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FINAL REPORT

Contract No. GOB/AID 511-93

RESETTLEMENT ADVISOR

PROJECT CHANE/PIRAI - SAN JULIAN

LOAN No. 511-T-050

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June 1, 1975 - December 31, 1979

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Presented by:
Harry Peacock

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Introduction.

The purpose of this report will be to provide a supplement to the many existing technical reports by AID and INC specialists, monthly reviews by the AID project manager, quarterly reports by the project advisor, annual reports prepared by the INC project coordinator, and those various special reports written by visiting experts and evaluators. There will be no attempt to compile or summarize information contained in already existing materials, rather the effort of this paper will be directed toward providing the reader with opinions and conclusions formed by one who has had sustained involvement in the project from the time of conceptualization through 54 months of project implementation. It may also be noted that the writer was involved in colonization activities in San Julián and Chané-Piraf over a period of seven years prior to the initiation of the AID-financed project.

Hopefully this paper will provide insights as to what has actually happened in the project 511-T-050. The writer will try to consider how what has happened has differed from what was planned, and why. There will be an attempt to focus on factors that might have been altered in order to have enhanced the outcomes. Special consideration will be given to the roll of the orientation program, consumer and credit cooperatives, and the roll of the field advisor in the program as a whole. A brief projection will be provided as to possible future colonization activities in the zone.

I. Summary and Conclusions.

Colonization in Bolivia is today a dynamic social movement that will continue through the next two decades with or without programmed participation

on the part of national government and/or international agencies. The major question to be confronted is how this social current can best be channeled to benefit national interests. Consideration must be given to the wasteful potential of purely spontaneous colonization in terms of natural resources, human health, and productive potential which is not maximized. The need for development of effective low cost patterns of rational settlement on currently unproductive land should be a major issue in rural development strategies. The San Julián/Chané-Piraf program of Sub-tropical Lands Development is making a major contribution toward demonstrating one viable alternative for Bolivian colonization.

Flaws in project design and implementation can be pointed out, but also positive results can be observed. The basic model for large-scale settlement on the basis of provision of essential infrastructure, village settlement, and orientation is sound. Lessons learned in this project could and should have a major impact on the future of new lands development in and beyond the Bolivian sub-tropics.

The lack of sufficient interaction between the National Institute of Colonization (NIC) and AID/Bolivia during the period of project design and the writing of the project paper led to a situation of poor communication between the two agencies. Poor communication, in turn, led to a period of noticeable distrust between the cooperating institutions and significantly hampered the timely execution of start-up activities. Delays in the letting of contracts and the procurement of essential project equipment have had their repercussions throughout the life of the project. This has been most notable in the opening of all-weather access roads in both the Chané-

Piraf and the San Julián areas, as well as in the opening of lateral roads and in well drilling activities.

Major administrative problems revolved around difficulties with cash flow. While the basis of much of this problem was related to erratic budget disbursements from the national treasury, the difficult situation could have been dealt with more effectively had there been greater flexibility within the administrative structure of the National Institute of Colonization. The effectiveness of the project coordinator was impaired by the lack of clearly defined lines of responsibility. A more decentralized administrative design, giving greater authority to the project coordinator, could enhance project implementation. The physical location of the project coordinator in the vicinity of the project, either at Los Cafes in San Julián or in the city of Santa Cruz, should be considered if future projects are developed on the basis of the existing program.

Land titles, as of yet, have not been provided to colonists settled under the Sub-tropical Lands Development Program. Immediate attention should be given to this project component, assigning a brigade of the appropriate personnel to be stationed at Los Cafes in order to carry out land titling activities during the coming year.

Orientation of new colonists, one of the project's more significant components, has, until now, been dependent upon funding from OXFAM/England for the operational budget with the exception of salaries. An effort is being made to more fully incorporate the orientation program into the administrative structure of the Institute of Colonization for the 1980 settlement season. Budget provisions must be made for the total orientation

activity if this component is to be extended beyond 1980. If in the future orientation for new colonists is not provided, the activities of the Institute of Colonization will be limited to little more than road construction, well drilling, and land titling. In that case, it should be considered whether or not the provision of infrastructure might be best handled by the National Road Service and titling carried out by Agrarian Reform. If that option were followed, the role of the Institute of Colonization would be reduced to selection of colonization sites and physical design for new colonies. This option is not recommended by the advisor, but seems to be worthy of consideration should the NIC fail to expand its capability to carry out orientation for new colonists.

In the San Julián area there have been major achievements in providing a diversified agricultural subsistence base for new colonists during their first year on the land. More attention is needed in dealing with the problem of weed control, introduction of tree crops, and the promotion of animal production. With regard to fish production in the San Julián area, the recommendations made and the procedures described by Dr. Loveshine for stocking road-side ponds, should be acted upon.

Given an analysis of the long history of difficulties relating to maintenance and repair of heavy equipment in San Julián, it now appears doubtful that completion of the repair facilities at Los Cafes will, in and of itself, change the situation to any great degree. More basic than the lack of proper equipment for maintenance and repair has been the availability of operating funds and qualified mechanics at the field level. The shop facilities at Los Cafes should be made operational, but NIC operations should be scaled to what the operating budget can handle. Major attention should be given to maintenance. Equipment should be stopped when maintenance schedules are

not met, rather than running machines until they require major repairs. While minor repairs should be handled in the zone by NIC personnel, the contracting of qualified mechanics on a short-term basis for repair work should be considered. More general repairs will call for equipment to be transferred to Santa Cruz.

Needs for short-term credit for new colonists have not been met. Alternative procedures to those currently used by the BAB should be sought, giving particular attention to credit education and use of community organizations. Use of such social structures could expand the use of group credit and reduce cost to the loaning agency. While the savings and loan cooperative activities in San Julián have shown promising results, it cannot be considered an adequate answer to the total need for short-term credit. An even more difficult question is that of provision of medium-term credit for colonists after being on the land one to three years. Such credit is necessary to stimulate production of cattle and swine, to expand the use of tree crops, and to develop the utilization of appropriate mechanization.

The lack of clearly defined policies with regard to logging in the San Julián colonization zone continues to contribute to insecurity on the part of colonists. Attention of NIC staff is diverted from project goals by activities concerning logging. Private logging operations are seriously damaging access trails and retarding work on the all-weather access road. The policy of NIC exploiting lumber for profit should be closely examined. Either the operation should be put on a separate budget with realistic cost accounting or it should be suspended. In the past, lumbering operations have been supported by the administrative overhead of the settlement project.

The work well begun in settlement of new colonists in the San Julián area runs the risk of stagnation at an early point, unless there is a well-planned follow-on activity for consolidation of the area. Based on the

family farm unit and village organization, concern for farm systems development should be a high priority. An integrated approach to consolidation should include broadening the subsistence agriculture base of the family farm, development of alternatives in cash cropping, weed control and soil fertility, marketing programs, and access to credit. A demonstration approach on the farms of colonists settled in the zone is seen as advisable for expanding the use of appropriate mechanization within the context of diversified farm development. All efforts on the part of agencies, government or private, aimed at stimulating the consolidation process within the new colony should include broad participation of the colonists from the planning stage on.

The activity of the project field advisor had major impact on the program during the planning and start-up stage when the role of information handler between the NIC and AID/Bolivia was critical. During the first two seasons of settlement activities under the Sub-tropical Lands Development Project, the majority of the advisor's time was dedicated to direct involvement in field implementation. As the project matured and multiple changes occurred in the NIC and AID administrative staffs, the advisor became more involved with administrative concerns which could have best been attended by an administrative advisor who figured in the project design but was never hired. Activities relating to project public relations became a major component in the advisor's activities and possibly one of the most valuable. The aspect of public opinion and attention to official and unofficial visitors on the project sight should be contemplated in future project development. The advisor's contribution to NIC and AID management decision making could have been more effective had information collecting been more

structured and had reporting been more timely.

In the years ahead, colonization in Bolivia will increasingly take place in areas which, until now, have been considered marginal for agricultural production. Specifically, it may be anticipated that colonization will take place in the sparsely settled dry regions of southwestern Bolivia, as well as in the poorly drained wet regions of Santa Cruz, La Paz, Cochabamba, Beni, and Pando. Given this consideration, the situation of the San Julián project is particularly interesting in that the southern regions of the project touch on the dry-lands area and the northern regions of the project extend into the wet-lands zone. Utilizing the base of operation which has been established in the Sub-tropical Lands Development Program, as well as the experience accumulated through the San Julián settlement program, a challenging opportunity exists to develop appropriate patterns for future colonization activities.

Over 200,000 hectares south of the Río Grande-San Julián all-weather road are included in the concession to the Institute of Colonization for settlement of new colonists. Revised patterns of physical design and implementation strategies should be developed on the basis of the San Julián experience for settlement of colonists in the above-mentioned area. Major attention should be given to questions of wind erosion control and suitable cropping practices for maximum conservation of humidity. The experiences of Mennonite colonists in the immediately adjacent areas should be utilized, as well as that of Mennonite groups who have been settled for over 50 years in the Paraguayan Chaco around Filadelfia. The agricultural implications of surface water run-off patterns should be carefully studied when roads are being designed. Road designs should specifically consider

the construction of useable roadside ponds in the provision of fill for the road base. An appropriate orientation program should be designed to meet the special needs of the area and to respond to the physical layout of village settlements. The demonstration of appropriate systems for the settlement of small farmers in these dry lands could prevent large-scale erosion problems brought on by inappropriately mechanized land clearing and cultivation practices.

II. Factors Leading up to the Project "Sub-tropical Lands Development."

The military take-over of August 1971 led by Colonel Hugo Banzer marked the opening of a new era in Bolivian colonization activities. The newly appointed national director of the Institute of Colonization found that what had begun as a government sponsored push to open frontier regions of the country had become a dynamic social movement. Colonists were moving from traditional rural areas into the Alto Beni, Chapare, and Santa Cruz colony zones at a rate of approximately 2,000 families per year. Colonization of some type would go forward with or without direct government involvement.

At that point the proper technical question would have been, "How can the government best guide this social process to: 1) prevent great loss of natural resources, 2) maximize agricultural production, and 3) minimize human suffering." However, the question that seemed to have drawn greatest attention revolved around maintenance of political stability in most of the zones of colonization. Only in San Julián did the Institute of Colonization (NIC) attempt to develop a specific program for settlement of new colonists.

At the personal request of Colonel Mejía, director of the NIC, the United Church Committee assumed responsibility for providing orientation

to new colonists in San Julián in July of 1972. Based on village settlement, the United Church Committee had developed a highly structured program for new colonist orientation which had grown out of field trials beginning in 1968, and was rooted in other colonization experiences going back as far as 1961. Although resources of the NIC were limited almost exclusively to salaries, the national director gave every possible encouragement to the work in San Julián. When the report was received by the National Congress of Colonization in 1972 concerning the procedures applied in village settlement and orientation in San Julián, a resolution was adopted that this experience should serve as a model for future Bolivian Government colonization efforts. Although only two nucleos of 40 families each had been settled in San Julián by the time work was begun on the PID for the "Sub-tropical Lands Development" project, the experience was sufficient to demonstrate the clear advantages of village settlement over the settlement of individual families along access roads.

Dr. Hernán Zeballos had assumed the position of director of the NIC when Robert Moffit of the Rural Development Division of AID/Bolivia began to examine the possibilities of an AID financed program with the NIC. Dr. Zeballos's administrative skills and exceptional preparation in agricultural economics, along with his fifteen years experience in the Institute of Colonization, provided a reasonable basis for the optimistic view held by Moffit that the NIC could develop the necessary administrative capabilities to carry out the complicated activities implied in a program of new lands development.

Responding to the vision of Colonel Ciro Mealla, then acting sub-director of the NIC, the NIC began work on three proposals for presentation

to AID. One proposal was based on a plan to open an all-weather road from Kilometer 21 in the Yapacaní colonies to connect with Puerto Villareal. The second contemplated consolidation activities in the Chané-Piraf area, and the third proposed the amplifying of the San Julián project. Douglas Jones, assistant to Moffit in the Rural Development Division of AID/Bolivia, was assigned major responsibility in the development of the AID project paper. Zeballos participated directly with his staff in the formulation of the NIC documents. He also solicited participation of the United Church Committee in the preparation of sections pertaining to social services and village settlement in San Julián. Unfortunately, on the basis of political concerns, Dr. Zeballos was relieved of his responsibilities as director of the National Institute of Colonization prior to the initiation of implementation.

III. Problems Arising in Project Development and Start-up.

In spite of the high level of confidence and mutual respect held between Rural Development Chief Moffit and NIC director Zeballos, during the time the NIC was developing "Proyectos de Colonización," volumes I and II, it seemed that the NIC was unaware of the AID time-frame with regard to presentation of necessary documents for project funding. The tragic outcome was that with the NIC running three months behind schedule the AID office moved ahead, responding to their agency's demands, and produced the project paper before the NIC was able to finish their own document. It is doubted that any of the AID/Bolivia officials ever gave the two-volume NIC document a thorough reading. Although the NIC document is dated March 1974, it was late May before the document was off the press. The AID paper "Sub-tropical

Lands Development," is dated May 28, 1974.

It is impossible for the writer to determine whether or not it was necessary for AID/Bolivia to go to Washington with the project paper exactly when they did, but the major lesson to be learned is the high cost of poor communication between the funding agency and the Bolivian Government sponsoring agency during the time of project development. From the outset there were severe gaps in expectations as to the way the project would be developed. There was a feeling within the NIC that AID had not taken sufficiently into account some of the experiences acquired by the Institute of Colonization, and AID/Bolivia was unaware of some of the administrative limitations of the NIC.

Specific problems arose during the early phases of the project where poor communication was a major contributing factor, including delays in producing the documents necessary for procurement, excessive time required in the preparation of documents needed to open bidding on road construction and severe conflicts relating to procurement of D-8 Caterpillar tractors from U.S. Surplus Commodities. Poor communication between NIC and AID/Bolivia was intensified due to the rapid turnover in staff in both agencies. During the first three years of the project, there were five project managers for AID, two project coordinators for NIC, and four directors of the Institute of Colonization. In the field, to date, there have been a total of five chiefs of field operations for the NIC. Although there have been happy exceptions, much of the life of the project covered in this report has been characterized by crippling distrust between the two cooperating agencies. This distrust has been seen by the project advisor as a direct result of the poor communication rather than basic differences.

Delays in contracting for road building and purchase of basic equipment had far-reaching effects on field implementation. The project was designed on the assumption that road construction would go ahead of the settlement of colonists. This implied that an all-weather road would be available to enhance logistical support for the NIC heavy equipment. Throughout the project this has never been the case. The cost for maintaining equipment and personnel in the field has been higher, in dollars as well as in time, than was anticipated. The orientation program has had to function every year without all-weather roads for transport of food, equipment, and personnel. Access to markets for colonists has been difficult. The task of providing basic health services for the colonists has been made tremendously complicated by poor access to the site of new villages.

Institution building has been indicated as one of the major concerns to be confronted during the project. However, in the critical early stages, there was a lack of clear guidelines and administrative support for the NIC, to help them deal with the specific requirements of AID procurement procedures. In large measure this was due to the reluctance of the NIC to hire an administrative advisor using project loan funds. The two year delay in receiving equipment could have been disastrous, but the impact of this delay was considerably reduced by initiative taken by the AID project manager in procurement of two D-7 Caterpillar tractors, one 2 1/2 ton truck, and one 12 ton truck from local sources. The initiative and ingenuity of Zone Chief Teniente Victor Heredia during the start-up phase of project implementation was also a major factor in getting things off the ground in spite of the delays in road construction and equipment procurement. The exceptionally high morale of the orientation field staff should also be noted as a major factor in keeping the program going during the first two years in spite

of adverse conditons. It should also be taken into account that when the heavy equipment ordered for the project did arrive, it was of an excellent quality.

According to project design, the principal administrative support for the project implementation was to be channeled through the project coordinator. Unfortunately, at the La Paz level, it seems that there has been continued confusion concerning the interrelationship between the project coordinator and the chiefs of the various departments. At the field level, on various occasions, specific instructions were received from the different department chiefs which had not been cleared through the project coordinator. Reporting from the field, from the medical department for example, quite often went directly to the chief of the medical division or in other situations, information concerning heavy equipment and aspects relating to engineering were directed to the chief of the engineering division without the coordinator having full knowledge of these communications. While this created considerable confusion and in some instances, noticeable tensions arose between individuals involved, the major difficulty in administrative support was actually related to cash flow. Not only were disbursements from the national treasury unpredictable, but there were also repeated cases of exaggerated time lag in the movement of funds between the La Paz office, the Santa Cruz office, and the field level. Repeatedly, heavy equipment was stopped for lack of fuel and there were numerous examples of extended down-time on machines for lack of minor repairs. The lack of funds arriving as scheduled made it impossible to stock supplies such as oil filters and lubricants. It should not be assumed that the major difficulties

related to administrative support have been a result of ineptness or lack of concern on the part of the administrators, but a more flexible structure might have made it possible to deal more effectively with the difficult situation created by the irregularities in availability of budgeted funds.

IV. Orientation of New Colonists.

The program for orientation of new colonists was designed to develop a model which could be incorporated into the structure of the National Institute of Colonization for assisting new colonists through the initial stages of settlement. Throughout the four years the project has been in operation, the orientation program has moved consistently toward simplifying the operation and concentrating upon those elements which were of greatest need and would have the greatest impact on new colonists at the lowest cost. Especially during the past two years, the orientation program has been considerably simplified and procedures have been adapted in such a way as to facilitate incorporation into the administrative structure of the Institute of Colonization. During the settlement season of 1979, budget cuts in the INC resulted in the government agency providing less in the way of materials for the establishment of the provisional shelters and in the provision of transport. At the end of the 1979 season, however, the Institute of Colonization took specific steps toward designating an administrator for the Orientation Program and incorporating the total activity into their administrative structure. It was agreed with the United Church Committee that funding from OXFAM to support the orientation phase of the settlement activity would be forthcoming in 1980 as long as the Institute of Colonization was willing to assign the necessary staff and provide the other support

elements as indicated in the contract between the United Church Committee and the NIC. It now remains to be seen whether the Institute of Colonization will be able to fulfill their commitments to the UCC assigning the necessary personnel and make other inputs that will make it possible for the orientation program to function effectively without direct administrative control by the United Church Committee. Hopefully the lessons learned through the last four years will not be lost at this point. It remains the impression of the advisor that inputs made during the first months that the colonists are in their new areas of settlement provide the greatest impact in terms of attitude and behavior formation.

An even more difficult test of the ability of the NIC to learn from their own past experiences will be seen as the Institute of Colonization develops new projects. It can only be hoped that field personnel who have participated directly in the Orientation Project will have an opportunity to make inputs into the planning of the initial phases of settlements in other areas. Because the program of orientation as developed during the last several years is a multiphase, interdisciplinary activity, it is difficult for this program to fit neatly into the tightly departmentalized administrative structure of the Institute of Colonization. The emphasis given in the orientation program to community organization and participation of groups of colonists in making decisions that directly affect their own future is difficult to evaluate. However, it has been this element coupled with the physical design of village settlement, the provision of community water supply, and the emphasis of the formation of a diversified subsistence agriculture that has provided the rapid movement of new colonists through the pioneer stage into the consolidation stage.

V. Agricultural Development in the Colony.

By the end of the first harvest season new colonists in the San Julián area typically have planted fifteen different varieties of annual crops and five varieties of perennial plants. This broad range of agricultural products has provided new colonists with the basis for an adequate diet to maintain their families and has given them a source of seeds for continuing a diversified agriculture in years to come. The lack of appropriate techniques in weed control, rotation patterns, and cultivation procedures as basic as plant population, lead one to question whether or not it might be possible to improve agricultural techniques by more intensive agricultural education during the orientation phase.

Agronomists evaluating the San Julián experience tend to agree that weed control is the most significant of all of the agricultural problems present in the zone. Plant populations, intercropping, and continuous cultivation throughout the year are cited as the procedures most appropriate for an initial attack on the weed problem. It seems unlikely that much will be done in changing the patterns of activities of new colonists until there are positive demonstrations of the recommended procedures on the farm plots of colonists who have been in the area for two or more years. Colonists tend to imitate the agricultural practices of their neighbors.

The more extensive use of animals as part of the diversified farm program is dependent to a large extent on the availability of medium-term credit. There is high interest on the part of most colonists in moving into cattle and/or swine production, but limited capital has made this a very slow process for most of the colonists.

The use of legumes such as lab-lab, kutsu or macuna to cover areas that are not being cultivated and avoid return to second growth jungle is a concept not totally foreign to most of the colonists. The lack of seed for these legume cover crops has made it virtually impossible for colonists to put into practice this recommended procedure. With the exception of bananas and citrus, there is a very limited supply of plant material that would allow the colonists to expand the use of perennial plants as part of their diversified farm operation.

Transport and storage of grain crops, notably rice and corn, are major problem areas for the colonists as they move into cash cropping. With the exception of the construction of roads, little or nothing has been done in the San Julián project to assist the colonists with this particular problem. At this stage, the colonists continue to depend heavily on intermediaries who purchase and transport their grain products from the village area into the markets in Santa Cruz. In some cases where groups of colonists have organized into credit committees and have associated with a local savings and loan cooperative, considerable savings have been achieved by the collective transport of grain products into the market areas of Santa Cruz and Montero.

Utilizing project funds for technical assistance, Dr. Leonard Loveshine was contracted to assess the potential for production of fish in ponds in the San Julián colonization zone. The contents of Dr. Loveshine's technical report will not be repeated here, but it is significant to observe some aspects of activities in the zone related to his recommendations.

Observing that there were 150 ponds in San Julián at the time of Dr. Loveshine's visit, it was recommended that a natural depression located

next to the NIC headquarters in San Julián be prepared to provide a reproduction pond for telapia. It was further suggested that after the production of fingerlings in the pond, these could be distributed among the various roadside ponds improving the quality of fish in the area, not only the telapia themselves, but also increasing the growth rate of local predators that inhabit the waters naturally. Throughout Dr. Loveshine's visit, his emphasis repeatedly was on the importance of maintaining simple programs, given the fact of low levels of input from the Bolivian Government agencies. The site recommended for the reproduction pond was considered ideal, in that it required only a very simple earthen dam with a drain. The run-off from the corrals above the natural depression would provide fertilization for the pond. The only management that would be required would be occasional cleaning and annual draining of the pond to pick up the fingerlings for distribution along the roads.

After Dr. Loveshine's report was filed considerable discussion was carried on at the NIC headquarters in San Julián as well as in La Paz concerning the construction of the dam. It was calculated that the dam construction should require no more than six or seven hours of work with one of the D-7 Caterpillars and that two bags of cement should be sufficient to do the work necessary for installing the drain at the bottom of the dam. An engineering drawing was made of the proposed activity. An institute surveyor spent two weeks measuring and drawing up the proposed project. At some point a Caterpillar tractor pushed dirt across the low end of the depression, forming a shallow pond approximately one meter deep, but without putting in the recommended drainage facilities. Changes were made in the administration at San Julián. A new chief of zone and a new agricultural chief again began to consider the proposed project for the development of a reproduction pond.

New drawings were made and new consultation was carried out with the La Paz office. Almost three years after Dr. Loveshine's visit in San Julián there is no reproduction pond and no telapia in San Julián.

This is not to say that there are no fish in San Julián. Exactly as Dr. Loveshine had predicted, predator fish common in the area have continued to reproduce in the roadside ponds, numbering now almost two hundred with the construction which has gone on along the Brecha Casarabi. Colonists do engage in a limited amount of fishing in these ponds, but the major fish harvest is carried out at the height of the dry season when the ponds dry out and the people can get in and harvest the fish by hand. It would appear that Dr. Loveshine's observations and recommendations continue to be valid. It would be helpful for increasing the quantity of animal protein in the colonists' diets if telapia could be introduced into the roadside ponds. Given the inability of the Institute of Colonization to set up a reproduction pond in a period of three years, it might be more feasible to find one of the more suitable natural ponds located close to the home of one colonist, and arrange for the transport of telapia into that pond, so that he might become the unofficial distributor of the fish in the area.

VI. Equipment Maintenance and Repairs.

The first heavy equipment provided for the settlement of new colonists in San Julián consisted of five reconditioned D-8 Caterpillar tractors which were purchased through U.S. Surplus Commodities. There was general disapproval in the Institute of Colonization concerning this purchase in spite of the very low cost to the agency. Shortly after their delivery to the colonization zone, numerous breakdowns began to occur. Equipment maintenance and repair had been contemplated in the project design, but the

exaggerated demand for repair of the D-8 tractors pushed forward to a top priority rating the projected development of maintenance facilities.

A general plan for maintenance and repair of heavy equipment in the San Julián project was drawn up with consultation between Institute of Colonization personnel, AID specialists and the project field advisor. This initial maintenance plan is dated November 26, 1975, and includes general maintenance procedures, procurement procedures for necessary replacement parts, and the design for the construction of the maintenance shop. At the date of this report the maintenance facility is not operational. It was redesigned three times as personnel in the AID office and in the NIC changed. There were long delays in the procurement of the necessary equipment, although some basic tools were supplied by off-shelf purchases. The lack of electrical installations made it impossible to utilize most of the maintenance and repair equipment after its arrival. The construction of the maintenance shed was completed but the electrical installation and installation of such equipment as the steam cleaner, press, metal lathe, drill press, and air compressor have not yet been made. It was considered essential that this equipment be operational in order to maintain the rhythm of heavy equipment activity. At this point it can be recognized that insufficient lead time was programmed for the development of support facilities for the project as well as for general procurement. This is not, however, a sufficient explanation for why, after four years, the maintenance shop is still not operational.

VII. Credit Availability for New Colonists.

Project designs contemplated utilization of \$US 500,000.00 to provide funds that would stimulate the development of procedures for extending short-term credit to new colonists. The BAB was selected as the most appropriate agency for administration of the project component, but results as described in the USAID evaluation of 1979 proved to be unsatisfactory.

Meanwhile, community credit committees associated with a savings and loan cooperative is not seen by the advisor as a total response to short-term credit needs in a new colony, but significant elements can be observed with respect to the differences between BAB procedures and the use of the savings and loan cooperative as a source of short-term credit.

	<u>BAB</u>	<u>Coop</u>
1. Credit agent is permanently in the zone	No	Yes
2. Agent has use of vehicle	Yes	No
3. Agent has office in zone	Yes	No
4. Loans arrive on time	No	Yes
5. Agency has sufficient capital to cover needs	Yes	No
6. Community organizations are utilized	No	Yes
7. Works with select clientele	No	Yes
8. Program provides credit education	No	Yes

VIII. Lumbering Activities in the Area of New Settlement.

Repeated attention has been drawn to the need to establish clear guidelines with respect to logging concessions and the rights of colonists to timber in the nucleus after settlement. As the price of lumber has gone up and as access roads built by project funds have reduced the cost of taking

out logs, the pressures on the part of private logging operations to expand activity in San Julián has notably increased. During 1979, in one 45-day period, over 250 truck-loads of mahogany logs were taken from the colonization zone. The issue of who profits from this exploitation of natural resources is a policy question to be dealt with at other levels, but the effect of the unregimented exploitation on the attitudes and activities of the colonists is a direct concern to the Sub-tropical Lands Development Project.

Colonists have demonstrated insecurity concerning their rights to land on which they have settled. This is understandable if from month to month the question is reopened as to whether or not the NIC or private logging companies have the right to come on the colonists' land and take out standing timber. At present, colonists believe they have the right to sell logs from their land, and with the general uncertainty aroused by the possibility of changing policies or the threat of log theft, many colonists dedicate a disproportionate amount of their time to finding, cutting, and selling marketable logs on their 50-hectare plots. From the point of view of the colonist, it is not reasonable to hold small logs that are on their land to be used as a capital reserve. Long hours of community meetings are dedicated to concerns revolving around logging. NIC administrators and workers involved in the Orientation Program have dedicated during the past year no less than 20 per cent of their time to problems directly related to logging operations. Lateral roads constructed in the project area to facilitate movement of crops to market and to provide access for social service activities have been severely impaired by logging operations.

Given the lack of enforcement of clear policies regarding timber in the colonization zones, one cannot criticize the colonists for their reactions. As the situation now stands, not only is the presence of timber in the colonization areas not providing an income which directly supports the colonization activity, it is actually raising significantly the cost of colonization in San Julián.

IX. Needs for Consolidation.

The Sub-tropical Land Development Project was designed as a bare bones program responding to the reality of restricted national resources and limited institutional capabilities. The experience has demonstrated that significant impact can be made upon the spontaneous colonization process with relatively low investment. Perhaps even more significant has been the indication that the impressive impact made on the colonization process through provision of access roads, water supplies, village type settlements, and orientation for new colonists, runs the risk of stagnating at a very early point unless there is a well planned follow-on activity for consolidation in the new colonization zones. Such a consolidation activity should concentrate on utilizing the social structures organized during the settlement stage. There is considerable evidence that utilization of these community structures enhances activities such as provision of credit, development of marketing activities, maintenance of basic infrastructures, as well as provision of education and health maintenance services.

Concern for farm systems development within the consolidation process should be a high priority. In the past, extension activities in colonization

zones have concentrated on isolated components related to agricultural development. Attention has been given in some cases to the production of one or another specific crop. Concern has been directed toward extension of credit services, marketing programs have been developed for specific crops or isolated areas. Specific agronomic problems such as weed control or soil fertility have been looked at by experts but rarely have we seen an attempt to focus upon the development of integrated farm systems. Further consideration should be given to the basic social elements with which we are dealing during the consolidation stage, beginning with the farm family as an economic unit and taking into consideration the interaction at the village level. The degree to which consolidation activities incorporated in support packages by government or private agencies have long-term impact in the San Julián area will depend to a great degree on the extent to which the colonists themselves, by way of their own organizations, are involved in and committed to the process.

X. The Role of the Field Advisor.

As reflected in the job description, the role of the project field advisor has been extremely varied. In consideration of the range of activities which have been carried on throughout the term of this contract, we might look at the functions of the field advisor as they have been broken down into five distinctive time phases.

The first phase involved the start-up period where a great deal of time was given to planning in La Paz with AID and NIC staff, as well as in actual field exploration for determination of the specific site where the study trails should be developed. The fact that there were no aerial photographs and no accurate maps existing of the San Julián colonization area prior to the initiation of the project, created an unanticipated responsibility on the part of the field advisor to work with NIC staff in

locating the appropriate route for the future development of the trunk road through the new colonization area.

The second phase covered the first year of settlement under the project. At this time, the only project funded equipment in use was the five reconditioned D-8 Caterpillars and the one pickup truck which had been assigned the field advisor. The pickup truck constituted the major transport unit for moving food, supplies and personnel during the settlement of the first nucleus under the Sub-tropical Land Development Program. This was a phase of intensive field work, working very directly with the Institute of Colonization field personnel, and most especially personnel assigned to the orientation work. The problems of logistical support for the heavy equipment, transport of personnel, along with technical support for colonist settlement and orientation activities were all complicated by the fact that, once leaving the asphalt 10 kilometers on the Okinawa side of the Río Grande River, there was no all-weather road. It was not until the following year that "Servicio Nacional de Caminos" completed the first phase of putting down a gravel base on the road that extends from the San Julián River to the Río Grande River. The most vivid memories of the field advisor concerning this particular phase of activity were the hours spent digging the pickup truck out of bottomless pits and the numerous nights spent sleeping in the cab of the truck, stuck somewhere along an impassible road.

During the second year of colonization settlement under the Sub-tropical Lands Development Project, the role of the field advisor began to change noticeably. There was less direct contact with the field personnel involved in settlement and orientation. More attention was being given to questions

involved with procurement and arrival of equipment. Maintenance and repair of equipment was becoming a bigger problem. Trips to La Paz during this particular period were somewhat less frequent, as the major issues being dealt with were more directly linked with the field operations.

During the third year of settlement, which would correspond to the fourth phase in the activities of the field advisor, the big issue was that of private landholdings in the colonization zone. Areas that had been contemplated for settlement by colonists appeared to be overlapping with areas claimed by private individuals, in spite of the fact that it had been assured in the conditions precedent to the loan that the area was clear of private claims. The field advisor was concerned with developing the capability of the Institute of Colonization to carry out the big push for settlement of 20 nucleos during the coming year. At this point, although the project was running behind schedule, it still appeared possible to develop the capability of the NIC, given the arrival of new equipment and the experienced personnel, to settle as many as 20 nucleos per year. It was felt that if this capability could be developed, it would be an achievement justifying the effort, planning and expense involved in the project development and execution.

The fifth phase of the activities of the field advisor began to focus on activities that might take place following the Sub-tropical Lands Development Program. Unfortunately this period was marked by repeated changes in staff, both at the NIC national level and at the field level. Political concerns and concerns relating to logging began to take precedent over dedication to project goals. Settlement of new colonists, which should have been the climax to four years of preparation, was a disappointment.

There were serious delays in disbursement of budget from the national treasury, and drastic budget cuts. Teniente Victor Heredia, who had conducted the settlement program during three years, was transferred from the zone to San Pedro. Morale of the field personnel in the San Julián zone dropped notably. The disruptive effects of private logging operations in the area have already been noted, and the fact that the road construction which should have provided all-weather access into the settlement zone for new colonists, was running so far behind schedule, complicated even further the activities of that year. The result was the settlement of only six nucleos, four less than the year before.

It should be noted in this report that the project field advisor has received excellent support from the national office of the Institute of Colonization, as well as from the various project managers representing AID/Bolivia. On very few occasions have lines of communication been other than totally open between the field advisor and the sponsoring agencies. Certainly on not all occasions has the opinion of the field advisor been shared by decision makers in the NIC or the AID offices, however, the opinions of the field advisor have been heard. In retrospect it is believed that the arrangement which has existed with the field advisor being directly economically dependent on the Institute of Colonization has been advantageous. Had the field advisor been a direct employee of AID, it is doubtful that the same communication would have existed between the NIC and the field advisor. In the opinion of the field advisor, it could have been helpful to the project administration as a whole, had the project administrative committee, headed by the Subsecretary of Agriculture, continued to function throughout the life of the project. The role played by Boris Marinovic during the time he served as Subsecretary of Agriculture, acting as mediator between the Institute of Colonization and AID, was an

important role. The monthly meetings of this project committee required the Institute of Colonization and AID to openly air whatever concerns they might have had regarding the project, and provided an opportunity for the field advisor to make inputs in an atmosphere of mediation. The monthly administrative committee meetings also allowed the project to maintain a status of high priority within the activities of the ministry as a whole.

A significant role which developed as part of the responsibility for the field advisor, though not indicated in the specific job description, was that of involvement in public relations. There are many sectors of Santa Cruz society in which colonization is considered one of the greater social and economic evils of the age. Formal speaking engagements with civic groups in Santa Cruz, as well as innumerable conversations with local leaders, provided opportunities to explain what is actually happening in colonization and why the government is concerned and involved as it is. Reception of official visitors in Santa Cruz and in the San Julián colonization area has also been a major activity carried out by the project advisor. Official government representatives visiting the project area have included representations from Bolivia, the United States, England, Costa Rica, Honduras, El Salvador, Perú, Germany, and Holland. Representatives of the press from England, the United States and Holland have written special articles concerning the San Julián project. Delegations or representatives from private agencies throughout Bolivia and other parts of the world have made visits to the San Julián colonization zone. National universities as well as foreign universities have made it possible for students and doctoral candidates to do specific work in investigation. Business representatives of Bolivian companies have called upon the field advisor for orientation as to the program of colonization in San Julián. Perhaps the most rewarding of

all public relations activities by the field advisor has been that of making possible the over-night visit of two different delegations from Bolivian high schools. Visiting technicians have been innumerable and of tremendous value, broadening the perspective and clarifying problems seen by the field advisor.

XI. Future Colonization in San Julián.

The colonization process in Bolivia undoubtedly is to continue during the next twenty years. This very well may be a spontaneous activity without government inputs, but whatever the accompanying circumstances might be, the process of transferring people from the highlands into the Bolivian lowlands is going to continue. The San Julián project holds an extraordinary opportunity to contribute on a long-term basis to the social process of colonization in Bolivia. The kinds of lands which have been settled in the past twenty years in what has come to be known as the Bolivian frontier along the eastern slope of the Andes, are no longer available for new lands development. San Julián, however, is situated in such a way that the southern regions of the project area touch on a dry-land ecological zone that extends nearly to the Paraguayan border. The northern edges of the San Julián colonization zone enter into the wet-lands area characterized by high rain fall and poorly drained terrain. Future colonization in Bolivia will be directed primarily to wet-lands and dry-lands rather than to the more desirable agricultural areas which are rapidly being filled by colonization and concessions to private individuals or agricultural companies.

By extending the San Julián colonization experience into the south, it will be possible to utilize the base which already exists in San Julián as

a support unit for developing a program which will give considerable experience and insight into future settlements in dry-land areas. Because settlement in the dry-land area is, in the opinion of the field advisor, less complicated than settlement in the wet-lands area, it is recommended that the first move toward expanding the San Julián colonization project would be to the south. It is not recommended that the San Julián model as it now exists, with the village nucleus of 40 families and fifty hectare plots of land radiating out from the center of each village, necessarily be accepted as the physical design for the area to the south. Rather the experience in San Julián should be critically analyzed and hopefully improved in terms of physical design when developing a program for dry-lands to the south of the San Julián-Río Grande all-weather road.

Experiences have demonstrated that the most significant aspects to be taken into consideration in the development of physical design are the concentration of groups of a minimum of forty families in situations which allow utilization of a common water supply, participation in the development of social services such as educational facilities and health services, and optimum utilization of road networks.

Villages should be grouped as to provide population concentrations of no less than two hundred families within a seven or eight kilometer radius. Obviously this has direct implications as to the maximum size of the family farm units which could be allotted to new colonists.

Hopefully in future projects greater consideration can be given to the topography of the area than was the case in San Julián. There should be certain areas designated as communal land or maintained as land in the hands of the government, specifically land along running streams or gullies, or

lands that for some other reason should be maintained in the natural state. Future needs for the planting of windbreaks or other kinds of erosion controls should be written into contracts with colonists from the beginning of the settlement program.

Management of surface water should be given greater consideration than was done in the laying out of the San Julián project. It has been observed that the building of roads creates a pattern of ditches and dikes across natural drainage systems. The provision of ponds along the roadway is something that should be developed and included specifically in the road design.

It should be clarified among new colonists that an equitable distribution of land is impossible. If every colonist is given the same amount of land, as was the case in San Julián, this in no way guarantees that all landholdings are the same. An attempt toward a more equitable distribution of land in a colony area could imply that the plots of land would be of different sizes. While these variants should be considered in the development of physical design for new colonies, also it is well to keep in mind the limitations of the executing agency for carrying out the design. One of the factors that proved to be very positive in the San Julián program was the fact that the physical design was easy to execute.

A certain degree of flexibility should be maintained in order to take into account the probability that population centers will develop responding to many factors which are not predictable at this time. The physical design should contemplate involvement of colonists in decisions relating to the future development of major population centers. The degree of flexibility

built into the present program by means of green belts which separate each nucleo from the others, allows surveyors to move the nucleos to one side or another, forward or back, in order to best situate the center of the nucleo on high, well drained ground. This minimal flexibility within the rigid physical design is extremely important and similar measures should be contemplated in future programs.

The utilization of material produced by GEOPOL should facilitate greatly the physical design of new colonization projects. Another and perhaps the greatest resource available to the Bolivian Government for such planning is the experience of the NIC field staff and established colonists. The preliminary plans and basic designs for new colonization efforts should undergo extensive discussion by those persons who have lived closest to the realities of Bolivian colonization during the past decade. Failure to fully utilize this potentially valuable resource by the "specialists" would be lamentable.