

PD-AAA-077-B1

als 2/79

5110455-4
311-22-130-4532
~~4512~~

PROJECT EVALUATION SUMMARY

(Submit to MO/PAV after each project evaluation)

1. Mission or AID/W Office Name USAID/Bolivia		2. Project Number 511-T-053	
3. Project Title Agricultural Sector I			
4. Key project dates (fiscal years)			5. Total U.S. funding-life of project
a. Project Agreement Signed '76	b. Final Obligation '79	c. Final input delivered '79	\$ 9.2 million
6. Evaluation number as listed in Eval. Schedule 1	7. Period covered by this evaluation From: 3/76 To: 8/77 Month/year Month/year		8. Date of this Evaluation Review 8/24/77 Month/Day/Year
9. Action Decisions Reached at Evaluation Review including items needing further study		10. Officer or Unit Responsible for follow-up	11. Date Action to be completed
A. Revise Financial Plan		RDD/CON	When appropriate
B. Revise Logical Framework		RDD/PRE	" "
			(o/a 12/31/77)
12. Signatures:			
Signature	Project Officer	Signature	Mission or AID/W Office Director
	<i>Bastiaan B. Schouten</i>		<i>Frank B. Kimball</i>
Typed Name	Bastiaan.B. Schouten	Typed Name	Frank B. Kimball
Date	3/24/77	Date	8/24/77

13. In general this project is presently on track and is well on its way to meeting its major purposes. Significant progress is being made in the areas of technological development, technology extension, sectoral management, and agricultural credit. The major problem areas which have impeded a more rapid implementation have been the following: (1) procurement, (2) engineering design, and (3) uneven interest in MACA in marketing and training aspects of the sector program. The foregoing has been aggravated by many changes in the Mission project management caused by past understaffing in RDD.

1. Procurement.

The procurement under this project has been slower than anticipated originally, and the lack of project commodities has resulted in a shortage of vehicles and equipment for personnel in the Agricultural Bank (BAB), as well as, the research and extension service (IBTA). Vehicles for the BAB have arrived in country and the IBTA vehicle problem will soon be resolved with the arrival of 1978 models. In spite of the lack of vehicles and equipment, which is also on its way, work in these areas is on schedule at this time.

In part the lack of timely arrival of needed commodities is a design flaw, and in part there have been implementation problems. First, a project like O53 entails a series of technically complex procurement actions. MACA has found the procurement approval process in A.I.D. burdensome and lengthy. In several instances the payment mechanism (letters of credit) has been deficient, contributing to procurement delays.

2. Construction.

The major factor which has delayed the project's planned major construction was that the precise definition of needs in the agricultural service centers lagged considerably. This definition which was MACA's responsibility was needed to arrive at terms of reference for the A&E contract.

The major factor delaying the minor construction on the experiment stations has been USAID's over-estimation of the MACA engineering office capability and lack of guidance on the part of USAID to that office. The result has been that after more

than a year of work on drawings and specifications on the part of MACA engineering, the drawings and specifications are still not, in the opinion of USAID/B ready for bidding.

The delays in the construction component have been overcome. All the project's planned construction is now being designed by an A&E firm and final drawings are expected to be complete by the end of August. Despite the delays encountered, the construction of all buildings is expected to be completed on schedule.

3. Uneven Interest in MACA.

Uneven interest in MACA has been evident in two project components: (a) marketing and (b) training, to some extent.

a. Marketing.

The project provides \$250,000 of AID funding for the carrying out of marketing feasibility studies. Repeated requests by both USAID and MACA functionaries to the head of MACA's Marketing Section to program these funds have not met with success. CID has proposed several consultants to work in the Marketing Section which have not been accepted. Most marketing functions for agricultural products are being handled by the Ministry of Industry and Commerce (MIC) and IDB financed studies with MIC are being carried out. The effect of this definition of institutional responsibility is not considered serious to the achievement of project purpose. Discussions are under way with MACA as to whether or not these funds for marketing studies should be reprogrammed to other elements of the project which will require increased funding such as construction and procurement.

b. Training

The project design contemplates long-term training for 32 Bolivian technicians. At the present time 21 technicians have commenced long-term training under the project. In order to complete the long-term training of 32 technicians by the TDD an additional 11 technicians will have to enter training by January of 1978. Not enough qualified technicians exist in the agricultural public sector to send out 11 for training at this time without "gutting" the sector's institutions. It was suggested to MACA

officials that the training program be opened up to recent university graduates who could later be employed by the sectoral institutions. This suggestion fell on deaf ears. The MACA promised to send USAID a schedule of project training, which has been received. Even so, it appears improbable that training targets can be completely achieved by the Project TDD. Resources in this project component may have to be reprogrammed for other project needs and the TDD extended. The options will be discussed with MACA during the planned revision of the Project's Financial Plan.

14. Evaluation Methodology.

This was a regular evaluation conducted in accordance with the project evaluation schedule. Data was gathered by Mission employees in collaboration with implementing institution personnel. The evaluation plan in the PP contemplated that an agricultural production economic advisor, would "assist in developing input-output coefficients relevant to the various technologies applicable to crops in the target area". It was contemplated that this advisor would be a member of the grant financed TA team, and the advisor's presence would have improved the evaluation methodology. Unfortunately, the TA team has never yet reached planned full strength and an agricultural production economics advisor has never been recruited. Similarly, it was contemplated that an interview survey of small farms would be undertaken "to obtain specific data on the type and level of technology, as well as aggregate production and input utilization estimates". Unfortunately, neither the loan nor the companion grant project specifically programmed resources for such a purpose. Given that the CID contract has resulted in a significantly higher man-year cost than originally programmed, and that interviews of the type contemplated will be carried out under the FY78 Farm Policy Analysis Project, it is not thought desirable to reprogram resources in Project 0451 for this purpose.

15. Project Documentation Revision.

The Project's P.E.R.T., PPT, and Logical Framework were revised earlier this year. The Project's Financial Plan and Logical Framework will require revision towards the end of the year to reflect implementation experience and changed circumstances.

16. External Factors.

In the area, most project assumptions remain valid. One exception is assumption No. 4 under the technology extension component "that the GOB will make available adequate funds to retain and support the field efforts of the extension agents". It appears that even though MACA budgets for extension have increased significantly, more agents have not been added and that budget increases have gone principally to increase agents salaries. These increases, although significant have approximately kept pace with the general level of increases in salaries of these types of professionals. The impact of this lack of agents is being discussed with the MACA; in Santa Cruz the problem is being attacked by utilizing campesinos as quasi-extension agents with the responsibility for up to 10 additional campesinos. The adoption of this method is being discussed with MACA.

Another assumption, "that MACA officials will be available for training" has yet to be proven invalid, but training to date has been limited by the number of available qualified candidates and some doubt exists about meeting the project's training targets by the TDD, which may require extension for this purpose.

17. Findings about GOAL/SUBGOAL.

The sector Goal is "To increase the per-capita income and standard of living of rural people". Data are not yet available to evaluate progress towards this goal.

The sub-sector Goal is "Increased production and increased factor productivity of basic food crops and livestock produced in the small farm sub-sector of the intermountain valleys of Central Bolivia and the developing agricultural areas of the lowlands of Eastern Bolivia". As can be seen in Table 1 of Annex A in most key crop lines the 1979 targets were already met by 1976. It is thought that if these statistics are accurate that two primary factors are responsible: (1) the general prosperity of the Bolivian economy has resulted in a strong, sustained and growing demand for agricultural products, and (2) the general relaxation of price controls in 1973 and thereafter has resulted in a strong supply response. It is not thought that the project to date with perhaps the exception of credit has had sufficient time of operation in the field to have had more than a marginal impact on production.

Table 2 of Annex A also indicates that the annual rates of growth its output in every case exceeds the targets at the sub-goal level. It must be concluded, however, that these increases in output are the result of bringing more land under cultivation because Table 3 and 4 of Annex A indicate that increases in the yields of key crops are in general below target levels.

In regard to measure (d) at the sub-goal level, it is as yet too early to determine changes in gross farm sales, and per family and per capita income. This would be true even if mechanisms were available to collect this data.

18. Evaluation Findings About PURPOSE.

The project has four purposes each of which will be discussed here in turn; EOPS indicators may be found in the attached Logical Framework.

1. Technology Development: "To develop improved technologies for use by the small farm sector of the intermountain valleys of Central Bolivia and the Eastern agricultural lands".

In general, progress is being made towards meeting the EOPS related to this purpose: (a) Progress is being made towards the development of a set of specific recommendations for adoption at the farm level. In 1976, 56 research studies were carried out in the following crop lines:

Oilseeds	6
Rice	10
Corn	6
Sorghum	1
Potatoes	16
Wheat	8
Barley	5
Oats	<u>4</u>
Total	56

(b) The three regional agricultural service centers are now in the final design stage.

(c) Two M.S. level Bolivians are now working in identifying critical problem areas requiring research.

(d) Two universities in the project area are increasingly involved in MACA regional research activity and are offering an expanded curriculum in the rural development area.

2. Technology Extension: "To extend to small farm operators in target areas the improved technologies and more modern production practices".

In general, progress towards EOPS in this component has not been as planned. In part this appears to be due to a design flaw. The project paper assumes that new technology can be developed faster than is in fact the case. Secondly, it appears that assumption #4 "that the GOB will make available adequate funds to retain and support the field efforts of the extension agents" does not have continuing validity. Specifically:

a. The Director and National Training supervisor have M.S. degrees.

b. The number of extension agents has remained constant. IBTA/MACA has no plans to employ extension specialists. Rather their approach is to use research technicians to act as extension specialists. CID's extension expert has doubts as to whether or not this will work as apparently the researchers feel that such extension work is below their dignity.

c. The major reasons why these targets have not been met is that no new technologies have been forthcoming from either CBB station and that the extension program in Santa Cruz (where three extension bulletins have been released within the past ten months) is

undergoing reorganization.

d. Data not available.

e. Achievement of target is of doubtful utility; base year figures appear to be wrong.

3. Sectoral Management. "To develop the capability of MACA's offices of Economics and Statistics, Marketing and Planning to generate and disseminate basic data, analyze problems and formulate coordinated policies and programs for the sector".

In general, significant progress is being made towards meeting the EOPS of the project component although some exceptions must be noted:

a. Three people from the MACA economics and Statistics Office are presently in long-term training, prospects of meeting this EOPS are good.

b. MACA's Economics and Statistics Office has published the first issue of agricultural production time series data. It is not thought reasonable that this publication be made on a quarterly basis as contemplated in the original log frame as this information is not needed on a quarterly basis in this form.

c. One M.S. trained professional is working in the MACA Marketing Office. At present no plans exist to train another technician at this level.

The CID marketing advisor has not yet arrived and plans now are to utilize an additional CID advisor in Cochabamba. Discussions will be held with the Ministry to determine future work in the Marketing Office.

d. MACA Marketing Office was publishing quarterly reports on prices and marketing, but this practice was discontinued at the direction of the Alcaldía of La Paz who did not want market prices published. Prices are still being tabulated.

e. MACA Planning Office is staffed with one M.S. level technician and budget now exists for hiring four more M.S. level employees. Prospect for meeting this EOPS are good.

f. MACA has published a Five Year Agricultural Plan which is now being revised. Annual Operational Plans will also be published.

g. Good progress is being made on the construction of the area sample frame. Santa Cruz and Cochabamba are completed and prospects are good that the frame will be 100% completed well prior to the TDD.

h. Significant progress is being made in the curriculum area. Both universities are now offering broader training in rural administration (credit, etc.)

4. Agricultural Credit: "To broaden the availability of, and assure the target small farmer improved access to needed inputs, information, financing, and markets".

a. The credit component of 053 is functioning well and at this time appears to be a model small farmer credit program. Further improvement in the credit delivery system are needed and are being studied in detail prior to their implementation. Among the changes under study are a simplified application and loan contract form and a streamlining of the application procedure.

b. It appears that EOPS (b) will not be attainable in its entirety. Although production figures are being published market and price information is being restricted for political reasons. The Mission will discuss the impact of this on the farmer with MACA. It may be necessary to revise this EOPS, however, given the new circumstances.

19. Evaluation Findings about Outputs

1. Technology Development

- a. The number of research studies conducted under the program during 1976 (56) far exceeds target.
- b. To date no research studies with faculty members have been carried out. It is our understanding however that several are being planned.
- c. To date 10 thesis projects have been conducted.
- d. & e. Although no formal studies have been undertaken by project personnel, significant improvements have been made (courses and fields of study have been added), and general curriculum improvement studies are under way. CID technicians have participated in several courses at both universities.
- f.1. Although no research or university personnel have completed M.S. level training, 15 are currently enrolled in such programs and prospects of attaining EOPS are good.
- f.2. 78 persons from research and the universities have participated in in-service training.
- f.3. 5 persons from research have participated in short-term training courses.
- g. 137 students have been trained by CID advisor in formal university courses.

2. Technology Extension

- a. 830 field demonstrations were held in the target area (Cochabamba, Santa Cruz, Chuquisaca) during 1976. It is not thought that many of these demonstrations included the transmission of technology developed under the project.
- b. During 1976, 43 short courses for approximately 1650 participants were held.

- c. During 1976 10 research and extension bulletins were distributed in the target areas.
- d.1. One M.S. candidate is in training; two more will enter training o/a January of 1978.
- d.2. 35 participants have attended 5 or 6 separate courses.
- d.3. Five participants have attended short-term courses. Four more are presently in such training.
- e. Three agricultural service centers are presently in the design stage and should be finished by 1979.

3. Sectorial Management

- a. One M.S. technician has returned and is working in MACA; four more are in M.S. level training. Prospects for reaching EOPS appear relatively good.
- b. 23 employees have participated in in-service training.
- c. 8 employees have completed short-courses. At present 3 more are enrolled. Prospects of attaining EOPS are good.
- d. Manual and procedures have been developed for the MACA Planning Office.
- e. The U.N. had provided the services of an O&M advisor to the MACA. For this reason AID has not furnished assistance in this field. Unfortunately, the services of the U.N. advisor have proved unsatisfactory. Consideration is being given therefore to providing short-term assistance in this area, and a major effort under Agricultural Sector II is contemplated.
- f. To date no formal internal coordinating mechanism has been created. It appears however that an early reorganization of the relationships between these offices is imminent

4. Agricultural Credit

- a & b. The number of new farmers being served by the credit program as of June 29, 1977 is 1214. The volume of credit

placed among these farmers was \$1,216,773. This program is ahead of schedule in spite of the delay in needed vehicles.

- c.1. Papers are in process for one M.S. level candidate to enter training within the next six months.
- c.2. In 1976 35 persons participated in in-service training. In 1977 20 BAB agents participated in such training.
- c.3. One BAB agent participated in a short credit course in Panama in 1976. At present no plans exist to send more people to short courses.

20. Unplanned Effects

No significant unplanned effect have come to the attention of the Project Committee.

21. Changes in Design or Execution

No major changes in basic project design are anticipated at this time. However, a reprogramming of project resources will be required as soon as firm prices for project construction are known. The Project's PPT has already been changed to reflect construction and procurement delays. The IDB entry into the marketing area with the Ministry of Industry and Commerce may obviate the need for the marketing feasibility studies programmed under the loan and may free up loan resources for the additional financing that will probably be required for project construction. Two options exist regarding training:

- (1) the project TDD could be extended; or
- (2) given the fact that the new IDB loan to IBTA has programmed over \$800,000 for training over the next four years, the planned project-financed training could be slightly curtailed and resources thus freed up be made available for financing probable construction cost over-runs or additional commodities.

Decisions on such changes in project design will have to be made later on in the year when more information is available. Project documentation will have to be revised accordingly at that time.

22. Lessons Learned

One of the principal lessons which should be learned from the implementation experience under this project is that technological development can not be programmed like the production of widgets. Thus a project design which contemplates the early extension of agricultural research results coming out of the same project is almost by its very nature a defective design.

Perhaps the second major lesson to be learned is that both the acquisition of project commodities as well as of technical services is a time consuming process. Thus project activities that depend on the availability of such services or commodities should be scheduled accordingly. The project implementation period should have been five years from the beginning.

Lessons are also to be learned for future project evaluation methodology. In agricultural research, the number of research projects mean little. It would be much more useful to establish research objectives in terms of yields increases, new cropping methods, development of better varieties, etc. Similarly, the number meetings that an extension agent has with farmers are not a good indication of technology transfer. An evaluation of technology adoption might better be done through surveys of the type contemplated under the Mission's FY 78 Farm Policy Project.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project:
From FY 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																						
<p>Program or Sector Goal: The broader objective to which this project contributes: Sector Goal: To increase per capita income and standard of living of rural people.</p>	<p>Measures of Goal Achievement: Sector Goal: a. Gross Sector Product Increases from 2,320 in 1975 to 2,611 in 1979 (\$b millions at constant 1970 Bolivian Pesos) b. The share of production of the small farm sector that is marketed increases from 47% to 60% by 1979.</p>	<p>Goal Verification - Boletín Estadístico of Bolivian Central Bank. - Data and special studies of MACAG offices of Planning, Economics and Statistics.</p>	<p>Assumptions for achieving goal targets: 1. There will be no major downturn in economic conditions and favorable cost-price relations for agricultural products will prevail. 2. Favorable government pricing policies.</p>																																						
<p>Sub-Sector Goal: Increased production and increased factor productivity of basic food crops and livestock produced in the small farm sub-sector of the intermountain valleys of Central Bolivia and the developing agricultural areas of the lowlands of Eastern Bolivia.</p>	<p>Measures of Sub-goal Achievement: Production of key crops of the Central Valleys and Lowlands increases as follows: a.</p> <table border="1" data-bbox="588 646 1018 997"> <thead> <tr> <th rowspan="2">Crop</th> <th colspan="2">1971-73 Prod. 1979</th> </tr> <tr> <th>Metric Tons</th> <th>Metric Tons</th> </tr> </thead> <tbody> <tr><td>Wheat</td><td>52,563</td><td>66,158</td></tr> <tr><td>Corn</td><td>280,307</td><td>355,236</td></tr> <tr><td>Barley</td><td>69,400</td><td>82,490</td></tr> <tr><td>Rice</td><td>73,824</td><td>105,646</td></tr> <tr><td>Soybeans</td><td>1,933</td><td>5,142</td></tr> <tr><td>Peanuts</td><td>7,560</td><td>12,632</td></tr> <tr><td>Potatoes</td><td>710,000</td><td>966,241</td></tr> <tr><td>Yuca</td><td>240,333</td><td>330,792</td></tr> <tr><td>Vegetables</td><td>191,533</td><td>222,259</td></tr> <tr><td>Pork</td><td>18,000</td><td>23,221</td></tr> <tr><td>Milk</td><td>114,000</td><td>141,196</td></tr> </tbody> </table>	Crop	1971-73 Prod. 1979		Metric Tons	Metric Tons	Wheat	52,563	66,158	Corn	280,307	355,236	Barley	69,400	82,490	Rice	73,824	105,646	Soybeans	1,933	5,142	Peanuts	7,560	12,632	Potatoes	710,000	966,241	Yuca	240,333	330,792	Vegetables	191,533	222,259	Pork	18,000	23,221	Milk	114,000	141,196	<p>Sub-Goal Verification - Data and special studies of MACAG offices of Planning, Economics and Statistics.</p>	<p>Assumptions for achieving sub-goal targets: 1. The GCB will provide essential public services for agricultural development. 2. Farmers will be responsive to incentive programs. 3. Government pricing policies will motivate small farmers to produce more. 4. There will be no major downturn in economic conditions. 5. That adequate markets exist and function properly to absorb increased agricultural production. 6. That climate conditions will be favorable. 7. That farmers in target areas will have access to adequate credit. 8. That GOB/USAID TA Project No. 511-11-190-451 will continue as contemplated throughout loan implementation period. 9. That national production statistics on the commodities used as measures of Sub-Goal Achievements will adequately reflect Project impact in the Project areas as the bulk of this production occurs therein.</p>
Crop	1971-73 Prod. 1979																																								
	Metric Tons	Metric Tons																																							
Wheat	52,563	66,158																																							
Corn	280,307	355,236																																							
Barley	69,400	82,490																																							
Rice	73,824	105,646																																							
Soybeans	1,933	5,142																																							
Peanuts	7,560	12,632																																							
Potatoes	710,000	966,241																																							
Yuca	240,333	330,792																																							
Vegetables	191,533	222,259																																							
Pork	18,000	23,221																																							
Milk	114,000	141,196																																							

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project: 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																																																								
Program or Sector Goal: The broader objective to which this project contributes:	Measures of Goal Achievement:		Assumptions for achieving goal targets:																																																																								
	<p>b. Rates of Annual Growth %</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>1963-65/1971-73</th> <th>1971-73/1979</th> </tr> </thead> <tbody> <tr><td>Wheat</td><td>0.80</td><td>3.34</td></tr> <tr><td>Corn</td><td>0.20</td><td>3.44</td></tr> <tr><td>Barley</td><td>2.63</td><td>2.50</td></tr> <tr><td>Rice</td><td>5.78</td><td>5.25</td></tr> <tr><td>Soybeans</td><td>-</td><td>15.0</td></tr> <tr><td>Peanuts</td><td>2.65</td><td>7.61</td></tr> <tr><td>Potatoes</td><td>3.0</td><td>4.50</td></tr> <tr><td>Yuca</td><td>6.74</td><td>4.67</td></tr> <tr><td>Vegetables</td><td>1.88</td><td>2.15</td></tr> <tr><td>Pork</td><td>1.48</td><td>3.71</td></tr> <tr><td>Milk</td><td>-</td><td>3.10</td></tr> </tbody> </table> <p>c. Yields of key crops increase as follows:</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>1971-1973 Yields Kg/hectare</th> <th>1979 Yields Kg/hectare</th> </tr> </thead> <tbody> <tr><td>Wheat</td><td>821</td><td>970</td></tr> <tr><td>Corn</td><td>1,280</td><td>1,522</td></tr> <tr><td>Barley</td><td>687</td><td>817</td></tr> <tr><td>Rice</td><td>1,643</td><td>1,643</td></tr> <tr><td>Soybeans</td><td>1,611</td><td>1,611</td></tr> <tr><td>Peanuts</td><td>1,204</td><td>1,204</td></tr> <tr><td>Potatoes</td><td>6,567</td><td>8,937</td></tr> <tr><td>Yuca</td><td>13,109</td><td>13,109</td></tr> <tr><td>Vegetables^{a/}</td><td>3,563 ^{b/}</td><td>3,563</td></tr> <tr><td>Pork</td><td>32.4 ^{c/}</td><td>37.3 ^{c/}</td></tr> <tr><td>Milk</td><td>7.8 ^{c/}</td><td>9.0 ^{c/}</td></tr> </tbody> </table>	Crop	1963-65/1971-73	1971-73/1979	Wheat	0.80	3.34	Corn	0.20	3.44	Barley	2.63	2.50	Rice	5.78	5.25	Soybeans	-	15.0	Peanuts	2.65	7.61	Potatoes	3.0	4.50	Yuca	6.74	4.67	Vegetables	1.88	2.15	Pork	1.48	3.71	Milk	-	3.10	Crop	1971-1973 Yields Kg/hectare	1979 Yields Kg/hectare	Wheat	821	970	Corn	1,280	1,522	Barley	687	817	Rice	1,643	1,643	Soybeans	1,611	1,611	Peanuts	1,204	1,204	Potatoes	6,567	8,937	Yuca	13,109	13,109	Vegetables ^{a/}	3,563 ^{b/}	3,563	Pork	32.4 ^{c/}	37.3 ^{c/}	Milk	7.8 ^{c/}	9.0 ^{c/}		
Crop	1963-65/1971-73	1971-73/1979																																																																									
Wheat	0.80	3.34																																																																									
Corn	0.20	3.44																																																																									
Barley	2.63	2.50																																																																									
Rice	5.78	5.25																																																																									
Soybeans	-	15.0																																																																									
Peanuts	2.65	7.61																																																																									
Potatoes	3.0	4.50																																																																									
Yuca	6.74	4.67																																																																									
Vegetables	1.88	2.15																																																																									
Pork	1.48	3.71																																																																									
Milk	-	3.10																																																																									
Crop	1971-1973 Yields Kg/hectare	1979 Yields Kg/hectare																																																																									
Wheat	821	970																																																																									
Corn	1,280	1,522																																																																									
Barley	687	817																																																																									
Rice	1,643	1,643																																																																									
Soybeans	1,611	1,611																																																																									
Peanuts	1,204	1,204																																																																									
Potatoes	6,567	8,937																																																																									
Yuca	13,109	13,109																																																																									
Vegetables ^{a/}	3,563 ^{b/}	3,563																																																																									
Pork	32.4 ^{c/}	37.3 ^{c/}																																																																									
Milk	7.8 ^{c/}	9.0 ^{c/}																																																																									
	<p>^{a/} Sweet corn, onions, tomatoes, green peas. ^{b/} 1970-72 data. ^{c/} Kg. per animal-dressed weight for pork, lbs of milk for cows.</p>																																																																										

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project: _____
From FY 1975 to FY 1979
Total U. S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS												
Program or Sector Goal: The broader objective to which this project contributes:	Measures of Goal Achievement: d. Project impact by end of 1979 on 16,500 farm families of target group: <table data-bbox="571 427 1003 545"> <thead> <tr> <th></th> <th><u>1975</u></th> <th><u>1979</u></th> </tr> </thead> <tbody> <tr> <td>Gross of farm sales</td> <td>\$250</td> <td>\$600</td> </tr> <tr> <td>Per family income</td> <td>225</td> <td>350</td> </tr> <tr> <td>Per capita income</td> <td>45</td> <td>70</td> </tr> </tbody> </table>		<u>1975</u>	<u>1979</u>	Gross of farm sales	\$250	\$600	Per family income	225	350	Per capita income	45	70		Assumptions for achieving goal targets:
	<u>1975</u>	<u>1979</u>													
Gross of farm sales	\$250	\$600													
Per family income	225	350													
Per capita income	45	70													

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: 1975 to FY 1979
From FY 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

WD 1220-23 (7-71)
SUPPLEMENT I

Project Title & Number: AGRICULTURE SECTOR LOAN I

PAGE 2

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose:</p> <p>1. <u>Technology Development</u>: To develop improved technologies for use by the small farm sector of the inter-mountain valleys of Central Bolivia and the Eastern agricultural lands.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p>1. <u>Technology Development</u></p> <p>a. A set of specific recommendations developed for adoption at the farm level for (1) increasing production of corn, wheat barley, rice, soybeans, potatoes and peanuts (2) production of high yielding vegetables and (3) improving management practices for increased output of dairy products, poultry and pork.</p> <p>b. Three Regional Agricultural Service Centers, located in the target areas each staffed with at least 10 trained Bolivians planning, executing and managing research, and extension programs relevant to specific production problems.</p> <p>c. The MACA Research Division with ten M.Sc. level Bolivians, identifying critical problem areas requiring research by Regional Agricultural Research and Service Centers.</p> <p>d. Two universities actively participating in MACA regional research activity and offering an expanded curriculum of relevant courses (including farm management, credit and marketing) and raising the level of educational qualification of faculty members in plant and animal sciences.</p>	<p>1. <u>Technology Development</u></p> <p>- Actual observation by agricultural experts and records of MACA's Research Division.</p> <p><u>NOTE</u>: The benchmark data on types of research to be conducted will be established by contractor in concert with USAID and the MACA.</p> <p>- Quarterly Reports of TA contract team.</p>	<p>Assumptions for achieving purpose:</p> <p>1. That GOB will make available adequate funds to hire and retain qualified research staff, and to provide the necessary research budget.</p> <p>2. That Technical Assistance in the areas of animal and poultry production will continue to be provided by other donors.</p>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS								
<p>Project Purpose:</p> <p>2. <u>Technology Extension</u>: To extend to small farm operators in target areas the improved technologies and more modern production practices.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p>2. <u>Technology Extension</u>:</p> <p>a. Central MACA Extension Service staffed with two M.Sc. level extension programmers, developing, planning and directing extension programs.</p> <p>b. Forty additional trained extensionists, including 10 subject matter specialists, (for a total of 80 extensionists) planning, executing and managing regional extension programs.</p> <p>c. MACA Extension Division extends results of research studies to farmers in target areas, as follows:</p> <table border="1" data-bbox="592 758 953 805"> <tr> <td>1976</td> <td>1977</td> <td>1978</td> <td>1979</td> </tr> <tr> <td>2,000</td> <td>3,500</td> <td>4,500</td> <td>5,500</td> </tr> </table> <p>d. Distribution of improved seed by MACA among small farmers in target areas increases from 20,010 qq. in 1974 to 49,520 qq. in 1979 (constant value).</p> <p>e. Number of days spent in field per extension agent increases by 100% (from 2.5 in 1974).</p>	1976	1977	1978	1979	2,000	3,500	4,500	5,500	<p>2. <u>Technology Extension</u></p> <p>- Records of MACA's Department of Extension.</p> <p>- Quarterly Reports by TA contract team.</p>	<p>Assumptions for achieving purpose:</p> <p>1. Small farmers in target areas will be responsive to economic incentives and adopt technological changes.</p> <p>2. Adequate credit will be available to target group to acquire modern inputs (fertilizers, seed, equipment).</p> <p>3. Existence of an effective marketing system to allow farmers to dispose of increased production.</p> <p>4. That GOB will make available adequate funds to retain and support the field efforts of the extension agents.</p>
1976	1977	1978	1979								
2,000	3,500	4,500	5,500								

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose:</p> <p>3. <u>Sectoral Management</u>: To develop the capability of MACA's offices of Economics and Statistics, Marketing and Planning to generate and disseminate basic data, analyze problems and formulate coordinated policies and programs for the sector.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p>3. <u>Sectoral Management</u></p> <p>a. MACA's Economics and Statistics office staffed with four trained (M.Sc.) professionals.</p> <p>b. MACA's Economics and Statistics office publishing time series (at least quarterly) on agricultural production, crop forecasts and consumption of agricultural products.</p> <p>c. MACA's Marketing office with an established and operating Market Information Service staffed with two trained (M.Sc.) professionals.</p> <p>d. The MACA Marketing Office publishing at least quarterly reports on prices and marketings of agricultural products and inputs.</p> <p>e. MACA Planning Office staffed with at least four trained (M.Sc.) professionals.</p> <p>f. MACA Planning Office publishes each year an agricultural plan.</p> <p>g. A sample frame developed and implemented for basis of national area and production statistics.</p> <p>h. Two Universities offering improved training programs (curriculum) in the areas of farm management, credit, marketing, etc</p>	<p>3. <u>Sectoral Management</u></p> <p>- Observations and records of MACA's Offices of Economics and Statistics, Marketing and Planning.</p> <p>- Experts' judgements on market information service, data service, plans, and analyses produced by above offices as well as on policies enunciated and implemented.</p>	<p>Assumptions for achieving purpose:</p> <p>3. <u>Sectoral Management</u></p> <p>- That GOB will make available adequate funds to hire and retain qualified staff for the offices of Planning, Economics and Statistics, and Marketing, and to provide the necessary operating budget.</p> <p>- MACA offices of Economics and Statistics, Marketing and Planning operating in concert develop and recommend agricultural policies supported by their studies to the management of the Ministry</p>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

ANJ 1070 28 (7-71)
SUPPLEMENT 1

Life of Project:
From FY 1975 to FY 1979
Total U. S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

PAGE 2C

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose:</p> <p>4. <u>Agricultural Credit</u>: To broaden the availability of, and assure the target small farmer improved access to, needed inputs, information, financing, and markets.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p>4. <u>Agricultural Credit</u></p> <p>a. An established and well functioning division of the Banco Agrícola de Bolivia channelling credit to small farmers producing basic foods. Within this institution a revolving credit fund established to handle the short and intermediate-term production credit needs of the small farmer target group.</p> <p>b. An established agricultural information system with the MACA providing farmers and credit institutions adequate production and marketing information.</p>	<p>4. <u>Agricultural Credit</u></p> <p>- Observation.</p> <p>- MACA and BAB reports.</p>	<p>Assumptions for achieving purpose:</p> <p>4. <u>Agricultural Credit</u></p> <p>- That GOB and US resources (credit become available as planned).</p>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

PAGE 3

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS					MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:						Assumptions for achieving outputs:
2. <u>Technology Extension</u>	1976	1977	1978	1979	Total		<u>Technology Extension</u>
a. Field demonstrations on variety trials, improved management practices, and other research results.	4	8	10	10	32	- MACA records. - USAID documentation.	a. That MACA extension agents will be available for training.
b. Short courses for campesinos on research results, improved management practices, use of credit, farm management techniques, fertilizers, equipment, etc.	-	10	30	60	100	- Observations and inspections by advisors and Project Manager. - Quarterly Reports of TA Contractor.	b. That campesinos agree to enroll in courses to be conducted by extension agents.
c. Research and extension bulletins distributed in target areas.	6	20	30	40	96		c. The MACA extension service agents are adequately paid and supported to perform their functions.
d. Departments of Extension personnel trained:							
1. M.S.	-	1	1	1	3		
2. In-service training	20	40	60	60	180		
3. Short-term courses	5	5	5	5	20		
e. Construction of Agriculture Service Centers (ASC)	-					- Three ASCs will be constructed by 1979, one in each of the departments of Cochabamba, Chuquisaca, and Santa Cruz.	
3. <u>Sectorial Management</u>							3. <u>Sectorial Management</u>
a. Offices of Planning, Marketing, and Economics and Statistics personnel trained in Agricultural Economics and Statistics, Marketing and Planning.						- MACA records. - USAID documentation.	a. That MACA's officers will be available for training.
1. M.S.	1	1	2	2	6	- Observation and inspection by advisors and Project Manager.	b. That manuals, procedures, and guidelines will be adopted.
2. In-service training	8	10	15	15	48		
3. Short-term courses	3	4	4	4	15	- Quarterly reports of TA contractor.	
b. Manuals and procedures developed to guide the operation of MACA's Offices of Economics and Statistics, Marketing, and Planning.	1	1	-	-	2		

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

AG 11/25/77-711
SUPPLEMENT I

Life of Project:
From FY 1975 to FY 1979
Total U. S. Funding _____
Date Prepared: _____

Project Title & Number: AGRICULTURE SECTOR LOAN I

PAGE 31

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS					MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:						Assumptions for achieving outputs:
	1976	1977	1978	1979	Total		
c. A special study on the organization and administration of public services for agriculture	-	1	-	-	1		
d. An internal coordinating mechanism to increase effectiveness of above MACA Offices.	1	-	-	-	1		
4. <u>Agricultural Credit</u>	4. <u>Agricultural Credit</u>					4. <u>Agricultural Credit</u>	4. <u>Agricultural Credit</u>
a. Number of new farmers being served, target group for agricultural production.	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>		- BAB reports.	a. The credit resources will be made available as planned.
b. Volume of credit placed (\$000).	500	1,150	2,095	3,255		- Credit Advisor reports.	b. That target farmers will be receptive and actually seek credit.
c. Number of credit managers and agents trained.							c. That target farmers will be receptive to technological improvements and actually obtain needed credit and assistance to buy and apply such technology.
1. M.S. level	-	-	1	1			d. That qualified candidates will be available for training.
2. In-service training.	25	25	15	10			
3. Short-term courses.	2	2	2	2			

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Project Title & Number: AGRICULTURE SECTOR LOAN I

Life of Project:
From FY 1975 to FY 1979
Total U.S. Funding _____
Date Prepared: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS			MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
inputs:	Implementation Target (Type and Quantity) (US\$000)				Assumptions for providing inputs:
I. AID Financed Project Inputs (US\$000)					
1. Loan Funds: Loan funds will total \$9.2 million and will be disbursed over a 4 year period to finance the following project components:				- USAID documents including loan agreement, implementation letters, PIO/Ps, PIO/Ts.	- That AID and GOB resources will be provided as proposed.
a. equipment and materials	FX	LC	Total	- Inspection and review of MACA's records and budget.	- That qualified Bolivians will be available for training.
b. vehicles	\$1,340	-	\$1,340		- That qualified experts will be available on call.
c. participant training	575	-	575		
d. Technical assistance - advisors in the areas of research, animal science, plant science, economics, extension, and administrative reform (113 m/m)	1,000	-	1,000		
e. Mobile Units	565	-	565		
f. Feasibility studies	100	-	100		
g. Construction and engineering	250	-	250		
h. Loan Capital	-	1,370	1,370		
i. In-kind credit and delivery	-	3,500	3,500		
Total	500	-	500		
	\$4,330	\$4,870	\$9,200		
2. Grants: For details of complementary grant funded technical assistance, participant training and commodities, see the PROP for the Basic Foods Production and Marketing Project (511-11-190-451) of October 7, 1974.					
II. Local Contribution (US\$000) LC					
1. Salaries and operating expenses					
2. Seed multiplication fund	\$4,350				
3. Feasibility studies	200				
4. Loan Capital	100				
	1,000				
	\$5,650				