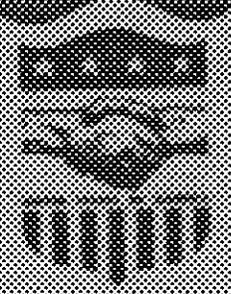
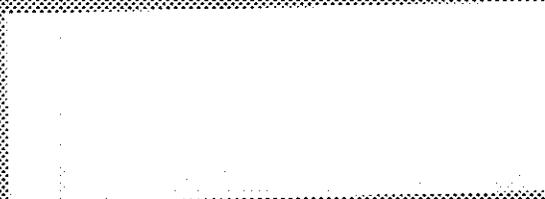


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AGENCY FOR
INTERNATIONAL
DEVELOPMENT



Small Program
STRATEGY STATEMENT
ANDEAN REGIONAL



1981 - 1985

DEPARTMENT
OF
STATE

January 1978



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Andean Regional Program
Small Country Statement

Regional Cooperation - A Major Objective of the Latin America & Caribbean Bureau.

During the past years the Latin America Bureau has assisted regional and subregional cooperation efforts throughout the Hemisphere. Regional loan and grant activities in Central America and in the Caribbean have been two of the Bureau's larger programs. This has been in line with our Congressional Presentations which identified as a major objective of the Latin American Program the encouragement of regional cooperation to foster the growth of internal markets and overcome the diseconomies of small national scale.

The most important cooperation effort in South America has been that of the Andean Pact. As a result of technical and political difficulties associated with some of the Pact's early cooperation efforts, initial opportunities for AID participation in the Pact's activities were limited and our regional program in South America has been more modest than in other regions. To date AID support to the Andean Region has included only small grants to the Andean Pact for technical advisors and one \$15 million loan to the Andean Development Corporation (CAF) approved in 1972 for re-lending in the private sector for projects which furthered economic integration. This loan is fully committed and will be closed out by the end of FY 1979.

The Andean Pact

The Andean Pact was formally established in late 1969 with the signing of the Group's basic charter, the Agreement of Cartagena, by the Governments of Bolivia, Chile, Colombia, Ecuador and Peru. Venezuelan membership in the Group was agreed upon in early 1973, and Chile dropped out in 1976. The basic reason for the formation of this grouping was to enable the member countries to compete on a more equal basis with the Latin American big three -- Brazil, Mexico, and Argentina -- and to accelerate the process of economic integration and development among member countries. As the financing arm of the Pact, the Andean Development Corporation (CAF) was created and began operations in June 1970.

During the first few years of its existence, the Andean Pact exhibited substantial harmony and dedication in both designing and implementing cooperation programs. Intra-regional trade barriers were substantially reduced and trade among the six Andean countries increased by more than 400% in the period 1969-75. Three major regional industrial allocation and development programs -- in the metalworking, petrochemical, and automotive sectors -- were developed and are now being implemented. A common Andean Foreign Investment Code (referred to as Decision 24) was agreed to by member countries and a legal framework was developed for promoting Andean Multinational Enterprises (Decision 46). The Andres Bello Convention covering the integration of the educational, cultural and scientific sectors was approved and was followed by Decision 84 that proposed, among other initiatives, an effort to promote Andean Regional scientific and technological development. During this period, the Andean Development Corporation (CAF) rapidly developed into one of Latin America's most

important regional development banks and was increasingly able to attract international resources to meet the growing regional industrial development needs of member countries.

During its early years, the Pact has focused almost exclusively on removing trade barriers among member countries, developing a common foreign investment code and implementing regional industrial planning. The CAF has directed most of its financing to large private and public sector industrial enterprises and to some infrastructure projects. It has vigorously supported the Pact's sectoral programs of industrial development and its underlying long-term objective of capital intensive import substitution.

To carry out its various programs the Pact developed a highly competent staff of more than 40 economists, engineers, and regional planners who provide support for regional decision-making, planning, and implementation mechanisms. In the period 1969-75, encouraged by the Pact and the CAF, a positive integration momentum surged through the Andean Region.

Why Assistance to the Andean Pact and the CAF at This Time?

In the past few years, the Andean Pact's early success has given way to a much slower pace of progress, as the difficulty of reconciling conflicting interests on such sensitive issues as industrial planning has proven considerably greater than anticipated. Likewise, the withdrawal of Chile from the Pact in October 1976, because of a dispute over the Pact's investment code and schedule for reducing tariffs -- reflecting Chile's fundamental disagreement with the Pact's import substitution strategy -- has greatly contributed to a major rethinking of the Pact's previous development and integration strategy. As most observers agree, Andean cooperation is at a critical turning point. The response to current problems could either lead to the stagnation of Andean cooperation or to the emergence of significant new opportunities for promoting the growth of South America's most important regional grouping.

Until recently, very little Pact attention and very little CAF financing have been directed to regional agricultural development or other programs that might directly address some of the fundamental problems of the poor in the Andean Region. Thus, since the establishment in 1973 of AID's New Direction legislation, it has been difficult to expand our Andean Regional program.

However, a number of very preliminary new Andean Regional initiatives in agricultural development, nutrition improvement, science and technology development, environmental protection and regional training already appear to be emerging. These new ideas represent the beginnings of a fundamental shift in the Pact's previous development strategy. The implementation of these new concepts could begin moving Andean cooperation towards a more balanced regional development strategy, encourage expanded concern for the poor and promote the implementation of less politically sensitive regional programs that would continue to reinforce the commitment of member countries

to regional coordination while the Pact's more ambitious efforts are being worked out.

In an effort to explore possible future assistance to the Pact, in early 1977, an LAC Bureau representative visited the Pact's offices in Lima and the CAF offices in Caracas for exploratory discussions on possible new AID initiatives for assisting Andean regional development. These discussions followed a State Department sponsored conference in Lima on the future of the Andean Pact and President Carter's speech to the OAS in which he reiterated continued USG support for Andean integration. The combined events of the ARA Andean Pact Conference, President Carter's speech to the OAS, and the Bureau's visit led to several requests from officials of the Andean Pact and the CAF for expanded AID assistance for Andean regional projects. Also, in his response to President Carter's OAS speech, the U.S. Ambassador to Peru recommended that "...AID move as rapidly as possible to expand its Andean Regional Program." CAF officials have also made several requests for assistance.

As a result of this interest, our Latin America Bureau has been attempting to develop a new Andean Regional Program but funding constraints in FY 78 and FY 79 have not allowed us to move forward with such a program. However, there is now renewed USG interest in the Andean Pact and its efforts at regional cooperation. Now, in the Pact's 10th Anniversary year, is a propitious time to reaffirm USG support of Andean Regional cooperation and to build on previous successes. An important opportunity exists to provide meaningful support for the Region's evolving shift away from its prior capital-intensive development strategy which has in the past favored the urban industrial sector. At this critical juncture in Andean Regional development, USG support, backed by AID funding, could make a strategic difference in whether, and how far the new initiatives are carried out. AID funds, carefully placed, will not only assist in financing programs which are designed to directly and indirectly benefit the region's poor, but will offer a valuable opportunity to encourage wide-ranging policy measures in such areas as agricultural and rural development, choice of technology, environmental protection, and resource planning. Moreover, AID may be able to utilize its funds to attract a sizeable financial commitment from Venezuela to Andean Regional programs, particularly in areas such as non-conventional energy and technology development and agro-industry which are in Venezuela's own development interest.

In addition, the strategy and program outlined in this program statement are in direct support of two of the LAC Bureau's stated policy objectives of a) overcoming global problems in such areas as food and raw materials production, conservation and management of natural resources, development of alternative energy resources, and control of environmental pollution, and b) engaging LAC countries in addressing regional problems of poverty and resource management. We are carrying out these objectives in part through active bilateral programs in Peru, Bolivia, and Ecuador, and there have been discussions within AID regarding a new Colombia program. A regional activity would allow us to address

development problems outside our current activities. It should be noted that Venezuela is the only Andean country not considered eligible for AID assistance, and it is expected that it will not receive any AID funds under this proposed regional program.

Supplementary to the developmental rationale for an Andean Regional program is the positive human rights record throughout the region. The five Andean countries are exemplary in the hemisphere for their commitment to civil liberties and public participation. Venezuela and Colombia have democratically-elected governments while Ecuador and Bolivia are scheduled to elect new governments in the near future to replace current military regimes. And Peru, in its first step toward a return to participatory democracy, has recently elected a constituent assembly to redraft the constitution. In none of the five Andean countries is there a consistent pattern of gross violations to human rights of prisoners, political opponents, trade and labor unions, or other political groupings. This outstanding record clearly warrants a positive expression of USG and AID support.

Since, if no other assistance were provided, AID would formally close its relationship with the Andean Region when the CAF loan terminates this year, we should consider renewing that relationship with an innovative and important regional program. Such a program is proposed in this Program Statement--innovative because it addresses new problems in sectors such as energy, technology, and the environment; and important as a catalyst in effecting a fundamental shift in Andean Regional development strategy. While building on past successes in Andean cooperation, the program embraces the less ambitious goal of regional coordination in those areas of development which are in the interest of all the member countries. A real and significant opportunity exists at this time for AID to capitalize on a viable institutional framework and the growing momentum for policy change in order to encourage the Andean Region to address those high priority development issues.

Andean Region Target Group

The Andean regional grouping of nations contains the poorest country in South America--Bolivia--and one of the more affluent--Venezuela. In each of the four less affluent nations of the Andean Group, however, a second nation exists consisting of both rural and urban poor who live on the brink of economic and social disaster. In Peru, it is estimated that fully half of the population of 16,000,000 can be counted in this group, while in both Bolivia and Ecuador approximately 60% of their population live below the poverty line. Even in Colombia, where the annual per capita income is approximately \$710, at least 9 to 10 million people live in dire poverty. This is the population group that is the target of both of our proposed regional and our continuing bilateral assistance programs in Bolivia, Peru and Ecuador.

A more detailed look shows that in three of the Andean countries-- Bolivia, Peru and Ecuador--the target group consists primarily of the rural Sierra and Altiplano Indian population. Bolivia, where the average rural nuclear family numbers approximately 5 members, is the poorest. Problems of health are severe, with men's life expectancy averaging 47 years and women 51. The nationwide crude death rate is estimated at 18.5 per thousand and the infant mortality rate for children under 1 year of age in rural areas at 235 per thousand. These rates are the highest in South America, the major causes of which are communicable respiratory, gastrointestinal diseases, and malnutrition. Health problems persist largely because of inadequate preventive medicine, inappropriate training, minimal community involvement and poor distribution of medical services. The rural family typically lives in an adobe dwelling which has no basic sanitary conveniences. It consumes only 77% of its minimum daily requirements of calories and 49% of its minimum daily requirements of proteins.

Of the total population over 15 years of age, 60% are illiterate. The school age population between 5 and 19 years of age is 1.7 million or 37% of the population. Of this group 61% live in rural areas, of which only 36% were attending school as late as 1975.

Bolivian agriculture is comprised primarily of small subsistence farmers with traditional production technologies. The average land holding of a rural poor family is less than 3 hectares of cultivated land from which most of the family's income is derived from potatoes, barley, wheat, rice, vegetables, and coca. A minimal amount of income is derived from mixed livestock production.

Traditional farming implements and techniques have continued to play a dominant role in Bolivia's agriculture. On the Altiplano, a wooden hoe is still the principal tool used for the cultivation of potatoes, and a wooden club is used to break up earth clods. Sowing of seeds is generally accomplished by hand. Crop residue and animal manure, although used for fertilizer on the Altiplano, is more commonly employed as fuel for household cooking. All commercial fertilizers are imported and generally are inaccessible to the rural poor due to high cost, lack of credit or poor distribution. The only soil conservation method practiced by poor farmers is crop rotation. The exact length of the rotation cycle varies with soil fertility, but is generally four to five years.

This bleak picture is repeated to some extent in both Peru and Ecuador. In the former, there are vast regions where the majority of families exist on per capita incomes of less than \$150 per year, entire cities in which more people live in slums than in acceptable housing. A recent World Bank study has concluded that at least 28% of Peru's population, or 4.5 million people, cannot satisfy the most minimal food and non-food requirements to adequately sustain life needs. The severity of the poverty problem is indicated by the fact that the income of the average poor person in Peru would have to be more than doubled to reach the minimum poverty threshold.

In Ecuador, where 60% of the rural population is Indian, poverty is widespread. It is estimated for instance that some 450,000 farm families (2,400,000 individuals) live in a perpetual state of poverty and exist on the bare edge of survival. And poverty in the urban areas can be just as severe. In both Ecuador and Peru, large groups of the population do not have an adequate diet nor do they receive adequate health care. It is estimated for instance that fully one half of all Peruvian children are malnourished and at least 54% of all rural families do not satisfy acceptable caloric intake levels. Similar deficiencies exist in Ecuador. Both countries exhibit high infant mortality rates, primarily resulting from the high incidence of malnutrition in the area's poorer regions. And medical care is largely beyond the reach of rural families, with a high percentage of the doctors and medical facilities located in urban areas.

Another poverty problem relates to the poor's access to potable water and sewerage systems. As an example, in Peru in 1972, only 6% of the rural population had access to potable water and a miniscule 1% had plumbing facilities.

Literacy rates in the region vary from country to country, 40% in Bolivia to 72% in Peru, to 81% in Colombia. While literacy rates have in general been rising in the region, Ecuador's remained the same for the decade 1962-1972 -- 67%. Literacy rates in rural areas are considerably lower than in urban areas. For instance, in Peru rural literacy is only 48%. In certain areas of Colombia the functional literacy rate is believed to be between 5 to 15%.

As can be seen from the foregoing, poverty in the Andean Region can be as severe as any in the world. While great strides have been made over the last decade in bettering the lot of the poor, considerable work remains to be done. Two overwhelming problems persist which directly affect how fast development can take place -- rapid population growth and high unequal income distribution. The average population growth rate of the Andean Region is 2.8%, which means that the current population of the five Andean Regional countries will nearly double by the year 2000. This can have a disastrous effect on the region in terms of food production, health care, education resources, employment and overall standard of living of the region's poor.

Related to the population problem is the highly distorted income distribution in the region. In Peru, the lowest 20% of the population receive only 1.8% of the national income. Similar percentages for Bolivia and Ecuador are 4% and 3%, respectively. This highly skewed pattern will be difficult to break without a major across-the-board attack on poverty from both a bilateral and a regional standpoint.

Program Strategy

The overall purpose of the program outlined in this Program Statement is to address the poverty issue and current regional problems. This will be carried out by encouraging Andean Regional initiatives in various new areas of regional concern such as rural employment generation, nutrition improvement, natural resources planning, manpower training, science and technology development, and regional satellite technology utilization. This effort would demonstrate USG support for Andean development as well as encourage the Andean Pact to look beyond its narrow strategy of import substitution industrialization to a broader view of Andean Regional cooperation. Specifically, the AID program would be designed to serve the following basic purposes:

- Support the implementation of Andean Regional development and cooperation policies that can more effectively deal with the region's serious poverty problems, and thereby encourage the Pact and the CAF to implement a more balanced regional development strategy.
- Assist the Pact to develop organizational structures and implementing mechanisms for dealing with such new concerns as environmental protection, science and technology development, agricultural crop insurance and satellite technology that are increasingly important developmental concerns, and are most effectively treated on a regional level.
- Attract a significant financial contribution to Andean Regional development from the region's wealthy partner, Venezuela.
- Reinforce the commitment of member countries to regional cooperation, while strengthening existing regional institutions.
- Demonstrate USG support for closer Andean cooperation and for the human rights records of the Andean member countries.

The projects in the proposed Andean Regional program have been identified as those addressing urgent development problems which can most effectively be treated on a regional level. These include, first, problems which go beyond national borders, either because they relate to common resources or because their resolution requires a pooling of resources from two or more Andean countries. Examples of these kinds of problems include over-fishing of Lake Titicaca on the Peru-Bolivia border, agro-industrial development in which raw materials for processing industries straddle national boundaries, or imbalances in labor and energy supplies among Andean countries. Second, certain kinds of programs exhibit significant economies of scale in planning and implementation. Programs in satellite technology development, some kinds of agricultural research, and R & D on alternative

technologies and energy sources will benefit all Andean countries and, if done on a regional scale, can eliminate duplication of efforts and investments in facilities, research, training and administrative infrastructure. And last, regional cooperation is critical to the viability of programs which may require standardized policies and uniform controls, particularly in the fields of environmental improvement and technology development. The projects proposed below, therefore, are necessarily regional in nature, and cannot be as effectively undertaken on a bilateral basis.

These projects and proposed funding levels for FYs 1980-1985 are as follows. More detailed descriptions are included as an annex.

<u>FY</u>	<u>Project Title</u>	<u>Funding (in \$000)</u>
FY 80	Agriculture Planning (G)	300
	Program Development and Support (FN)	100
FY 81	Agro-Industry (L)	10,000
	Energy/Science and Technology (G)	300
	Agriculture Planning (G)	400
	Program Development and Support (SDA)	100
	Program Development and Support (FN)	50
FY 82	Energy/Science and Technology (L)	10,000
	Energy/Science and Technology (G)	400
	Agriculture Planning (G)	300
	Program Development and Support (SDA)	100
FY 83	Energy/Science and Technology (G)	300
	Remote Sensing (G)	400
	Program Development and Support (SDA)	100
FY 84	Remote Sensing (L)	10,000
	Remote Sensing (G)	300
	Program Development and Support (SDA)	100
FY 85	Satellite Technology (G)	300
	Environment Improvement (G)	300
	Program Development and Support (SDA)	100
	Total	<u>\$33,950</u>

This list is somewhat illustrative as a firm program could not be developed without consultation with the Pact. Other projects which could be developed include regional agricultural planning and research, manpower training, agricultural marketing development, regional health services, reforestation, and fuelwood management.

These projects will be implemented through the Andean Region's major institutions: the Andean Development Corporation (CAF), the region's

development bank; and the region's technical secretariat charged with regional policy formulation and development and implementation of projects. Other regional institutions, such as training and research institutes, will also participate.

Implementation of this proposed program would represent a fundamental shift in the Andean Region's development policies and would encourage the region to establish new programs and mechanisms for dealing with regional problems that will continue well into the future. Such an AID effort would represent a new USG commitment to Andean cooperation and would allow AID to play a more creative and dynamic role in assisting Andean Regional development.

ANNEX

PROJECT NARRATIVES

ANDEAN REGIONAL AGRO-INDUSTRY

Purpose: To establish a credit fund to finance regional agro-industrial projects which benefit the Andean Region's rural poor by creating jobs and assuring stable markets for agricultural production.

Background: Since the establishment of the Andean Group in 1970, it has focused its energy and attention on the removal of industrial trading barriers among member countries, control of foreign investments, and promotion of an industrial development strategy that has emphasized capital-intensive import-substitution policies. These development policies have tended to benefit large enterprises located in the urban/industrial and export sectors, while the rural economy has remained untouched by regional development programs. The great majority of the rural habitants of the Andean highlands and jungle areas continue to live in poverty, subsisting on marginal agriculture or forced to migrate to capital cities in search of employment.

Thus confronted by massive rural poverty, growing unemployment and income inequalities, and an agricultural sector that cannot adequately supply the Andean population or its commercial/industrial sectors, the Andean Pact has begun to reassess its development and integration strategy. There is a growing awareness that to further the development of the Andean Region, which remains predominantly agricultural, there is an urgent need to increase the productivity of the agricultural sector, to increase the employment and income of the rural agricultural labor force, and to achieve greater integration between the agricultural and industrial sectors. It is recognized that increased productivity of the Andean agricultural sector can also contribute to a more equitable distribution of income.

Reflecting these new concerns within the Andean Region, in November 1976, the Ministers of Agriculture of Bolivia, Peru, Ecuador, Colombia and Venezuela met to discuss and analyze the Andean agricultural sector. From this conference emerged twenty-two recommendations for expanding regional agriculture development activities that, taken together, represent the formulation of the Andean Pact's first Agricultural Development and Integration Program. By January 1977, a new Andean Regional Department of Agriculture and Livestock was created. This Department has begun formulating a long-range regional agricultural development plan and specific regional development and integration projects in the Andean agricultural sector. One package of such projects -- in food technology -- has already been formally approved by the Andean Pact's Commission in its Decision 126, issued in February 1978, which also designates agro-industry as a new priority sector for regional development.

These initial steps show great promise for a shift in the Andean Region's policies toward a more balanced development and integration strategy that can effectively address regional agricultural and rural poverty problems. However, successful implementation of this new strategy will require substantial political will, difficult policy changes, and large infusions of capital and technical assistance. Without adequate and timely support, the momentum behind this new initiative may be lost and, with it, an opportunity to effect a significant shift in Andean Regional development policies.

Project Description: Studies conducted by the Andean Pact confirm that one of the most promising strategies for increasing agricultural productivity and rural incomes is through development of a regionally integrated agro-industrial sector. A regional approach to agro-industry development allows integration of all participants in production, processing, and marketing where raw materials, labor supply, processing facilities and potential markets straddle national borders. For example, Venezuela, a major food-deficit Andean member, offers an immense market for agricultural products which could be readily tapped by neighboring labor-abundant countries. For certain agricultural products, bottlenecks in storage and processing facilities or marketing infrastructure in some countries discourage full exploitation of agricultural resources available in other countries. Investments designed to relieve these and similar constraints to regional agro-industrial development may be expected to have a significant impact on rural poverty and nutrition in the region by assuring stable markets for agricultural production, creating off-farm employment opportunities, and increasing the region's supply of food products.

The Andean Development Corporation (CAF), the financing arm of the Andean Pact, has recently initiated a new development strategy to promote the expansion of integrated agro-industries. Four categories of agro-industrial projects will be financed, including: (1) agro-industries that serve Andean regional markets, (2) agro-industries composed of stockholders from two or more Andean countries, (3) successful national agro-industries that are prepared to expand into a second Andean country, and (4) agro-industries along the frontiers of two Andean Pact countries that must operate in both countries to be feasible.

The proposed AID loan, estimated at \$10 million, is designed to build on this initiative by providing technical assistance, training, and capital to the CAF to establish and administer credit for a regional agro-industrial development fund. Technical advisors in agro-industrial planning and marketing would be provided for up to two years to assist the CAF in identifying agro-industrial investment opportunities, promoting new enterprises, and developing guidelines for feasibility studies and

criteria for CAF financing. The special expertise of LAAD might be a valuable source for this kind of contract assistance. In addition, AID funds will be provided to finance short-term training, seminars, and international travel for CAF officers. Up to \$500,000 will be provided for these TA and training costs. The remainder of the AID loan, or \$9,500,000, will constitute seed capital for a revolving credit fund to finance new or expanding regional enterprises. Credit under the loan would be provided only to enterprises which meet criteria regarding rural job creation, linkages to the small farm sector, and regional integration. Both the CAF and the private sector will be expected to make sizeable contributions in debt and/or equity funding of eligible projects financed under the project. The CAF will also provide necessary administrative support and technical assistance to borrowers.

Beneficiaries: The project will provide direct benefits to the rural poor throughout the Andean Region in the form of new off-farm employment opportunities, assured and stable markets for agricultural production, and a more balanced supply of food products.

Major Outputs: During the four-year life of the project, AID funds will be matched by CAF resources to capitalize a \$19 million credit fund. This fund will finance an expected 20-35 agro-industrial projects which will create an estimated 5000-7500 jobs. Almost \$7 million in private and public sector investment resources will be mobilized for agro-industrial development designed to benefit the rural poor.

ANDEAN REGIONAL ENERGY, SCIENCE AND TECHNOLOGY DEVELOPMENT

Purpose: The proposed program is designed to improve the capacity of the Andean Pact countries to select, generate, and adapt technology, with special emphasis on those that can improve the productivity and the quality of life of small farmers and the rural and urban poor. The purposes of the program will be as follows: (1) to assist the Andean Pact expand regional planning and coordinating mechanisms for energy, science, and technology development; (2) to improve the capacity of selected local universities and research institutes to develop technologies specifically adapted to the region's factor endowments and development problems; and (3) to promote utilization of locally developed technologies by both the public and private sectors.

Background: The Andean Region has historically been dependent on foreign scientific research and technological development, largely as a result of a long-standing policy of import-substitution industrialization. As a consequence, technology choices have not reflected the particular factor endowments of the region nor have they addressed critical problems of the urban and rural poor, including underemployment, malnutrition, and lack of access to low-cost energy sources. At the same time, the capacity of indigenous institutions to select, generate, and adapt technologies has been sorely neglected, which in turn reinforces the region's dependence on foreign technology.

The Andean Pact countries have become increasingly concerned about their dependence on technologies developed abroad, and have identified this dependence as a critical bottleneck. First, it limits the range of available technology choices to those which are typically capital-intensive and rely heavily on costly fossil fuels. Second, it does not encourage development of technologies which can address the region's critical development and poverty problems in areas such as nutrition improvement, agricultural and rural development, health care, rural education, employment generation, and development of non-conventional sources of energy. It is increasingly clear that an indigenous capacity for energy, science, and technology development is essential to permit utilization of technologies which respond to local factor endowments and local needs.

In response to these concerns, in 1974 the Andean Pact established in its Decision 84 the basis for an Andean Regional policy on scientific and technological development. This policy statement recognized the need for the region to expand its ability to generate new technologies in response to local needs, and established the Andean Pact's Technology

Department with a mandate to plan, coordinate, and implement projects for the development of technologies suited to the needs in the region. These projects typically address a regional technological problem, mobilize public and/or private sector institutions throughout the region to work on the problem with the Andean Pact, and provide funding and overall coordination. To date, projects for developing new technologies for exploiting tropical forests and technologies for small copper mines have been initiated. A large effort to deal with the region's serious nutrition problem through the development of new low-cost food products and the development of the production and marketing technologies for these products is currently awaiting funding. Other projects in the areas of appropriate rural technologies and health care are in early planning stages.

Project Description: This proposed AID loan of up to \$10 million would assist the Andean Pact implement a system for developing the region's technological capacity and directing these resources to address problems affecting small farmers and the rural and urban poor. The project would encourage regional planning and development of institutional capacity among suppliers of technology to respond to regional energy and technology needs, and would promote linkages between these institutions and the prospective end-users of technology. Major project components will be as follows:

(1) Regional Science and Technology Planning: Up to \$1.0 million of the AID loan will be provided to assist the Andean Pact further develop its institutional capacity for doing regional energy, science, and technology development planning. Project funds will finance technical assistance and training to develop inventories of available technologies, assessments of technology needs and priorities, and linkages among local institutions to coordinate research and dissemination activities.

(2) University and Research Institution Upgrading: Up to \$1.0 million of the AID loan will be provided to improve the capacity of selected universities and research institutions to provide services required by public and private sector entities throughout the region. Institutions targeted for technical assistance will be those that have a capacity or a desire to do research related to critical problems affecting the AID target group of small farmers and the rural and urban poor, such as development of efficient labor-intensive technologies, alternative non-conventional energy sources, low-cost high-protein foods, and rural health and education delivery systems.

(3) Testing and Application of Non-Conventional Energy Sources: An estimated \$2 million of AID loan funds will be earmarked specifically for testing and adapting non-conventional energy sources for use by the region's poor. Renewable energy resources, such as biomass conversion,

solar heating, and wind, hydro-, and geothermal power will be among the alternatives developed for testing, costing-out, and market study. These commercialization activities will be carried out by both public and private sector institutions, and directed to energy solutions which are applicable throughout the region.

(4) Credit Fund for Technology Investments: This credit fund will provide financial incentives to encourage public and private sector entities to contract with Andean R & D facilities for specific technological development activities. Concessional credit would be provided to enterprises adopting new technologies designed to generate employment or unconventional energy sources, or developing new products that deal with a critical development problem. Subproject selection criteria will assure a direct or indirect impact on AID's target group. Up to \$6 million in AID funds plus a matching counterpart contribution from Venezuela and other CAF members would provide initial capitalization of this credit fund.

Beneficiaries: Benefits under this project will be spread among public and private institutions involved in technology development as well as those which will utilize new technologies in development of new products and development programs. The ultimate beneficiaries will be the rural and urban poor who will be afforded new employment opportunities, improved tools and equipment to increase their productivity, access to alternative low-cost energy sources for household and productive use, improved high-protein low-cost food products, and better health and education services.

Major Outputs: During the five-year life of the project, a regional technology planning unit will be established and will develop policies and projects designed to encourage technological development in the region. Public and private sector institutions, including universities and research firms, will expand their capacity to offer services in research and disseminating technologies and non-conventional energy sources adapted to local conditions and development needs. Credit under the project will finance the adoption of unconventional technologies in employment-generation, increased rural productivity, alternative energy sources, and improved nutrition.

ANDEAN REGIONAL REMOTE-SENSING TECHNOLOGY TRANSFER

Purpose: To create an indigenous capacity in the Andean countries to utilize remote-sensing technologies for rural development objectives.

Background: The rugged terrain of the Andean region, the dense jungle forests, and the expansive desert areas throughout Latin America pose formidable obstacles to natural resource assessment and exploration. Severe climatic conditions present a constant threat of crop failure and flooding. Geological formations make the area vulnerable to earthquakes and landslides. In view of the lack of basic communication facilities and transportation infrastructure, a number of the countries of the region have expressed a strong interest in utilizing modern satellite technologies as a less costly and a more immediate alternative for natural resource inventory and planning. Such advanced technologies are, however, beyond their means to develop independently.

In 1977

In 1977, the Andean Pact countries through the Andean Development Corporation (CAF) requested A.I.D. financing to create a Regional Remote Sensing Training Center. Although that solicitation was not honored, the interest and needs in this area have not changed. Building on this earlier CAF initiative and the broader regional commitment to use of remote sensing imagery, this project proposes the creation of a Remote Sensing Training Center through a \$5 million A.I.D. loan to the Andean Development Corporation.

Project Description: The ^{loan} financing for the four year project will be \$10 million (\$5 million loan from A.I.D. and \$5 million in counterpart from the CAF). These funds will be used to establish a Regional Remote Sensing Training Center located in the most appropriate Andean Pact country. The purpose of the Center will be to train personnel of the member countries in remote sensing and service their needs as well. More specifically, it will operate a LANDSAT data processing and photographic dark room archives facility; maintain a computer compatible

tape and map files and a photogrammetric, mapping and surveying laboratory; operate a drafting and map preparation room and a classroom and a research laboratory with offices.

The Center will be capable of processing and interpreting remote sensing data by visual and computerized techniques and provide on-the-job training. It will also include a remote sensing library with a LANDSAT browse file and engage in promotional activities through a newsletter and other out-reach mechanisms.

Although the Center will be primarily emphasizing the remote sensing needs of the Andean Pact countries, arrangements will be made to extend its servicing and training capacity to the other countries of Latin America and the Caribbean that need them in accordance with a financial and administrative arrangement suitable to all parties concerned.

Beneficiaries: The most direct beneficiaries will be the respective personnel of the participating Andean Pact countries and the appropriate ministries that are involved in the institutionalization of this remote sensing interpretation capacity. Better national economic development planning will result from this process. Indirectly, there will be a link to the rural population, including target group farmers and rural workers through national programs that impact on reforestation needs, water resource availability, colonization, and utilization of agricultural lands.

Major Outputs: Outputs by the end of the four-year project will be: plant and equipment in place for a fully operating center; staff in place for the Center and in the Andean Pact countries; a Center that generates land cover computer tapes and colored map products by processing and interpretation of remote-sensing imagery data; a Center that provides training and performs research in remote-sensing analysis. General output indicators would be: 10 LANDSAT scenes processed per day;

storage facility for 1,000 CCTs; 100 square feet for map storage; visual analysis equipment -- one each of color additive viewer, density slicer, zoom transfer scope, and rear view projector; class and lab workroom for 10-12 students; offices for staff of four professionals; one photogrammetric stereo-compiler; one audio-visual lab - three projectors, three tape recorders; two office duplicators; one interactive digital processing system; four-wheel drive vehicle; access to one aircraft with remote sensing equipment; complete surveying equipment.

ANDEAN REGIONAL COMMUNICATION SATELLITE SERVICES PROGRAM

Purpose: To create an indigenous capacity in the Andean countries to utilize communication satellite technologies for development objectives.

Background: The great distances and rugged terrain of the Andean region are formidable barriers to the delivery of information and services. While major cities are served by modern telecommunications services of various kinds, a majority of people in the region live in widely-dispersed and often remote communities which have minimal contact with the rest of the country in which they are located. The costs of extending telecommunication services to rural communities by means of conventional terrestrial technologies (mountaintop repeater stations or telephone lines) are often excessive due to the topographical barriers and large distances to be crossed.

Satellite communication appears to offer an economical way to integrate rural communities into national communication networks, providing quick and direct access to the resources offered by development-oriented programs and agencies. ASETA, a working group established by the Andean Pact nations to study possibilities for developing regional communication satellite capacity, has completed preliminary feasibility studies and is now examining alternative sources for procurement of satellite capacity.

Several countries in the region are already engaged in planning for the utilization of communication satellite capabilities in support of rural development activities. In Bolivia, both the national university system and the Ministry of Education are developing instructional broadcasting programs for rural areas with an eye toward eventual satellite distribution, and the MOE has requested AID assistance in developing an inexpensive satellite-linked data transmission network to integrate the administrative centers which are being developed by the Education Management Project. In Peru, the Ministry of Education and the national telecommunications corporation (ENTEL-Peru) have requested AID assistance in planning a flexible, low-cost two-way rural telecommunications network which would combine terrestrial and satellite systems to bring health, education, and agricultural services (both supervisory and informational services of various kinds) to rural communities. In Colombia, serious planning studies are already under way concerning utilization of a planned domestic satellite system for rural development purposes. While these national plans demonstrate a considerable degree of interest in acquiring these services, a more cost-effective way to undertake these plans would be on a regional basis. This project will both serve these interests while pre-empting duplication of major investments being planned by individual countries.

The countries of the region require a capability to provide a variety of supporting services for communication projects utilizing the satellite for rural telecommunications. Any future satellite system in the region, whether domestic, regional, or international (using

the INTELSAT system), will require indigenous capabilities to plan, manage, and evaluate new communication services.

Project Description: This project will assist in the development of an Andean Regional Satellite Communication Center, which will include the following activities in its program:

(1) Training

Long-term training at U.S. and third-country universities will be provided in communication systems planning, evaluation, and management. Specialized training in relevant skill areas such as production of educational broadcasting materials will also be offered.

(2) Technical Assistance

Expertise will be provided in areas such as: (1) design of rural development applications of satellite communications; (2) satellite ground station procurement, installation, operation, and maintenance; (3) regulatory mechanisms; and (4) instructional and public service broadcasting techniques.

(3) Documentation and Research

Results of rural development applications of satellite communications will be recorded, studied, and disseminated throughout the region. Small-scale demonstrations of potential rural development applications will be supported.

(4) Region-wide Development Communication Services

Areas of mutual interest among Andean nations will be explored and, where feasible, sharing of software will be facilitated. For example, a series of broadcasts promoting regional identity and integration might be prepared for distribution to participating Andean countries.

The total AID loan-financing for the five-year project will be an estimated \$4.5 million for TA and training, equipment, and a portion of the demonstration costs. At least \$3.5 million counterpart from participating Andean countries will finance construction, salaries, overhead, and demonstration and promotion costs.

Beneficiaries: The ultimate beneficiaries of the project will be the people living in rural communities who will gain access to development programs and agencies working in health, education, agriculture, etc. Since new satellite-linked village telecommunication services will in most cases include both broadcast services and two-way (radiotelephone) service, delivery of a wide variety of possible new services and opportunities for previously-isolated communities will become possible. The immediate beneficiaries will be the ministries and agencies whose ability to use satellite communication in support of their rural

development activities will be enhanced by access to the resources provided by the project.

Major Outputs: (1) Twenty-four participants with post-graduate training in different aspects of development-related applications of communication satellite systems; (2) A functioning Andean Regional Satellite Communication Center, with ongoing training, technical assistance, documentation, and research activities; (3) A series of development-related applications of communication satellite technologies designed, with relevant small-scale trials and demonstrations carried out in Andean Pact countries using available NASA and INTELSAT satellite systems.

ANDEAN REGIONAL ENVIRONMENTAL IMPROVEMENT

Purpose: To create an institutional capacity to formulate and carry out a strategy for environmental improvement and natural resource planning for environmentally sound economic growth in the Andean Region.

Background: Due to the nature of past economic growth in the countries of the Andean Region, these countries are now confronting a variety of environmental problems in a uniquely exaggerated form. Extractive industries predominate in all of the Andean countries, accompanied by a host of smelters, refineries, extensive transportation networks, and one of the highest urbanization rates in the world. The environmental consequences of this pattern of industrial and urban development are in many cases already apparent, including pollution of major river systems, damage to soils irrigated from these rivers, and serious health hazards from air and water pollution owing to out-dated manufacturing processes and inadequate waste treatment. In other cases, the environmental consequences are as yet unknown, such as those arising from oil pipelines, railroad grids, and electric power lines which traverse wide expanses of virgin territory. Natural resources are abused in other ways, as fertile land is turned over to housing projects and industrial complexes to keep pace with urban growth, and, in the rural areas, a fast declining land-to-man ratio has led to over-grazing, over-fishing, deforestation, and erosion and mineral-depletion of soils.

Tentative first steps have been taken by the Andean governments in response to some of these environmental problems. But such efforts are limited by lack of technical knowledge, financial resources, and, institutional and policy coordination. Since environmental protection demands the application of new technologies, it will require major investments in research and development, industrial design, and natural resource utilization.

Moreover, any environmental protection plan which is to be viable demands an integrated regional approach. First, many of the current problems are shared by all or most of the countries in the region, and some, involving frontier resources, can only be treated regionally. Further, given economic interdependence among the Andean countries, which are directly linked by trade, there is an interest in resolving environmental problems which go beyond national borders. And last, a uniform strategy and standardized controls are necessary to fairly distribute the costs of environmental protection.

Project Description: This project will provide the necessary technical and financial assistance to assist the Andean Region in planning and implementing a meaningful environmental protection program.

The purpose of this activity will be (1) to identify regional personnel and institutions which are sensitive to environmental concerns and have a capability of articulating these concerns within the host-country context; (2) to make a preliminary assessment of the most critical environmental problems which affect the region; and (3) to outline proposals for implementation of a broad environmental improvement program on a regional basis.

Based on this preparatory work, a \$10 million loan will be developed. The loan program will include the following elements:

(1) Technical Assistance in Regional Environmental Planning: Up to \$1.0 million in A.I.D. loan funds will be allocated to finance training, technical assistance, and special studies to develop scientific and managerial expertise within an Environmental Policy Unit to be established in the Andean Pact.

(2) Environmental Institution-Building Fund: An estimated \$1.5 million in A.I.D. loan funds will be allocated for the development of institutions capable of providing advisory services in the field of environmental protection. These may include member governments wishing to establish an institutional capacity to make environmental protection programs, as well as private consulting firms seeking to broaden their technical services in environmental analysis. This component may be supplemented by an OPG to a US environmental organization to develop a pool of consumer-based expertise and to encourage public participation in formulation and enforcement of environmental policy.

(3) Environmental Improvement Fund: The major project component will be credit to establish a fund in the CAF to finance pilot projects utilizing environmental protection technologies. This fund will be capitalized with up to \$7.5 million in A.I.D. loan funds and up to \$15 million in contributions from member countries. Credit from this fund will be made available for: (1) natural resource protection programs, including reforestation, erosion control, river defense, water storage, and cleaning up polluted rivers and oceans; (2) public infrastructure, such as waste disposal systems and clean and energy-efficient transportation projects; and (3) industrial investments in pollution control and development of renewable sources of energy. Credit from this fund will be given on concessional terms, and will be available to finance both feasibility studies and capital investments.

Beneficiaries: The beneficiaries of the project's activities will include the general population of the Andean Region. However, A.I.D. assistance in support of member country efforts to manage their natural resources will most directly benefit the poor, since the poor tend to incur a disproportionate share of environmental costs: as urban slum-dwellers, the poor are subject to health hazards from air and water pollution from nearby industries; as subsistence farmers, progressive mineral depletion and erosion of soils continually reduce their productivity. By protecting the poor from these environmental costs, the project will have a significantly positive impact on the quality of life and future productivity of the region's poor.

Major Outputs: The grant project will provide an inventory of principal agencies in the region which are involved in environmental issues, establish linkages among them, and sensitize major governmental and non-governmental actors to the importance of regional environmental planning. The grant will, then, be creating the necessary institutional basis for the follow-on loan program.