LAC BUREAU

AGRICULTURE AND NATURAL RESOURCES STRATEGY

February 27, 1991

FIRST DRAFT: NOT FOR CITATION

AGRICULTURAL POLICY ANALYSIS PROJECT, PHASE II

Sponsored by the

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Assisting AID Bureaus, Missions and Developing Country Governments to Improve Food and Agricultural Policies

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Prepared for:

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FORWARD

The Agriculture and Natural Resources Strategy was drafted for A.I.D.'s Bureau for Latin America and Caribbean (LAC) Office of Rural Development. This document is the first draft of the strategy and will be developed further with the assistance of mission and regional office personnel at a regional workshop to be held this spring. The final LAC Bureau Agriculture and Natural Resources Strategy will be the result of a bureau, mission, and regional office collaborative effort.

A background and options paper, which accompanies this first draft, discusses in more detail the trends, principles, and issues facing the A.I.D.-funded countries in the LAC region.

This strategy is intended to serve as a list of options for strategic action. Neither the authors nor the LAC Bureau wish to impose specific strategies or objectives for Mission action. Rather, this document should serve as a catalyst for thought and a tool for identification of mission priorities. The options are organized in order of importance in each of four strategic areas: economic policy reform, trade, and investment (since economic reforms necessarily accompany other activities); agricultural productivity, sustainability, marketing, and growth; natural resource management; and the small farmer, employment, and land tenure. The authors recommend the pursuit of a number of strategies simultaneously to assure that when economic policy reforms take effect, the other components of sustainable agricultural growth will be in place.

The reader is encouraged to raise questions and to agree or disagree with the strategies and specific objectives.

EXECUTIVE SUMMARY

INTRODUCTION

New opportunities for broad-based, sustainable economic growth and more stable and democratic societies are developing for the countries of Latin America and the Caribbean (LAC). Democratically elected leadership and efforts to provide economic freedom to more than a select few members of society are dispelling the political uncertainty that plagued many LAC countries in the 1970s and 1980s. LAC countries are taking a fresh look at the importance of economic policy reform and the appropriate role of the public sector, which enhances their potential to succeed economically. At the same time, the United States is supporting a number of initiatives to encourage trade liberalization, such as the Caribbean Basin Initiative and the Enterprise for the Americas Initiative. These factors combine to enhance the possibilities for economic, political, and social development in the region.

This strategy document outlines action for the LAC Bureau and its 13 major country missions. The strategy reinforces the established Bureau and Agency objectives, which call for support in the following areas:

(1) Achievement of broad-based, sustainable, economic growth;

(2) Evolution of stable, democratic societies; and,

(3) International cooperation to address the challenges facing the LAC region.

The first of these three objectives, "achievement of broad-based, sustainable, economic growth," plays a prominent role in LAC Bureau agricultural sector activities. This objective encompasses the following four elements which were given special attention in the design of the new agriculture and natural resources strategy:

- Encourage the adoption of and continued adherence to economic policies that promote investment, productive employment and export-led economic diversification;
- Encourage a vigorous response by the private sector to a favorable policy environment;
- Encourage accelerated opportunities for increased participation in the economy by the historically disadvantaged; and,
- Encourage preservation and sustainable use of the natural resource base.

After two decades of relatively rapid economic growth in the 1960s and 1970s, most LAC countries suffered negative growth rates in per capita income in the 1980s. They lost a significant part of the gains in income that they had achieved.

A combination of domestic and international factors contributed to the economic losses during the 1980s. An excessive level of overall expenditure and inflation, often linked to a large government budget deficit, together with exchange rate misalignment and distorted factor and market prices, created conditions inimical to longer-term growth. On the international front, the magnitude of the 1970s recession in industrial countries combined with the rise in international interest rates and the length and depth of the depression in export commodity prices, created an unfavorable external environment for growth. These external shocks of the period showed the structural weaknesses and the limited flexibility of the economies of many LAC countries. By and large, the inability to adjust to these shocks stemmed from inappropriate and unresponsive economic policies.

Much of Latin American foreign borrowing during the late 1970s went for purposes other than investment, such as the financing of fiscal deficits, capital flight, and improperly managing trade and financial liberalization efforts. With additional borrowing limited to the direct financing of interest payments and the refinancing of existing debts, exchange rate depreciation and deflationary measures aimed at depressing domestic consumption and creating a trade surplus became the primary focus of Latin American macroeconomic policy. The resulting declines in domestic consumption and investment translated into economic growth of less than 2 percent for all but three countries. Efficient adjustment requires better domestic policies together with adequate financing. Constrained by insufficient external financing in the late 1980s, several LAC countries have adjusted, improving their external accounts, albeit at the expense of economic growth.

Nearly every LAC country suffers from loss and deterioration of its natural resources. Deforestation heads the list of environmental problems, with serious local consequences and perhaps even more critical worldwide implications for increasing global warming and destabilizing world climate. Other problems which are linked to deforestation include soil erosion and reduced agricultural productivity, water pollution and water scarcity, and impaired biological diversity. Population growth continues to place pressure on the already fragile lands. National population growth rates, with only a couple of exceptions, are projected to remain in the general range of 2 to 3 percent annually. The slowdown in economic growth in the 1980s reduced the number of off-farm jobs and the demand for marketed farm products, which meant that small-farm families suffered significant declines in their real per capita incomes.

The obstacles to LAC country development are significant. The large external debts of most countries in the region, combined with political instability in several countries, constrain efforts; policies directly affect economic growth; and public and private institutions, technology, and infrastructure thwart realization of the potential for agricultural productivity and human resource use.

MAJOR STRATEGY AREAS

The major objectives of the LAC Bureau strategy for agriculture and natural resources are (1) to increase the level of real national income by

achieving a significant positive rate of growth in real per capita national income; (2) to increase the real per capita incomes of rural people, with particular attention to families in the small farm sector; and (3) to achieve the natural resource goals of sustainable agriculture and forestry.

The strategy for the LAC Bureau is divided into the following four major priority areas, with specific strategy objectives identified in each area.

Economic Policy, Trade, and Investment

In addition to A.I.D.'s direct role in economic policy reform efforts, the Agency can actively participate by providing infrastructure (transportation, education, communications, power, agricultural research, and extension) to support economic growth. The long-term horizon of A.I.D. programs, the mission presence in the field, and the Agency's capacity for innovation and risk-taking create a strong basis for performance of the tasks needed to support policy reform. Specific objectives include the following:

- Remove economy-wide price interventions that discourage agricultural growth. Ample evidence shows these price interventions (trade and macroeconomic policies that influence the real exchange rate and real interest rates) are extraordinarily high in several LAC countries. These policies are currently a major source of the implicit taxation affecting agricultural production.

- Reform agricultural trade and price policies. Price and trade interventions in agricultural markets are widespread in LAC countries, resulting in a strong anti-trade bias and selective and discretionary trade regimes. Most countries tax traditional exports, offer rebates on "non-traditional" exports, and protect import-competing activities, particularly food products.

- Develop effective compensation schemes to protect the poorest consumers and farmers from the highly unstable world prices of farm products. In addition, export tax policies have institutionalized a flow of tax revenues, the prospective loss of which may cause considerable difficulties for the Treasury.

- Develop new institutions that provide technical assistance to design and implement economic reforms and build domestic capacity to design and implement institutional change, as well as to evaluate economic policies and public investments.

- Support reforms, needed to complement trade and market liberalization, in the public sector, financial sector, labor market, trade infrastructure, regulatory framework affecting agricultural projects and farm inputs, and security of property rights.

Agricultural Productivity and Sustainable Development

To improve agricultural productivity, land and labor affecting both farm and non-farm people must become more productive. The growth of agricultural output must be sustainable; output should not be increased at the expense of the future viability of farming. Objectives in this area are as follows:

- Strengthen agricultural research and advanced educational institutions to improve agricultural productivity.
- Adequately protect crops, livestock, and fish, both pre- and post-harvest.
- Improve the physical infrastructure for trade, such as transportation, storage, port facilitates, and information dissemination.
- Improve efficiency and competition in the domestic markets for farm products.
- Strengthen public and private institutions that serve agriculture and rural people, reenforcing and improving collaboration and cooperation.

Natural Resource Use Management

Development is sustainable when actual land use does not exceed capacity. When capacity is exceeded, environmental problems result. The theme of land use capability (the capacity for sustainable development) connects the three options for natural resource management:

- Reduce deforestation of tropical moist forests through improved forest management and sustainable production of high-value products.
- Increase production of high quality water on a sustained basis through effective watershed management.
- Protect and use wildlands to conserve biological diversity and to produce goods and services.

Small Farmer, Employment, and Land Tenure

In the LAC region, the small-farm population represents the majority of all farm families and a significant portion of the entire population. The integration of these families into the economic and political systems is critical to the development of stable democratic societies. Small farmers and women have long suffered from relative deprivation in the provision of public services, such as education, health, police protection, and the administration of justice. Natural resource degradation is often a problem in areas where small farms are located. The absence of clear and enforced land titles is a

major barrier to agricultural improvement and conservation of natural resources. Specific objectives are as follows:

- Promote security of property rights to increase productivity, investment, and resource maintenance.
- Encourage the provision of more physical infrastructure in rural areas to increase productivity, broaden the productive base, and improve the quality of life in rural areas.
- Help improve basic education in rural areas.
- Encourage expansion and improvement of public and private services in rural areas.
- Foster the development of off-farm employment opportunities in rural areas.
- Stimulate the development of taxation policies that promote appropriate land use and increase the fiscal resources available to local governments.
- Improve the effectiveness of rural financial systems to increase productivity in rural areas by adequately serving small and large farmers, small businesses, and local communities.
- Promote the development and improved functioning of research and outreach systems that focus on small farmers and women.

1. INTRODUCTION

Changing economic and political realities in the LAC region call for new A.I.D. strategies. Three important world developments are building a foundation for new opportunities for the region to achieve broad-based, sustainable economic growth and stable, democratic societies.

Economic Policies. The first development is the new attitude toward economic policies and the role of the public sector. In country after country, policymakers have embarked on a revision of trade policy, taking steps to open the economy, strengthen fiscal discipline, and achieve macroeconomic equilibrium. The current opportunity to reform institutions and policies could well be one of the main political and economic tasks for the region in the 1990s.

U.S. Initiatives. The second comprises the combined effects of the U.S. administration's new mood toward the region and the prospects for trade liberalization. The focus on trade liberalization in the Uruguay Round of GATT negotiations, and the Caribbean Basin and the Enterprise for the Americas initiatives reveal the potential for LAC countries to achieve greater political and economic interdependence.

Environmental Awareness. The third development is the growing awareness of environmental issues and new understanding of how natural resources contribute to agricultural productivity and to quality of life. Policymakers are recognizing the need to manage natural resources better, both to increase productivity and to reduce environmental degradation. More than ever before, protecting and strengthening the natural resource base in the LAC region is a realistic and achievable option.

The challenge for A.I.D. is to select strategic options that have the maximum impact, given the reality of limited resources. This strategy for agriculture and natural resources reinforces LAC Bureau and overall Agency objectives by:

- Supporting the achievement of broad-based, sustainable economic growth;
- Supporting the evolution of stable, democratic societies through greater participation by disadvantaged small farmers; and
- Calling for international cooperation in addressing these challenges.

2. THE CHALLENGE FOR AGRICULTURE AND NATURAL RESOURCES

2.1 LAC Trends in Agriculture and Natural Resources

Macroeconomic

A number of critical economic problems in the LAC region have had a major impact on rural people, agriculture, and natural resources in recent years. After a period of relatively rapid economic growth in the 1960s and early 1970s, most of the countries suffered negative growth rates in per capita gross domestic product in the 1980s. Consequently, a significant share of the gains in per capita income achieved during the previous two decades were lost. (See Exhibit 1 for data on basic indicators.)

A combination of domestic and international factors contributed to the economic losses during the 1980s. An excessive level of overall expenditure and inflation, often linked to a large government budget deficit, together with exchange rate misalignment and distorted factor and market prices, created conditions inimical to longer-term growth. On the international front, the magnitude of the 1970s recession in industrial countries, combined with the rise in international interest rates and the length and depth of the depression in export commodity prices, created an unfavorable external environment for growth. It was difficult to predict the coincidence of these three external events. Nevertheless, these three factors compounded the problems associated with the oil crisis in the 1970s. These external shocks of the period showed the structural weaknesses and the limited flexibility of the economies of many LAC countries. By and large, the inability to adjust to these shocks stemmed from inappropriate and unresponsive economic policies.

These factors and the reluctance of private creditors to renew voluntary lending and thus finance the current account deficits of the magnitude recorded in 1981-82 placed several of the countries in high debt in relation to income and their capacity to pay. Moreover, much of Latin American foreign borrowing during the late 1970s went for purposes other than investment, such as the financing of fiscal deficits, capital flight, and improperly managed trade and financial liberalization efforts. Latin American countries have generally found themselves with insufficient productive capacity, especially in export-competitive sectors, to service heavy debt loads. With additional borrowing limited to the direct financing of interest payments and the refinancing of existing debts, the primary focus of Latin American macroeconomic policy became exchange rate depreciation, higher interest rates and other deflationary measures aimed at depressing domestic consumption and thereby creating a trade surplus. The resulting declines in domestic consumption and investment translated into economic growth of less than 2 percent for all but three countries. Efficient adjustment requires better domestic policies together with adequate financing. Though domestic policies in several LAC countries were adjusted during the mid-1980s, the improvement in external accounts was obtained at the expense of economic growth. To a large extent, this was caused by insufficient external financing.

The relatively high growth rates of the 1970s were associated with large capital inflows into almost all the LAC countries. During 1970-74, only Bolivia and Nicaragua had ratios of external debt to GDP in excess of one-third. A decade later all the countries had debt ratios in excess of one-quarter and five countries had ratios in excess of one-half. As these countries entered the 1980s, they were saddled with large external debts which they attempted to service. However, since the capital stock had not been increased significantly as a result of the debt incurred, there was little or no additional productive capacity to cover the interest and principal payments. (See Exhibit 2 for data on external debt.)

Agricultural Productivity

Although per capita agricultural and food production declined over the past two decades, the daily per capita supply of food as measured by calorie availability declined slightly in only two countries in the region. (See Exhibit 3.) Differences in the behavior of domestic production and supply were due to differential trends in exports and imports of food products and shifts away from consumption of livestock products to calorie-intensive foods such as grains, sugar, and vegetable oils. The greater grain availability was due largely to a substantial increase in food aid which more than offset the decline in per capita domestic production. (See cereal import data in Exhibit 4.) In Haiti and Peru where the per capita supply of calories fell, the decline was less than 5 percent.

These problems and successes should be seen in the context of the major objectives of the LAC Bureau strategy for agriculture and natural resources. The objectives are (1) to increase the level of real national income by achieving a significant positive rate of growth in real per capita national income; (2) to increase the real per capita incomes of rural people, with particular attention to families in the small farm sector, and (3) to achieve the natural resource goals of sustainable agriculture and forestry.

Natural Resources

Nearly every LAC country suffers from loss and deterioration of its natural resources. Deforestation heads the list of environmental problems, with serious local consequences and perhaps even more significant worldwide implications for accelerating global warming and destabilizing world climate.

Deforestation is also both a cause and a symptom of other urgent problems that constrain future economic development in the region. These problems range from soil erosion and reduced agricultural productivity, to water pollution and scarcity, to diminished biological diversity.

In general, the following trends affect large expanses of land and the lives of millions of people in the region:

- Loss, waste, and degradation of forest resources;
- Erosion and degradation of marginal lands;
- Loss of topsoil and reduced yields on agricultural lands;
- Desertification of drylands;

- Low livestock yields on hills and in wet climates;
- Loss of genetic diversity and habitat;
- Over-hunting and over-fishing;
- Loss of water from irrigation;
- Water pollution; and
- Misuse of pesticides.

The outlook is not entirely gloomy, however. Optimism can be derived from the fact that most countries still have substantial renewable natural resources that could be brought under sustainable management. This would increase productivity and incomes and reverse tendencies toward depletion and deterioration. Conditions are ripe to reform policies, provide advanced training, undertake research, and apply new technology to achieve sustainable natural resource management.

Small Farmers

The slowdown in economic growth in the 1980s had significant adverse effects on the families living on small farms in the region. These families had gained from the relatively rapid growth rates of the 1960s and 1970s by taking advantage of opportunities provided by the growth of nonfarm jobs. Few nonfarm job opportunities were created in the 1980s. Given the declines in the real per capita incomes in each of the economies during the 1980s, it is highly probable that families in the small farm sectors suffered significant declines in their real per capita incomes. This decline would have resulted from the reduction in off-farm jobs relative to size of the farm population as well as from the decline in the demand for their marketed farm products.

Population and Welfare

With only a couple of exceptions, national populations in the region are projected to grow at a rate of 2 to 3 percent annually, placing further pressure on a relatively fragile resource base.

Two important indicators of the well-being of the people indicate general significant improvement. First, during the past quarter century life expectancy at birth in each LAC country has increased by no less than 8 years and by as much as 14 years. (See Exhibit 5 for data on education and health.) Second, birth rates declined by at least 10 percent in each country and by 40 percent in two (Costa Rica and Jamaica) between 1965 and 1988. The relatively small decline in population growth for the region was a result of the significant increase in life expectancy largely due to the decline in infant mortality. Even under the adverse economic conditions of the 1980s, further progress was made in reducing infant and child mortality. A third positive indicator was the increase in availability of both primary and secondary education.

2.2 Constraints to Action

The constraints that make the achievement of the stated objectives difficult are considered in five areas: Large external debts of most LAC countries, political instability in several of the countries, policies of both the region and other countries, institutions (public and private), and infrastructure and technology.

External Debts

Eight of the countries have external debts that were greater than half of their gross national products in 1988, with two countries (Bolivia and Jamaica) with debt-to-GNP ratios in excess of 100 percent. Only three countries had debt-to-GNP ratios of less than a third: Haiti, Guatemala, and El Salvador.

The amount of the debt relative to GNP represents a constraint for two reasons. First, if the country services the debt by paying interest and meeting the agreed upon schedule for repayment, a debt-to-GNP ratio of 75 percent constitutes a significant claim on the gross national product, perhaps around 5 percent of GNP, as well as a larger percentage of the value of exports. Since governments guarantee most of the external debt in LAC countries, debt servicing greatly restricts the availability of resources for investment in the economy.

Second, a country that does not service its external debt will generally lose access to the international capital market for new productive investments. Thus, while not servicing the debt may reduce the drain on domestic resources in the short run, the benefit comes at considerable cost, at least for a number of years. In either scenario, the accumulated debt seriously restrains actions that could contribute to the broad objectives outlined above. This is particularly true of the improvements in infrastructure that are either relatively capital-intensive (roads) or involve significant recurring expenditures (schools).

Political Instability

At the beginning of the 1980s, political turmoil characterized virtually every country in the LAC region with the exception of Costa Rica. Military dictators, and political extremists on both the left and the right challenged and obstructed economic and political development. By the end of the 1980s, however, democratically elected governments had replaced a number of military regimes. Elected civilian governments had come to realize that protectionism, heavy-handed regulation, and state enterprises did not respond to people's needs and would become a political liability.

With the support of the International Monetary Fund, the World Bank and A.I.D., countries in the region began to implement economic policy reform programs. Some governments were able to stabilize their economies and they experienced growth. Others found the political cost of policy reform too high. Political stability will remain a theme in the 1990s as the tension between political favors and economic reform continues. However, the shift

toward democratically elected governments and significant reductions in civil rights abuses are key improvements in the economic and political environment of the LAC countries.

Policies

Policies, regulations, and governmental institutions significantly affect national success in achieving economic growth, assuring that rural families participate in that economic growth, and building sustainable agriculture and forestry sectors consistent with appropriate use of natural resources.

While governmental interventions that impede export growth have significantly declined in recent years, especially those affecting traditional agricultural products and those encouraging import substitution, many interventions still restrain economic growth in general.

For most of the past two decades major governmental policies regarding agriculture have adversely affected prices, production, and income. While in most LAC countries these policies have become less oppressive over the past five years, much more needs to be done. It is reasonable to assume that it will be some years before farmers are fully confident that the political and economic environment has permanently changed. Consequently, the response to many policy changes is likely to be slow and halting. In this arena, bygones are not bygones.

Much work remains before the economic policy framework fully supports private sector development in all parts of the economy. Numerous policy, legal, regulatory, and administrative barriers constrain the free flow of goods, services, and capital within countries, among countries in the LAC region, and between these countries and the rest of the world.

A few LAC countries have not promulgated policies designed to further sustainable natural resource management. Most countries do have such policies, but they often fall short of meeting their goals because of ineffective application. Furthermore, in many instances, policies that adversely affect natural resources, do so indirectly. For example, policies that aim to increase agricultural productivity or make land available for new settlement, often produce undesirable and unintended side effects, like deforestation and shifting agriculture. Both types of policy weakness constrain sustainable development.

Institutions and Human Resource Development

The slow economic growth and, in many countries, the political and civil instability of the last decade have diminished the capacity of many institutions. Especially hard hit have been the agricultural research and educational institutions that are essential to realizing agricultural production potential and effective, productive use of the human resources in rural areas. Years of inflation and tight budgets have taken their toll on the availability of scientific equipment, computers, transport equipment, and qualified and trained personnel.

While more primary schools have been built, in many areas the quality of education remains very low. The centralization of educational control significantly reduces the potential of local initiatives to improve rural schooling.

The negligible progress in creating land registers and titling land is a major institutional failure that inhibits productive investment in agriculture and forests and causes natural resource degradation. This failure particularly harms the relatively poor.

State enterprises continue to play a major role in most LAC countries. Efforts to remove such enterprises from the public sector face significant resistance from workers who would be threatened with job loss if their employers were privately owned and no longer heavily subsidized.

Educational institutions in LAC countries graduate relatively few professionals in natural resource management. The pool of trained talent available to manage natural resources, whether through public or private sector institutions, does not suffice to meet regional needs. Additionally, on-the-job training opportunities are very limited for both technical people and administrators. Scarcity of talent is one factor that contributes to the limited effectiveness of agencies responsible for natural resource management. Factors that further weaken institutions in this field include low political priority, insufficient budgets, and lack of field capacity.

In addition to the need for well-trained professionals, both agriculture and natural resource management in most LAC countries would benefit from more attention to human resource development. Rural people who make their living from small farming and from extracting and using natural resources are often disadvantaged compared to urban dwellers. They lack good schools and good health care. More to the point, rural people usually lack access to the information or to the technical and financial resources that would enable them to farm more intensively or to carry out more sustainable agriculture.

Inadequate market information systems and communications networks significantly constrain full development of the potential for agricultural exports and forest products. Breaking into new export markets is difficult at best, especially for small enterprises; it is particularly difficult for latecomers who have few or no connections with the import markets and inadequate sources of information about those markets. In addition, in some countries the poor quality of the telephone systems imposes significant problems.

Infrastructure and Technology

The state of the infrastructure (roads, railroads, telephones, market and port facilities, information systems, electricity supply) limits the productivity of most investments and thus the incentive to make those investments. High transportation costs severely limit the development of agriculture and natural resources in areas distant from the major cities or ports. Where the return to resources is low, the incentive to conserve those resources is adversely affected. In such situations, improving and expanding

roads and maintaining them in good condition helps to support sound development.

In many instances, however, the infrastructure necessary to sustain natural resource management tends to be machinery and equipment, rather than physical works like roads and bridges. Some investment in small-scale physical infrastructure like mini-hydroelectric generators, dikes, dams, wells, and soil conservation works is probably advisable. In forestry, for example, investments in modern, efficient machinery to extract and transport logs, and especially to process them into high quality finished products, could go a long way toward providing the technical and financial impetus for forest management.

Great technological advances have taken place in Latin America in the last few decades in natural resource management just as they have in agriculture but, some technological gaps still exist. Some needs, like that for computerized geographic information systems, can be filled by direct transfer of technology. Others, like applied practices for natural forest management, must be developed in the field through strong national and regional research institutions.

3. A.I.D. PRIORITY AREAS

The wide range of issues and constraints facing LAC countries necessitates that interventions be prioritized. The objectives of the LAC Bureau are to (1) increase the level of real national income by achieving a significant positive rate of growth in real per capita national income; (2) increase the real per capita incomes of rural people, with particular attention to families in the small farm sector; and (3) achieve the natural resource goals of sustainable agriculture and forestry. Certain guiding principles help to define the most appropriate actions for A.I.D. to pursue in achieving these objectives.

3.1 Suggested Guiding Principles for the A.I.D. Strategy

The following major principles are suggested to guide A.I.D.'s efforts in selecting priority action areas for agriculture and natural resources:

1. A.I.D. will help LAC governments eliminate impediments to private sector-led trade, investment, and employment generation. The highest priority is the reduction of macroeconomic constraints that create disincentives in the agricultural sector, followed by sector policies that discourage economic growth.

2. A.I.D. will support growth of sustainable agricultural output; current output increases must not be obtained at the expense of the future viability of farming.

3. A.I.D will provide assistance to public and private institutions to support research aimed at increasing agricultural and natural resource productivity in the region.

4. A.I.D. will advocate land use capability analysis as a central feature of an array of revised macro and sectoral policies for promoting protection and sustainable use of natural resources.

5. A.I.D. development actions at the field level will apply sound natural resource management practices through direct participation by rural people.

6. To address the problems of the small farmer, A.I.D. will encourage the inclusion in the economic and political systems by increasing their access to public services, such as education, health, and infrastructure.

7. In relation to both small farmer and natural resource management concerns, A.I.D. will work with LAC governments to promote security of property rights, thereby increasing productivity, investment, and maintenance of resources.

8. Realizing that the achievement of a significant rate of growth in real per capita income will entail a transfer of employment from agriculture to the rest of the economy, A.I.D. will support the development of rural or semi-rural nonfarm enterprises.

9. A.I.D. will continue to emphasize capacity building and sustainable economic growth to reduce future needs for development assistance.

10. A.I.D. will take creative approaches to encourage an appropriate balance between the public and the private sectors. Both can play significant roles in the provision of research and extension, promotion of agricultural market efficiency, and improvement of natural resource management.

3.2 Strategic Options for Economic Policy, Trade, and Investment

This strategy proposes a set of structural reforms and accompanying macroeconomic reforms as they affect agriculture that is designed to increase economic growth as part of a broad economic modernization program. Areas in which A.I.D. can be especially effective, relative to other donors, are developing new institutions, providing technical assistance for the design and implementation of economic reforms, and building the domestic capacity to design and implement institutional change, as well as evaluate economic policies and public investment projects. These activities require long-term commitments and intensive participation by field staff, as well as consultants. A.I.D. is well-suited to perform the needed tasks by the long-term horizon of its programs, its mission infrastructure, and its capacity to be innovative and take risks.

The impact of macroeconomic policies on agriculture is significant. In a study by Schiff and Valdes[1], the impact of intervention on agricultural growth and economic growth was examined. This study, while still in the preliminary stages, suggests the following:

- There is a negative relationship between total taxation and GDP growth. A negative relationship was also found between the indirect taxation rate (from economy-wide policies) and GDP growth, as well as a significant relationship between exchange rate overvaluation and GDP growth.

- The impact of total taxation (direct and indirect) on the growth of agricultural GDP is significant and negative. On average, removal of total taxation would have increased the annual rate of agricultural growth (average of the five LAC countries studies) between .5 and 1.2 percentage points (i.e. if it was 2 percent, it

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[1] Maurice Schiff and Alberto Valdes, The Economics of Agricultural Price Interventions in Developing Countries. The Johns Hopkins University Press, 1990 (forthcoming).

would have ranged between 2.5 and 3.2 percent per annum). For reasons discussed in the study, this estimate is believed to underestimate the potential growth effect of the policy change.

- The impact of the price interventions on agricultural growth were found to be co-determined with the country's overall growth performance. If the policy reforms we suggest for agriculture are implemented in a period characterized by a strong recession and/or a major investment constraint in the country in question, the impact of the reforms on agricultural growth will be considerably below what it could otherwise be.[2]

An agricultural trade liberalization process in LAC countries would lead to considerable change in the structure of incentives and prices to consumers. This would lead in turn to changes in both the level and the current composition of overall agricultural output. It could lead to intensification of production in some products and reductions in acreage in others. Judging a priori what the net effect of liberalization would be on natural resources and the environment is, of course, a complicated question for which no clear answers are available. Current policies have environmental consequences, and the proposed policies would also have some environmental effects. For example, additional labor inputs could be expected to have positive consequences, while additional pesticide usage would probably have negative environmental effects. Other policies may be neutral.

Overall, in most LAC countries we would expect economic policy reforms of the type suggested in this document to raise the value of natural resources (particularly farmland) and thus the incentives to conserve them. In this sense, we do not anticipate a basic conflict between this economic policy reform package and environmental concerns. If anything, these reforms would create an economic environment more conducive to better land and water use practices. However, there is ample scope for policy action on specific aspects to correct for the externalities that elicit genuine environmental concerns.

Objective 1: Remove economy-wide price interventions that discourage agricultural growth.

Rationale. Ample evidence shows economy-wide price interventions (trade and macroeconomic policies which influence the real exchange rate and real interest rates) to be extraordinarily high in several LAC countries. These policies are currently a major source of the implicit taxation affecting agricultural production. Unless these major price distortions are removed, agricultural investment will have a social and private return considerably below its economic potential.

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[2] A. Krueger, M. Schiff, and A. Valdes, "Economia Politica de las Intervenciones de Precios Agricolas en America Latina". San Francisco, World Bank and International Center for Economic Growth, 1990.

Actions Needed. Substantially reduce industrial protection. Impose budgetary discipline restricting government expenditures to a level compatible with a balanced budget. Keep inflationary pressures under control. Avoid price controls. Remove quotas, licenses and similar quantitative restrictions on output, imports, and exports, including agricultural trade. Consider tax reform to replace revenues from agricultural export taxes.

Objective 2: Reform agricultural trade and price policies.

Rationale. Price and trade interventions in agricultural markets are widespread in LAC countries, resulting in a strong anti-trade bias and a selective and discretionary trade regime. Most countries tax traditional exports, offer rebates on "non-traditional" exports, and protect import-competing activities, particularly food products. Export taxes, price controls, and QRs are commonly used. Replacing QRs with tariffs has several advantages. Modification of the structure of agricultural protection toward greater equality is an important reform.

Actions Needed. Remove all QRs that apply to agricultural products and inpu+ replace them with low and fairly uniform tariffs on importables, and redu export taxes. Eliminate legal monopoly of state agencies in agricultural trade.

Objective 3: Develop effective compensation schemes.

Rationale. The long-time practice of agricultural interventions has resulted in the creation of strong pressure groups, such as those in urban wage markets and rural food production. Given the lack of risk diffusion institutions, the poorest consumers and farmers need protection from the high instability in world prices of farm products. Furthermore, export tax policies have institutionalized a flow of tax revenues, the termination of which may incur considerable losses for the Treasury.

Actions Needed. Understand that the resistance to reforms and the design and implementation of effective compensation mechanisms could be essential for the survival of reforms. Provide technical and financial assistance for the design and possible implementation of a) targeted food subsidies for the lowest income households, b) domestic price stabilization schemes to deal with excessive price instability in two or three major food products, c) an efficient value-added and income tax scheme to compensate for lower revenues from export taxes, and d) studies that identify the winners and losers of current and alternative policies and measure the implicit income transfers from the prevailing policies.

Objective 4: Increase institutional capacity to conduct policy analysis, and to design and implement policy reform programs.

Rationale. For policy reforms to be effective, the economic constraints and problems which led to the need for reform must be properly analyzed and appropriate reforms designed. Building the institutional foundation to evaluate the economic forces and to manage the implementation of those reforms is a critical step in improving the success of policy reform programs.

Actions Needed. Support the analysis of the impact of policy reforms through technical assistance and human resource development. Increase institutional capacity to evaluate, design and implement policy reform programs.

Objective 5: Carry out complementary reforms for reaching the desired objectives.

Rationale. The extent of the reforms needed depends on initial conditions and varies from country to country. In most countries, trade and market liberalization requires complementary reforms in public sector, financial sector, labor market, trade infrastructure (services such as transport and communications, banking, and others), the regulatory framework affecting agricultural products and farm inputs, and the security of property rights.

Actions Needed. Establish a long-term commitment on the part of the government. Encourage policy dialogue and coordination among multilateral and bilateral donors and governments, as well as among government institutions, private sector entities, and trade unions. Provide technical assistance to LAC countries to identify and remove the constraints in these related sectors.

Targets for Economic Policy, Trade and Investment

- Remove all quantitative restrictions (QRs) during the next two years.
- Establish government commitment to modifications of tariff schedules in the direction of greater equality of rates and a reduction in the maximum tariffs to a new level not higher than 20 percent in not more than four years.
- Maintain exchange rates at reasonable levels.
- Set a target for domestic inflation around the ongoing rate of inflation in the world economy.
- Avoid price controls if possible.
- Keep fiscal policy tight.
- Reduce export taxes as revenues from these taxes are replaced by other more neutral sources of revenues.
- Provide technical assistance with guidelines on use of chemical pesticides, particularly those used in export products.
- Support public commitment by government to implement effective compensation schemes in these areas simultaneously with the public announcement of the agricultural policy reform package and identify technical expertise for their design and implementation at an early stage of reform planning.

3.3 Strategic Options for Agricultural Productivity, Marketing, Sustainability, and Growth

The policy reforms called for in the section devoted to economic policy, trade and investment are critical to significantly improving agricultural productivity and increasing the growth of sustainable agricultural output. Unless production, marketing, and export of farm products are profitable activities, it is unreasonable to expect agricultural output to increase relative to the slow pace of the past decade or so. The growth of exports, which is essential to the general health of the LAC economies, depends not only upon appropriate domestic price policies but also upon implementing exchange rate and trade policies that are at least neutral toward the growth of both traditional and nontraditional exports of agricultural products. It cannot be expected that achieving significant changes in one area, such as a substantial increase in funds devoted to agricultural research or in the redirection of that research to the most pressing problems, as important as these are, will be sufficient to create an environment for significant agricultural growth. Rather, measures are needed which affect many aspects of the economic environment in which farm people undertake their activities.

The need to increase agricultural productivity and the rate of output growth is underscored by the fact that during the 1980s the population of every LAC country save one grew at a faster rate than agricultural food production. Consequently, in the 1980s per capita food production declined in the region. Increasing agricultural productivity through both land and labor is important to farm and nonfarm people. For nonfarm people, increasing productivity means not only growth in per capita food supplies but also declines in the real price of food. This has been the historical experience of food prices where productivity has grown.

While the significant rates of economic growth will provide off-farm employment for many farm people, the majority of them will still be living on farms a decade from now. Thus, their ability to share in the income gains resulting from economic growth requires that the productivity of their land and labor grow at approximately the same rate as the national growth rate. Otherwise, farm people will be left behind.

Improvements in agricultural productivity are important to establishing a base for rapid growth of both traditional and non-traditional agricultural exports. Real prices of most agricultural products are declining over the long term. Thus, if export growth is to contribute to the income opportunities of farm people, agricultural productivity in the region must grow at least as rapidly as in the rest of the world. If not, the region will either gradually lose export share or farm people will not share fully in its economic growth. In fact, if the region is to regain the ground that it lost in per capita income over the past decade, its rate of increase in agricultural productivity must exceed that of the rest of the world.

The growth of agricultural output must be sustainable; current output increases must not be made at the expense of the future viability of farming. Growth in output must come in ways that do not merely conserve natural resources but also increase their productivity by proper management and care.

The level of agricultural productivity in the region is low whether it is measured by crop yields or by output per animal in the breeding stock. This news is not all bad; it means that there is substantial potential to increase production by fuller utilization of knowledge and farming technologies. Increasing yields and labor productivity entails more than borrowing technology from others; it also requires active research programs in institutions that respond to the needs and problems of the region's farmers.

Objective 1: Strengthen agricultural research and advanced educational institutions to increase their contributions to agricultural productivity.

Rationale. Modern agriculture depends on the new knowledge developed by agricultural research institutions. An important source of productivity changes is the development of new varieties of crops and breeds of animals that are adapted to the climatic and soil conditions of specific agricultural areas. Research is needed on indigenous crops and practices; many of these crops are primarily for subsistence, which would translate into improved nutrition for the families consuming them and the women who prepare the meals.

The research agenda needs to be expanded beyond the work on traditional crops and livestock, important as such research is. The new challenge for agricultural research is to provide a basis for sustainable agriculture while supporting productivity improvements for products that have the potential to become important export earners. The expansion of nontraditional exports requires significant research attention to the production, harvesting, and marketing of the fruits, vegetables and flowers that have the potential to compete in international markets. Areas of research that could contribute to the more efficient production of such crops have been neglected and the lack of such research is a constraint on the growth of nontraditional exports.

It is essential that research contribute to the development of sustainable agriculture with practices that are in the farmer's interest. Sustainable agriculture requires land management and agricultural practices which reduce soil erosion, conserve the available water, reduce irrigation water damage, and minimize the contamination of water and soil by fertilizer and pesticides. The benefits of agricultural research have been great where strong support has been provided.[3]

Because of the relatively small size of the population or national income of most LAC countries, it is impossible for them to individually conduct all the research needed to improve productivity. Regional cooperation is essential to realize their agricultural potential.

Actions Needed. Support cooperation in agricultural research by providing technical and financial assistance to develop coordinated

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3 Data on the high rates of return to research can be found in Thomas M. Arndt, Dana G. Dalrymple and Vernon W. Ruttan, Resource Allocation and Productivity in National and International Agricultural Research. Minneapolis, University of Minnesota Press, 1977, pp. 6 and 118.

agricultural research programs in relevant regional groupings of countries, creating regional research networks, reaching agreement on appropriate specializations in the existing research institutions, or creating or expanding existing regional research centers.

Encourage the development of viable private research organizations that may have some advantages because of their close relationships with major producer groups.

Carefully evaluate how to use limited funds to obtain maximum research productivity whether the research institutions are public or private.

Encourage the introduction of competitive funding of agricultural research, utilizing the peer review process to select the most promising projects; competitive funding should be available to support research at any institution that has a reasonable record of productivity.

Work with other donors to coordinate funding of agricultural research, perhaps cooperatively creating a fund for competitive funding, as well as for regional networks or for national systems to specialize in projects with regional applicability.

Objective 2: Improve efficiency and competition in the marketing of farm products.

Rationale. Due to a combination of inadequate infrastructure, the relatively small size of most LAC countries, and the relatively limited demand due to low income levels, competition is limited in the marketing of farm products and costs are higher than they would be with greater competition. In some countries the barriers to farm product and input trade have reduced potential competition and permitted local monopolies. Some countries have licensing requirements for carrying out certain functions, such as truck transport, that adversely affect farmers.

Actions Needed. Encourage legislatures and administrative agencies to review laws and regulations that limit entry and other forms of competition in the domestic and export marketing of farm products and inputs.

Support the reduction in barriers to imports as a means of increasing competition in domestic markets.

Encourage research, extension, and training in the marketing, quality control, and export of nontraditional crops.

Support research and extension to facilitate the expansion of nontraditional agricultural exports by improving understanding of potential export markets, requirements imposed by importing countries, and ways to achieve the levels and uniformity of quality required to be competitive.

Support, through the Department of State, the reduction of barriers to imports imposed by the industrial countries as a means of increasing the potential for agricultural development.

Provide technical assistance to create agricultural marketing cooperatives that compete with existing marketing agencies.

Objective 3: Reduce pre- and post-harvest waste and losses of crops, livestock, and fish.

Rationale. It is estimated that as much as a third of all crops are lost through pre- and post-harvest factors on farms or through off-farm factors such as inadequate transportation, storage, and marketing facilities. In most LAC countries climatic factors are conducive to adverse factors, such as pests or rapid spoilage rates for perishables. The limited availability of refrigeration contributes to high spoilage rates. Inadequate storage facilities increase the potential losses of grain and other storable food products due to rodents. However, care must be taken to determine which approaches for reducing losses result in net gains.

Both research and extension are important to help farm families use pesticides safely and to adopt safe procedures for harvesting, storing, and preparing home produced and consumed foods.

Actions Needed. Support both the evaluation of the applicability of Integrated Pest Management (IPM) to particular agricultural areas and its application where warranted.

Encourage research and extension on approaches to reducing both pre- and post-harvest losses on farms.

Encourage the private sector to invest in transportation, storage, processing, and marketing facilities to reduce losses.

Provide technical assistance for improving and standardizing sanitary and phytosanitary regulations and create effective enforcement mechanisms for both local and export crops.

Objective 4: Improve infrastructure for trade, such as transportation, storage, port facilities, credit facilities, and information.

Rationale. For several LAC countries, agricultural exports, both traditional and nontraditional, provide a major part of foreign exchange earnings. It is perhaps rather remarkable given the policy obstacles that have adversely affected the export of traditional products that the exports have continued at such high levels. The policy obstacles that have confronted agricultural exports are added to the high costs of moving products from farm through the markets to the ports. In many areas roads are limited in quality and quantity and the cost of truck transport, the only available alternative, is very costly, even where the distances are short. Developing countries find themselves at a disadvantage when they compete with exporters from the industrial countries due to limited credit facilities to facilitate exports. Most of the cost of the limited credit falls on the farmer, not the marketing agency that can take these costs into account in making decisions to buy.

The efficiency of port facilities must be improved to reduce the costs of exporting and importing. For durable products the limited availability of good quality storage facilities is a barrier to exportation because storage is required to assure a supply of the product year round.

A primary objective of expanding exports is to increase the profitability of agricultural production. An important reason for the low agricultural productivity in the LAC region has been the lack of profitability over the past two decades. Because several countries in the region are so small, major investments in agricultural facilities (including infrastructure) may be viable only if output greater than can be absorbed by the domestic market can be produced at a profit.

Most nontraditional export products from the LAC region provide significant opportunities to increase employment and income for women. Women's skills are generally better adapted than men's in the crops that account for much of the nontraditional exports, such as fruits, vegetables, and flowers. This is true in production as well as processing.

Actions Needed. Provide technical assistance to help determine the least costly ways to improve the infrastructure associated with exports and with imported inputs that increase agricultural productivity.

Encourage the private sector to contribute to improving conditions for agricultural exports by developing facilities associated with exports, especially in port areas, as well as trade and marketing information sources as a means of encouraging exports.

Objective 5: Strengthen, reenforce, and greatly improve collaboration and cooperation among the public and private institutions that serve agriculture and rural people.

Rationale. It is likely that the past decade of limited or no economic growth and budget deficits have significantly weakened the capacity of many institutions serving agriculture. These institutions generally lack budget funds, vehicles, modern office equipment, and trained personnel. In many instances, public servants are not motivated, perhaps partly because they have lacked the resources to have a major impact but probably also because performance is not related to pay and promotion. Some institutions have overlapping functions and little or no cooperation or coordination to improve the effectiveness with which the limited available resources are used. In several cases, formerly significant and thriving educational and research institutions are now largely drained of productive capacity due to reduced budgets, governmental instability, and consequent loss of many qualified researchers and teachers.

Actions Needed. Provide a forum in which private and public institutions can engage in discussions to determine the potential areas of cooperation and coordination.

Help define an appropriate role for the private sector in research and extension. Strengthen public sector research institutions by advocating

greater autonomy for them with respect to budget support, research programming, and appointment of personnel, with the expectation that they will coordinate with the private sector.

Increase the representation of women professionals in public agencies, train more women for professional activities generally, and assist LAC country agencies in addressing women's concerns.

Targets for Agricultural Productivity, Marketing, Sustainability and Growth

- Increase total agricultural production by 3.5 percent annually or by approximately 40 percent for the decade.
- Increase per capita calorie supply by a minimum of 10 percent and cereal yields by 3.5 percent annually.
- Increase the real value of nontraditional agricultural exports by 50 percent and traditional agricultural exports by at least 30 percent.

3.4 Strategic Options for Natural Resource Management

A.I.D.'s strategic options for natural resource management in LAC countries center around three priorities: sustainable management of tropical moist forest; effective watershed management; and conservation of biological diversity through wildlands management. The common theme of land use capability connects all three options and forms a unifying thread within each one. Land use capability, determined from objective criteria appropriate to tropical climatic conditions, indicates capacity for sustainable development. In general, development is sustainable when actual use does not exceed capacity. Environmental problems result from land use that exceeds capacity.

Efforts to control deforestation and attain forest management should focus primarily on lands which lack the capacity to support agriculture or grazing but which can support continuous forest production. Following the land use capacity principle, watershed management should seek to develop a watershed for all five basic land uses: agriculture, permanent crops, grazing, forestry, and protection, each on lands with the capacity to support that use on a sustained basis. Wildlands management should focus on lands with low potential for direct sustainable production and seek to obtain measurable benefits primarily from protection.

A.I.D. should approach these three priority areas with a view of how rural communities interact with natural resources. This approach entails separating out the several communities that often share natural resources or overlap with each other in exploiting them and building appropriate development approaches for each. Indigenous communities and gender considerations merit particular attention.

Objective 1: Reduce deforestation of tropical moist forest through improved forest management and sustainable production of high-value products.

Rationale. This option responds to the current alarmingly high deforestation rates in virtually every A.I.D. country in the LAC region. Although the region exhibits many types of forests, dry forests and high altitude forests, for example, the A.I.D. regional strategy focuses on tropical moist forest for several reasons. First, tropical moist forests are more biologically diverse than other types of forests. Second, in many countries, tropical moist forests suffer more deforestation than other types of forest. Third, properly managed tropical moist forests have high potential for producing a range of products and services that could contribute significantly to local and national economies.

If A.I.D. could influence policies and practices to improve management of tropical moist forests and increase their economic value, people and governments in the region would change their attitude toward the forests. Instead of viewing forest as an obstacle to development or a quick source of gain, people and governments would understand that forests can make a substantial and permanent economic contribution.

Actions Needed. Promote policies that support sustained forest management. Identify the most effective policies, analyze what makes them work, and determine how to implement them. Direct non-project assistance to policy analysis, reform, and implementation. Increase coordination with other bilateral and multinational donors. In particular, A.I.D. should build on experience to date and increase its involvement in national tropical forestry action plans and national environmental action plans.

Delineate appropriate roles and responsibilities for public and private sector institutions involved in forest management and for local communities that use forest resources. Select the most promising forest management technologies and replicate them through a combination of indigenous groups, non-governmental organizations, private industry, and public agencies. Make special efforts to integrate rural communities with a stake in forest management into the national development process and into development activities where they live.

Incorporate the best available information into forest policies and forest management practices. Identify gaps in information and technology and support basic and applied research to fill the gaps. Incorporate forestry research in overall national research agendas. Adapt research on forest management, harvesting, and processing to fit a range of scales from community level to industrial level.

Finance improved infrastructure and equipment to maximize value added to forest products. Concentrate investment as close to the forest as possible to provide local incentives to improve forest management.

Objective 2: Increase production of high quality water on a sustained basis through effective watershed management.

Rationale. Demand for water continues to grow in every A.I.D. country in the LAC region. This growth has several characteristics. The demand for total volume of water is increasing due to the variety of uses, including domestic use, industrial use, irrigation, electric power generation, recreation, and waste absorption. Water quality is also becoming more important as demand becomes more diverse and sophisticated. Increased demand requires constant availability of water; fluctuations in supply disrupt and reduce productivity.

Good watershed management would favorably affect all aspects of water demand and use in LAC countries. Failure to manage watersheds, which is common at present, adversely affects water use and demand. A well-managed watershed produces high quality water with regularity. An unmanaged watershed, on the other hand, usually exhibits inappropriate land use practices that increase erosion, lead to erratic water flows, and reduce the water available from the watershed.

Actions Needed. Undertake a water resources analysis for each LAC country to determine water demand, water availability, water quality, and the condition of the most important watersheds. Based on this analysis, A.I.D. should introduce watershed planning and watershed management practices into a small number of priority watersheds in each country. Priority should be determined by the level of demand placed on the watershed, its water production capacity, its condition, especially as regards existing land use practices which diminish capacity, and the feasibility of applying watershed management practices successfully in the watershed. Applying the results of the analysis should result in increased reliability of national water supplies.

Introduce watershed management planning into national and local policy and planning agendas. Develop and apply land use planning methodologies that fully account for limitations on land use, like climate and slope.

Increase the capacity of public and private sector institutions to prepare land use plans and to implement them on the ground. Enhance coordination of watershed management among national and local agencies and between the public and private sectors.

Train public officials and private sector professionals in land use planning policies and methodologies. Educate competing interest groups on the rationale for watershed management.

Analyze technologies for watershed management and social and economic factors that favor and disfavor it. Determine how different groups and communities use water, how their land use practices affect watersheds, and how they could be empowered to participate in watershed management. Support applied research to motivate participation in watershed management and to adapt the most promising technologies to the conditions of specific watersheds.

Objective 3: Protect and use wildlands to conserve biological diversity and to produce goods and services.

Rationale. This objective emphasizes wildlands as the principal means of conserving biological diversity as human populations continue to grow, frontiers of settlement continue to expand, and advances in technology continue to increase the impact of human activities on the environment. Setting aside wildlands for explicit protection is an essential first step in conserving biological diversity. Protection is not the only necessary step, however, and attempting to rely entirely on protection will probably fail to meet the objective.

Conservation should produce economic benefits so long as the production of those benefits is truly consistent with conservation. Therefore, the strategy for conserving wildlands includes an element of direct wildlands use for activities like tourism and scientific research and an element of public ownership to produce indirect benefits like regulation of water flows. The idea is to create economic interests that will encourage continued wildland conservation.

Actions Needed. Promote policies that explicitly aim to set aside wildlands and to protect endangered species of plants and animals. Analyze sectoral policies to determine their impact on wildlands and conservation. Promote reform of those policies that have inadvertent adverse effects on wildlands and on particular wild species. Encourage use of wildlands for direct and indirect economic benefits consistent with the conservation of the wildlands. Examples include watershed protection for downstream water uses, ecotourism, scientific research, and the subsistence and economic needs of various ethnic groups and gender groups. Select wildlands judiciously so as to obtain optimum conservation while minimizing conflict with other resources and resource uses.

Intensify management of selected wildlands, especially those which exhibit high value for biodiversity and high threat to conservation, to ensure their effective protection.

Targets for Natural Resource Management

- Reduce deforestation. Nationwide deforestation rates should decrease to under 1 percent per year and deforestation in areas unsuited to agriculture or livestock raising should approach zero.

- Increase forest productivity. One means of attaining this target is to increase the amount of forest product harvested per unit of forest area and to reduce damage and waste at the forest site. This entails introducing new species and products to existing markets. Another means of attaining this target is to improve processing of forest products after they leave the forest. This entails upgrading equipment and technology at mills and processing plants and improving product quality. Specific goals for each country should be based on conditions of the national forest

resource and national forest industry. The national level targets should be framed in terms of increases in wood extracted and marketed, larger proportions of finished products converted from raw logs, and greater value added at the mill and the extraction site.

- Perform an inventory of each country's biological resources to determine the location and extent of each of the country's ecosystems. Countries should then formulate and apply policies to safeguard representative samples of each ecosystem. Ecosystem protection will conserve all of a country's species except for those that are especially threatened from hunting, pollution, their need for large territories, or other special circumstances. Full conservation will require special policy and enforcement measures for these endangered species.

- Increase levels of direct economic benefits from wildlands and improve analytical procedures for considering indirect benefits of wildlands in formulating national development policies.

3.5 Strategy Options for Small Farmers, Employment and Land Tenure

Special attention to the problems of small farmers is warranted for several reasons. In the LAC region the families on small farms represent the majority of all farm families and account for a significant fraction of the entire population. It is important not only to alleviate the relative economic poverty of these families, but also to develop stable democratic societies that include all segments of the population. They are unlikely to be a responsible and functioning part of a democratic political system until this integration occurs. It is unreasonable to expect the development of democratic values among those who are excluded from the political and economic system.

The region's rural areas, particularly where the small farms are concentrated, have long suffered from relative deprivation in public services, such as education, health, police protection, the administration of justice, and in the infrastructure that is required for these areas to be integrated into the economy as a whole. Along with the rest of the agricultural sector, the areas with small farms have suffered from trade and price policies that have reduced both the incentives and opportunities for increasing their productivity and incomes.

Greater farm productivity and more off farm employment opportunities represent the most important approaches to improving the diets of the families living on small farms. The primary cause of inadequate diets and nutritional deficiencies is poverty; if poverty can be reduced, the nutritional well-being of these families will significantly improve.

In areas where small farms are concentrated, natural resource degradation is often greatest. In such areas forest clearing is often the main avenue for relieving the population pressures on farmland. In many cases

forest clearing contributes little to the supply of land with sustainable productive capacities in agriculture and by increasing runoff and erosion it may endanger land now in agricultural use.

The absence of clear and enforced land titles is a major barrier to agricultural improvement and conservation of natural resources. Without clear titles, conservation practices that will not yield returns for a period of years become uneconomic, even when the long run returns are quite high. The absence of clear land titles also limits the availability of credit since without such titles one of the main forms of collateral for loans does not exist.

The failure to provide equality of educational opportunity in the rural areas dominated by small farms results in the exclusion of farm people from many of the benefits of economic growth. As economic growth occurs, farm employment declines as a percentage of national employment and many farm people transfer to nonfarm employment. Those with low levels of education are relegated to the most menial and low-paying jobs in the cities.

Objective 1: Promote security of property rights to promote increased productivity, investment and maintenance of resources.

Rationale. Without security of possession and land use rights, the incentives to adopt new methods of production, to invest in land improvements, and to conserve the land by preventing erosion and other forms of deterioration are severely limited. Without title to land, farmers are often forced to obtain credit under very unfavorable conditions, since collateral is required for most credit given by formal credit institutions.

Actions Needed. A.I.D. should work with local governmental institutions to complete and update land surveys to provide a basis for determining property boundaries. Update and systematize land registries. Institute procedures for resolving conflicts due to ambiguities of claims to ownership of land. Encourage the development of a system for the prompt issuance of land titles and for enforcing these land titles.

Objective 2: Encourage the provision of more physical infrastructure in rural areas to increase productivity, broaden the productive base and improve the quality of life in rural areas.

Rationale. Without the access to urban areas and markets that roads and communication facilities provide, rural areas are condemned to subsistence production, low levels of productivity, and low incomes. Production for the market under these circumstances is severely limited by the combined effects of the high costs of transportation and ignorance of the opportunities for market production. The types and variety of products available in local markets is a function of the costs of transportation. If farm people in the areas dominated by small farms are to be integrated into the economic and political systems, access to nonfarm activities and opportunities must be greatly expanded. Expanding the rural infrastructure must be evaluated in terms of the long run benefits, including the social and political gains from the integration of the rural areas more fully into the life of the country.

Actions Needed. Work with governments and nongovernmental organizations to encourage more effective use of local resources in building roads and other forms of infrastructure by sharing experiences of other countries where such resources have been mobilized. Encourage other donors to focus more on providing infrastructure in rural areas.

Provide limited assistance for experiments in mobilizing local resources for infrastructure projects that will benefit the areas.

Evaluate the potential for using food aid to assist in mobilizing local resources for such projects and to partly cover governmental costs of materials and labor.

Objective 3: Promote improved levels of basic education in rural areas.

Rationale. Rapid economic growth requires ever increasing levels of human capital which can be acquired through education. Increasingly, the complexity of economic life requires a degree of human capital that can be supplied only through education. Learning by doing is still important, but it will be much more effective if it is based on such basic skills as reading, writing, and arithmetic.

As modern inputs are introduced to subsistence farming systems, increasing productivity of both labor and land puts greater emphasis on the ability to acquire information and knowledge through reading and having the necessary skills to effectively apply that information to improving farming operations. Illiteracy may even expose farm people to physical risk if instructions for using pesticides and other chemical and biological materials cannot be read.

Access to at least primary education provides for greater integration into the rest of the economy. This is true whether the individual remains in farming or transfers to a nonfarm job.

Actions Needed. Support the work of other LAC Bureau offices to increase enrollment of boys and girls in primary schools, to improve the quality of primary education, to significantly increase the retention rate so that a higher percentage complete primary schooling, and to make adult literacy classes generally available in rural areas.

Encourage more local control to increase incentives for community participation in the schools and all other aspects of education.

Objective 4: Encourage the provision of more and improved public and private services in rural areas.

Rationale. Rural areas suffer not only from inferior physical infrastructure but also from limited access in a variety of service areas, such as health, family planning, and market information. The adverse consequences of such limited access are numerous. Infant mortality is high due to limited provision of health services, especially prenatal services, as well as to lack of access to information about appropriate care. Child health

and development suffers from the limited availability of vaccinations in many poorer rural areas.

Inadequate family planning services results in more children than families desire and adds to the population pressure on limited resources. This pressure, in turn, leads to resource degradation to continued low per capita incomes in the small farm areas.

Actions Needed. Encourage nongovernmental organizations to expand services now provided primarily in urban areas to rural areas.

Help agricultural extension agencies to improve and extend their services to all aspects of rural life, including the household economy, family welfare, and health.

Provide technical assistance to newspapers, magazines, and radio stations to help them develop accurate and timely market information that is accessible to small farmers.

Encourage local governmental units to improve their services for the rural areas dominated by small family farms.

Objective 5: Encourage the development of off-farm employment opportunities in rural areas.

Rationale. If the countries in the LAC region are successful in achieving significant growth in real per capita incomes, there will be a transfer of employment from agriculture to the rest of the economy. This is a universal phenomenon; it cannot be stopped. However, measures can be taken to facilitate the transfer and to lower the inevitable costs and dislocations. Labor opportunities move out of agriculture to either nearby rural areas communities or to the larger cities. Many poorly educated rural people are not equipped to handle migration to large cities. Their minimal job skills have prepared them for only the most menial and poor paying jobs. The urban communities lack many forms of support which the farm areas have.

Experience indicates that the transition from farm to nonfarm jobs is eased if the first nonfarm job is in or near the worker's area of origin. It is also true that the adjustments that cities must make to the migrants will be reduced if the migrants have some experience in nonfarm work.

The creation of nonfarm jobs in rural areas makes an important contribution to increasing rural incomes, especially in areas with numerous small farms. It is often much easier to adjust the amount of labor employed on farms, as evidenced by experience in Japan and Taiwan, than to increase the average size of farms. The availability of off-farm jobs helps increase the productivity of farm labor by introducing labor-saving measures.

Actions Needed. Encourage the improvement and expansion of the rural infrastructure, especially roads and other means of transportation and communication.

Provide technical and perhaps financial assistance to develop or redirect financial institutions to serve the needs of nonfarm enterprises in rural areas.

Encourage the development of markets for both the outputs and inputs of rural nonfarm enterprises, including emphasis on potential access to export markets.

Emphasize the creation of off-farm employment opportunities for women in rural areas.

Encourage a review of labor policies to determine if they have been promulgated for urban conditions, such as minimum wages, mandated social benefits, and special requirements for the employment of women that significantly affect the cost of labor and reduce employment opportunities when applied in rural areas.

Objective 6: Encourage the development of taxation policies that promote appropriate land use and increase the fiscal resources available to local governments.

Rationale. Throughout most of the LAC region over the past half century, two trends have prevented local governments from functioning effectively and, at the same time, have resulted in inefficient use of farmland. They are the centralization of most governmental functions and sources of tax revenue in the national government and the gradual reduction if not elimination of property and land taxes. Traditionally, land and property taxes have been the primary independent source of revenue for local governments. Without such an independent source, local governments become subservient to state and national governments and no longer respond to the special needs of their communities.

The decline in the importance of land taxes has contributed to maintaining at least some good quality farmland in extensive uses, such as natural pastures, rather than converting it to crop production or cultivated pastures that would increase both agricultural production and productive employment on farms. The low taxes on land, which reduce the cost of delaying the development of the land's full potential, are only one factor in extensive use of good land. Another factor encouraging extensive use is land tenure laws that make it difficult for the landowner to either change tenants or to operate the land under a different arrangement.

It must be recognized that a proposal to institute a land tax at a realistic level that would provide significant revenues for local governments presumes that other prevalent forms of taxing agriculture through export taxes, low procurement prices, and overvalued exchange rates have been eliminated as proposed in Strategic Area 1.

Actions Needed. Provide technical assistance to develop procedures and institutions required to administer a land tax that is equitable and capable of raising significant revenues.

Encourage national governments to give more autonomy to local governments where the local officials are democratically elected.

Support efforts of nongovernmental and civic organizations to assure that appraisals not only are fair but also are perceived as fair by insisting that all appraisals be open to public examination.

Objective 7: Improve the effectiveness of rural financial systems to increase productivity in rural areas by adequately serving small and large farmers, small businesses, and local communities.

Rationale. For a long time most LAC countries have emphasized public sector financial institutions, especially as purveyors of credit for rural areas. Since the credit provided by these institutions has been subsidized, the effect has been to nearly destroy traditional private credit institutions such as rural banks. Low interest rates to borrowers have meant unreasonably low rates to savers, which has discouraged savings in rural areas.

In addition, many governmental credit institutions have been motivated by political considerations which have often led to large-scale defaults on loans. The private formal sector simply could not compete with the explicit and implicit terms under which credit was available from the state institutions. If an individual or business could obtain a subsidized loan on which payment was largely discretionary, no private credit institution could compete. Because the formal credit institutions are not active in the rural areas, those who need credit but cannot obtain it from the state agencies are forced to go to the much higher cost informal credit sector.

If farms are to be modernized to increase their output and productivity credit will be needed to finance the increased level of inputs as well as any equipment and machinery required. Similarly, businesses that create new job opportunities in rural areas will need access to credit. In the proper climate, private institutions can provide this credit as well as encourage new savings, which are required to meet the new capital requirements.

Actions Needed. Encourage the repeal of legislation that provides for credit that subsidized by the state.

Provide technical assistance to create legal structures conducive to the development and growth of private credit agencies in rural areas.

Assist extension services in providing programs that will enable farmers and small businesses to effectively use credit.

Help to develop programs to promote rural enterprises by women's groups at the community level through developing credit programs and extension activities targeted to the special problems of these enterprises.

Objective 8: Promote the development and improved functioning of research and outreach systems that would focus on the needs of small farmers.

Rationale. In the LAC countries as well as other countries, both publicly and privately supported research institutions emphasize the problems of the large commercial farmers and give little attention to those of the small farmers. Where the large and small farmers produce the same products, concentrating on the problems of large farmers provides some help to small farmers if an effort is made to show how the results can benefit them. In many cases the small farmers produce different products, often a food crop for self-consumption with little sold in the market. While large farmers can mechanize their crop production, small farmers may not be able to do so due to the size of their farms. The institutions must be particularly sensitive to the problems and concerns of women farmers and the poor and often landless farmers.

It is unlikely that private research institutions can be persuaded to work on problems of small farmers unless they receive subsidies to do so. In any case, there should be no expectation that private institutions would serve such needs by themselves. Such research must be done by either state research enterprises or through special subsidies to private institutions.

The problems of small farmers in conserving their land and achieving reasonable productivity on their farm forests often differ from those of the larger commercial farmers and foresters. Farm forests have the potential to significantly increase incomes and reduce the pressure to farm fragile and erosive lands. Research should emphasize approaches that will increase crop productivity, while conserving and improving the land.

Actions Needed. Call attention to the important ways that the problems of small farmers with respect to research and extension differ from those of commercial farmers.

Provide technical assistance to extension services that will help them serve the needs of small farmers at a feasible cost level.

Encourage cooperation among research institutions in the region to focus on the potential for increasing the productivity of crops and animals important to small farmers.

Targets for the Small Farmer, Employment and Land Tenure.

- Complete the survey of agricultural land and forestland in agricultural areas and provide valid titles for at least half the farm properties that now have no titles or ambiguous titles.
- Increase the percentage of rural children who complete their primary education to 90 percent.
- Reduce infant mortality by at least 25 percent in the Andean and Caribbean areas and by 20 percent in Central America.

- Significantly increase the number of off-farm jobs available to farm or other rural residents. Undertake surveys to determine the current situation with respect to the importance of off-farm employment and earnings in rural areas to provide a baseline.

- Establish a program to fund peer-reviewed competitive research with the competition open to both the private and public sector.

4. A.I.D. RECOMMENDED ACTIONS

The major components of the LAC Bureau strategy for agriculture and natural resources are as follows:

- Improve the economic environment for agriculture -- adjust input and output prices where there is government intervention, such that the agriculture sector has a social and private return in line with its potential.

- Increase agricultural productivity and marketing by investing in research and extension, improving rural infrastructure and improve efficiency and competition in domestic and export markets for farm products.

- Improve tropical moist forests management, protective watersheds management, and conservation of biological diversity through wildlands management.

- Promote the economic and political integration of the small farmer who has historically been excluded from the system.

In order for the strategy to be implemented and program interventions to be successful, certain operational principles will have to guide A.I.D. initiatives:

Impact Monitoring. Monitoring of both quantitative and process indicators is critical to determining the effectiveness of the strategy. The impact of certain policy reforms and improved natural resource management techniques may be significant only in the long term. A long-term commitment for these reforms must be in place to effectively measure the impact.

Donor coordination. For the policy reforms and sector initiatives to work, A.I.D. must coordinate efforts with other international donors. Taking into account the relative strengths of each institution, the LAC agriculture and natural resources strategy must build on the Agency's comparative advantage and coordinate with other donors for support. A.I.D. should focus on building government capacity for economic policy analysis whereby local personnel has the requisite analytical skills to design and implement econo- policy reform programs prescribed by other international donors.

Support for Public and Private Sector Involvement. Creative approaches to the roles of public and private sectors must be explored. Along with the traditional role of private sector enterprises, there is significant support for NGO and PVO participation in improving natural resource management efforts.

5. TARGETED ASSISTANCE LEVELS

To be determined by A.I.D.

ANNEXES

Exhibit 1: Basic Indicators of A.I.D. Assisted LAC Countries

LAC Countries and Regional Averages	GNP per capita (US$)	Real GDP per capita (PPP$)	Average Annual Growth Rate (%) of GNP per capita			Average Annual Population Growth (%)		
	1988	1987	1965-1988	1965-1980	1980-1987	1965-1980	1980-1988	1988-2000
Caribbean	**637**	**—**	**1.1**	**2.3**	**-1.0**	**2.2**	**2.0**	**1.6**
Dominican Republic	720	n.a.	2.7	4.5	-0.6	2.7	2.4	1.8
Haiti	380	775	0.4	0.6	-1.4	2	1.8	1.9
Jamaica	1,070	2,506	-1.5	0.2	-1.3	1.3	1.5	0.5
C. American	**1,060**	**2,156**	**-0.1**	**2.2**	**-2.1**	**2.9**	**2.7**	**2.5**
Belize	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	900	1,957	1.0	3.1	-2.7	2.8	2.9	2.8
El Salvador	940	1,733	-0.5	1.9	-3.1	2.7	1.3	2.1
Honduras	860	1,119	0.6	2.3	-1.8	3.2	3.6	2.9
Nicaragua	830 *	2,209	-2.5	-1.1	-2.2	3.1	3.4	3.0
Costa Rica	1,690	3,760	1.4	3.8	-1.0	2.7	2.3	2.0
Panama	1,940	4,009	-2.2	2.8	0.3	2.6	2.2	1.6
Andean	**1,118**	**2,691**	**0.8**	**2.4**	**-0.9**	**2.8**	**2.4**	**2.2**
Ecuador	1,120	2,687	3.1	4.8	-1.2	3.1	2.7	2.2
Peru	1,300	3,129	0.1	1.3	0.3	2.8	2.2	2.1
Bolivia	570	1,380	-0.6	2.2	-4.2	2.5	2.7	2.7

n.a. Data is not available.

— Insufficient data for calculation.

* Data for 1987.

Sources: World Bank, World Development Report 1990: Poverty.
United Nations Development Programme, Human Development Report 1990.

Exhibit 2: External Debt of A.I.D. Assisted LAC Countries

LAC Countries and Regional Averages	Average Total External Debt as Percentage of GDP			Interest Payments on Long-Term Debt as Percentage of Exports of Goods and Services		
	1975-79	1980-84	1985-87	1975-79	1980-84	1985-87
Caribbean	—	38.8	71.7	4.8	6.7	8.5
Dominican Republic	28.2	33.4	69.9	4.7	9.6	11.6
Haiti	n.a.	22.1	35.7	2.8	2.1	2.4
Jamaica	57.7	94.4	170.9	10.2	10.4	15.5
Central American	35.6	65.2	68.7	4.0	8.9	10.2
Belize	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	12.5	18.3	32.0	2.0	5.6	11.9
El Salvador	28.4	35.2	36.6	3.3	5.4	7.8
Honduras	47.4	65.0	79.9	4.1	11.1	10.4
Nicaragua	101.4	165.7	120.1	5.6	12.5	7.6
Costa Rica	45.7	112.4	109.7	6.3	19.7	17.1
Panama	n.a.	95.9	102.1	7.3	6.9	5.0
Andean	52.7	54.2	73.7	11.5	17.3	12.7
Ecuador	36.2	57.4	78.1	4.5	20.1	19.6
Peru	60.6	52.0	58.8	16.4	14.8	8.4
Bolivia	53.1	56.1	111.8	6.9	20.7	15.4

Sources: World Bank, World Development Report 1990: Poverty.

Exhibit 3: Performance of Agriculture in A.I.D. Assisted LAC Countries

LAC Countries and Regional Averages	Index of Food Prod. per capita (1979-81=100)	Daily per capita Calorie Supply		Cereal Yields (kgs/Ha)	Cereal Yields Index (1976-88=100)	Daily Calorie Supply (as percentage of Requirements)	
	1985-87	1980	1988	1986-88	1988	1984-86	1984-86
Caribbean	91	1,252	2,262	2,237	117	89	100
Dominican Republic	95	1,876	2,477	3,519	133	85	109
Haiti	95	2,000	1,902	1,144	116	88	84
Jamaica	101	2,231	2,590	1,447	76	100	116
C. American	88	2,086	2,323	1,722	130	93	103
Belize	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	92	2,027	2,307	1,665	120	93	105
El Salvador	87	1,859	2,160	1,708	111	80	94
Honduras	76	1,963	2,068	1,476	154	87	92
Nicaragua	71	2,398	2,495	1,839	161	107	110
Costa Rica	89	2,366	2,803	2,284	113	104	124
Panama	95	2,255	2,446	1,643	130	98	107
Andean	99	2,143	2,177	1,971	115	90	91
Ecuador	97	1,940	2,058	1,438	107	83	89
Peru	96	2,325	2,246	2,446	130	98	93
Bolivia	95	1,869	2,143	1,322	119	77	89

Sources: World Bank, World Development Report 1990: Poverty.
UNited Nations Development Programme, Human Development Report 1990.

Exhibit 4: Food Aid and Food Import in A.I.D. Assisted LAC Countries

LAC Countries and Regional Averages	Food Aid in Cereal (thousands Metric Tons)		Cereal Imports (thousands Metric Tons)		Food Import Dependency Ratio	
	1974-75	1987-88	1974	1988	1979-81	1984-86
Caribbean	**17**	**217**	**197**	**412**	**30.6**	**31.5**
Dominican Republic	16	278	252	601	31.2	30.0
Haiti	25	154	83	205	19.7	20.9
Jamaica	1	208	340	418	57.3	63.5
C. American	**10**	**196**	**89**	**186**	**10.9**	**9.4**
Belize	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	9	320	138	166	11.2	10.3
El Salvador	4	177	75	217	n.a.	n.a.
Honduras	31	146	52	144	14.8	12.0
Nicaragua	3	87	44	206	n.a.	n.a.
Costa Rica	1	235	110	318	25.4	18.0
Panama	3	0.1	63	93	25.6	25.7
Andean	**26**	**257**	**429**	**1,231**	**24.4**	**22.2**
Ecuador	13	33	152	563	15.1	16.1
Peru	37	355	637	1,857	30.1	27.6
Bolivia	22	290	209	328	20.9	14.9

Sources: World Bank, World Development Report 1990: Poverty.
United Nations Development Programme, Human Development Report 1990.

Exhibit 5: Education and Health in A.I.D. Assisted Countries

LAC Countries and Regional Averages	Education Expenditure (as % of GNP)		Percentage of Age Group Enrolled in Primary School		Percentage of Age Group Enrolled in Secondary School		Life Expectancy at Birth		Infant Mortality Rate (per thousand live Births)	
	1960	1986	1965	1987	1965	1985-87	1965	1988	1965	1988
Caribbean	1.8	2.1	75	113	15	38	53	63	128	76
Dominican Republic	2.1	1.6	87	133	12	47	56	66	110	63
Haiti	1.4	1.2	50	95	5	17	45	55	178	116
Jamaica	2.3	5.6	109	105	51	65	65	73	49	11
Central American	2.2	3.6	74	90	15	33	53	65	109	52
Belize	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	1.4	1.8	50	77	8	21	49	62	112	57
El Salvador	2.3	2.3	82	79	17	29	55	63	120	57
Honduras	2.2	5.0	80	106	10	32	50	64	128	68
Nicaragua	1.5	6.1	69	99	14	43	50	64	121	60
Costa Rica	4.1	4.7	106	98	24	41	65	75	72	18
Panama	3.6	5.5	102	106	34	59	63	72	56	22
Andean	2.0	2.3	82	115	22	57	51	61	131	84
Ecuador	1.9	3.6	91	117	17	56	56	66	112	62
Peru	2.3	1.6	99	122	25	65	51	62	130	86
Bolivia	1.5	2.4	73	91	18	37	44	53	160	108

Sources: World Bank, World Development Report 1990 Poverty.
United Nations Development Programme, Human Development Report 1990.