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AGRICULTURAL POLICY ANALYSIS PROJECT, PHASE II

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

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LAC BUREAU

AGRICULTURE AND NATURAL RESOURCES BACKGROUND AND OPTIONS

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**The views expressed in this paper are those of the authors
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PREFACE

The Rural Development Office of A.I.D.'s Bureau for Latin America and the Caribbean (LAC/DR/RD) contracted with the Agricultural Policy Analysis Project, Phase II (APAP II) to develop a bureau strategy for agriculture and natural resources. The strategy applies to the agriculture and natural resources sector in 13 countries: Dominican Republic, Haiti, Jamaica, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Ecuador, Peru, and Bolivia, where A.I.D. has programs.

The development of the strategy has two primary components. First, the APAP II team was to analyze the latest trends and issues in the region. It was hoped that "outsiders" views would stimulate thought within the Agency, perhaps challenging ideas and perceptions of current LAC thinking. Second, the team was to draw on input from A.I.D. Washington, USAID Missions, and other international donors. The consensus building process of developing the strategy is as important as the document itself.

This report is the first step in the strategy development process. An earlier draft of this paper served as the basis for the first LAC Agriculture and Natural Resources Strategy Workshop held in Washington on December 12 and 13, 1990. This version of the report will serve as background material for further discussion and development of the formal strategy document.

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The ideas expressed in this paper are those of the authors and are not necessarily shared by A.I.D. Statements should be applied to A.I.D. countries only, not to all Latin American and Caribbean countries.

EXECUTIVE SUMMARY

This paper reviews the trends, issues, and constraints pertaining to agriculture and natural resources in the Latin America and Caribbean (LAC) countries and suggests some options for A.I.D. strategic action in the region. The major objectives of the agriculture and natural resources strategy for Latin American and Caribbean countries should be to (1) increase the level and growth rate of real national income, (2) increase the real incomes of rural people, and (3) achieve the natural resource goals of sustainable agriculture and forestry. Improving agricultural productivity and increasing farm output should be considered as means to increase the incomes of rural people rather than as ends in themselves. Opportunities to increase the incomes of rural people can be created by changing sectoral policies that have discriminated against agriculture and improving the institutional arrangements, such as the property rights structure, where they negatively affect productivity and resource conservation.

While several LAC countries showed signs of positive economic and political development as the 1980s ended, the economic developments were largely negative if the decade is viewed in its entirety. The most encouraging developments of the 1980s were political, with democratic governments replacing military dictatorships in several countries and significant reductions in civil rights abuses in a number of countries, though unfortunately not universally. Several trends illustrate the serious problems in the region, especially declining real per capita income, declining per capita food production, and increasing external debt. Serious problems in a number of LAC countries include deforestation, the loss of biodiversity, mismanaged watersheds, misuse of lands, and water pollution. There are also some positive trends, such as increases in access to education and life expectancy at birth.

Issues facing the region should be considered at three levels: policies of the LAC countries, policies of the United States, and restraints imposed on A.I.D. by legislation and practice.

The issues related to desirable policy reforms in the LAC countries fall into four broad categories: (1) economic policy, trade, and investment; (2) agricultural productivity, sustainability and growth; (3) small farmer, employment, and land tenure, and (4) natural resource management.

Economic policy, trade, and investment.

Two types of price interventions determine the structure of incentives for agricultural production. On the one hand, trade policies which give strong protection to the industrial import-competing sector, and macroeconomic policies which directly affect the determination of the real exchange rate, may depress the price of agricultural products relative to non-agricultural prices, thereby inhibiting investment and growth. Industrial protection is currently a major source of the implicit taxation affecting agricultural production. The removal of industrial protection alone would produce a major realignment in agricultural incentives, thus improving the economic environment for agriculture. On the other hand, sector-specific pricing policies can drastically change the relative price structure within agriculture, thereby affecting the composition of agricultural output. To the extent that these two types of interventions imply a strong anti-trade bias, the net result is a loss in foreign exchange surplus from agriculture and a lower volume of income and trade for the economy as a whole.

Changes in the structure of incentives and prices to producers would lead to a change in overall agricultural output and also probably a change in the current composition of output. What the net effect of liberalization would be on natural resources and the environment is, of course, a completely open question. Both, current and proposed policies have environmental consequences. Rather than trying to adjust the broad trade and macroeconomic policy reforms so as to deal with environmental concerns based on a general equilibrium framework, we suggest that environmental concerns should be pursued with partial equilibrium-specific tools which are more "efficient" in dealing with particular issues.

In addition, new trade policies offer greater agricultural employment opportunities to women. A more open trade strategy can lead to growth of labor-intensive activity, a high proportion of which is seasonal employment of women in activities such as harvest and packing house operations in fruits and vegetables.

Sector-specific interventions also affect agriculture. There is a bias in favor of "non-traditional" exports, as many countries in the LAC region offer tax rebates on these exports. While promotion schemes for "non-traditional" exports clearly improve incentives for such exports relative to traditional exports,

their net effect hardly compensates for the implicit taxation resulting from the economy-wide policies, as mentioned above. Some countries also tax traditional exports, such as coffee in El Salvador; sugar, bananas, cotton, and rubber in Panama; and rubber and cotton in Peru. Thus, the combined effects of direct and economy-wide price interventions result in net price interventions against traditional agricultural exports. In addition, many agricultural products are import-competing and subject to import duties and quantitative restrictions. The result is that although the production of food products may be protected relative to traditional agricultural products, they are unprotected compared to import-competing activities in the non-farm sector. The net combined effect of the taxation from the economy-wide policies and the support given to non-traditional exports and to food production is, we anticipate, equivalent to a net taxation of these sectors in most of the 13 LAC countries. Unless these major price distortions are removed, lending for agricultural investment projects will have a social and private return considerable below its economic potential.

These policy reforms face both political economy and technical/management obstacles. The existing policies generate rents and employment in specific activities, and the present value of assets has incorporated the protective effect of continuing the policies. Also, the probable increase in food prices resulting from trade liberalization and exchange rate realignment will most certainly meet opposition in urban areas. In order for reforms to have a reasonable chance of success, they must be carried out in conjunction with reducing or removing price controls. It will not be possible to remove trade distortions affecting agriculture without increasing revenues from other sources and/or significantly reducing overall government spending in some areas.

From the management perspective, it requires considerable expertise to implement an efficient value-added tax scheme and substantial technical improvements must be made in the fiscal system if the existing tax laws are to be enforced with rigor. To be effective, the price reforms must be perceived as permanent and credible by the private agents, which in itself is a major task, considering the past uncertainty and frequent changes in the rules and regulations. If the prevailing political instability in some countries means that local entrepreneurs resist investing their savings in the domestic economy, multilateral and bilateral assistance agencies may be the only other source during the early phases of the transition period.

Tariffs play an important role in liberalization packages. It is clear that trade liberalization programs succeed only if they reduce quantitative restrictions (QRs), such as import and export quotas. Thus, dismantling of QRs, even if some degree of tariff protection is maintained, could be a condition in the liberalization package. Replacing QRs with tariffs has several advantages, most importantly the reduced role of the price mechanism under QRs. QRs are less visible and more selective than tariffs, and can have a frustrating effect on trade; they insulate the quota-imposing country from the effects of world market changes for the affected commodities. Tariffs also generate government revenues and reduce the role of state trading in agricultural commodities if they are accompanied by the elimination of the legal monopoly in trade held by state agencies in some countries. Three important lessons of economic policy for the small open economy directly relevant to agricultural trade reform are: a) the need to take advantage of international trade through a relatively open economy, b) the advantage of modifying the trade restrictions toward tariffs and eliminating all export restrictions, and c) the advantages of narrowing the range of nominal and effective rates of protection. Only a fairly uniform rate of tariff can avoid the arbitrary and distorting variations in the effective rate of protection.

Agricultural productivity, sustainability, and growth

Because agriculture is both a major source of employment and an important contributor to national output in LAC countries, it is important to improve the quality and the productivity of the agricultural resources. Improvements in agricultural productivity and the growth of farm output should be sustainable. Investment in human capital can and generally does have a return at least as high as that earned on physical capital, and productivity improvements can also be achieved through investment in research.

The first objective for investment in human capital is to have universal elementary education, which means a minimum of six years of education for everyone. Operating with limited resources, school systems should maximize local control and resources. The contribution of additional human capital to social and economic growth can be greatly enhanced by institutions that expand the base of relevant knowledge about productive rural activities. However, no country has the resources to establish and maintain a system for basic agricultural research of acceptable quality on a sufficient scale to significantly contribute to

agricultural productivity. The alternative is to support national research centers that focus on regional topics and draw support and personnel from several countries or to establish regional networks with specializations for each national research system and a mechanism to fully share all results. Research should be funded through a combination of public and private sources. Significant funding should be available on a competitive basis, with decisions based on peer review of the research proposals, the qualifications of the research teams, and the potential of the results to increase agricultural productivity.

Sustained growth of agricultural exports and output of other tradeables, including food, depends on the development of a "trade infrastructure" and an organizational framework which does not exist in some LAC countries. Rapid growth of exports, particularly "non-traditional" agricultural exports, depends on an efficient service sector, including banking and communications; a regulatory framework for trade, such as sanitary and phytosanitary regulations; and an improved physical infrastructure (roads, ports). Technical assistance and external financing in these areas is an important potential area for A.I.D. support.

Small farmer, employment, and land tenure

Special problems of the small farmer sector are critically important, as policymakers are concerned about both equity and growth in the struggle to alleviate rural poverty. The relative non-competitiveness of the traditional farm sector is due to the fact that it generally comprises very small-scale units. A common perception in developing countries is that transaction costs are higher in the small-scale traditional farm sector due to different access to financial and product markets and a technology gap. Because operations are scattered and small-scale, the small farm sector in some areas faces higher transaction costs, the removal of which involves real resources perhaps competing with higher rates of return from alternative uses. Government policy often discourages the development of institutions and markets which could contribute to small farm development. Government credit, for example, which is usually implemented through a rather weak administrative mechanism, probably discourages the development of a more unified credit market and hurts savings in rural areas. These reflections should not be interpreted as an argument against government action. Rather than contributing to reducing the need for future government

subsidies, the particular selection of policy approaches and instruments could be discouraging the development of private and other non-government agents which would eventually reduce the need for subsidies.

The deterioration of natural resources usually adversely affects the small farmer. Most small farmers in Latin America live on marginal land whose low productive capacity results from unfavorable climate, poor soil, steep terrain, or a combination of factors. Adverse climatic and physical factors inhibits all forms of technical improvement -- mechanization, irrigation, fertilization, and introduction of higher yielding varieties. A small farmer who does attempt technical improvement achieves a smaller increase in yield per unit of investment than does a farmer with better land. Both crop and livestock activities of small farmers often produce unfavorable environmental effects, notably soil loss through erosion, burning, over-cutting, and over-grazing. On the farm the results are lower yields from poorer soils and forage; off the farm the results are downstream erosion and irregular water flows.

The challenge then is to introduce land use practices that conserve soil, water, and vegetative cover, while maintaining or increasing small farmer incomes. Possible development actions aimed at small farmers include improvements in forest management, agroforestry, livestock management, and soil conservation practices. In addition to the broad policy reforms mentioned above, several countries need a strong program to enforce private property rights in land and remove major distortions which are the basis for the current land titling and registry systems.

Natural Resource Management

The trends that affect natural resources in the 13 A.I.D. countries raise a number of important issues for socio-economic development in the region. Currently, neither market forces nor government policy promotes more intensive land use on good quality land. Increases in agricultural production must come primarily from the best lands because they have the highest potential for increased yield through application of advanced technology. The converse is also true; just as some good land in Latin America is underused, poor land is often overused. The first step toward bringing actual use into harmony with capability is the adoption of criteria to determine land use capability and productive potential appropriate to a country's climatic conditions, and to identify areas where natural resources are overused and underused. Watershed management also

affects the vegetative cover and the availability of water downstream. Forest management and wildlands protection and management also need attention.

The effort to improve natural resource management must focus on policy implementation as well as policy development. To implement policies, public awareness must be increased, policy statements defined, and constituencies built. This process entails strengthening natural resource management institutions, both public and private.

In addition to policy reforms in Latin America, the U.S. has a number of policies that affect the economic development of LAC countries and are part of the setting in which A.I.D. operates. While the General System of Preferences and the Caribbean Basin Initiative are designed to expand market opportunities for developing countries, these two preference systems apply to only a minority of LAC exports to the U.S. Most important, traditional agricultural exports are not given preferential access.

The U.S. also has a number of programs that offer subsidies designed to increase its exports. The subsidies include long-term loans with low interest rates, such as those under Title I of P.L. 480, credit guarantees to facilitate the sale of farm and other products, and subsidy of the interest rate on Export/Import Bank loans. These and similar programs that give preference to U.S. exports adversely affect similar exports from developing countries.

Beyond these preferential policies, Congress has imposed a number of restrictions over the years, often in the form of prohibitions, on what activities A.I.D. can assist in developing countries. For example, A.I.D. cannot support efforts to improve the productivity of resources that might increase soybean or cotton production. There now seems to be sufficient evidence to call for a review of these restrictions to determine if they are in the best interest of U.S. agriculture, especially in light of recent developments such as the Bush Initiative for the Americas.

Options for addressing the issues identified above include the following:

- The numerous policies that discriminate against agriculture, either directly or indirectly, need to be substantially modified. Policymakers must consider two options related to timing. One is to support shock treatment, much as the Polish government has done in its effort to move quickly from a highly distorted socialist economy to a market economy. The other is to pursue the goal of eliminating

the discrimination gradually, perhaps according to a fixed schedule such as that proposed in the Shalatin 500 day plan for the Soviet Union. With respect to increasing investment in LAC countries, the primary goal is to create a policy climate that supports private investment.

- One of the most important means of improving agricultural productivity and increasing agricultural output has already been discussed: eliminating discrimination against agriculture. When this goal is reached, farmers will have the incentives to make the appropriate investments in machinery, equipment, and inputs such as fertilizer, improved seeds, and more productive livestock. In such a setting, farmers will take advantage of the opportunities that are available to them. The primary options that need to be considered relate to providing farmers with knowledge of the best available practices, and extending the range of opportunities through research.

While the emphasis is primarily on what can be done to integrate rural people in small farm areas into the political, social, and economic systems, in most LAC countries rural areas generally have less access to education, and medical service, and more isolation from the social networks and institutions. The goal of universal primary education should be preserved: to make individuals more productive as farmers as well as to improve their employment opportunities in the non-farm sector. Options must be considered to facilitate the transfer of labor, especially though not solely that of young people, from agriculture to non-farm jobs. One set of options involves the balance between creating jobs in rural areas and assisting or facilitating migration to urban areas. Another set involves investments in the network of transportation and communications in areas where small farmers predominate. The third option is to improve the functioning of labor markets to remove distortions, such as excessively high minimum wages that inhibit economic growth and discriminate against new entrants to the non-farm labor markets.

A second approach to natural resource development in LAC countries would optimize productivity in ways that are consistent with productive capacity. Based on the quality of the land, different approaches should be used: intensification, amelioration, penetration, or minimal intervention. Each of

approach could proceed via a mix of policy reform, research and information, training, institution building, and infrastructure. Examples of policy reforms which may be pursued, depending on the country, include: adoption of national land use capability classifications, land tax indexed to land use capability, streamlined land titling and accessible land registries, water pricing to reflect the real cost of water, and legal recognition of forestry as a private land use.

For research and information, options include land use capability maps and actual land use maps, forest management technologies, and other appropriate technologies. Training efforts should focus on technical and scientific aspects as well as management skills. Natural resource management institutions require professional management training to build capacity in the agencies. Private sector research and extension services need to expand their role; A.I.D. could encourage expansion of this role through exchanges with U.S. firms and revision of national policies that discourage public/private sector cooperation in research and extension. The administration of land titling and land registries and collection of land taxes need to be more effective.

LAC countries clearly have the human and natural resources to substantially increase their real per capita incomes. Further, it is generally recognized that many policies have contributed to the poor economic performance of LAC countries in the 1980s. Several countries have undergone significant changes in pricing, trade, and macroeconomic policies in recent years. While much remains to be done, the current environment could permit consideration of major policy reforms and equally important foster the will to implement the policy reforms.

1.0 DEVELOPMENT OF THE STRATEGY

The major objectives of the agriculture and natural resources strategy for Latin American and Caribbean countries should be to (1) increase the level and growth rate of real national incomes, (2) increase the real incomes of rural people, and (3) achieve the natural resource goals of sustainable agriculture and forestry. Improving agricultural productivity and increasing farm output should be considered as means to increase the incomes of rural people rather than as ends in themselves. Short run opportunities to increase the incomes of rural people can be created by changing sectoral policies that have discriminated against agriculture and improving the institutional arrangements for conducting agriculture, such as the property rights structure, where these have negatively affected productivity and resource conservation. However, the primary long run determinant of the incomes of farm and other rural people is national income per capita and its rate of growth.

1.1 Opportunities that Could Affect the Strategy

The beginning of the 1990s seems a most appropriate time to review the A.I.D. strategy for LAC countries. At least three important opportunities could influence the strategy.

The first is the new attitude toward economic policies and the role of the public sector. In country after country, policymakers are embarking on a revision of trade policy, moving toward a more open economy, and strengthening fiscal discipline and macroeconomic equilibrium while recognizing the importance of maintaining a realistic exchange rate if the agriculture sector is to prosper. Recognition is growing that the political process has burdened governments with economic functions that they are incapable of performing efficiently. The current opportunity to reform institutions and policies could well become one of the main political and economic tasks of the 1990s.

A second opportunity is the combined effects of the new mood of the U.S. administration toward the region and the trade liberalization possibilities being explored in the Uruguay Round of GATT negotiations. Since trade can be an engine of growth for the relatively small economies of the LAC region, the trade-related initiatives are very relevant to their development. A number of steps have been undertaken in recent years as well as in the recent past: the

Caribbean Basin Initiative, the new Bush proposal on trade benefits for the Andean countries to encourage their cooperation in the war against drugs, the strong position the United States took in GATT negotiations in agriculture, and the New Enterprise for the Americas Initiative.

The third opportunity is afforded by today's increased awareness of environmental issues and their role in sustaining agriculture. There is general recognition of the need to better understand the nature of the problems, their causes, and methods to limit environmental degradation and enhance agriculture's compatibility with environmental preservation. Now, more than ever before, protecting and strengthening the LACs' natural resource base is a realistic and achievable option.

1.2 Approaches to Achieving Objectives

The policy approaches for achieving the objectives can be divided into those that permit the most productive use of rural resources consistent with maintaining the existing level of national productivity and income and those that will contribute to general economic growth in each country. The first part of the objective, increasing the level and growth rate of real national incomes, should be met by appropriate combinations of the following:

- Improving the economic environment for agriculture--adjusting input and output prices where there is government intervention, thus reducing and perhaps eliminating such intervention, removing ambiguities in property rights, and modifying tax policies that discriminate against agriculture. This is not a plea for favorable treatment for agriculture but only for equality with other sectors.
- Increasing the productivity of agriculture by investing in research and extension, improving rural infrastructure (roads, communication, and markets), and improving primary education quality and efficiency and increasing the availability of health services in rural areas. The aim should be greater technical efficiency and production potential.
- Providing non-agricultural opportunities for employment in rural areas or nearby urban communities. In developing countries rural areas have a major seasonal surplus of labor, necessitating such

employment alternatives to narrow the income gap between farm and non-farm people.

- Assisting migration from rural to urban areas in response to urban employment opportunities to increase real incomes for those who leave the rural areas as well as those who remain.

These components of the strategy would strengthen rural communities by reducing the disparities between rural and urban incomes and between the productivity of agricultural resources and agricultural output. If national income grew slowly, real incomes of farm people might increase by as much as half. Doubling and quadrupling the incomes of farm people, however, would require rapid growth in national income to increase non-agriculture earning opportunities. Farm people benefit from economic growth primarily through the labor market, not through the market for farm products.

2.0 BACKGROUND AND TRENDS IN LAC COUNTRIES

While several LAC countries showed signs of positive economic and political developments as the 1980s ended, the economic developments were largely negative if the decade is viewed in its entirety. The most encouraging developments of the 1980s were political, with democratic governments replacing military dictatorships in several countries and significant reductions in civil rights abuses in a number of countries though unfortunately not universally.

2.1 Declining Real Per Capita Income

During the 1965-74 period, the LAC countries had real growth rates with gross domestic product per capita generally the same as countries of similar income levels elsewhere in the world (see Exhibit 2.1). The performance during the last half of the 1970s was mixed; some countries had negative growth rates while others had average performances. It was the 1980s that brought negative growth rates for nearly all countries, and most also had negative per capita real income growth rates from 1985-87. From 1965-88 four countries (Bolivia, Jamaica, Nicaragua, and El Salvador) had negative per capita growth rates for GDP. After nearly a quarter century, real per capita GDP was less than it had been at the start of the period. Two other countries (Peru and Haiti) had growth rates that were very near to zero. Only three countries had growth rates greater than 2 percent per annum (Dominican Republic, Ecuador and Panama). It is highly probable that the real incomes of rural people increased little if at all in the LAC region over the past quarter century.

2.2 Food Production and Availability

While total agricultural production did increase during the past quarter century, it was totally or partially offset by population growth. In fact, during the 1980s food production per capita declined in all the LAC countries except for Jamaica where there was essentially no change (see Exhibit 2.2). In Guatemala and Nicaragua per capita food production from 1986-1988 was a fourth or more below the 1979-81 level.

Exhibit 2.1

Growth Rate of Per Capita Gross Domestic Product (%)

Country	1965-80	1980-87	1965-69	1970-74	1975-79	1980-84	1985-87
Dominican Republic	4.5	-0.6	4.0	7.2	2.2	0.5	-2.4
Haiti	0.6	-1.4	-1.8	1.4	2.0	-1.3	-1.4
Jamaica	0.2	-1.3	1.9	2.4	-3.7	-1.8	-0.4
Belize	n.a.						
Guatemala	3.1	-2.7	3.0	3.6	2.6	-3.1	-2.0
El Salvador	1.9	-3.1	1.6	2.3	1.9	-4.9	-0.1
Honduras	2.3	-1.8	1.8	1.0	4.2	-2.9	0.1
Nicaragua	-1.1	-2.2	1.8	2.1	-7.2	-0.9	-4.3
Costa Rica	3.8	-1.0	3.9	4.4	3.1	-1.9	0.5
Panama	2.2*	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ecuador	4.8	-1.2	0.3	9.6	3.9	-0.5	-2.4
Peru	1.3	0.3	1.3	2.7	-0.3	-1.9	4.1
Bolivia	2.2	-4.2	3.2	1.9	1.5	-4.9	-3.0

n.a.: Data is not Available.

*: Data from 1965-1988.

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

Exhibit 2.2

**Food Production Per Capita, Daily Calorie Supply
and Cereal Yields**

Country	Index of Food Prod. per capita (1979-81 = 100)	Daily Calorie Supply		Cereal Yields (kgs/Ha)	Cereal Yields Index (1976-88 = 100)
	1986-88	1985	1988	1986-88	1986-88
Dominican Republic	95	1,876	2,477	3,519	123
Haiti	95	2,000	1,902	1,144	116
Jamaica	101	2,231	2,590	1,447	76
Belize	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	92	2,027	2,307	1,665	120
El Salvador	87	1,859	2,160	1,708	111
Honduras	76	1,963	2,068	1,476	154
Nicaragua	71	2,398	2,495	1,839	161
Costa Rica	89	2,366	2,803	2,284	113
Panama	95	2,255	2,446	1,643	130
Ecuador	97	1,940	2,058	1,438	107
Peru	96	2,325	2,246	2,446	130
Bolivia	95	1,869	2,143	1,322	119

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

Fortunately in all but two of the countries for which data are available the per capita daily calorie consumption increased between 1965 and 1988 (see Exhibit 2.2). A reduction occurred in two countries (Haiti and Peru), but it was only 5 percent. While it is true that the supply of calories per capita has not deteriorated in the region, it must be noted that the average level is below what is considered to be the requirement level. In each of the Andean countries and in Haiti, El Salvador, and Honduras the supply is below the estimated requirements. Even in the countries where the supply exceeds the requirements, the excess is so small that a significant percentage of the population - the poorer quarter or so - probably have a level of consumption well below what is required.

2.3 Crop Yields

Exhibit 2.2 includes data on the cereal yields from 1986-1988 and the change in yields over a decade. The yields are low compared to those of other developing countries or, fortunately, to potential yields. Fertilizer use is relatively low but could be increased substantially as new varieties are introduced and cultural practices adjusted. The record with respect to yield changes over the decade is a mixed one. Honduras and Nicaragua had increases of half or more while Ecuador, Costa Rica, El Salvador, and Haiti had annual increases of less than 1.5 percent. The decline in cereal yields in Jamaica should be ignored due to the insignificant role of cereals in the country's agriculture.

2.4 Foreign Debt

The economies of the LAC countries were adversely affected by the large foreign debt incurred primarily during the 1970s. Exhibit 2.3 shows the average for 1980-84 for the 10 countries for which data are given. Two countries (Costa Rica and Nicaragua) had external debts in excess of their average annual GDP, and Jamaica had a ratio of 94 percent. Bolivia had a substantial increase in the debt ratio during the mid-1980s, because of an increase in debt and a decline in real GDP. When the debt to GDP ratio approaches 75 percent, the servicing of that debt, with no new net inflow, requires 5 to 7 percent of annual GDP if there is any significant repayment of the principal. While much of the increase in debt during the 1980s was due to

Exhibit 2.3

Total External Debt as a Percentage of GDP

Country	1975-79	1980-84	1985-87	1988¹
Dominican Republic	28.2	33.4	69.9	77
Haiti	10.2²	n.a.	n.a.	28
Jamaica	57.7	94.4	170.9	127
Belize	n.a.	n.a.	n.a.	n.a.
Guatemala	12.5	18.3	32.0	28
El Salvador	28.4	35.2	36.6	32
Honduras	47.4	65.0	79.9	68
Nicaragua	101.4	165.7	120.1	n.a.
Costa Rica	45.7	112.4	109.7	89
Panama	19.5²	n.a.	n.a.	81
Ecuador	39.2	57.4	78.1	94
Peru	60.6	52.0	58.8	56
Bolivia	53.1	56.1	111.8	115

1: Long term debt only.

2: Data from 1970-1988.

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

rescheduling and new borrowing to cover the interest due, the actual payments on the foreign debt were much lower than indicated. However, the large debts have precluded any new inflow of funds, even for undertakings with high expected rates of return.

2.5 Population Growth

Population growth rates generally have declined over the past quarter century with a downward trend anticipated for the rest of the 20th century (see Exhibit 2.4). For five of the countries the projected annual growth rate of population is 2 percent or less; only one has a projected rate of 3 percent. In six of the countries the decline in population growth rates from 1965-80 exceeded 25 percent.

Much of the increase in life expectancy between 1965 and 1988 was due to sharp declines in infant mortality. While substantial further declines are possible in each of the countries, Costa Rica and Panama have achieved levels as of 1988 that equal or better those of the industrial countries as of 1965. The declines in several of the countries were 40 percent or more again indicating that in this area substantial progress was made in spite of the difficult economic conditions the countries faced during the 1980s.

2.6 Importance of Agriculture

In most of the LAC countries the relative importance of agriculture, as measured by percentage of GDP produced or percentage of national employment declined, over the past quarter century. Unfortunately the latest available estimates of agricultural employment are for 1980. Even with the substantial reductions in the percentages of the labor force in agriculture between 1960 and 1980 (see Exhibit 2.5), agriculture in 1980 accounted for a third or more of total employment while in five countries the percentage was in the forties. Given the absence of significant economic growth during the 1980s in the region, there was only a modest decline in the relative importance of agriculture in employment.

It is obvious that agriculture - its productivity, growth and income - is vitally important to the LAC region. The incomes of farm people depend primarily upon the incomes of their country but it is also true that how well an economy performs depends upon the performance of agriculture.

Exhibit 2.4

Average Annual Population Growth Rates (%)

Country	1965-1969	1970-1974	1975-1979	1985-1989	1980-1984	1985-1987	1980-1988	Projected 1988-2000
Dominican Republic	2.8	2.6	2.4	2.7	2.4	2.2	2.4	1.8
Haiti	2.1	2.0	1.8	2.0	1.8	1.9	1.8	1.9
Jamaica	1.5	1.8	1.2	1.3	1.4	1.3	1.5	0.5
Belize	n.a.							
Guatemala	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.8
El Salvador	3.2	2.6	2.0	2.7	1.0	1.8	1.3	2.1
Honduras	2.9	3.2	3.5	3.2	3.6	3.3	3.6	2.9
Nicaragua	3.2	3.2	2.8	3.1	3.3	3.3	3.4	3.0
Costa Rica	2.8	2.6	2.4	2.7	2.3	2.3	2.3	2.0
Panama	n.a.	n.a.	n.a.	2.8	n.a.	n.a.	2.2	1.6
Ecuador	3.1	3.0	2.9	3.1	2.9	2.6	2.7	2.2
Peru	2.8	2.8	2.6	2.8	2.3	2.2	2.2	2.1
Bolivia	2.4	2.5	2.8	2.5	2.7	2.7	2.7	2.7

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

Exhibit 2.5

Agricultural Labor Force and Urban Population

Country	Agricultural Labor Force (% of Total Labor Force)		Urban Population (% of Total Population)	
	1960	1980 *	1965	1988
Dominican Republic	67	46	35	59
Haiti	80	70	18	29
Jamaica	39	31	38	51
Belize	n.a.	n.a.	n.a.	n.a.
Guatemala	67	57	34	33
El Salvador	62	43	39	44
Honduras	70	61	26	42
Nicaragua	62	47	43	59
Costa Rica	51	31	38	45
Panama	51	32	44	54
Ecuador	57	39	37	55
Peru	53	40	52	69
Bolivia	61	46	40	50

*: Latest Date for which data is available.

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

2.7 Education

Access to primary education has increased since the late 1960s in the LAC region, as measured by the percentage of the relevant age group in school (see Exhibit 2.6). A percentage in excess of 100 may mean either that many students do not progress normally through primary school or that older children are now attending primary school. Such a percentage means that primary school is now available to most children. Also, while access to secondary education has improved over the past quarter century approximately half of the relevant age group was not attending school in the region in the later 1980s. Those figures in no way denigrate the progress that has been made, which appears to have continued despite the difficult economic conditions facing the countries during the 1980s.

2.8 Life Expectancy and Infant Mortality

Several trends reveal serious problems in the countries in the region, especially the declining real per capita incomes, declining per capita food production, and the increase in external debts. However, the increase in access to education has clearly been a positive factor. Another highly positive development has been the increase in life expectancy at birth (see Exhibit 2.7). Between 1965 and 1988 El Salvador had the smallest increase in life expectancy at birth (8 years) and Honduras had the largest (14 years). The median increase was 10-11 years. For all lower middle income countries, as classified by the World Bank, the increase in life expectancy at birth between 1965 and 1988 was 9 years.

2.9 Deforestation

Deforestation is a serious problem in a number of LAC countries and indirectly indicates other natural resource problems in the region as well.

Haiti, El Salvador, Jamaica, and the Dominican Republic are so deforested that all but a few remnants of their forest have been eliminated. Even so, these countries currently exhibit high rates of deforestation. (see Exhibits 2.8 and 2.9)

Other countries, including Guatemala, Honduras, Nicaragua, and Costa Rica, retain significant expanses of forest which play an important role in the national economy. However, because each of these countries suffers from

Exhibit 2.6

Percentage of Age Group Enrolled In Primary Schools

Country	1965-69	1970-74	1975-79	1980-84	1985-87
Dominican Republic	87	100	104	114	124
Haiti	50	53	60	69	78
Jamaica	109	119	97	101	n.a.
Belize	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	50	57	61	69	76
El Salvador	82	85	75	74	70
Honduras	80	87	88	95	102
Nicaragua	69	80	82	99	101
Costa Rica	106	110	107	106	101
Panama	n.a.	n.a.	n.a.	n.a.	n.a.
Ecuador	91	97	104	115	114
Peru	99	107	113	114	122
Bolivia	73	76	85	84	91

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

Exhibit 2.7

Life Expectancy at Birth (Years)

Country	1965	1970	1980	1985	1988
Dominican Republic	56	59	63	65	66
Haiti	45	48	52	54	55
Jamaica	65	67	71	73	74
Belize	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	49	52	58	60	61
El Salvador	54	58	57	60	62
Honduras	50	53	60	63	64
Nicaragua	50	53	58	60	61
Costa Rica	65	67	72	73	74
Panama	n.a.	n.a.	n.a.	n.a.	n.a.
Ecuador	56	58	63	65	66
Peru	51	54	58	60	61
Bolivia	54	58	57	60	62

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

Exhibit 2.8

Forest Resources of LAC Countries

Country	Total Area (thousand km ²)	Forested Area 1990 Est. (thousand km ²)	National Population 1988 (millions)	Per Capita Forest Area (Ha)	% National Area Forested
Dominican Republic	48	6.3	6.7	0.09	13
Haiti	28	0.5	6.2	0.01	2
Jamaica	11	0.7	2.4	0.03	6
Belize	n.a.	n.a.	n.a.	—	—
Guatemala	108	45	8.4	0.5	42
El Salvador	21	1.4	5.0	0.03	7
Honduras	112	40	4.7	0.9	36
Nicaragua	119	45	3.5	1.3	38
Costa Rica	51	18	2.6	0.7	18
Panama	77 ¹	42	2.2 ²	1.9	55
Ecuador	277	147	9.9	1.5	53
Peru	1280	706	20.3	3.5	55
Bolivia	1034	668	6.7	9.9	63

—: Unable to calculate

1: World Resources Report 1986.

2: World Resources Report 1986; Estimated Population for 1985

Other

Sources: Agriculture and Natural Resources Strategy. Table B1.
World Resources Report 1990-91. Table 19.1; Estimate of Total Forest Area Including Open and closed Forest. 1990 Estimate.
Agriculture and Natural Resources Strategy. Table 13.3.
World Bank, World Development Report 1990: Poverty.
United Nations Development Programme, Human Development Report 1990.

Exhibit 2.9

Deforestation in LAC Countries

Country	National Forest Area 1990 Est. (thousand km ²)	Area (km ²) Deforested Annually	Annual Deforestation Rate (%)	Area (km ²) Deforested Annually	Annual Deforestation Rate (%)
		1985	1985	1990	1990
Dominican Republic	6.3	40	0.6	40	0.6
Haiti	0.5	20	3.1	20	3.8
Jamaica	0.7	20	1.0	20	3.0
Belize	n.a.	—	—	—	—
Guatemala	45	900	2.0	900	2.0
El Salvador	1.4	50	2.9	50	3.2
Honduras	40	900	2.4	900	2.3
Nicaragua	45	1,210	2.7	1,210	2.7
Costa Rica	18	650	3.9	1,240	6.9
Panama	42	360	0.9	360	0.9
Ecuador	147	3,400	2.3	3,400	2.3
Peru	706	2,700	0.4	2,700	0.4
Bolivia	668	870	0.2	1,170	0.2

Sources: World Resources Report 1990-91. Table 19.1; Forest Resources.
 World Resources Report 1988. Table 6.1; Forest Resources; Deforestation of Closed Forests.
 World Bank, World Development Report 1990: Poverty.
 United Nations Development Programme, Human Development Report 1990.

very high rates of deforestation, they will continue to lose a potential contribution to their economic development.

Belize, Panama, Ecuador, Peru, and Bolivia all have extensive areas of forest remaining. Except for in Belize, most of the forest areas are in remote parts of these countries and contribute less than they could to national development. All these countries are losing large areas of forest every year, mostly to the "advance of the agricultural frontier," a misnomer that masks the fact that most of the deforested land, again with the possible exception of Belize, has little or no capacity for sustained agricultural or livestock production.

Deforestation represents direct loss of valuable wood, wildlife and habitat. It also contributes to and results from a failure to manage watersheds, reduced availability and quality of water, increased erosion and sedimentation, degradation of marginal lands, and a shortage of good land for agriculture and intensive livestock production.

2.10 Trade in Forest Products

For countries that retain significant forest resources, export of forest products often contributes significantly to foreign exchange earnings. Conversely, countries that have eliminated their forest resource need to import most of their wood.

With a few exceptions, the A.I.D. countries in LAC are tropical and have limited capacity to produce paper pulp from natural forests. A few of the countries could meet much of their pulpwood need from plantations, but so far they have done so on only a limited scale.

Most countries will continue to import nearly all pulp as well as substantial amounts of manufactured paper. Some countries, however, have much larger internal capacity for paper manufacture than others, and a few export significant amounts of remanufactured paper.

As for wood products, exports in most countries are shifting away from raw logs toward more finished wood products. This tendency should lead to higher product values per unit of harvested wood, less waste in wood manufacture, and higher employment in the wood processing sector. These trends should redound in favorable conditions for improved forest management. Annex A-2 contains tables for each LAC country which show data on trade with

the U.S. for four categories of forest products.

2.11 Loss of Biodiversity

The greatest cause of declining biodiversity in Latin America and the Caribbean is loss of habitat through deforestation. Other factors also threaten certain species and ecosystems. Misuse of agricultural chemicals reduces populations of beneficial birds. Water pollution kills fish and other aquatic life and whole expanses of coral reefs. A few new strains of cultivated plants replace dozens of old ones, and the genetic resources they represent die out. Although it is difficult to construct a precise index of loss of biodiversity, deforestation is a significant indicator of continuing loss and designation of protected areas is a significant indicator of conservation. (see Exhibit 2.10)

In general, every country in the region faces some loss of biodiversity, and several countries have already suffered serious losses. Most countries have embarked on conservation programs by establishing protected areas and several countries have significant percentages of their national territories set aside for protection. The effectiveness of protection in these areas varies greatly from country to country but in all cases, designating protected areas is a significant positive step, indicating commitment to basic conservation.

2.12 Mismanagement of Watersheds

A well-managed watershed has large areas of natural and cultivated vegetation in healthy, vigorous condition. There is a close, direct relationship between the land use on slopes and minimal manmade erosion. One sees farms on flat land, orchards and pastures on gentle slopes, and forest on steep slopes in well-managed watersheds.

A poorly managed watershed has degraded forests and pastures and serious erosion scars. The relationship between slope and land use is out of kilter.

Exhibit 2.10

Protected Areas in LAC Countries

Country	Number of Protected Areas	Total Area Protected (thousand Ha)	Number of Protected Areas	Total Area Protected (thousand Ha)	% National Territory in Protected Areas
	1985	1985	1989	1989	
Dominican Republic	5	220	13	550	11.4
Haiti	2	5	2	8	0.3
Jamaica	0	0	0	0	0
Belize	n.a.	—	n.a.	—	—
Guatemala	2	60	13	99	0.9
El Salvador	0	0	7	22	1.1
Honduras	4	423	15	580	5.2
Nicaragua	2	17	6	43	0.4
Costa Rica	21	412	25	609	12.0
Panama	6	681	14	1,311	17.3
Ecuador	12	2,627	13	10,614	38.4
Peru	11	2,408	22	5,483	4.3
Bolivia	12	4,708	12	4,837	4.5

Sources: World Resources Report 1986. Table 7.1.
World Resources Report 1990-91. Table 20.1.

One sees plots of cultivated land and overgrazed, unimproved pastures on slopes so steep they are difficult to walk on.

Almost every inhabited watershed in Latin America and the Caribbean shows the telltale signs of poor watershed management. Deforestation rates are a reliable general indicator of the lack of watershed management. Data on siltation and sedimentation rates in streams and erosion rates on slopes would describe the situation more precisely if they were available.

2.13 Overuse and Underuse of Land

Overuse and underuse of land exist side by side in many LAC countries. The trend toward overuse is more common and more damaging to natural resources. Overuse generally manifests itself in the pursuit of agriculture and livestock raising on poor land. People at the margins of society pursue it on marginal land for marginal gain. Overuse of marginal land is the situation of small farmers throughout the region from Jamaica to Nicaragua to Ecuador, but it is not exclusively a phenomenon of small farmers, however. Poor land is overgrazed on all scales of landholding in Latin America, in communal as well as in individual ownerships.

The trend toward underuse of land takes two principal forms: underuse of good agricultural land and underuse of forests. Some good agricultural land, often in large holdings, is used far less intensively than it could be. Land that could grow two crops of irrigated rice or high quality fruit for export each year is used, instead, for pasture or a less valuable crop, like sugarcane. As for forests, they rarely approach full productive capacity anywhere in the region. This is true of plantations, which rarely receive good technical management, and even more so of natural forests, which are generally subjected to crude harvesting and no management whatsoever.

2.14 Water Pollution

Pollution affects most bodies of water in the region except where habitation is minimal, and many isolated communities contaminate their own water supply. Water pollution arises from numerous sources and takes numerous forms. Agriculture, livestock raising, mining, and deforestation pollute, as do urban centers and rural households, businesses, and industries.

Physical pollution results from erosion, siltation, and sedimentation. Chemical pollution results from agrochemicals and industrial effluents. Biological pollution originates in household and agricultural wastes.

Although nearly every country has taken measures to assure safe drinking water to major cities, many communities lack clean water. Few countries have even adopted water quality standards and no country takes effective measures to prevent pollution or to clean up contaminated bodies of water.

The situation affects people as well as natural resources. Pollution of water, an important natural resource in itself, causes adverse environmental impacts on aquatic and marine life, inshore fisheries, mangroves, coral reefs, and beaches. The cost of cleaning up is high, but the cost of continuing to pollute is probably higher. The magnitude and pervasiveness of pollution and the need to reduce it are gradually being recognized, however.

3.0 POLICIES RELEVANT TO THE LAC STRATEGY

The development of an A/NR strategy for the LAC region that could increase the real incomes of both farm and non-farm people requires policy modifications at three levels.

- The policies of LAC countries that directly influence the welfare of farm and non-farm people.
- The policies of the United States that influence access to the U.S. market for both farm and non-farm producers so that they can take maximum advantage of the resources that they have.
- A.I.D. broad guidelines for allocating its resources cover such matters as the length of commitments; the emphasis on food aid versus technical assistance in expanding food production in the region, the emphasis to be given to the private sector, both for-profit and non-profit, relative to the public sector, and the criteria to be used in making such decisions, and objectives to guide the allocation of A.I.D. resources.

Obviously A.I.D. cannot be involved in the full range of economic reforms in the LAC region. A.I.D. must identify key areas for intervention. A high priority should be placed on interventions which indirectly affect agriculture, but which are nevertheless important. One such indirect intervention is the exchange rate and tariff policies that influence the allocation of resources among sectors. An overvalued exchange rate acts as a tax on exports and a subsidy on imports except that the amount of foreign exchange will be insufficient to permit purchasing all the imports that would be demanded. Consequently, imports must be rationed, which results in misallocation of resources and encouragement of corruption. The strategy should also deemphasize direct forms of intervention, such as export taxes and price controls, input and credit subsidies, discriminatory tax policies, and the elimination of governmental monopolies or private monopolies maintained by governmental sanction.

The policies that affect the allocation of governmental resources between rural and urban areas generally discriminate against the rural areas in education, health, communication, and infrastructure such as roads. Reallocation of resources occurs slowly, but it is important to begin the process.

A.I.D. must modify its policies and programs if its objectives are to increase human capital, build institutions for research and development, and assist with national policy reforms that increase the real incomes of farm and non-farm populations. This does not require a major shift in A.I.D.'s directions but only in its emphasis and procedures.

A.I.D. has an excellent record in institution building in education and research in South Asia, especially in India, and in a limited number of cases in South America.

4.0 ISSUES AFFECTING LAC OBJECTIVES

The purpose of this section is to identify the major issues or problems that affect the realization of the overall objectives of LAC A/NR: increasing the level and growth of real national incomes, increasing the per capita incomes of rural people and achieving sustainable agriculture and forestry. The section is concerned with issues and problems at three levels: in the policies of the LAC countries, in the policies of the United States, and in particular restraints imposed on A.I.D. by legislation and practice. They will be considered in that order.

4.1 Policy Reform in LAC Countries

LAC country governments intervene extensively in agricultural markets for farm outputs and inputs and in the institutional arrangements affecting farm operations. As is true in all countries, these policies serve multiple and often conflicting objectives. While some sector-specific policy interventions are designed to encourage agricultural production, such as credit subsidies, price supports and price subsidies for inputs, others have a negative effect on farm incomes and production. These include the controls on exports, such as export taxes, and the continuation of unrealistic exchange rates that serve as a tax on traditional agriculture exports and encourage imports of competing farm products. Consumer prices are often subsidized, which limits the ability of governments to assist with agricultural investment and also provides a rationale for price ceilings on food products in order to hold the cost of the food subsidies at reasonable levels. In many LAC countries the agricultural sector depends largely on the Government for inputs, credits, storage, and other activities in which the "public good" is relatively insignificant. Many governmental functions which cannot be provided by the private sector are neglected. These include, for example, management of land titles, construction of roads, and provision of primary education in low-income rural areas.

The issues related to desirable policy reforms in the LAC countries fall into four broad categories: (1) Economic policy, trade, and investment; (2) Agricultural productivity, sustainability, and growth; (3) Small farmer, employment, and land tenure, and (4) Natural resources.

4.1.1 Economic Policy, Trade, and Investment

The review of LAC country policies must include both the sector-specific policies that directly affect agriculture and the broader macroeconomic and trade policies that indirectly affect the markets and prices of agricultural products. While sector-specific policies, such as price supports and credit subsidies, may be designed to have a positive effect upon farm prices and incomes, other policies directed at trade and macroeconomic management of the economy are typically of utmost importance to agriculture. Changes in industrial protection, real interest rates, minimum wages, government spending, international capital flows, and exchange rates can reenforce, neutralize, or more than offset the effects of the sector-specific policies designed to benefit agriculture.

The findings of recent research have vividly shown the need to analyze the effects of policy interventions in agriculture in LAC countries in an economy-wide framework. There is now an overwhelming body of evidence showing that in many LAC countries, trade and exchange rate policies have had a far greater impact, generally adverse, on agricultural incentives than policies that are specific to that sector (Krueger, Schiff, and Valdes, 1990). Through their influence on incentives on agriculture vis-a-vis the non-farm sector, these indirect and usually implicit price interventions influence private investment and labor employment in agriculture, and have induced substantial income transfers from agriculture to the rest of the economy.

In conjunction with a substantial reform of the agricultural price and trade policies, removing or significantly reducing the indirect effect of economy-wide policies to eliminate their adverse impact, and avoiding sharp fluctuations in the key macroeconomic prices (mainly the real exchange and interest rates), are necessary and fundamental elements of a policy reform package which aims to augment the contribution of agriculture to overall growth and poverty alleviation. Given the significance of agriculture in the overall economy in these countries in terms of employment, supply of foreign exchange and its share in GDP, a sustained improvement in agriculture's performance appears to be a key ingredient for more rapid overall economic growth.

One of the basic features of the development strategy in most of Latin America since approximately World War II was the trade policies designed to

encourage manufacture by shifting the terms of trade and income distribution in favor of manufacture and against agriculture. Industrial protection was sometimes advocated on the grounds that it would lead to a net increase in the demand for labor. However, much of the empirical work on protection in poor countries has shown the validity of the opposite view, that protection leads to a net decrease in the demand for labor (Krueger et. al., 1981; Little, Scitovsky and Scott, 1970). The resulting shift in the terms has made agriculture much less attractive from the point of view of both labor and capital. This has led to a faster migration of people from agriculture to urban centers, and a diversion of investment from agriculture to industry.

It is submitted here that the new trade strategy proposed in this document offers greater employment opportunities in agriculture in general, and to women in particular. This is important in the case of LAC countries where women are not heavily involved in agriculture, vis-a-vis for example Sub-Sahara Africa. A relevant experience on the link between policy reforms and agricultural employment is the case of Chile during the late 1970s and early 1980s. A change towards a more open trade strategy led to a fast growth of labor intensive activities in agriculture, a high proportion of which is seasonal employment of women in harvesting and packing house operations in fruits and vegetables. Rural and urban wages of women have risen, the latter as a result of a reduction in rural-urban migration.

We first address three issues: a) the indirect taxation to agriculture resulting from economy-wide policies; b) simultaneous reforms in related sectors which impinge on the success of the agricultural policy reform process, particularly the tax system, and other transition problems that will arise; and c) land titling and related tenure reforms, viewed as essential complements to the reform of incentives, and which have direct implications for better management of the natural resources.

The following section on improving the economic environment for agriculture presents guidelines on trade policy reform as it affects agricultural markets. Despite the complexities of the reform process and the different circumstances in the various countries, a successful trade and pricing reform for agriculture has certain elements in common throughout the region.

Improving the Economic Environment for Agriculture. In general, two types of price interventions determine the structure of incentives for agricultural production. On the one hand, trade policies giving strong protection to the industrial import-competing sector, and macroeconomic policies directly affecting the determination of the real exchange rate, may depress the price of agricultural products relative to non-agricultural prices, thereby inhibiting investment and growth. On the other hand, sector-specific pricing policies can drastically change the relative price structure within agriculture, thereby affecting the composition of agricultural output. Furthermore, to the extent that these two types of interventions imply a strong anti-trade bias, the net result is a loss in foreign exchange surplus from agriculture and a lower volume of trade for the economy as a whole. Under these conditions, both the social and the private return to investment projects in agriculture will be lower than they would be in the absence of these interventions.

The pattern of price interventions in the 13 LAC countries examined is not an exception to these patterns observed in developing countries. Exhibit 4.1 describes the exchange rate and trade regimes in these 13 countries as of December 1989. Except for Bolivia, which has made significant structural adjustment in recent years, most of the countries show a pattern of strong discrimination against agriculture. In the first group, including Costa Rica, Guatemala, Jamaica, and Peru, the average import tariff in the economy ranges from 40 to 50 percent. In a second group, which includes El Salvador, Haiti, and Honduras, the average import tariff ranges from 20 to 40 percent. The tariff is difficult to measure for Nicaragua and Panama, due to the extensive involvement of state agencies in foreign trade in Nicaragua and the widespread use of import quotas in the latter.

What are the probable effects of these prevailing economy-wide policies on the structure of incentives for agriculture? If we take the relative price of agricultural goods vis-a-vis non-agricultural prices as a proxy for price incentives, an increase in industrial protection will raise the domestic prices of industrial products and thus lower relative agricultural prices. However, there is an additional effect. The import tariff will also cause an increase in the relative price of home goods (goods and services that are neither imported nor exported). The impact of industrial protection on the

Exhibit 4.1

Exchange Arrangements and Trade Restrictions as of Dec. 31, 1989

Country	Exchange Regime	Restrictions on Imports	Restrictions on Exports	Other
El Salvador	Dual. (Fixed & Free) On 8/89 a major proportion of transactions was transferred to the free market. As of Dec.31, 1989, the rate in the free market was 28% higher than the official rate.	On Dec'89, import tariffs were reduced to a range of 5-50% from 0-290% Import licenses are required only on a few products. A limited number of items still get low fixed rate. A limit on sales of fgn exch. at that rate is set. Affected items include certain food items, fertilizers and petroleum, among others.	Coffee exports are subject to an export tax. Export licenses are required for certain food-stuffs and other items for which the authorities wish to ensure adequate local supply.	Specific non traditional exp. receive tax rebate bonus for up to 20% of value added of exported products.
Guatemala	Dirty Flotation Floating exchange rate with C. Bank intervention.	Imports of most goods are unrestricted and do not require license. Petroleum is imported at a preferential rate of exchange. On Nov'89, the first stage of a reform was introduced. Tariffs on approx. 10% of all imports were reduced from 0-150% to 2-37%	Certain exports are subject to licences.	
Haiti	Dual (Fixed & Free) On the buying side, the fixed rate applies to petroleum products, sugar, wheat and some public sector imports. As of 9-12-89 the free at rate was 50% higher. U.S. dollar circulates freely.	Tariffs are on the range of 0-40%, the unweighted average being 20% The main exceptions are rice,maize,millet and flour which have a tariff of 50% and gasoline which has a tariff of 57.8% Customs are calculated at an exchange rate 30% higher than the official fixed rate.	Exports of agric. products require prior authorization which is usually granted, except when authorities estimate domestic supplies to be low.	

Country	Exchange Regime	Restrictions on Imports	Restrictions on Exports	Other
Nicaragua	Dual. There is an official and legal paralel market. Most imports use the first rate. The second applies mostly to tourism, private remittances and invisibles. As of 12-31-89, the paralel rate was 25% higher than the official.	State has monopoly on imports of agricultural inputs and capital goods required by state enterprises.	State has monopoly on exports of coffee, cotton, meat, sugar and certain non-traditional exps. A few agricultural products are subject to ad valorem taxes which are applied progressively with the price for those exports.	25% of proceeds from industrial exports may be denominated in US\$ and used for any specified fgn. exchange expenditure of exporters. 50% of proceeds of non-traditional exports are subject to the same regulation.
Panama	Fixed. US dollar circulates freely and is legal tender.	Import quotas are maintained on some 20 products including oil, timber, salt, fishmeal milk and sugar. Import licensing applies to some products subject to quota and to imports of various foodstuffs. In addition to import duties, a tax of 7.5% on f.o.b. value is levied on private imports, except on foodstuffs (3.5%) and some others.	Exports taxes are levied on sugar, bananas, coconuts, rubber, animal wax and some other products including mostly minerals.	Certain non-traditional exports are eligible for tax credit certificates.
Peru	Multiple exchange rate system. There are four different rates. The principal rate follows a crawling peg with respect the US dollar.	All imports require licenses. Approximately 10% of the total items in the Peruvian Custom Nomenclature are prohibited. The maximum import duty is 84% ad valorem and the un-weighted average rate is 47%. Public setor imports must, in principle, be shipped in Peruvian vessels.	Export prohibitions apply to 65 items, mainly rare wildlife and plants, cotton, rubber and mineral ores. Export licenses are required for 87 other goods. Since August '85 a parastatal has the monopoly of exports of petroleum products. Different proportions of fgn. exch. earnings must be changed at the different multiple rates.	Imports of raw materials and intermediate goods for the production of non-traditional exports are exempted from import duties. Exports of most non-traditional products are granted trans-ferrable tax credit certificates in the range 15-35% of the f.o.b. value of exps. Also there are special credit lines for these exports.

Country	Exchange Regime	Restrictions on Imports	Restrictions on Exports	Other
Bolivia	Flexible. Daily auction System.	10% tariff on most capital goods. 17% tariff on all other goods. Licensing required for sugar and oil. All other goods may be imported freely.	All goods may be freely exported.	Custom duty rebate of 10% net value of exports for nontraditional export products.
Costa Rica	Fixed. The Central Bank adjusts the exch. rate from time to time according to domestic and foreign inflation.	Tariffs range from 0% to 66%. Essentials are either exempted or have far less taxes.	Export licenses are required on a number of agr. products and also on some other items.	Non-traditional exports to markets outside Central America receive tax rebates in the range 15%-20% of f.o.b. value.
Dominican Republic	Fixed.	All imports except food, ag. products and medicines are subject to an exc. rate commission of 20% of the f.o.b. value. Most tariffs range between 40-75% Agric. goods, indust. machinery, inputs for agrochemical products are subject to 5% Essentials are evaluated at an exc. rate 32% lower.	Some exports are prohibited. Affected items include some food products, animal species and un-processed wood.	There are tax credit certificate for exports. Non-traditional exports receive a partial refund of import duties paid.
Ecuador	Dual. Basically there are two exchange rates, the intervention rate fixed by the C. Bank on basis of a preannounced peg and the free rate. Fgn. exch. is allocated quantitatively among all requests.	Essential goods have an import tariff rate of 10% Less essential goods have a tariff rate of 30% Prior imp. deposits for 120 days at no interest rate apply to all permitted imports.	All exports require licenses. Some exports are prohibited or subject to quota. There are minimum reference prices for bananas, cocoa and cocoa products to ensure full surrendering of export proceeds.	There are limits on the repatriation of profit remittances. Limit depends on the proportion of exports. (inversely)

Country	Exchange Regime	Restrictions on Imports	Restrictions on Exports	Other
Honduras	Fixed. Exporters to Costa Rica, El Salvador and Guatemala can transfer fgn. exchange to importers at freely negotiated rates.	Import permits required. Some products can be imported with fgn. exch. allocated by the C. Bank at the fixed official rate. Other products must be imported with "Transferable Certificates of Foreign Exchange" (CETRAS). These products include milk, seeds, wheat, corn, rice, fertilizers, oil, tires and public sector imports. 50% of exports are paid in CETRAS and provide the holder preferential access to fgn. exchange at official rate. On March '90, tariffs for imports outside CACM were set between 2-40% (previously: 1-90%) and for CACM imports, the tariff was set at 35%	Exports of coffee, corn, rice, potatoes, beans and lumber are controlled by different state agencies. Subject to approval, exporters can retain up to 60% of their own fgn. exch. to finance their own imports.	Non-traditional exports receive tax credit certificates ranging from 5% to 15% of f.o.b. value of exports.
Jamaica	Fixed.	Import tariffs are differentiated as follows: Raw materials: 10% Capital goods: 20% Consumer goods: 60% Few goods have a tariff higher than 60% Above schedule is adjusted to fulfill CIRECOM agreements. Certain food items may be imported only by a public agency (JCTC).	Specific licenses are required for exports of certain agricultural products. Manufactured exports different from petroleum products and directed outside CCM receive a rebate of 7.5% of f.o.b. receipts.	

relative price of home goods has been estimated for several Latin American countries (Sjaastad 1981, Valdes 1986). The prices of home goods are determined by domestic demand and supply conditions rather than by world market prices. The evidence on this "incidence" parameter, which relates the change in industrial protection to the change in the price of home goods, suggests an average value of approximately 0.55. Taking this average value as a reference and assuming that the share of home goods in the non-agricultural sector is 50 percent, we find that for the first group of countries, the removal of industrial protection would induce an increase in relative prices for agriculture of approximately 35 percent; for the second group of countries the same policy reform would increase agricultural incentives by approximately 23 percent.

Thus, we conclude that industrial protection is currently a major source of the implicit taxation affecting agricultural production and a major component of an effort to improve the economic environment for agriculture. The plea is not for favorable treatment for agriculture but only for treatment of agriculture comparable to that afforded other sectors in a direction which reflects the actual trade opportunities faced by these countries. The removal of industrial protection alone would produce a major realignment in agricultural incentives.

Turning to the sector-specific price interventions, we confront the fact that very few estimates were found on the rates of protection for farm products. Their estimation is outside the scope of this study. However, a careful reading of Exhibit 4.1 reveals three main features of trade policies that are relevant for an understanding of agricultural price interventions.

First, (at the official exchange rate) we observe that there is a bias in favor of "non-traditional" exports. Most countries offer tax rebates on these exports, typically ranging from 10 to 20 percent. This is for example the case in Bolivia, Costa Rica, Honduras, Dominican Republic, Panama, and Peru. In Peru there is also a partial refund of import duties paid by exporters of such non-traditional exports. In Nicaragua, exporters of specified non-traditional products can retain 50 percent of their proceeds in US dollar-denominated deposits and use them for specific expenditures in foreign currency. Although these export promotion schemes clearly improve export incentives for such exports relative to traditional exports, their net

effect hardly compensates for the implicit taxation resulting from the economy-wide policies mentioned above.

Second, some countries directly tax traditional exports, most of which come from agriculture. This is the case, for example, with the export tax on coffee in El Salvador; the export tax on sugar, bananas, cotton, and rubber in Panama; and export prohibitions of rubber and cotton in Peru. Thus, the combined effects of direct and economy-wide price interventions result in a net (or total) price intervention against traditional agricultural exports, which is equivalent to an export tax of 40 to 50 percent.

Third, many agricultural products, particularly food products, are import-competing and subject to import duties and quantitative restrictions (QRs). In most countries, the tariffs which apply to such products are lower than the average tariff on industrial goods, in Costa Rica and Ecuador, for example. In Haiti, although food products are subject to a high import tariff (57 percent) for import purposes they are evaluated at a differential official exchange rate, which is 55 percent lower than the prevailing market exchange rate. Thus, although the production of food products may be protected relative to traditional agricultural products, the net effect is that they are unprotected compared to import-competing activities in the non-farm sector.

In summary, economy-wide policies strongly discriminate against agricultural production in most countries, the effect of which is that the domestic terms of trade for agriculture (relative to the rest of the economy) are 20 to 35 percent lower than what they would be otherwise. Second, sector-specific policies have discriminated against traditional agricultural products and favored non-traditional agricultural exports. In addition, a pattern of price interventions favors production of tradable food products. The net combined effect of the taxation from the economy-wide policies and the support given to non-traditional exports and to food production is, we anticipate, equivalent to a taxation of these sectors in most of the 13 LAC countries. The removal of economy-wide price interventions will, most probably, more than offset any reduction in incentives derived from the elimination of the export promotion schemes and the protection of food imports. This was clearly the case in the five LAC countries analyzed in the Krueger, Schiff, Valdes study (op. cit., 1990). The net taxation to traditional exports from agriculture is substantial and much higher than that of food products and non-traditional

exports. Unless these major price distortions are removed, lending for agricultural investment projects will have a social and private return considerably below its economic potential.

Economic Policy Reforms and Environment. An agricultural trade liberalization process in LAC countries would lead to a considerable change in the structure of incentives and prices to consumers. This would in turn lead to a change in the level of overall agricultural output and probably would change also the current composition of 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 a liberalization would be on natural resources and the environment is of course a completely open question and one on which there is no hard evidence. 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. Others may be neutral.

Overall, in most LAC countries we would expect economic policy reforms in the direction suggested in this document to raise the value of natural resources (particularly farm land) 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 room for policy action on specific aspects to correct for the externalities that give rise to genuine environmental concerns.

Rather than trying to adjust the broad trade and macroeconomic policy reforms so as to deal with environmental concerns based in a general equilibrium framework, which could be nearly impossible to do anyway, as an approach we suggest that environmental concerns should be pursued with partial equilibrium specific tools (policy instruments), which are more "efficient" in dealing with each particular issue. Such tools would include regulations with appropriate enforcement of toxic pesticides; abolishment of land tenure regulations which do not recognize property rights on forest lands unless they are cultivated; more research and extension on environmentally beneficial technologies, or more general, the legal framework for the management of

forest and soil resources; the governments spatial development strategy, particularly with respect to the allocation of aid and physical infrastructure resources to environmentally stable and more productive areas vis-a-vis environmentally fragile areas; land titling programs in areas where land is not well defined and addressing land management issues in areas under common property that lead to open access forms of exploitation; and evaluation of explicit price policies on factor markets and material inputs accounting for environmental degradation.

Some Obstacles to Price Reforms. Having recognized that policy reform on these broad price interventions is a necessary ingredient for improving the performance of agriculture in these LAC countries, we anticipate several major obstacles in such a reform process. It is useful to distinguish between two broad types of obstacles, namely political economy obstacles and technical and management obstacles. They are interrelated, but it is in the latter that A.I.D. may have a more important role to play.

Because these policies which discriminate against agriculture have prevailed for decades, it would be realistic to expect considerable political pressure against reform, from public as well as private sector interests. After all, the policies generate rents and employment in specific activities, and the present value of assets has incorporated the protective effect of the continuation of these policies. For example, entrepreneurs in the import-competing industrial sector are likely to strongly object to trade policy reform which reduces protection. Also, the probable increase in food prices resulting from liberalization and exchange realignment will most certainly meet with important opposition in urban areas.

On the technical side, we note that a price policy must be reformed in conjunction with reforms in related sectors if the former is to have a reasonable chance of success. In particular, the fiscal sector is most relevant in this respect. In most of these countries, revenues from international trade taxes represent a significant share of government revenues. Exhibit 4.2 shows that, with the exception of Panama, Nicaragua, and Bolivia, taxes on trade represent 20 percent or more of government revenues. A removal of trade distortions affecting agriculture without increasing revenues from other sources and/or significant reductions in overall government spending will not be possible. Although it might be

Exhibit 4.2

Structure of Central Government

**Taxes on International Trade
as a Percent of Total Revenue**

Country	1982	1986	1987
Dominican Republic	25.2	12.6	n.a.
Haiti	26.2	n.a.	21.4
Jamaica	n.a.	n.a.	n.a.
Belize	33.9	n.a.	n.a.
Guatemala	14.9	37.1	39.9
El Salvador	25.8	41.3	26.1
Honduras	n.a.	n.a.	n.a.
Nicaragua	15.7	7.0	n.a.
Costa Rica	29.4	21.1	n.a.
Panama	10.0	10.9	n.a.
Ecuador	n.a.	n.a.	n.a.
Peru	23.8	20.8	21.5
Bolivia	25.2	12.6	n.a.
Average	21.6	22.9	n.a.

Source: Government Finance Statistics, Yearbook, 1989. For all countries, central government revenue accounts for 95% or more of total revenues of the general government, for the latest year with available data. Exceptions are: Bolivia (80-90%) and Guatemala (90-95%). Figures for Belize and Ecuador may not be perfectly comparable.

possible to reduce government spending in some areas, it should be noted that, with the exception of Panama and Nicaragua, the other countries have a relatively small public sector, representing 10 to 20 percent of GDP. This figure is low compared to the size of the public sector in middle income countries in LAC, which ranges from 30 to 40 percent of GDP.

In some countries, though, the magnitude of this fiscal constraint is less severe. For example, removing import quotas in Panama and state agencies from international trade in Nicaragua, and replacing these trade restrictions with low and uniform tariffs may very well result in an increase in central government revenues. Thus, for some countries, the fiscal constraint of agricultural policy reform would be less severe, although there may be good reasons for implementing a tax reform on other grounds.

The fiscal reform process is likely to face opposition to higher income taxes or value-added taxes, which is one reason why trade taxes have been used in the past. In addition to this political economy obstacle to reform, important technical problems are associated with a tax reform emphasizing taxes that cause less distortion. One such obstacle is that it requires a great deal of expertise to implement an efficient value-added tax scheme. Also, substantial technical improvements must be made in the fiscal sector if the existing tax laws are to be enforced with rigor. The technical obstacles associated with an efficient tax reform in Latin America have been documented (Urrutia, 1988), and we believe that in this kind of transition problem, technical assistance may prove extremely beneficial. This is an area where A.I.D. and the World Bank can play an important role.

Furthermore, the political economy obstacles mentioned above are related to a technical dimension. For example, there is likely to be opposition in urban areas to reforms affecting food prices. That opposition could be partially neutralized through subsidized food and health programs targeted to the poorest segments of the population. We say partially only because the middle income households, excluded from such subsidies, are likely to strongly oppose such price reforms. Health and nutrition programs targeted to the lowest income families have been implemented with considerable success in a few countries, such as Chile (Castaneda, 1990). However, the implementation of such programs requires a great deal of technical expertise and human capital in the government, which could be lacking. This is another area where

A.I.D. could play an important role in providing technical assistance.

To be effective, the price reforms must be perceived as permanent and credible by the private agents, which in itself is a major task considering the uncertainty and frequent changes in the rules and regulations in the past. Perhaps the most powerful impediment to successful reforms is the deep-seated political instability in some countries, Bolivia, for example. After a significant adjustment in economic policies and macroeconomic interventions, growth has not yet resumed. While necessary, price and macroeconomic reforms are not sufficient for better growth perspectives.

If the prevailing political instability in some countries means that local entrepreneurs resist investing their savings in the domestic economy, the only other source during the early phases of the transition period may be multilateral and bilateral assistance agencies. A clear political commitment to implementing and sustaining the reform process must come first, however. The implementation of fiscal reform and other related policy adjustments are crucial in this early stage, and they would indicate a clear political commitment to the reform effort.

Design of Agricultural Trade Policy Reform. A variety of markets are subject to controls of varying degrees of severity, including the foreign exchange, labor, financial, foreign trade, and domestic market for agricultural products. The initial conditions on these various markets are likely to vary from country to country.

The complex questions for policymakers and economists in general include how broad an effective reform process must be and whether the reform measures should be attempted in a certain sequence. As discussed in the previous section, the transition from the present trade regime to a more neutral one will probably be influenced in a very real sense by related developments in the macroeconomic aspects of liberalization (inflation and external accounts) and by the reform process in the more microeconomic aspects of liberalization, namely the overall trade regime, financial markets, and labor markets.

There could be a strong interaction between the macroeconomic process and the controls of individual markets such as agriculture. For example, the majority of price controls have been imposed in an effort to reduce inflation, or restrictions have been intensified because of domestic inflation, which

could be very relevant to the decontrol of agricultural markets in LAC countries. A similar case can be made regarding balance of payment difficulties. Again, these underscore the issue of the importance of appropriate macroeconomic policies if a reform of the trade regime affecting agriculture is to succeed.

On the microeconomic aspects of liberalization, it is also hard to delineate the boundaries of our analysis. The liberalization measures taken in agricultural markets may have different impacts in other markets. Efforts to liberalize agricultural trade could fail if the anti-inflationary program fails or if it is not accompanied by a realistic exchange rate. As discussed in the previous section, prudent macroeconomic policies and competitive exchange rates seem to be necessary conditions for successful trade liberalization.

Recent studies on the experience of policy reform in developing countries (such as Papageorgiou, Choksi, and Michaely, 1990), have shed some new light on the question of how to liberalize trade.

The Importance of Tariffs. One of the clearest findings is that trade liberalization programs which reduced quantitative restrictions (QRs), such as import and export quotas, succeed, and those that do not do so generally fail. Thus, dismantling of QRs, even if some degree of protection is maintained, could be a condition in the liberalization package. Different types of quantitative restrictions are common in agricultural markets, such as export and import quotas and foreign exchange licenses for trade. In several countries they are implemented by state agencies with a legal monopoly on trade and marketing of tradeable inputs and food products. Replacing QRs with tariffs has several advantages, most importantly the reduced role of the price mechanism under QRs. QRs are less visible and more selective than tariffs, and they can have a frustrating effect on trade; they insulate the quota-imposing country from the effects of world market changes for the affected commodities.

A second advantage of replacing QRs with tariffs is that tariffs generate government revenues, illustrated in Exhibit 4.2. This could create an important transition problem for agricultural trade reform, given the high share of revenues from trade taxes in total government revenues. A third advantage is that tariffs would contribute to reducing the role of state trading in agricultural commodities, if they are accompanied by the

elimination of the legal monopoly in trade which state agencies have in some countries. Removal of QRs was an important element in the trade liberalization process in Chile and Mexico, the Latin American countries most advanced in this reform.

The Need to Define the Bench Mark. An important element in the bench mark is the goal of neutrality in the trade regime--that is, equal incentives to exports and domestic sales. As documented in the study by Krueger, Schiff, and Valdes (1990), sectoral price interventions in agriculture in Latin America were found to have a strong anti-trade bias, protecting import competing activities and taxing exports. Thus, prevailing policies show a substantial deviation from the neutrality rule, that is, a wide dispersion of the different equivalent tariff rates of protection between agricultural import-competing and export-producing activities. Liberalizing trade in agricultural markets means not only lowering the average level of protection but also narrowing the range of nominal and effective rates of protection.

Economic analysis identifies several rational motives for trade intervention, some of which could in principle apply to agricultural markets. These include the optimum tariff argument, policy interventions to deal with price instability, protection against dumping, the infant industry argument, and targeted food subsidies for the lowest income households (Valdes and Siamwalla, 1988). Of these possible arguments for selective treatment of specific activities, only two, the interventions to deal with "excessive" price instability in food products and targeted food subsidies, merit special consideration in the trade reform package. Technical assistance for the analysis and design of such intervention programs is an area in which A.I.D. could provide support in the LAC countries. The third argument which is also relevant in the LAC countries in question is the fiscal revenue motive, a consideration satisfied by the conversion of quantitative restrictions to a uniform rate of tariff.

Three important lessons of economic policy for the small open economies directly relevant to agricultural trade reform are a) the need to take advantage of international trade through a relatively open economy, b) the advantage of modifying the trade restrictions toward tariffs and eliminating all export restrictions, and c) the advantages of narrowing the range of nominal and effective rates of protection. Only a fairly uniform rate of

tariff can avoid the arbitrary and distorting variations in the effective rate of protection. Technical assistance for the design and implementation of trade reform in LAC countries is an area in which A.I.D. could play an important role.

4.1.2 Agricultural Productivity, Sustainability and Growth

Because agriculture is both a major source of employment and an important contributor to national output in LAC countries, it is important to improve the quality and the productivity of the agricultural resources. Growth of agricultural output that is due to improved productivity contributes much more to the incomes of rural people than does output growth resulting primarily from increased inputs. This is true even when the additional inputs consist of new land being brought into cultivation due to the relatively high cost of such undertakings.

The improvements in agricultural productivity and the growth of farm output should occur in a manner that assures sustainability. It would not be in the long-run interest of the farm and rural people in LAC countries to achieve significant short-run production gains at the expense of long-run potential. Important interrelations between agricultural growth and the sustainability of agriculture are discussed in Section 4.1.3 in some detail.

Human Resources. In modern industrial societies, human capital (labor) produces and receives at least three-fourths of the national income. In developing countries human capital may receive as little as half of the national output, with the remainder going to land and capital. One indicator of the success of an aid strategy is an increase in the share of human resources in annual output over time.

Such an increase occurs primarily as the productivity of those resources increases. The conventional approach derived from the growth theory of the 1950s and 1960s was to increase the amount of physical capital per worker through increased savings and investment. As long as aggregate output grew faster than the labor force, the maintenance of a positive investment rate greater than the rate of output growth would sustain rising per worker income. The economic model based on this growth theory did not recognize change in technology except as it was embodied in physical capital nor did it recognize the role of investment in human capital. Thus, the productivity improvement

that occurred was exogenous rather than endogenous to the model. We are now confident that investment in human capital can and generally does have a return at least as high as that earned on physical capital and that productivity improvements can also be achieved through investment in research. These are two major advances in our understanding of what is required to achieve a sustained rate of economic growth.

It is generally true in developing countries that in rural areas schooling is less available and of poorer quality than in urban areas. While in the LAC region, primary schools exist in most rural communities, the quality is inferior to the schools in urban areas and many rural children do not complete their primary education. Access to secondary schooling is much more limited in rural than in urban areas. Young men and women who grow up in rural communities on the average have significantly less human capital than their counterparts in urban areas. This difference means that the average rural youth will have lower life-time earnings than the average urban youth, whether the rural youth remains in agriculture, finds non-farm jobs in rural areas, or finds employment in urban areas. Thus, an important avenue to reduce income inequality in a way consistent with maximizing the growth of per capita income is to equalize access to education in rural and urban areas.

The first objective should be to produce as many sixth grade graduates as possible who are functionally literate and numerate. There should also be an effort to address the educational needs of illiterate adults in rural areas as they represent a group with immediate needs for literacy as more and more of their activities require the ability to read. To fully contribute to agricultural productivity and the improvement of rural life people need much more than an elementary education, however. As economic growth occurs, the complexity of functions increases and demand grows for intellectual activities that involve understanding increasingly complex information and making decisions based upon that information.

There is little mystery concerning what is required to achieve universal elementary education, namely more resources. How much additional resources are needed depends on how those resources are utilized. Major considerations are the minimum educational requirements for elementary school teachers, the degree of local control and responsibility for schools, and the allocation of centralized funds among the rural areas for textbooks, equipment, classroom

construction and other supporting materials. Experience indicates that local control of schools, subject to certain minimum standards, can upgrade rural educational systems by mobilizing more resources than are made available by a highly centralized system. This is not to say that a centralized system cannot improve the efficiency and quality of rural primary education but that the prospects for improvement are greater under a system with substantial local autonomy.

Education and Research Institutions. The growth of human capital is essential to successful rural development. However, the contribution that additional human capital can make to social and economic growth can be greatly enhanced by institutions that expand the base of relevant knowledge that can be applied to the productive rural activities. The enormous effects of the high-yielding varieties of wheat and rice on output and incomes in the areas where conditions were congenial to their spread should have answered any doubts about this conclusion.

The data on crop yields for LAC countries make it obvious that there is substantial potential for yield improvement. Several conditions must be met, however: government policy must not discriminate against crop producers, inputs must be available for higher yields, and the market structure must be low-cost. In addition, varieties must be available that have a higher yield potential and are not significantly riskier in low rainfall years than those now being used. Such varieties can be acquired by borrowing from other areas, or by undertaking the research required for their development, or by some combination of the two.

Depending primarily on national research institutions in the LAC region to develop new crop varieties involves substantial risks. Peru, the largest country, has a population of 21 million; Ecuador, the second largest, has 10 million; and the total population of the LAC countries is approximately 75 million. None of the countries has the resources to establish and maintain an agricultural research system that can conduct basic scientific research of acceptable quality on a sufficient scale to significantly contribute to agricultural productivity. In any case, none of the countries has enough qualified personnel to carry out such basic research. What should be emphasized is adaptive and applied research based on appropriate knowledge developed elsewhere. This is not a demeaning or insignificant approach. Much

agricultural research undertaken in the United States and in the international agricultural research centers is of this nature. The research that developed the high-yielding varieties of wheat and rice was adaptive research that did not depend on any major advance in basic scientific knowledge during the years the varieties were being developed. The basic scientific knowledge that made possible the development of hybrid corn was available at least three decades before the first hybrid varieties were available to farmers.

Most countries in the region have insufficient resources to support applied research in all the important areas that could contribute to improved agricultural productivity. The solutions that could increase agricultural productivity could best be reached by supporting national research centers that focus on regional topics and draw support and personnel from several countries or by establishing regional research networks based on agreement on specialization areas for each national system and a mechanism for full sharing of all results.

Whether the solution consists of regional research centers or regional networks, each country needs the capacity to conduct trials to determine if new varieties or techniques will work in its environment as well as to undertake research to counteract diseases and insects that may attack new varieties.

There is ample evidence that effective agricultural research can be conducted in a variety of institutional settings--public, private for-profit and private not-for-profit--either as integral parts of universities or as separate research institutes. Given the limited resources available for both research and advanced education in agricultural science, combining the research and educational functions may be the most effective approach. The financing of the research enterprise is at least as critical as the form it takes. The traditional method of financing agricultural research in the public sector has been through funding institutions, leaving much of the direction of the actual research up to the institutions themselves. Certainly a public institution must have significant core financing to carry out its broad functions of expanding information and maintaining its information base on the problems of its farm constituents. Not all the research can or should be funded this way, particularly if there are private research organizations that could significantly contribute if there were adequate funding. In this

situation, a significant amount of funding should be available on a competitive basis, with decisions based on peer review of the research proposals, judgments concerning the qualifications of the research teams, and the potential of the research results to increase agricultural productivity. Some judgment must be made of whether the research will succeed in reaching its objectives. While competitive funding based on peer review is an important way for private institutions to compete with public institutions for research support, the approach could also be used to allocate some research funds among public institutions on a competitive basis even where there was no competition from the private sector. If the research results are to significantly influence agricultural productivity, these results must be made available to farmers in a manner that they can understand and utilize. This would be the function of public extension services, though assisting the farm input suppliers such as fertilizers and insecticides to provide farmers with accurate and understandable information should not be neglected.

Adjustments in Productivity, Price Reform, and Trade. Finally, it should be stressed that reform of agricultural pricing policies, expansion of education, and improved research capabilities should be accompanied by public investment in agriculture and trade-related areas. Moving toward a more outward orientation is not a matter of trade and macroeconomic policies alone. Sustained growth of agricultural exports and output of other tradables, including food, depends on the development of a "trade infrastructure" and an organizational framework which does not exist in some LAC countries. Rapid growth of exports, particularly non-traditional agricultural exports, depends on an efficient service sector, including banking and communications; a regulatory framework for trade, such as sanitary and phytosanitary regulations; and an improved physical infrastructure (roads, ports). It takes several years and considerable investments to put these elements in place. Technical assistance and external financing in these areas is another important potential area for A.I.D. support.

Domestic sources, including the possible return of capital flight, could partly meet the additional investment requirements. To generate the required savings from domestic sources at least three general conditions must be met. One is reform in the domestic capital markets. Interest rates must reflect the real cost of credit and the exchange rate regime. Deposits in foreign-

denominated currency may have to be allowed. Like the reforms mentioned above, implementation of reforms in financial markets requires considerable expertise, which is often lacking in some LAC countries.

4.1.3 Small Farmers, Employment and Land Tenure

The overall agricultural strategy should be compatible with a fast output growth of the "modern" commercial sector. In several LAC countries, this sector provides a high share of the overall marketed output in agriculture and is a major contributor to the supply of foreign exchange and fiscal revenues. Indirectly, it contributes to rural employment and hence plays a key role in poverty alleviation.

However, policymakers are very concerned about both equity and growth considerations in the struggle to alleviate rural poverty. In this effort, changes in the relative price structure must be complemented by institutional change and public investment directed at the rural poor.

Special Problems of the Small Farm Sector. Based on rather preliminary information, one observes the different degrees in development of market and non-market institutions serving the modern and the traditional farm sectors. The relative non-competitiveness of the traditional farm sector is due to the fact it is comprised largely of very small-scale units. A major task is to identify the key impediments to more rapid modernization of this important subsector and determine which ones should be removed within the next decade or so.

A common perception in developing countries is that transaction costs are higher in the small-scale traditional farm sector due to different access to financial and product markets and a technological gap (Myint). The existence of a considerable economic dualism in LAC agriculture is accepted today. Although its exact forms and magnitudes are not well-documented, a sketch of this dualism in the financial and product markets and in technology is as follows: Interest rates are usually higher for smaller farmers in the financial markets due to the higher transaction costs that result from the higher costs of obtaining information about their credit worthiness and administering a large number of small loans. These conditions are aggravated by the lack of an acceptable collateral for raising the loans, a consequence of poorly defined property rights.

In the product markets, smaller farmers tend to get lower prices to cover the higher marketing cost, and to pay higher retail prices for consumer goods and purchased inputs. Thus, one expects that the farmgate/wholesale price differential will be wider than in the larger scale farm sector.

In the area of technology, small-scale units face higher costs and farmers are less educated to screen the new technologies. Furthermore, they often face the option of cash-intensive new technologies (i.e. improved seeds requiring a greater use of fertilizer) and the required cash outlays are often indivisible and high in relation to the farmers low cash income.

Furthermore, it is commonly argued that this small farm sector has a large pool of partially unused resources, mainly labor, isolated from other labor markets as a result of a combination of the high cost of migration due to lack of information, physical isolation, poor communications, and transport facilities and due also to their low levels of education. This condition of partially unused resources offers the potential to expand output if the dualistic conditions could be reduced.

The symptoms described above have been recognized in many countries, but have often been identified as market distortions such as monopsonistic practices in rural credit and product markets. In real life, the symptoms of price distortions and of dualism are often mixed up. Therefore, identifying these symptoms as market failures may lead to misguided policies to correct them. The conditions in credit, product markets, and technology are not necessarily the result of imperfect competition, and do not necessarily represent a bias in government expenditure policies. Due to the scattered nature and small scale of their operations, the small farm sector in some areas faces higher transaction costs, the removal of which involve real resources perhaps competing with higher rates of return from alternative uses. This is, unfortunately, a sort of "natural" dualism.

Adverse Effects of Governmental Policies. In their effort to assist small farmers faced with these conditions, government interventions have often made things worse. This is because government policy often discourages the development of institutions and markets which would otherwise contribute to their development. This could be the case, for example, with government efforts to provide credit to smallholders at substantially lower than market interest rates. The higher interest rates faced by these farmers in the

unsubsidized credit markets could reflect higher information costs about their credit worthiness, a lack of acceptable collateral, and higher transaction costs. Government credit, usually implemented through a rather weak administrative mechanism, probably discourages the development of a more unified credit market and hurts savings in these rural areas. A similar case could be made about some government interventions in the marketing of inputs and products in rural areas.

These reflections should not be interpreted as an argument against government action in such conditions. We are concerned, however, that rather than contributing to reducing the need for future government subsidies, the particular selection of policy approaches and instruments could be discouraging the development of private and other non-government agents which would eventually reduce the need for subsidies.

There is, however, the real possibility that government policies could be imposing an extra constraint on small farmers' income and welfare, as a result of the public investment in infrastructure, such as rural roads, electricity, communications, and schooling. We have not found solid empirical evidence in this regard, and it is difficult to assess the existence and extent of a bias. For example, even if the government were to spend the same amount per farm on public services, the scattered nature of the small farm sector would probably result in a lower quality of services in the traditional sector.

We still have a substantial gap in our knowledge of the precise nature and magnitude of the problem of dualism in rural areas in LAC countries. Hence, to assess the precise policy implications of the phenomenon of dualism in rural areas is extremely complex and any recommendations must be considered preliminary at this stage.

Natural Resource Limitations. Natural resource quality usually affects the small farmer adversely. Most small farmers in Latin America live on marginal land, that is land with inherently low productive capacity which results from unfavorable climate, poor soil, steep terrain, or a combination of these factors. The typical Latin American small farmer farms land on steep slopes with shallow, infertile, erodible soil. In wet climates, rainfall is excessive, reducing crop choices, yields, and product quality. In dry climates, seasonal drought restricts the length of the growing season and

steep terrain precludes effective irrigation.

The combination of adverse climatic and physical factors inhibit all forms of technical improvement--mechanization, irrigation, fertilization, and introduction of higher yielding varieties. If a small farmer does attempt technical improvement, the increase in yield per unit of investment will be smaller than a farmer with better land would experience.

Conventional small farm practices entail relatively large investments of labor to produce very small yields of annual crops like maize, upland rice, barley, potatoes, and beans from tiny plots of land. In most instances, part of the crop goes to subsistence consumption by the farm family and part goes to market. The situation is analogous to small-scale livestock raising.

Both crop and livestock activities of small farmers often produce unfavorable environmental effects, notably soil loss through erosion and degradation of vegetation through burning, over-cutting, and over-grazing. These effects are felt on the farm in the form of lower yields from poorer soils and forage, and off the farm in the form of downstream erosion and irregular water flows.

The challenge for development, then, is to introduce land use practices that conserve soil, water, and vegetative cover while maintaining or increasing small farmer incomes. Possible development actions aimed at small farmers include improvements in forest management, agroforestry, livestock management, and soil conservation practices. Most of these actions imply cash investment in on-farm infrastructure, delay in returns from increased yields, or both. To convert from conventional practices to those that are more sustainable from a natural resources point of view usually requires resources that small farmers either do not have or are unwilling to commit.

Security of Property Rights. The need for broad reform in the policies affecting agricultural incentives was pointed out earlier. Subsequently, we explored other changes that should be addressed simultaneously, the need for simultaneous reform of fiscal policies and financial markets in particular.

Independent of these reforms, however, is another important policy change to consider. This relates to the need in several countries for a strong program to enforce private property rights in land and remove major distortions which are the basis for the current land titling and registry systems. Needless to say, uncertainty about property rights may make the best

of the price reforms largely useless, if private agents, such as farmers and agribusiness representatives, lack the incentives to undertake investment projects which, while ultimately profitable, demand a long gestation period. Furthermore, the uncertainty of property rights is exacerbated by government regulations and legislation. A dramatic case is in Honduras, where the law prohibits land rental and where smallholders may not get the title to their plots if they own five hectares or less. In addition, the guarantee of land tenure is linked to particular farming activities, such as livestock and selected crops (A.I.D., Honduras, 1990, p.11). Uncertainty about property rights is probably a major cause of natural resource depletion and negative environmental effects, an issue which is discussed in Section 4.1.4 below.

Infrastructure. The contributions from greater human capital and new agricultural technologies depend to a great degree on the extent and quality of the infrastructure. An elementary school certificate and a new high-yielding variety contribute relatively little to an increased rural income if the roads are impassable most of the year and the market town is isolated from the rest of the country.

One feature of relatively isolated rural communities is that most services and market functions are high cost and generally monopolized because of the small scale of the activities. A major contribution of infrastructure improvements is to cut various costs by reducing the cost of transportation for people and goods and by improving knowledge of alternative outlets for products and sources of inputs.

Infrastructure improvements increase the access of farmers to numerous types of information. Studies of rural areas in India showed that the existence of roads and proximity of the farm to market centers encouraged the adoption of high-yielding varieties and increases in agricultural productivity. These results seem obvious, yet much public sector investment in rural areas goes to other activities that have lower real returns. Probably the greatest shortcoming of public investment programs in developing countries is the priority placed on industrial and urban investment to the neglect of rural investment.

Nonagricultural Employment in Rural Areas. Except where seasonal factors limit agricultural work activities, most farm residents of working age are employed full-time. The low incomes of families on small farms is not due

primarily to the lack of work but to the low productivity during the time actually worked. While research can indicate how to increase labor productivity and use extension to inform farmers of the more productive approaches to farming, until superior or higher earning uses of farm labor are available, the incentive to adopt methods to reduce farm labor requirements is limited. Surprising as it may seem, some approaches to increasing land productivity may face difficulty due to labor shortages at peak periods unless simultaneous measures are taken to increase labor productivity in agriculture. Thus, low returns to farm labor may act as a barrier to improving crop yields. Agricultural production may be increased by providing nonagricultural jobs in rural areas that raise the return to labor and provide the financial resources to improve labor and land productivity.

Unfortunately, the factors that lead to low labor productivity in areas dominated by small farms also hinder the creation of non-farm jobs. These factors include poor roads, limited communication facilities, little access to education, and lack of local credit facilities. In such areas, the majority of the people will move to the cities in time. It is not primarily the growth of the cities as such that is the significant social and economic problem but the fact that the migrants to urban areas are poorly equipped for employment in the cities unless the conditions in rural areas where small farms predominate can be ameliorated. Without improvements in rural educational opportunities, migration to cities will not lift the present generation of most families out of poverty.

4.1.4 Natural Resource Management

The trends that affect natural resources in the 13 A.I.D. countries in A.I.D. raise a number of important issues for socio-economic development in the region.

Production on Good Quality Land. Virtually every country in Latin America and the Caribbean has attempted to institute agrarian reform. Notwithstanding agrarian reform, however, most good land in coastal plains and river valleys remains in large landholdings. Production efficiency varies greatly from farm to farm, and few farms change ownership through sale. The combination of land taxes and fluid land markets, which in developed countries forces landowners to intensify production or sell their land, does not operate

effectively in Latin America.

Currently, neither market forces nor government policy promotes more intensive land use on good quality land. Yet increases in agricultural production must come primarily from the best lands because they have the highest potential for increased yield through application of advanced technology.

Land Use Practices on Marginal and Fragile Lands. Just as some good land in Latin America is underused, poor land is often overused. Small farmers try to raise crops and livestock on steep slopes and excessively wet lands whose best long-term use requires continuous tree cover. The forest is cut and burned, often with minimal salvage of marketable wood products. The already poor crop and livestock yields decrease over time as soil erodes.

Introduction of sustainable land uses like improved, managed pasture, long-cycle tree crops, agroforestry, and forest management would halt resource deterioration. Over time these land use practices should promote social and economic stability and lead to higher incomes.

At a minimum, and also as a first step toward bringing actual land use into harmony with land use capability, every country in Latin America and the Caribbean should do two things: adopt criteria for determining land use capability appropriate to the country's climatic conditions, and apply the criteria to determine the country's real productive potential and to identify areas of overuse and underuse of natural resources.

Watershed Management. Good watershed management applies sound land use practices to optimize production of high quality water. Typically, water is produced in the upper watershed and consumed for energy generation, irrigation, urban and industrial uses, and waste absorption in the lower watershed. As demand for water grows downstream, need for management of the upland watershed increases.

In most watersheds in Latin America and the Caribbean, upstream use adversely affects downstream water availability and quality. That is, watersheds are not managed, and neither market forces nor government policy appear to be working to bring them under management.

Ordinarily the objectives of management of the upper watershed for optimum water production focus on maintaining vegetative cover of forest or pasture. Management objectives for optimum water quality focus on controlling

erosion and preventing contamination from industrial, urban, and agricultural uses. These twin sets of objectives are highly compatible in most circumstances.

Clearly, watershed management sets up a differential between upstream and downstream users in which downstream demand usually conditions upstream use. Upstream uses that reduce vegetative cover and increase erosion, such as tilling steep slopes, burning, and overgrazing, also reduce water availability and water quality downstream. To the extent that satisfying downstream demand requires restrictions on upstream use, downstream users should compensate upstream users for meeting the restrictions.

Forest management. In many LAC countries, forest management is at a rudimentary stage. Study after study underscores high deforestation rates, low conversion of cut forest to wood products, inefficiency in wood processing, and insufficient reforestation.

Most countries have established national forest reserves to serve multiple purposes of protection and production. Similarly, nearly every country has a modern forestry law that establishes a national forest service, regulates forest harvesting on public and private lands, and sets tax rates for forestlands and forest products. Additionally, most countries have substantial areas of privately owned forest on land whose best use is continuous forest production. These elements do not combine to attain enlightened forest management, however. Deforestation continues as does the conversion of forestland to settlement for unsustainable agriculture and livestock raising.

Wildlands Protection and Management. Wildlands protection and management begins by designating certain lands to be set aside for protection as wildlands. Ideally, the lands should be selected on the basis of inventories that show where the most diverse plants, animals, and ecosystems are located and where protection is most needed to prevent loss of habitat. In reality, and this has been true in the developed countries as well as the LAC countries, the lands most likely to be designated for protection have the least potential for other uses because they are remote, steep, rainy, or dry. Fortunately, this utilitarian approach works to conserve some of the most diverse ecosystems, like tropical wet forest, and some of the least common ecosystems, like cloud forest. Other ecosystems, like tropical dry forest,

mangroves, and estuaries need more than benign neglect to survive as wildlands.

Designating wildlands is a first step. Functional protection results from effective land management for uses compatible with protection, such as tourism, scientific research, and water production, and effective prevention of conflicting uses, such as agriculture or logging. Effective management and protection also require appropriate policies combined with effective implementing institutions.

Policies for Natural Resource Management. Nearly every LAC country has enacted policies designed to foster sound use and conservation of natural resources. These policies cover everything from statements in national constitutions that guarantee a wholesome environment to every citizen, to decrees that establish national parks and require forest management plans, to laws that forbid stream pollution or prohibit the hunting of rare animals.

In most countries, however, the array of national policies also contains elements that promote destruction and degradation of natural resources, often as unintended side effects of policies aimed at other objectives. Thus, an agrarian reform policy may place forestland under the jurisdiction of an agency that distributes the land to people who try to farm it. A national policy to encourage increased agricultural production may provide incentives for land clearing that apply to lands with forest potential as well as land with agricultural potential, thereby promoting deforestation.

In addition to their conflicting policies, most countries do not apply policies effectively to conserve natural resources. The law may say that a logger must prepare a forest management plan, or internal policy may direct the agrarian reform agency to perform a land use capability study before awarding possession of prospective farm land, but often the policies are not followed.

The achievement of better policies for natural resource management must focus on policy implementation as well as policy development. Incentives are one way to get the policies right. Incentives that promote misuse of natural resources need to be revised to accomplish their legitimate objectives without causing damaging side effects. New incentives probably need to be established to promote private actions that result in public benefits from natural resource conservation, as in the case of restricting land use to manage

watersheds. To make policies happen, public awareness must be increased, policy statements defined, and constituencies built. Mostly, making policies happen entails strengthening the institutions that formulate, apply, and enforce them.

Natural Resource Management Institutions. Nearly every LAC country has several public agencies responsible for natural resource management analogous to such agencies as the U.S. Forest Service, the Bureau of Land Management, and the Bonneville Power Administration. These institutions usually have the legal responsibility to manage public lands in the general public interest and for specific public purposes like multiple use forestry, water production, or electric power generation. Other public agencies regulate private sector activities in a manner similar to the Environmental Protection Agency. Most public agencies do not function effectively, however.

A typical Latin American public institution with regulatory or resource management responsibility spends nearly all its budget on personnel, leaving next to nothing for equipment, field travel, or capital improvements. Even so, most such institutions suffer from inadequate staffing and their employees lack both basic professional credentials and on-the-job opportunity for training or advancement. Low wages and poor morale often compound the human resource problem.

Private sector institutions in Latin America could also have an impact on natural resource management. Farmers, ranchers, loggers, and industrialists all form associations to advance their interests, but these groups rarely advocate sustainable natural resource management. Non-profit organizations have formed in most countries to advocate conservation and environmental protection. So far they have had notable success in persuading governments to establish parks and in raising public awareness.

Development assistance agencies face a dilemma with regard to institutional aspects of natural resource management. It seems plain that natural resource management will not happen without strong institutions. The question is which institutions should be strengthened? Some functions currently performed by government should probably be transferred to the private sector, but some should remain with the public sector. What criteria should determine which institutions perform which functions?

The mechanics of institutional strengthening are also important. Enhancing human resource capacity through training should probably receive the greatest attention. It is also important to increase institutional efficiency and to provide better equipment and increased budgets for fieldwork.

4.2 Policy Reforms in the United States

The U.S. has a number of policies that affect the economic development of LAC countries and are part of the setting in which A.I.D. achieves its objectives. Consequently, it is appropriate to examine U.S. policies that significantly influence how A.I.D. can increase the incomes of people in the LAC region and facilitate the appropriate management of natural resources.

4.2.1 Trade Restrictions and Preferences

The U.S. has a number of measures designed to expand market opportunities for developing countries. These include measures specifically for the Caribbean. Such as the General System of Preferences that provides preferential treatment on tariff duties for some imports from developing countries and a somewhat more liberal set of preferences called the Caribbean Basin Initiative. From the standpoint of expanding trading opportunities for LAC countries, these two preference systems apply to only a minority of LAC exports to the U.S. Most important, traditional agricultural exports are not given preferential access. A striking example is sugar where imports were formerly restricted by quotas and now by a prohibitive tariff for deliveries in excess of the tariff quotas. U.S. imports of sugar in the late 1980s have been less than a third of the 1979 level. Other exclusions from the preferences, include which are controlled by the Multifiber Agreement.¹ Of the total U.S. imports of \$6.2 billion from the Caribbean Basin in 1988, \$2.1 billion entered duty-free under MFA while \$0.8 billion entered duty-free under the Caribbean Basin Initiative and \$0.36 billion under GSP. In terms of increasing real incomes in developing countries, trade is an effective substitute for some aid. This does not mean that a dollar increase in foreign

¹ There are special provisions for duty free access from the Caribbean Basin for textiles and apparel that are assembled from fabric produced and cut in the United States. Similar provisions apply to certain fabrications in metal.

exchange is equivalent to a dollar received as aid. It does mean that increased trade that reflects comparative advantage complements and reinforces aid. In addition, it should be noted that the potential increase in trade that could benefit both the U.S. and the developing countries is much greater than any anticipated potential increase in aid funds.

4.2.2 Credit Policies and Export Promotion

The U.S. has a number of programs designed to increase the exports of its products by offering subsidies. The subsidies include long-term loans with low interest rates, such as those under Title I of P.L. 480, credit guarantees to facilitate the sale of farm and other products, and some degree of subsidy of the interest rate on Export/Import Bank loans. These and similar programs give preference to products exported from the U.S. and consequently have adverse effects on similar exports from developing countries. Most developing countries simply lack the resources to provide similar incentives for choosing their exports. These programs conflict, to some unknown degree, with several A.I.D. objectives, especially those for fostering the private sector, making more effective use of domestic resources and inducing the LAC countries to give the market greater opportunity to function and to improve the productivity of their resources.

4.2.3 Restrictions on Activities A.I.D. Can Support

Over the years Congress has imposed a number of restrictions, often in the form of prohibitions, on what activities A.I.D. can assist in developing countries. In the case of agriculture these prohibitions have prevented A.I.D. from supporting research or the transfer of technology that could increase the production of a product which the U.S. exports. Thus, A.I.D. is prevented from supporting efforts to improve the productivity of resources that might be used to increase, for example, the production of soybeans or cotton.

Some of these restrictions have been in effect for more than three decades. Since the first ones were put into place, several analyses have found a positive correlation between the growth of agricultural output in a country and the volume of its imports of agricultural products. These studies suggest the prohibitions may adversely affect U.S. agricultural exports. In any case, it seems that there is now sufficient evidence to call for a review of these restrictions to determine if they are in the best interest of U.S. agriculture especially in light of recent developments such as the Bush Initiative for the Americas.

5.0 PRIORITIES AND OPTIONS FOR THE STRATEGY

We have described what we believe are the major issues that affect agriculture and its contribution to the income and welfare of LAC countries under four major categories. In this section present several important options for addressing the issues or problems that we have analyzed.

In the pursuit of some objectives, a particular option sometimes dominates all others, so that the question becomes how much or how fast to implement it, rather than which option to choose. For example, for increasing access to elementary education on small family farms is such an option. The only issue is how quickly the objective of universal primary education should be reached.

5.1 Economic Policy, Trade and Investment

The appropriate option with respect to economic and trade policy that affects agricultural performance is clear. The numerous policies that discriminate against agriculture, either directly or indirectly, need to be substantially modified. The option is to achieve a set of macroeconomic, tax, and trade policies that treat agriculture equitably relative to the other sectors of the economy.

In LAC countries with significant discrimination against agriculture, other policies adversely affect the economic performance. Therefore, simply removing or modifying the discriminatory policies would be insufficient to significantly improve agricultural performance or to ensure sustained economic growth. These include inflationary credit policies, unbalanced government budgets, interventions in capital markets, and wage and price controls. Thus, the major option involves more than eliminating the direct discrimination against agriculture; major macroeconomic policies and variables are involved as well.

Policymakers must consider two options related to timing. One is to support shock treatment, much as the Polish government has done in its effort to move quickly from a highly distorted socialist economy to a market economy. Trade restrictions are eliminated or sharply reduced; the market is allowed to establish the level; interest rates are freed from controls; and the budget is balanced by the introduction of new taxes and the reduction of government

expenditures through cuts in personnel and subsidies.

The other is to pursue the goal of eliminating the discrimination gradually, perhaps according to a fixed schedule such as that proposed in the Shalatin 500 day plan for the Soviet Union. This would involve numerous steps, such as first replacing quantitative import restrictions by fixed tariffs of equivalent protection levels and then gradually reducing tariffs. The exchange rate would be managed, at least until inflation and budget deficits are brought under control. If inflation remains a problem due to the inability of a government to control its budget deficit, freeing the exchange rate from controls may only add to the inflationary pressure without significantly affecting the allocation of resources in the economy.

With respect to increasing investment in LAC countries, the primary goal is to create a policy climate that supports private investment. The numerous options include the structure of taxation, reasonable levels of real interest rates for both depositors and borrowers, achieving relatively stable prices including the foreign exchange value of the currency, eliminating the restrictions on capital flows and permitting most prices to be determined by market forces. Improvements in the climate for investment implied by the above would increase domestic investment and might even induce a return of some capital.

However, a number of options are involved if international capital flows are to provide some funds for increased investment in LAC countries. With respect to the large overhang of foreign debts, the options are (a) to significantly reduce the magnitude of the debt or to provide for a rescheduling that would substantially reduce the foreign exchange earnings required to service the debt, or (b) let the market take care of it, probably by accepting a substantial degree of default. The choice between the two rests, we believe, on how long it would take under each option before the countries could obtain a net inflow from the international capital markets.

Other options also relate to investment. One is whether the credit extended by international agencies and governments should be available primarily to the private sector or as in the past, only to the public sector. Another is whether loans for investments in the private sector should be based solely on the expected return from the investment or whether government guarantees should be permitted or sought. The clear risk of relying on

government guarantees, other than the obvious one that such guarantees have very limited value, is that the lenders diligently evaluate the soundness of loans when a government guarantee is not involved. Finally, an option related to investment is whether there should be an active program to privatize public institutions related to agriculture, such as parastatals, credit agencies, and warehouses. The goal would be to have market or profitability criteria guide such investment rather than political favoritism or other inappropriate investment criteria.

5.2 Agricultural Productivity, Sustainability, and Growth

One of the most important options for improving agricultural productivity and increasing agricultural output has already been discussed: eliminating discrimination against agriculture. When that goal is accomplished, farmers will have the incentives to make the appropriate investments in machinery, equipment, and inputs, such as fertilizer, improved seeds and more productive livestock. In such a setting, farmers will take advantage of the opportunities that are available to them. The primary options that need to be considered are (a) those related to providing farmers with knowledge of the best available practices and (b) to extend the range of opportunities through research.

The options which relate to (a) are the organization and extent of support for extension activities. Decisions need to be made concerning the private sector's potential role in extension activities and financial support for both the private and public activities.

The options related to the organization and conduct of research are much more complex and varied. They concern the primary objectives of the research undertaken in LAC countries. None of the countries have the financial or human resources to support research institutions that could undertake a broad-ranging program of basic research in biology, chemistry, and physics relevant to agriculture as well as applied and adaptive research to protect existing productivity and expand the production frontier by applying existing scientific knowledge and by borrowing from abroad. While the options can be stated in terms of the balance between basic and applied research, the latter is the most appropriate to the available resources in the region. However, accepting the applied option does not mean that the only role of the research

would be to maintain the existing level of productivity of crops and animals. It means that undertaking research to increase crop yields and the productivity of animals by creating new varieties, determining more productive cultural practices, and devising lower cost and more environmentally acceptable ways to control insects and diseases. Maintenance research is important, even essential. A large percentage, perhaps half, of the research on crops in the U.S. agricultural experiment stations is exactly that, maintaining current levels of productivity against nature's efforts to win its battle against human beings.

In addition, a series of options focus on the institutional settings in which research is conducted. The first is whether the institutions should be public or private. If research is undertaken privately, should it receive public funding in whole or in part? The decision rests on the nature of the research and whether the outcome is primarily a private good, such as a crop variety that can be patented or a hybrid variety that is protected from duplication by others due to its complexity, or a public good that is immediately or very soon available to be duplicated by others. An example of the latter is a new high-yielding wheat variety that is not a hybrid.

The other set of options concerns adapting the research organizations to the small size of the countries as well as to the widely varied environment in which agriculture functions, even in some of the countries that have a small geographic area. The major options are: (a) maintain national research institutions; (b) create a series of regional research institutions; (c) develop regional research networks that would share research results and encourage national research institutions to specialize in research of interest to farmers in several countries. If option (c) were adopted, it would be desirable to draw the research personnel from countries other than the host countries. This would create or preserve national capacity to carry out such research, help direct the research to solve problems in countries other than the host country, and assist in disseminating the research results throughout the appropriate areas of the region.

LAC countries have too few qualified researchers to undertake the studies that are required to significantly increase agricultural productivity. During the 1980s, relatively little was done to address this issue and the quantity and quality of agricultural research and advanced education in

agricultural sciences substantially eroded. One option is for LAC countries, with financial assistance from A.I.D. and other donors, to send substantial numbers of potential researchers abroad for advanced education in science. A second option is to rapidly build and/or rebuild universities in the region that are capable of undertaking research and advanced education in the sciences relevant to modern agriculture. The second option can be pursued only with significant external financial support combined with assistance from foreign research universities in providing professors and research personnel.

5.3 Small Farmers, Employment, and Land Tenure

Due to the long period of discrimination against and neglect of the infrastructure in rural areas, the options are numerous for improving the conditions in rural areas that are dominated by small farmers are numerous. While the emphasis here is primarily on what can be done to integrate rural people in the small farm areas into the political, social, and economic systems, in most LAC countries rural areas generally have less access to education, less medical service, and more isolation from the social networks and institutions. Thus, the options discussed for the small farm areas are to a considerable degree relevant to all farm areas. The emphasis on small farms is due to two factors. First, their circumstances lead to the degradation of natural resources; only as their economic position is significantly improved will there be a possibility of conserving natural resources. The second, improving the productivity of the human and natural resources of these people, will contribute substantially to a growing economy that is both democratic and politically acceptable.

The goal of universal primary education should be preserved, to make individuals more productive as farmers as well as to improve their employment opportunities in the non-farm sector. As noted above, the options here relate solely to how rapidly the objective should be achieved.

As economic growth occurs, farm people share in the progress only as the relative and eventually the absolute employment in agriculture declines. There is no exception to this outcome if economic growth measured in real per capita income occurs. Options must be considered to facilitate the transfer of labor, especially though not solely that of young people, from agriculture to non-farm jobs. One set of options involves the balance between creating

jobs in rural areas and assisting or facilitating migration to urban areas.

Another set of options involves investment in the network of transportation and communications in areas where small farmers predominate. These options are concerned with measures that integrate such families into the rest of the economy and are important both to increase the productivity of agriculture and to assist in the transfer of labor out of farming.

A third set of options relates to measures to improve the functioning of labor markets to remove distortions, such as excessively high minimum wages that inhibit economic growth and discriminate against new entrants to the non-farm labor markets.

A fourth set involves actions to provide small farmers with greater incentives to make more productive use of their land and labor and to help them change their land use practices on marginal lands to reduce erosion and loss of soil productivity, as well as to encourage the maintenance of forest where it is the most productive use of land. A subset of options relates to credit markets in rural areas: establishing realistic interest rates for both depositors and borrowers and determining whether credit institutions should be public or private. Another subset focuses on property rights. The security and enforceability of property rights is essential to the best use of land as well as to an efficient rural credit system. The security of property rights in land (and in growing crops for tenants) requires land surveys, land registration, specifications of rights of tenants and landlords when such they are not covered by written contracts, and legal procedures for settling disputes over property rights.

5.4 Natural Resource Management

The general approach to sound natural resource development in LAC countries should seek to optimize productivity in ways that are consistent with productive capacity. In other words, the approach would intensify development in places where productive capacity is underused and would relieve pressure on natural resources where actual use exceeds their long-term productive capacity. Four combinations of resource capacity and pressure on resources exist: high capacity with high pressure; high capacity with low pressure; low capacity with high pressure; and low capacity with low pressure. Each combination gives rise to different variants on the approach to

development as set out below in order of priority and as synthesized in Exhibit 5.1.

Intensification. Where capacity and pressure are both high, conditions are ripe for intensification. In that case, revised policies should really work to energize markets, and improvements to infrastructure should bring quick pay-offs. These areas have a strong need for more human capital and high capacity to absorb human resources. Similarly, policy reforms and stronger public and private institutions should find ready niches in this combination of development circumstances.

Amelioration. Low resource capacity combined with intense pressure on resources represents the most common development situation in Latin America and the Caribbean. The long-term solution is to provide alternative income opportunities that divert people from destructive land use practices. Interim development focuses on appropriate land use technologies like agroforestry and soil conservation measures, supported by appropriate subsidies where necessary.

Penetration. Places with high capacity and low pressure present optimum conditions for development investment in basic infrastructure. Penetration roads, bridges, water systems, and electricity promote settlement and spontaneous private sector development. This combination of conditions does not exist at all in the Dominican Republic, Haiti, Jamaica, or El Salvador. It exists to such a negligible degree in the rest of Central America, with the possible exceptions of Belize and Panama, as to preclude it from serious considerations in those countries. Only in the Andean countries does this combination present realistic possibilities, and there with extreme caution, because the development potential of sparsely inhabited areas generally has been grossly overestimated and the development costs underestimated.

Minimal Intervention. Areas with low capacity and low pressure present the simplest choice for development: they should be left alone. They provide ideal conditions for resource protection, conservation of biological diversity, and other uses consistent with low intensity development, such as certain types of ecotourism.

Exhibit 5.1

Development Approaches Related to Combinations of
Resource Capacity and Pressure on Resources

Combination	Development Approach
First Priority	
High Capacity/ High Pressure	Intensification: Upgrade existing infrastructure, institutions; provide human capital; encourage in-migration.
Second Priority	
Low Capacity/ High Pressure	Amelioration: Improve human capital of existing population; introduce appropriate technology; encourage out- migration.
Third Priority	
High Capacity/ Low Pressure	Penetration: Provide basic infrastructure; encourage selective in-migration.
Fourth Priority	
Low Capacity/ Low Pressure	Minimal Intervention: Selective provision of infrastructure, introduction of technology; discourage in-migration.

Options for Natural Resource Development

Each of the four development approaches discussed above could proceed via a mix of policy reform, research and information, training, institution building, and infrastructure.

Policy Reform. Innumerable choices exist for policy reform either to encourage better natural resource management directly or to remove obstacles to natural resource management embedded in policies with other objectives. The examples of policy reform options set out below cover situations that prevail in many countries. Each country has its own set of policy circumstances, however, and each merits analysis to determine the reforms that are most needed and that might produce the best results.

a) Adoption of national land use capability classification: Land use capability classification provides both a starting point and a technically sound matrix for making policy choices that affect land use. Every country should officially adopt and apply a land use capability classification that reflects the country's climatic and ecological conditions. Classification schemes based primarily on soil characteristics, like the eight-point USCS classification, do not work in tropical countries, especially mountainous ones where climate can vary dramatically across short distances. These countries require land use classifications organized around climatic parameters like Holdridge Life Zones.

Each national land use classification should designate five basic categories of land use: agriculture, permanent crops, grazing, forest production, and protection. The classification could also identify subdivisions within each basic class to take into account such variables as yield potential or aptitude for particular technologies.

b) Land tax indexed to land use capability: In LAC countries where governments find tax collection difficult, land taxes generate little public revenue. The tax rates are too low, they do not reflect the real value of the land, and many landowners evade them. Governments in Latin America should establish policies that tax land at reasonable rates which reflect the land's market value and productive potential. Then they have to build the administrative capacity to collect the taxes effectively. While other factors such as market access also influence land value, land tax rates should vary directly with land use capability; generally good quality land should be taxed

more heavily than poor quality land. If this held true, owners of high quality land would have to intensify land use in order to generate enough income to meet land taxes.

c) Streamlined land titling and accessible land registries: In most LAC countries land titling processes are too complex and too time-consuming. Land registries are out of date and difficult to access. Governments should reform land titling legislation to streamline the titling process and invest in the necessary infrastructure to make land registries more accessible. These two reforms should stimulate land markets.

d) Water pricing to reflect the real cost of water: Public water systems provide most water for domestic use, hydroelectric power, irrigation, and industry in Latin America and the Caribbean. In general, the price of water to the consumer does not reflect the full cost of water production. In particular, direct and indirect costs of water attributable to unfavorable land use practices are not taken into account in water prices. As an example, many hydroelectric plants have shortened useful lives and increased costs of maintenance because of siltation that results from erosion in the watersheds above the plants. The price of the water, in this example actually presented to the consumer as the price of electricity, does not allow for investment in watershed protection.

e) Legal recognition of forestry as a private land use: Traditional policies and laws in LAC countries discriminate against forest production as a private land use. To demonstrate evidence of title, for example, one must show "improvement" to land. Forest clearing frequently constitutes evidence of improvement, whereas keeping forest cover on the land constitutes evidence of lack of improvement. This policy encourages forest destruction when applied to lands whose best long-term use is for forest production. Similar rules apply to credit: Trees are not accepted as collateral, but cleared land is, even though the trees and their continuous production might have higher economic potential than the cleared land. Governments should revise these policies so that on lands with capability for forest production, but not for more intensive uses, forest cover constitutes a legitimate form of land use.

Research and Information. The items described below represent a small sample of possible areas of research and information which development assistance could focus on to improve conservation and management of natural

resources. These items tend to pertain in most countries in Latin America and the Caribbean, but they may not be the most important ones in a particular country.

a) Land use capability maps and actual land use maps: Land use capability maps and actual land use maps provide the principal tools for putting sustainable development policies into practice. The maps show how a country's land resources are distributed and the extent to which actual land use is more or less intensive than land use capability. Such maps would facilitate the selection of basic development priorities as set out in the above exhibit by indicating the relationship between resource capacity and pressure on resources.

b) Forest management technologies: Although some applied research in natural forest management has taken place, for example under the A.I.D. Central Selva Project in Peru, a great deal more needs to occur before foresters can feel confident that workable techniques have been thoroughly explored and demonstrated. A.I.D. could support an extensive applied research program in natural forest management toward meeting this research need. To apply to the types of natural forest most commonly found in the region, the program should concentrate on primary forest in relatively undisturbed areas and on second-growth forests in areas that have experienced high levels of deforestation.

c) Other appropriate technologies: A.I.D. could build on applied research in agroforestry, tree plantations, small-scale irrigation works, small-scale energy production, and soil conservation infrastructure. This research should aim primarily at small farmers and, to a lesser degree, at larger-scale producers.

Training.

a) Technical and scientific training: Almost every LAC country has a shortage of technically trained professionals. Some need foresters, while others need agricultural research scientists. Each requires a survey to determine its precise needs. Training needs at the undergraduate level can often be met by increasing and improving the capacity of national universities. The graduate level training that is also needed can often be best provided at regional universities in Latin America, or in the United States or Europe.

b) Managerial training: Many Latin American and Caribbean institutions engaged in research and natural resource management suffer more from shortages of managerial personnel than from shortages of technical personnel, but they need more of both types of professionals to fulfill their responsibilities well. The training need can be met by university training, on-the-job training for managers at all experience levels, and some graduate level training.

Natural Resource Management Institutions

a) Public sector agencies: Building public agencies for natural resource management requires, first and foremost, greater professional capacity in the agencies as noted above in the discussion of training. In addition, these agencies need stable, competitive salaries, higher levels of morale and professionalism, quicker access to better information, and adequate equipment and operating funds to carry out their functions.

b) Private sector research and extension: In Latin America and the Caribbean, the private sector plays a relatively minor role in research and extension in agriculture and natural resources. A.I.D. could encourage expansion of this role through exchanges with U.S. firms and revision of national policies that discourage public/private sector cooperation in research and extension.

c) Functional administration of land titling and land registries: To work effectively, the policy reforms in land titling, land registry, and land taxation set out above require implementation through more functional institutions. In addition to special training and general institutional strengthening, this means introducing modern computer technology into the land titling and registry process.

d) Effective collection of land taxes: Like the institutions involved in land titling and land registry, those that collect land taxes need extensive strengthening and technical modernization.

Infrastructure. We recommend improving transportation infrastructure in areas that are already well-settled, especially those that have high productive capacity, improving transportation infrastructure makes good sense from the point of view of natural resources management. In areas that are sparsely settled or that have low productive capacity (i.e. where development will concentrate on forestry rather than agriculture) it is probably unwise to

expand transportation infrastructure, because it is expensive, and yields a low return in areas where productivity has severe natural limits. Furthermore, building roads into unsettled areas that should serve as production and protection forest creates problems by providing access for non-sustainable agriculture.

Other types of infrastructure that would support development for natural resource management include the following:

- Computer hardware and software for geographic information systems;
- Hardware and software for land titling, land registry, and collection of land taxes;
- Improved equipment for all aspects of timber harvesting and wood processing, including felling, skidding, hauling, sawing, drying, and finishing.

6.0 CONCLUDING COMMENTS

This paper has emphasized the necessity of policy reforms to bring about a return to consistent and sustained growth of real national incomes in LAC countries. It is not possible to sustain annual growth rates of 5 or 6 percent in gross national product with existing policies on agricultural product pricing, international trade, infrastructure, education, and research. In order to improve the productivity of the smaller farms in a manner consistent with the preservation of natural resources, it is important to establish property rights and devise procedures for securing those rights. If property rights in land are not secure, the land will be used in a manner that will not maintain its fertility. The security of property rights is an important condition for preserving all natural resources. It is a question not only of who owns a natural resource or the rights to use it, but what terms are set to acquire the right. In several instances, the acquisition of land for farming requires that it be cleared of trees even though keeping it in trees might be the most profitable use and removing the trees may result in serious erosion. The example is given to illustrate the range of policy issues that need to be resolved to create an appropriate climate for sustained economic growth consistent with preserving and improving the natural resource base while ensuring that economic growth benefits the poorer segments of rural communities.

The LAC countries saw little or no economic growth as conventionally measured during the 1980s. At the end of the decade per capita real incomes were not higher than at the beginning, and in several countries they were lower. There is substantial evidence that the natural resource base was significantly eroded during the decade, particularly through the depletion of forest resources. Not all indicators were negative, however. Life expectancy at birth increased in every country during the decade and infant mortality declined significantly.

LAC countries clearly have the human and natural resources to substantially increase their real per capita incomes. Further, it is generally recognized that many policies have been important factors in the poor economic performance of LAC countries in the 1980s. Several countries have undergone significant changes in pricing, trade, and macroeconomic

policies in recent years. While much remains to be done, the current environment could permit consideration of major policy reforms and equally important, foster the will to implement the policy reforms.

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ANNEX

GNP Per Capita, 1987; Growth Rates, 1965-1987

LAC Countries and Region Average	GNP Per Capita:		G.D.P.:		Importance of Agriculture	
	Dollars 1987	Growth Rate 1965-87	Growth Rates 1965-80	1980-87	Share in GDP 1965	1987
Dominican Republic	730	2.3	7.3	1.6	23	17
Haiti	360	0.5	2.9	-0.4	n.a.	n.a.
Jamaica	940	-1.5	n.a.	n.a.	10	6

Belize	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Guatemala	950	1.2	5.9	-0.7	n.a.	n.a.
El Salvador	860	-0.4	4.3	-0.4	29	14
Honduras	810	0.7	5	1.3	40	22
Nicaragua	830	-2.5	n.a.	n.a.	25	21
Costa Rica	1610	1.5	6.2	1.8	24	18
Panama	2240	2.4	5.5	2.6	18	9

Ecuador	1040	3.2	8.7	1.5	27	16
Peru	1470	0.2	3.9	1.2	18	11
Bolivia	580	-0.5	4.5	-2.1	23	24
Average	1035	0.59	4.62	0.33	23.7	15.8

**Wood Products Trade between LAC Countries
and the United States (thousands of dollars)**

Caribbean		1983	1984	1985	1986	1987	1988	1989
Dominican Republic								
Wood & Cork	Exports	14	6	17	7	19	43	0
	Imports	14897	10485	10878	12626	20490	19261	20173
Pulp & Waste Paper	Exports	2	1	0	0	0	0	0
	Imports	1506	1883	2298	703	538	2227	3824
Wood Manufacturers (Other than Furniture)	Exports	44	71	85	91	85	319	77
	Imports	3320	1894	2891	3699	5393	5251	7825
Paper & Paperboard	Exports	6288	6312	8750	9750	2458	7834	15878
	Imports	24982	22052	18873	21898	21152	24229	29912
Haiti								
Wood & Cork	Exports	2	1	9	18	6	0	0
	Imports	3694	3196	3548	2897	3490	6795	4869
Pulp & Waste Paper	Exports	0	4	0	0	0	0	0
	Imports	18	13	40	3	4	27	583
Wood Manufacturers (Other than Furniture)	Exports	753	1260	1274	1530	1720	1126	1058
	Imports	1286	870	1171	818	588	3311	1070
Paper & Paperboard	Exports	3108	2770	2163	924	1435	3630	6117
	Imports	5920	7257	5915	8710	10078	7625	9829
Jamaica								
Wood & Cork	Exports	0	8	19	63	348	711	55
	Imports	9514	8543	8213	6879	12973	28573	16882
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	1080	1775	1488	947	552	919	2786
Wood Manufacturers (Other than Furniture)	Exports	7	22	95	159	218	51	54
	Imports	3086	3693	2421	1640	2694	4988	8067
Paper & Paperboard	Exports	3	95	50	51	43	10	81
	Imports	15978	16432	13748	18226	18116	20895	27460

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Central American		1983	1984	1985	1986	1987	1988	1989
Belize								
Wood & Cork	Exports	621	257	298	741	2275	712	154
	Imports	8	27	20	15	9	38	50
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	0	0	0	3	0	395	0
Wood Manufacturers (Other than Furniture)	Exports	24	23	298	308	83	86	34
	Imports	813	430	371	614	510	1234	844
Paper & Paperboard	Exports	0	0	268	167	150	8	0
	Imports	589	775	440	469	798	641	1563
Guatemala								
Wood & Cork	Exports	716	1188	1728	2079	6537	3475	4285
	Imports	3	59	297	351	361	518	818
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	4147	3575	3117	3782	3808	6210	8891
Wood Manufacturers (Other than Furniture)	Exports	140	265	803	1517	1818	3576	3160
	Imports	299	165	414	621	227	188	247
Paper & Paperboard	Exports	2	4	8	33	62	23	91
	Imports	14431	16983	18546	15918	23360	28857	29324
El Salvador								
Wood & Cork	Exports	0	103	0	0	0	1	0
	Imports	141	61	59	674	1299	328	507
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	3751	3340	4218	4673	5778	7129	4959
Wood Manufacturers (Other than Furniture)	Exports	19	51	43	170	563	393	218
	Imports	570	307	639	349	764	569	1747
Paper & Paperboard	Exports	395	528	717	1065	2324	4795	4937
	Imports	13059	12798	10739	13110	12872	17886	15700

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Central American		1983	1984	1985	1986	1987	1988	1989
Honduras								
Wood & Cork	Exports	4873	4196	3168	3827	3932	3362	2418
	Imports	13	4	4	10	54	15	56
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	254	522	76	709	1676	232	1329
Wood Manufacturers (Other than Furniture)	Exports	4343	4230	5563	7111	7703	8589	9819
	Imports	553	339	222	284	611	482	760
Paper & Paperboard	Exports	0	8	0	1	0	5	0
	Imports	25811	26871	28051	25967	55288	44813	42349
Nicaragua								
Wood & Cork	Exports	38	24	0	0	14	0	0
	Imports	289	2	0	0	0	0	0
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	133	0	0	0	0	0	0
Wood Manufacturers (Other than Furniture)	Exports	1	18	0	0	0	0	0
	Imports	65	88	53	0	0	0	0
Paper & Paperboard	Exports	-	-	-	-	-	-	-
	Imports	3791	5244	1166	2	0	35	3
Costa Rica								
Wood & Cork	Exports	448	380	305	310	411	124	82
	Imports	70	7	163	154	82	12	120
Pulp & Waste Paper	Exports	0	0	0	25	27	0	0
	Imports	679	934	459	733	775	1236	2660
Wood Manufacturers (Other than Furniture)	Exports	2052	2635	3753	3607	4167	6934	6918
	Imports	198	165	382	1561	977	1337	1387
Paper & Paperboard	Exports	121	68	172	1111	2101	3281	5293
	Imports	32082	34687	27443	32861	44977	63174	65764

Central American		1983	1984	1985	1986	1987	1988	1989
Panama								
Wood & Cork	Exports	6	40	455	28	138	142	5
	Imports	2252	1846	1484	5660	3644	817	1493
Pulp & Waste Paper	Exports	0	0	0	2514	27	301	0
	Imports	850	1422	1341	1864	1641	1691	2353
Wood Manufacturers (Other than Furniture)	Exports	281	862	1104	637	604	483	519
	Imports	1242	1489	1915	2047	3128	3663	1728
Paper & Paperboard	Exports	137	71	206	454	626	1172	1048
	Imports	34415	35491	30173	38060	40807	41641	42075

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Andean		1983	1984	1985	1986	1987	1988	1989
Ecuador								
Wood & Cork	Exports	2252	2312	2905	2696	2498	4125	5013
	Imports	23	4	2	5	62	86	638
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	1188	1364	1023	905	1909	1205	2052
Wood Manufacturers (Other than Furniture)	Exports	3408	6047	6530	9210	12525	11694	9925
	Imports	284	308	117	120	214	1831	1104
Paper & Paperboard	Exports	16	14	31	43	11	1	5
	Imports	30261	36686	34862	41005	44877	52454	52583
Peru								
Wood & Cork	Exports	987	962	1834	1036	1530	806	2047
	Imports	1077	1401	1107	493	239	191	449
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	3433	1466	1330	2364	5093	2760	456
Wood Manufacturers (Other than Furniture)	Exports	3557	2183	763	539	703	606	828
	Imports	174	167	737	533	332	643	318
Paper & Paperboard	Exports	-	-	-	-	-	-	-
	Imports	5536	3083	3244	8012	11436	4808	2178
Bolivia								
Wood & Cork	Exports	557	548	317	123	3451	9412	11665
	Imports	0	148	104	32	3	73	7
Pulp & Waste Paper	Exports	-	-	-	-	-	-	-
	Imports	18	61	4	10	30	40	3
Wood Manufacturers (Other than Furniture)	Exports	101	90	23	187	23	304	332
	Imports	78	3	1	29	35	119	60
Paper & Paperboard	Exports	5	0	0	0	1	0	0
	Imports	466	324	432	241	336	521	281

Countries do not export this particular trade specification

Source: Department of Commerce, SITC Code Classification