IBTA personnel during winter of 1982. The plan, which was presented to MACA and USAID, is directed to executives and technical personnel of the sector.

Chemonics helped set up the training of two technicians in CIAT/Colombia. One of the trainees was from the Foundation Seed Unit of CIAT/Santa Cruz, and the other from the Seed Department of MACA in Betanzos (Potosí).

A representative of CIAT/Colombia visited Bolivia at the invitation of MACA and Chemonics, to exchange ideas with Bolivian authorities and technicians concerning planning and organization of the seed program. Dr. Johnny Douglas was in Santa Cruz and La Paz for one week during May.

Our adviser in Santa Cruz presented a seminar on "Essential Elements for Successful Seed Programs" with a group of corn experts of the Andean group countries. He participated in preparing information bulletins for farmers in cooperation with ANAPO and CIAT.

Chemonics maintained contact with USAID officers responsible for the private industry Loan (T-060) and with participants in the seed program in Santa Cruz. One seed producer constructed and installed a small conditioning plant, and other companies have plans to implement their own plants.

According to Chemonics' recommendations, MACA sent two CLIPPER 27 seed cleaners to the Gran Chaco, but unfortunately MACA and IBTA did not coordinate activities in order to proceed with installation and seed processing in the area. The soybean seed produced in the Chaco this year was sent to Tarija to be processed and stored until the planting season in November.

The adviser in agricultural machinery maintenance in the Gran Chaco checked the machinery of the Plant in Warnes and prepared a list of necessary tools for maintenance. MACA authorized the use of T-059 loan funds, and USAID carried out the purchase.

The short-term adviser in seeds in La Paz and the Chief of Party of

Chemonics prepared a study regarding costs of seed processing for the Warnes Plant. This information was used for establishing prices for conditioning services and also to set up the monthly rent which CIAT would pay for the Plant.

3. Summary and Suggestions

The quantities of soybean and wheat seed reached record levels in Bolivia, and the use of the Conditioning Plant in Warnes has improved. However, the Certification Service in Santa Cruz was not established. A preliminary step for this purpose is the transfer of the Warnes Plant, which was in process at the end of the semester.

The document for reprogramming the T-059 Project was prepared. The implementation strategy has to be discussed with MACA and USAID, and new designs must be prepared for processing plants in several departments.

In summary, it can be noted that the objectives changed during the period, focusing on a series of institutional factors which must be resolved before further progress can be made in technical work. These changes imply a reorientation of the T-059 Project, so that USAID funds can support certification services, conditioning and production of foundation seed, rather than just the building of processing plants as was previously envisioned. In addition, the changes imply a new emphasis on regional institutions and participation of producers in decision making. This involves generating funds at the local level in order to finance part of the needed services.

The main problem in the seed program has been the lack of personnel, continuous change and rotation of people, and the lack of people trained in seeds. The above mentioned institutional changes will help to partially overcome this problem in the short-run, and will contribute to find a complete solution in the long-run.

We recommend that the Government of Bolivia and MACA act quickly to approve the rental contract of the Plant in Warnes, and that CIAT hire a group of permanent personnel to be assigned to seed conditioning. We also recommend that MACA and USAID approve the visit of an expert from Mississippi

State University. This expert should update the disproportional designs of the Plant in Yacuiba and the obsolete design of the Plant in Warnes. He should also reevaluate all plants with realistic and functional criteria according to the potential for seed production of each area.

As soon as the transfer of the Plant of Warnes is approved, we recommend that MACA provide office space for the Certification Service in its central offices in Santa Cruz, including space for laboratory and advisers. The establishment of a good Regional Certification Service will depend upon the organization of the Regional Seed Coordination Council and on the disposition of interested entities such as MACA and the Cámara Agropecuaria del Oriente (CAO) to provide the necessary impulse to this Service. Once this Service is created, Chemonics adviser should place emphasis on backstopping this service because of its importance as promoter of the seed industry.

We recommend that MACA and USAID approve the use of loan funds for in-service training for MACA and IBTA personnel during the period July through December of this year. This training should be combined with a training program for authorities from different places in the country.

B. Maintenance of Heavy Equipment and Agricultural Machinery

1. Background and Objectives

At the beginning of the semester the main task regarding heavy equipment was to finish repair of the eight Caterpillar D7-G's and prepare them for next land clearing campaign. Related to this activity was the need to acquire and install a track press and to purchase a well-bed lathe adaptable for idlers and sprockets. The last shipment of equipment and tools for the shop in Palmar Chico, including the track press, was ready to be sent to Bolivia. Therefore, one objective of Chemonics during this semester was to support MACA and CODETAR in obtaining customs clearances and send the shipment from Santa Cruz to the Chaco, despite the fact that this support is not included in official agreements.

In the area of field maintenance, it was our desire to clarify the relations between the offices of CODETAR in Yacuiba and Villamontes and between CODETAR and the Gran Chaco Integral Cooperative. The need to equip a truck

with welding and lubricating machinery was anticipated in order to provide routine maintenance in the field for agricultural and heavy equipment in the area. This strategy requires that both institutions be incorporated under the same working system as far as maintenance is concerned.

Finally, a very important objective was to support CODETAR and the Integral Cooperative in planning their needs for machinery, equipment and spare parts and to provide advice in other aspects regarding planning and organization of their corresponding programs. To strengthen CODETAR's personnel capacity, a training program for mechanics was presented to USAID for approval of use of funds from the T-059 Loan.

2. Progress

a. Repair of Caterpillars

During the period January through April, the personnel of Palmar Chico worked with our adviser, Les Ríos, in completing the repair of the D7-G Caterpillars. Chains were sent to Santa Cruz for change of bushings or to turn them 180 degrees in cases where no major problems existed. Once this work is completed, it is expected that the tracks will present no difficulties at least during two or three more years. In the future, repair of tracks should be carried out mostly in the CODETAR shop. Fortunately CODETAR was able to purchase a well-bed lathe with which it will be possible to turn large rollers and idlers of the Caterpillars. In February the track press arrived in Palmar Chico. The local administrative staff of Chemonics took charge of emergency customs clearances and shipment of this equipment from Santa Cruz to the Chaco. Due to lack of materials the track press was not installed during the semester covered by this report. This is due to the high cost of materials in Bolivia in comparison with the price that CODETAR charges for land clearing.

b. Procurement

In April the last tools under letter of commitment T-059-14 in the amount of $us 98,000 were delivered to equip the shop in Palmar Chico. The agreement signed with MACA indicates that Chemonics is in charge of

delivering freight to the Santa Cruz airport and that MACA takes the responsibility for all customs clearances, transportation to Palmar Chico and official delivery to CODETAR. However, as it is mentioned above, in the interest of assuring rapid progress of the Project, Chemonics supported MACA by taking the freight to the Chaco. However, MACA is still responsible for officially turning the equipment over to CODETAR. In addition, our advisers Ríos and McCarthy traveled to Santa Cruz in several occassions to obtain emergency spare parts for CODETAR and the Integral Cooperative. We hope that in the future, these institutions will develop the necessary mechanisms to carry out these procurements.

The advisers provided assistance to CODETAR to keep the road open during the rainy season in the area of Palmar Chico. Mr. McCarthy supervised the work of the Caterpillar operators. At that time, work with agricultural machinery of the Integral Cooperative had not yet begun.

c. Organization of the Shop

With the arrival of the last equipment, Mr. Ríos concentrated his efforts in organizing the shop, establishing sections for heavy and light equipment, and special work areas, such as: valve grinder, vertical drill, small and large lathe, press and others. Eventually, this section should include equipment for major repairs of motors, brakes, clutches, transmissions, differentials, etc. Also the shop should have an electrical section. These modifications will be implemented as the amount of work increases and personnel become more specialized.

Mr. Alberto Cassap Condori was named by CODETAR as Head of the Shop in Palmar Chico. In view of this change, the adviser in heavy equipment had the opportunity to transfer the responsibilities of daily operation of the maintenance system to Bolivian personnel and thus increase the experience and capacity of the local institution. Hence the adviser's role changes; he becomes a trainer who provides support in methods of work, new techniques, organization and planning. However, the latter is an almost ideal model, and depends upon relations between the adviser and his national counterparts to obtain positive results.

d. Agricultural Machinery Maintenance

In the agricultural area, CODETAR's two harvesters were reconditioned; especially the Santa Matilde which had suffered severe damages in recently cleared land near Villamontes. At the request of the Integral Cooperative, Mr. McCarthy provided support in preparing six harvesters for the soybean harvest this year. The adviser implemented an inspection program of soybean fields before authorizing harvest to begin in each field. In this way deterioration of machines due to excess of weeds, sticks or excess humidity is avoided. In cases where cooperation existed among farmers, and personnel of CODETAR and the Integral Cooperative, this system obtained excellent results. Not only is the machinery protected, but also a lessor percentage of grain is lost in threshing and the grain is cleaner. Unfortunately this cooperation was lacking in many cases, and the adviser's recommendations were ignored. As a consequence, several problems were confronted. For example, in a very wet field a harvester was stuck several times, and was pulled with a tractor each time to get it out of the mud. Few fields achieved a high efficiency of threshing.

The heavy rains in the area delayed harvest greatly. However, once harvest is underway, lack of spare parts for harvesters will become a limiting factor. In his March report, Mr. McCarthy mentioned the general requirements of spare parts for harvesters according to a publication of John Deere. According to this publication, the relationship between the use of the New Holland harvesters in hours and the maintenance expenses is as follows:

Hours of Use	Maintenance Cost	
	Percentage of the original value	US$
1 - 500	2.7	1,350
501 - 1000	9.5	4,750
1001 - 1500	19.6	9,800
1501 - 2000	33.0	16,500

It is considered that a harvester has a useful life of approximately 2000 hours. In estimating maintenance cost, it was considered that the original value of the New Holland combine is $ 50,000. The harvesters of the Cooperative had been working for approximately 500 hours at the beginning of harvest in 1982, and might reach up to 1,000 hours each during this year. Therefore, maintenance costs will increase rapidly in the future. The adviser prepared complete lists of spare parts required for the New Holland 4040 harvesters and for the John Deere tractors, which were attached to his March 1982 report.

e. System of Field Maintenance

The program of machinery maintenance in the field can be divided in two main areas:

1) Programmed maintenance, and
2) Unprogrammed maintenance

To provide the first service, it was possible to mount the welding and lubricating equipment on the International 1500 truck. The truck carries tools, lubricants, filters, bolts and nuts, and various fast moving parts for the different machines to be serviced (for example, roller bearings for the harvesters and hydraulic hoses for Caterpillar). Under Mr. McCarthy's supervision, CODETAR's personnel uses this unit periodically to inspect machinery in the field, attending to aspects such as lubrication, oil changes, filter changes, general testing and minor maintenance. The adviser performs a weekly inspection which includes the area of Yacuiba, Villamontes and Caraparí. As a result, the machinery has shown less problems and it is working a greater amount of time.

Unprogrammed maintenance also can be divided in two parts. A field mechanic will use a jeep to make field visits once a day or every other day. His work consists of minor field repairs. He carries a complete set of tools and obtains parts from the central shop as needed.

The second part relates to the welding work. Specialized personnel in this area go out when necessary with the service truck, which carries a

welder. During trips to Villamontes, welders accompany the service truck as helpers. The central shop is in charge of welding in the area of Palmar Chico when the service truck is working outside of the Yacuiba region. The portable welder of the Integral Cooperative has been very useful in these situations.

In the future operators will fill a maintenance register which will provide daily information. Field mechanics will fill out work orders in regard to each machine with which they work. That information will be used to keep records on each machine and will be utilized by accountants to determine costs.

Unfortunately the agreement between CODETAR and the Gran Chaco Integral Cooperative was not implemented as anticipated; hence the Cooperative has not requested continuous routine maintenance. Therefore, the field maintenance system was implemented principally with the heavy equipment. This situation was probably due to the Cooperative's decision to transfer its Machinery Pool to private farmers of the area at the end of this year's harvest.

f. Planning of Project Needs

Finally, Chemonics has provided help to CODETAR and MACA in reprogramming the T-059 Loan regarding the land clearing program and machinery maintenance. Mr. Les Ríos presented a list of parts for Caterpillar, another for the International 5000 trucks and another corresponding to some additional tools required for the shop. Still pending are lists for the Chevrolet trucks, trailors and light machinery. In order to request parts for the agricultural machinery pool, a decision is needed regarding source of funds and the responsibilities of CODETAR and Chemonics.

3. Summary and Suggestions

Chemonics has fulfilled almost all the objectives related to short-term implementation during the period, however, it has not been possible to improve the institutional capacity necessary for decision making in this technical area. Consequently, procurement of parts for the various lines of machinery was not initiated, which seriously affects the efforts made by the advisers and their counterparts.

On the other hand, it is evident that some aspects of the Project will be changed, and a new focus will be required in regard to the role of the advisers. Two of these aspects are as follows:

a) The decision to sell the agricultural machinery of the Integral Cooperative to private farmers.
b) CODETAR's decision to assign personnel to responsible positions as far as the operation of the maintenance system is concerned.

The first aspect implies that in the future work in agricultural machinery maintenance will be oriented towards private farmers of the region, and that Chemonics will focus more of its efforts in training. The second aspect also implies that Chemonics' work carried out with CODETAR will be oriented towards personnel training. Both aspects are considered very positive for the Project, and therefore, Chemonics is willing to exchange ideas with CODETAR, the Integral Cooperative and MACA in order to orient its technical assistance to the new needs of the Project.

We recommend that MACA and USAID consider the needs for parts for the Caterpillars, tractor-trailors, support trucks and the light equipment of the Project in the reprogramming of the T-059 Loan. We recommend that CODETAR and the Integral Cooperative begin training programs in cooperation with Chemonics for farmers who will purchase agricultural machinery. We recommend to BAB and the Integral Cooperative to finance a stock of spare parts for agricultural machinery of the area which is owned by private people. Finally, we recommend that CODETAR establish an administrative system in the shop which includes as a minimum the following positions:

1) Head of the Shop,
2) Warehouseman, and
3) Head Mechanic.

The first would have under his responsibility the personnel, operational system, use of tools, operating budget, relationship with clients and registration of records for each machine. The person in charge of the warehouses would control use of spare parts, lubricants, fuel and materials.

He would also give support in procurement. The head mechanic would make decisions concerning frequency of oil changes, filters, etc. He would also be responsible for supervising repairs. The warehouseman and the head mechanic should be under responsibility of the Head of the Shop, who would be responsible to the Regional Director of CODETAR in Yacuiba. The shop should offer services in the whole Chaco region, i.e. private people as well as public institutions.

C. Soil Conservation

1. Background and Objectives

The adviser in charge of this technical area began his work in Bolivia in early December, 1981, therefore this program had only one month duration at the beginning of the period covered by this report. The first priority was to continue with field visits to complete a general area survey, to identify erosion problems and to develop a work plan. The work plan would depend on the practices recommended by the adviser and the mechanism for implementation. The original objectives for the semester involved the creation of a fieldteam to prepare conservation plans for individual farms, initiation of erosion control projects for demonstration purposes, and finally, formulation of recommendations regarding local and regional organization which would enhanse cooperation in projects that affect more than one property.

Unfortunately, the work was delayed for almost two months due to illness of Chemonics' adviser, which could not be diagnosed in Bolivia. Hence it was necessary to evacuate him to the United States at the end of January. When he returned in March, Eng. Walter Peñaranda and Eng. Jorge Balderrama from IBTA were assigned as counterparts. The first task was to develop a detailed work plan.

In the work plan, the adviser and his counterparts placed emphasis in educational aspects, both for farmers as well as for local leaders and authorities of public and private institutions which operate in the region. It should be emphasized that the erosion control is a voluntary process carried out by farmers, and therefore depends upon their understanding about the

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seriousness of the problem and of available methods to undertake adequate control. In addition to construction of special projects the farmer must take into account the implications on natural resources of every practice that he applies in his farm, for example, tilling on contours, crop rotation, control of aftermath grazing, etc. The function of public institutions should be to support the farmer. This implies providing information about erosion problems, establishment of a legal basis to facilitate cooperation at the local level, provision of technical assistance in regard to erosion control practices, and support in obtaining financial resources and inputs.

2. Progress

a. Field Survey

The field survey identified very serious erosion problems in various communities such as: San Isidro Norte, San Isidro Sur, Caipitandi, Quebrada de Sausalito on the border with Argentina, Campo Pajoso and Palmar Chico (See Figures 1 and 2). During contacts with farmers in the area, the adviser and his counterparts identified three farms in the Yacuiba valley and one in the Caraparí valley where demonstration projects could be implemented. A work plan was developed which contemplates conservation projects on individual farms and studies of small basins to identify the steps that the farmer must take together with public and private institutions of the area. Some erosion problems will require cooperation from institutions such as CODETAR, National Road Service, National Railway Company, Integral Cooperative, BAB, IBTA, MACA, Armed Forces, and others. Chemonics acquired from the Air Force in La Paz two sets of aerial photos at a scale of 1:20,000 to help in identifying erosion problems, and to use in field work.

b. Erosion Control Projects

One alternative for the control of small gulleys is to construct waterways following the same course as the gulley, seeding the waterway with grass. This practice has two disadvantages: first, the channel must be wide, and therefore it decreases the useable land in the field. Second, to establish grass it is necessary to use sod, instead of seed, because the grass must be established quickly at the beginning of the rainy

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FIGURE :

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FIGURE 2

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season. Use of sod implies high costs. Another alternative is to build canals or ditches following the contour. Canals are cut every 50 or 100 meters, thus avoiding intense running water. These canals take the water to a main drainageway where the flow is controlled by a series of falls. In this system, the highest canal serves to guard against running water which comes from the mountains, and therefore it must have a larger capacity than the lower canals. The advantages of this system are that gulleys can be filled in and cultivated, so the farmer does not lose use of this land, and the drainage canal can be sown with grasses using seeds. This practice is possible due to the fact that the canals follow the contour, hence speed of water is limited.

While the adviser was recovering from his illness in the United States, he attended a seminar of the International Association of Erosion Control in Salt Lake City, Utah. The seminar comprised participation of several commercial enterprises and universities which may have pasture seeds adaptable to the Gran Chaco region for establishing in drainage canals. Also in the seminar experiences with new techniques for erosion control in cropland, road and other places were evaluated. Once he returned to Yacuiba, he visited the PERRT Project in Tarija, where strongly eroded lands are being rehabilitated. Up to this date, "Grama Negra" and Rhodes (Chloris guyana) are being recommended for drainage canals. Seeds are available in the region.

Regarding field work, the adviser and his counterparts visited several farmers of the Gran Chaco to make them aware of the need to implement practices such as tilling on contour curves, gulley control, building contour canals, and others. Due to the late rains and the very delayed harvest, it was impossible to initiate demonstration projects. However, most of the topography equipment from MACA and IBTA was obtained for these projects, including two alidades, two planimeters, tripods, levels rods, and other equipment. The rods and planimeters were refinished. Covers were made to protect all the equipment in the field. In addition, the adviser inspected land clearing methods presently used by CODETAR with the objective of formulating recommendations to reduce the movement of the fertile layer of soil

and also reduce costs of land clearing. These methods would be advantageous for farmers now that CODETAR is charging by tractor-hour and not by hectare. However, the application of these methods requires that the farmer recognize the advantages and request that land clearing be carried out according to these recommendations.

c. Training

As was previously mentioned, education is the most important aspect of the program in 1982. The adviser and his counterparts prepared a training plan which covers visits to Metan (Salta Province), Argentina for authorities, technicians and farmers, and also training courses in Yacuiba. The budget for that program was elaborated jointly with the Coordination Office of MACA and submitted to USAID for approval. The adviser and his counterparts made a trip to Metan in June to develop the training program with Eng. Julio Luna of INTA (National Institute of Agricultural Technology) of Argentina. They studied the techniques applied in recently cleared lands in the northern part of Argentina. Many of those techniques can be applied in the Humid Chaco of Bolivia.

Chemonics carried out the procurement of projectors and other materials for the training program. The adviser has photographed various sites visited in the region. The slides will be used to demonstrate the problems found and possible solutions. Finally, contact was made with Eng. Hinojosa of FAO in Santa Cruz to obtain additional educational materials. Miss Julia Boeker, technician in video filming, showed the films made by the program, and provided a copy of them to Chemonics. Then, a visit to the Chaco was programmed for October to shoot a specific film of the region. Chemonics' adviser will prepare a narration for the film before shooting.

3. Summary and Suggestions

Execution of some of the objectives in this technical area were delayed due to the adviser's illness and the belated rains, which were the heaviest registered by AASANA during the last 20 years. Until the end of June, soybean harvest in the Gran Chaco had not progressed very far, which

prevented construction of demonstration projects on selected farms. In spite of these limitations, the area survey was finished, steps were taken to obtain field equipment necessary for the program, the work plan and training plan were prepared, and direct technical assistance was provided to farmers in the zone. In synthesis the semester has been dedicated to establish a program including configuration of a work team formed by IBTA and Chemonics technicians.

Thanks to the good will on the part of authorities of MACA and IBTA, and of IBTA's technical counterparts, the work in this technical area is taking shape and will achieve immediate results during the next semester. It is essential that MACA and USAID approval be obtained for use of funds for topographic equipment and the training program.

SECTION III

PROGRESS IN INSTITUTIONAL STRENGTHENING

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PROGRESS IN INSTITUTIONAL STRENGTHENING

A. Sector Planning

1. Background and Objectives

At MACA's request, Dr. Luis Ampuero Ramos' contract was extended until June in order to complete the study on the National Agricultural Information System (NAIS) and to initiate the implementation of some aspects of the System. Chemonics had carried out the study in response to interest expressed by the Direction of Sector Planning, however, as a result of changes of personnel in that Direction, priorities related to the work also changed. Therefore, MACA's General Director jointly with the National Director of IBTA indicated to Chemonics the need to carry out the tasks of implementing the NAIS with the Communications Unit of IBTA.

Additionally, at the beginning of the semester the lineal programming model was ready to be run on computer. The analyses of results and preparation of the report on this work remained pending for this semester.

2. Progress

a. Study of Agricultural Information Services

After having carried out a survey in various places of the country and after an extensive bibliographic review, the report titled "Analysis of the National Agricultural Information System" was submitted to MACA in February. One hundred copies of this report had been distributed among libraries, universities, and several public and private institutions. The report included a series of specific suggestions to establish agricultural information services.

With the purpose of verifying receptiveness of the different institutions and persons of the sector towards the actions proposed in the report, two seminars were convened in March.

b. Implementation of the Scientific-Technical Information Service

On March 18 a meeting was held to discuss aspects related with scientific-technical information services. Representatives of MACA, INFOL, SYFNID, UMSA and IBTA attended this meeting. Those persons agreed with the analysis presented by Chemonics and offered their support for the execution of the "Directory of Professionals of the Agricultural Sector", the introduction of an annotated bibliographic service, and the establishment of a National Network of Documentation and Library Center of the sector. Implementation of this system was started in coordination with IBTA, and then with the Bolivian Catholic University (BCU).

A diagnostic was prepared for the publication of the Directory of Professionals of the Agricultural Sector, a series of objectives were formulated, possible users were identified, its characteristics were defined, and a strategy was selected to carry out the task of distributing and compiling several hundred questionnaires throughout the country. Until June 30 around 4,000 questionnaires had been distributed in eight departments, and more than 500 completed questionnaires had been returned. It is expected that 2,000 more questionnaires will be distributed in the cities of La Paz and Tarija. We hope to publish the Directory in September with about 2,000 returned questionnaires. There is great expectation throughout the country to receive the results of this work.

Personnel of the Communications Unit of IBTA, at national level, has provided a valuable contribution in the distribution and compilation of questionnaires. Lic. Gualberto Lizárraga also collaborated in this task in the departments of Cochabamba, Chuquisaca, Potosí, Beni and Pando.

For the implementation of the annotated bibliographic service objectives have been specified, characteristics of the service have been designed, along with its operating mechanism, the rules which bibliographic notations should follow, and projections for the service.

Until this report was ended, no concrete contribution on the part of IBTA or MACA was received for the implementation of this service. It is

expected that during the next semester, IBTA and MACA will take the responsibility for this work and provide the human resources to permit the publication of annotated bibliographies. It is also expected that students in the Sciences of Social Communication of the Bolivian Catholic University will be incorporated into the program.

With the objective of diseminating the scope of information services proposed by Chemonics, the adviser in sector planning delivered conferences in: (i) the Regional Seminar on Problems of the Information and Documentation Systems sponsored by the Agreement IICA-Cono Sur/BID held in La Paz on June 14-17; (ii) Workshop on Systems of Agricultural Production sponsored by IBTA, held in La Paz in May 25-26; (iii) and in the Faculty of Agronomic Engineery-Technical University of Oruro in June 24. During all these presentations it was observed that the strategy suggested by Chemonics for the implementation of information services is correct, and is based on an adequate diagnosis of the circumstances which characterize national agricultural information.

c. Services of Statistical Information

On March 23rd a meeting was held with persons involved in statistical information (INC, MACA, CDF, MPC, IDRA, INE and PNDRI) to consider actions proposed by Chemonics in its report. The results of this meeting were not encouraging, because of a lack of consensus regarding the problems related to agricultural statistical information and the actions to be taken. This situation is understandable considering the great political value of statistical information, which complicates participation and cooperation among representatives and responsible persons from different information units. Therefore, it was impossible to initiate the activities suggested by Chemonics to strengthen this system.

d. Model of Spatial Equilibrium

After having made several corrections in data fed into the computer, the model of spatial equilibrium was again run in the Computing Center at the University of Florida in January; the corresponding results

were received in mid-February. Due to the fact that the adviser was then completing his report related to the system of agricultural information, these results were not analyzed until March and April.

Analysis of the results of the model led to the detection of several errors in the entry of data to the computer, as well as some deficiencies in application of the model and in the statistical information used. However, it is considered that due to the limited resources dedicated to the preparation of the model, it has produced satisfactory results. With the support of authorities of the sector and the help of a reduced number of trained technicians over a period of one year, it would be possible to significantly improve the statistics base of the model, and consequently, also the quality of the results.

In April a report titled "A Spatial Equilibrium Model for Agricultural Planning in Bolivia" was presented to MACA. Several copies of this report were sent to various departments of MACA, development corporations, universities and documentation centers. Unfortunately, no reaction has been received up to the present. For the next semester we are planning to present a seminar to MACA's technicians and students of economics of the BCU which would permit the application of the lineal programming model in agricultural planning and the study of characteristics of the spatial equilibrium model.

3. Summary and Suggestions

The objectives in this technical area have been entirely achieved. However, there is a remarkable lack of interest on the part of institutions of the public sector in following up work in the area of planning. Unfortunately, after the short-term technical assistance has been fulfilled, there is no guaranty that implementation of information services will be continued. Likewise, the model of spatial equilibrium has been completed, and the final report was presented, but it is evident that MACA will not make use of it.

With the purposes of continuing development of the NAIS and looking for alternatives for its long-term implementation, MACA requested that another contract with Dr. Ampuero be signed through September 1982. Dr. Ampuero will

devote half time to this activity and the remaining half to a feasibility study of cotton production in the Gran Chaco.

B. Institutional Reform

1. Background and Objectives

Chemonics' responsibilities in this technical area had been reduced since mid 1980, and at the beginning of this semester, only included preparation of reports on the personnel study. However, in April the Subsecretary of Agricultural Affairs invited Chemonics' Chief of Party to participate in a commission in order to take a new look at possible reforms in the Ministry of Rural Affairs and Agriculture. As a result of the work performed by this commission, MACA decided to create a Technical Team for Reorganization of MACA (TTR) to guide the institutional reform process.

Later, MACA requested Chemonics to be responsible for the work of this Team, including hiring of technical personnel, administration of funds, secretarial support, office logistics support and publication of reports. At the same time, MACA authorized the contracting of Lic. Jorge Montealegre to support and to act as a member of the TTR.

2. Progress

Draft reports were prepared on the study of personnel, however this work was temporarily discontinued when the Technical Team for Reorganization was created. Instead of continuing with formal publications, a new analysis of the information was completed to be used by members of the TTR, and a summary of all personnel of the agricultural sector (4287 employees) was prepared.

Chemonics' Chief of Party participated in the commission conformed by the Subsecretary, the Director General, technicians of DPS, and representatives of the PL 480 Program and USAID. He provided support in formulating objectives and a plan of work. On this basis, a Letter of Understanding between MACA and PL 480 was prepared, which allows the use of funds for the work of the Technical Team for Reorganization of MACA.

After a recruitment process, Chemonics presented Lic. Montealegre for the position in institutional reform. Chemonics' Chief of Party in Bolivia helped the Washington office in this process during a visit to the United States. Lic. Montealegre arrived in Bolivia on May 28, and helped in reformulating the letter of understanding and in preparing the work plan for TTR. Later, he participated with Chemonics' Chief of Party and MACA in the recruitment of TTR members.

The Letter of Understanding was signed on June 2, 1982, and the TTR began its work on June 21 with the following members:

* Lic. Boris Marinovic
* Lic. Jorge Bonadona
* Dr. Benjamín Garnica
* Eng. Carlos Vaca Diez

During the first week of work individual presentations were prepared by each member of the TTR for other members of the group. In this way it was possible to take advantage of the previous experience and different points of view of each member according to the area of expertise of each. During the second week, reviews were made of documents previously prepared by other groups: MACA, IICA, the Agricultural Symposium and Chemonics.

3. Summary and Suggestions

Upon initiation of work of the TTR, it was our intention to hold periodic meetings with the Subsecretary of Agricultural Affairs in order to reach decisions and to gradually implement the reform process. This method of work arised from MACA's clear expression to take key actions to improve the operability of MACA and its decentralized institutions in the field. This strategy should be continued in the future, otherwise there is the risk of ending up with one more study added to the several previous ones. Therefore we recommend that MACA, the Ministry of Planning and Coordination and the Bolivian Government in general to provide support to the reform process according to the interests of farmers and the rural population of the various regions of the Republic.

SECTION IV

PROGRESS IN PROJECT COORDINATION AND ADMINISTRATION

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PROGRESS IN PROJECT COORDINATION AND ADMINISTRATION

A. Background and Objectives

The two previous sections of this report explain the objectives regarding coordination of work in the various technical areas of the Project. Therefore, these aspects of work will not be repeated here. Regarding administration of the resources under Chemonics' responsibility, the following objectives were identified:

1. Reformulation of the accounting system to adjust to the floating value of the peso boliviano.
2. Clearing of pending accounts with MACA and CODETAR for payment of services and materials in customs clearances, transporation, photocopies, and others.
3. Employment of support personnel for the TTR and the soils program.
4. Support to the Coordination Office of the T-059 Project.

Additionally, during this period two medical emergency evacuations were coordinated: one was the case of the Adviser in Soil Conservation, and the other of a dependent of the Chief of Party in La Paz.

B. Progress

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1. Accounting System

Chemonics accounting system was modified in February of this year anticipating the monetary floatation. The new system was first reviewed by the head office of Chemonics in Washington during a trip by Chemonics' Chief of Party in Bolivia. The system involves control of the value of each peso in bank accounts and Chemonics petty cash funds in La Paz, Santa Cruz and Yacuiba. Therefore, it requires accounts in pesos and dollars and the summary at the end of month must be done in dollars. This results in an

increased work load for the administrative staff of Chemonics, however, it is in accordance with rules and procedures of USAID who provides funds for the Project. Chemonics applies the same system in other countries which have noticeable fluctuations in their currencies.

2. Clearing of Accounts with MACA and CODETAR

Floatation of the peso complicated even more some small accounts pending with MACA and CODETAR. Chemonics has incurred expenses during past years when the peso maintained a higher value in relation with the dollar. For example, MACA made use of Chemonics' photocopier, however, USAID explained that the Project budget must not be used for that purpose, since MACA's operational expenses should come from Government funds. MACA committed itself to reimburse the expenses, however that promise remained in words. We have had similar experiences with CODETAR. Chemonics has carried out several unusual tasks in relation to customs clearances and local purchases of spare parts and tools. Despite the fact that this help was provided without cost, neither MACA nor CODETAR have reimbursed our out-of-pocket expenses. It is worth clarifying that Chemonics operates with grant and loan funds provided by USAID, and that each expense incurred has to be allowed under Contract 511-059-008-HCC. Otherwise, USAID does not admit these expenses as part of the Agreement between Bolivia and the United States, and therefore does not make reimbursement to Chemonics.

3. Hiring of Local Employees

During the semester a driver was hired to help the adviser in soil conservation in the Chaco and an executive secretary to provide support in La Paz office. On June 30, the support personnel of Chemonics was as follows:

La Paz

Mr. Corsino Baptista Leyes, Administrator

Mrs. Magda Alborta Ocampo, Executive Secretary

Mrs. Malena Pacheco de Losantos, Bilingual Secretary

Mrs. Antonieta Montaño Nogales, Secretary-Cashier

Mr. Oscar Ballivián del Castillo, Driver-Messenger

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Santa Cruz

Mrs. Rosario Rueda de Mojica, Secretary-Cashier

Mr. Gualberto Mojica Valverde, Driver-Messenger

Yacuiba

Miss Ilse Vásquez Maraz, Secretary-Cashier

Mr. Edwin Sellis Mercado, Driver

Chemonics' local personnel provides a valuable support to the work of the consulting company, which permits advisers to devote most of their time to technical activities, losing a minimum of time in paper-work and logistic tasks. Besides the normal tasks --accounting, typing, translations, reception, driving-- there are many other aspects of greater responsibility, such as:

* procurement for Chemonics, MACA and CODETAR
* customs clearances, shipments
* entrance and exit visas, tax exemptions, census of foreign residents
* electric installations for office
* obtaining CI plates, driving licenses, identity cards, etc.
* procedures for rental contract of the Seed Plant
* hiring of Bolivian advisers
* preparation of financial documents for MACA, PL 480 and USAID
* maintenance and control of inventories of office supplies.

In addition, drivers provide multiple support in the field, allowing the adviser to extend their efforts in manual work --inspecting seed lots in the field, plant and laboratory, topography and mechanics.

4. Due to USAID's demands referring to presentation of documents requesting use of funds from T-059 loan and corresponding disbursement, Chemonics initiated weekly meetings among the Coordination Office, entities responsible for execution of the Project, USAID and Chemonics. These meetings are held every Thursday at 9:00 a.m., and in some occasions the General Director of Agriculture has attended. During these meetings, drafts of

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requests to be presented are revised, formalities in process are brought up to date, and valuable information about technical work is communicated. These meetings have helped participants in expediting procedures between field work execution and the head offices.

5. Medical Evacuations

Unfortunately, we confronted two medical cases among Chemonics personnel and their dependents during the semester which could not be diagnosed with certainty in Bolivia. In both cases, preliminary diagnoses done in the country later turned out to be incorrect. MACA and USAID approved both cases for evacuation to the United States. Fortunately both were done in time, without causing permanent damages to health, however, these decisions were taken after a difficult evaluation process made by Chemonics' Chief of Party. That is, the decision of MACA and USAID was required only when all possibilities inside the country were exhausted.

Subsequently, Chemonics/Washington obtained insurance to cover evacuation costs, so that in the future these decisions can be made between the bolivian physician caring for each case and the insurance company.

C. Summary and Suggestions

Most of the tasks reported in this section were the main responsibility of Chemonics' local personnel, and it is considered that the objectives were accomplished almost in their entirety. We expect that MACA and CODETAR comply with their commitments on counterpart funds according to agreements, despite the fact that amounts referred to are minimum. Again we recommend that MACA officially specify the functions of the Coordination Office, and we hope that the latter will operate in order to offer support services to the institutions responsible for carrying out the work of the Project.

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SECTION V

CONCLUSIONS AND FORECAST

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CONCLUSIONS AND FORECAST

The focus of Chemonics' work up to this date has largely been oriented to strengthen the central institution of each program --MACA, CODETAR and IBTA. However, it is evident that this strategy suffers from serious limitations. With reference to previous semester report (July through December 1981) on page 38, serious difficulties in the implementation of programs due to the limitations of the national budget are mentioned. As a result, during the next semester, we intend to change Chemonics' strategy of work, and also the strategy of program implementation. This change implies readjustments by local institutions.

First, it is intended to reorient field efforts at the regional level, so that operational decisions can be taken more rapidly and with better information regarding the project. Second, it is intended to implement activities in close relation with farmers and others. The latter implies that when possible the private sector must take the initiative, while the public sector provides support in the technical area and supervisory services. We believe that these concepts apply both to the seed program where they are already being implemented, as well as to the mechanization program and partially to the soil conservation program.

Priority objectives for next semester are detailed as follows:

<u>Seeds</u>

* Complete transfer of the Warnes Plant to CIAT.
* Train technical personnel of CIAT in seed conditioning.
* Form the Seed Certification Service jointly with the organized farmers of Santa Cruz.
* Carry out in-service training for MACA and IBTA personnel in several regions.
* Train personnel of the Certification Service in laboratory and field during the winter campaign, and planting for the summer campaign.

* Provide services for up to 1500 MT of soybean seed in the winter campaign.
* Include in the 1982-83 summer campaign the following crops: soybeans, rice, wheat, corn and cotton.
* Support CIAT in strengthening its Foundation Seed Unit.

Machinery Maintenance

* Program the necessary funds for spare parts for the various lines of machinery included in the Project.
* Offer training directly to farmers of the Gran Chaco region.
* Support CODETAR in establishing a field maintenance system and a system of shop administration.
* Install the track press and train CODETAR personnel in regard to its handling and operation.
* Provide support in identifying alternative methods of land clearing and cultural practices in the area.

Soil Conservation

* Carry out training of farmers, technicians and authorities of the Gran Chaco in regard to erosion problems and methods of control.
* Begin studies on the areas where uncontroled running water cause multiple damages to farmers, transportation routes, etc.
* Carry out conservation projects for demonstration on individual farms.
* Continue preparing materials for training programs for people of the region --slides, photos, video films, etc.

Sector Planning

* Publish the Directory of Professionals of the Agricultural Sector in coordination with IBTA.
* Start preparation of an annotated bibliography to be distributed to possible users of the Informative Services.

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* Involve MPC, UCB and other institutions in the implementation of the National Agricultural Information System.
* Present the Spatial Equilibrium Model to institutions interested in its utilization, revision and updating.

Institutional Reform

* Supervise activities of the Technical Team for Reorganization of MACA during its first three months of work.
* Support the TTR in preparing a working paper at the end of three months.
* Help in developing a plan to implement the reorganization of MACA and the work plan for a second stage of work of the TTR.

Coordination and Administration

* Set up offices for the TTR and provide the necessary logistic support for its work.
* Administer the funds for TTR, seed and soil conservation training and others according to requirements of MACA.
* Complete the procurement of topography and audio-visual equipment for the soils program.
* Support MACA in reprogramming the use of funds in anticipation of Project reactivation.
* Hire an administrative assistant to help in routine accounting and Project administration.
* Investigate with MACA and USAID the possibility of carrying out a feasibility study for cotton production and ginning in the Gran Chaco, as a result of a special request from farmers of the area.

Annexes to this report present detailed information regarding time worked by advisers, which is broken down as follows:

1) Long-term advisers
2) Chief of Party

3) Short-term advisers

4) Home Office

Long-term advisers are hired for 12 months or more. All have worked almost exclusively in one technical field, with the exception of Chemonics' Chief of Party in La Paz, who distributes his time among all the sub-projects. Therefore his time is separated from other long-term advisers.

Short-term advisers include personnel in charge of procurement when requested by MACA. Finally, the time of personnel working at our home office in Washington is included, but only with respect to the portion of time occupied in visits to Bolivia in direct support to the Project. The time devoted by Chemonics' personnel in Washington and Phoenix giving technical and administrative support, is an indirect cost under the Contract, and therefore it is not accounted as work-days paid directly.

Table 1 breaks down work-days by technical area from the beginning of the Contract up to the end of the semester covered by this progress report. Table 2 shows the same information, but corresponding the period January through June 1982. In the same way, Tables 3 and 4 present similar summaries for the entire period of the Project and for the semester covered by this report.

It is worth emphasizing that during the last six months, almost three quarters of Chemonics' efforts has been devoted to field work (see Table 4). The implementation strategy explained above has been developed with the concept of continuing to focus the work of the consultant directly on needs of farmers.

ANNEX A

Table 1 WORK-DAYS PAID DIRECTLY BY THE CONTRACT BY TECHNICAL AREA

MAY 1979 - JUNE 1982

Technical Area	Long-Term		Short-Term	Home Office	TOTAL
	Advisers	Chief of Party	Advisers and Procurement Agents		
	(Work-Days)				
Field Programs					
Seeds	507.5	105.8	80.0	13.2	706.5
Land Clearing and Machinery Maintenance	1,237.0	133.3	-	16.7	1,387.0
Soils	116.0	16.5	-	2.1	134.6
Production and Marketing Studies	-	35.7	171.0	4.4	211.1
Institutional Strengthening					
Planning	-	104.5	255.0	13.1	372.6
Data Processing	-	16.5	36.0	2.1	54.6
Institutional Reform	541.0	59.2	25.0	7.4	632.6
Support					
Administration	-	289.3	9.0	36.2	334.5
Acquisitions	-	47.2	75.0	28.1	150.3
TOTAL	2,401.5	808.0	651.0	123.3	3,983.8

Table 2 WORK-DAYS PAID DIRECTLY BY THE CONTRACT BY TECHNICAL AREA

JANUARY THROUGH JUNE 1982

Technical Area	Long-Term Advisers	Long-Term Chief of Party	Short-Term Advisers and Procurement Agents	Home Office	TOTAL
	(Work-Days)				
Field Programs					
Seeds	129.0	33.3	80.0	-	242.3
Machinery Maintenance	258.0	13.1	-	-	271.1
Soils	99.0	11.3	-	-	110.3
Production and Marketing Studies	-	1.3	-	-	1.3
Institutional Strengthening					
Planning	-	15.6	129.0	-	144.6
Institutional Reform	-	24.8	25.0	-	49.8
Support					
Administration	-	26.7	-	-	26.7
Acquisitions	-	2.9	10.3	-	13.2
TOTAL	486.0	129.0	244.3	-	859.3

Table 3 SUMMARY OF WORK-DAYS PAID DIRECTLY BY THE CONTRACT, MAY 1979 - JUNE 1982

	Work-Days	Percentage
Field Programs	2,439.2	61.2
Institutional Strengthening	1,059.8	26.6
Administrative Support	484.8	12.2
	3,983.8	100.0

Table 4 SUMMARY OF WORK-DAYS PAID DIRECTLY BY THE CONTRACT, JANUARY - JUNE 1982

	Work-Days	Percentage
Field Programs	625.0	72.7
Institutional Strengthening	194.4	22.6
Administrative Support	39.9	4.7
	859.3	100.0