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**PUBLIC POLICY AND INSTITUTIONAL
CHALLENGES IN THE ACHIEVEMENT
OF SUSTAINABLE AGRICULTURE**

Carlos Pomareda Benel

**PROGRAM I:
AGRICULTURAL POLICY ANALYSIS AND PLANNING**

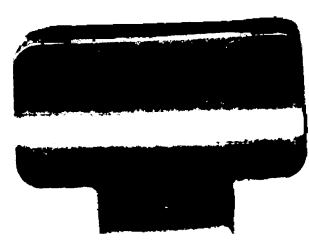


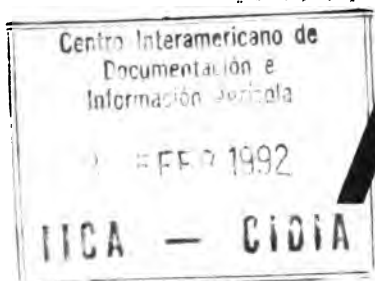
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29 NOV. 2007

- 1 Paper presented at the International Conference on "The Ecological Economics of Sustainability: Making Local and Short-Term Goals Consistent with Global and Long-Term Goals." The World Bank, Washington D.C. May 21-23, 1990.
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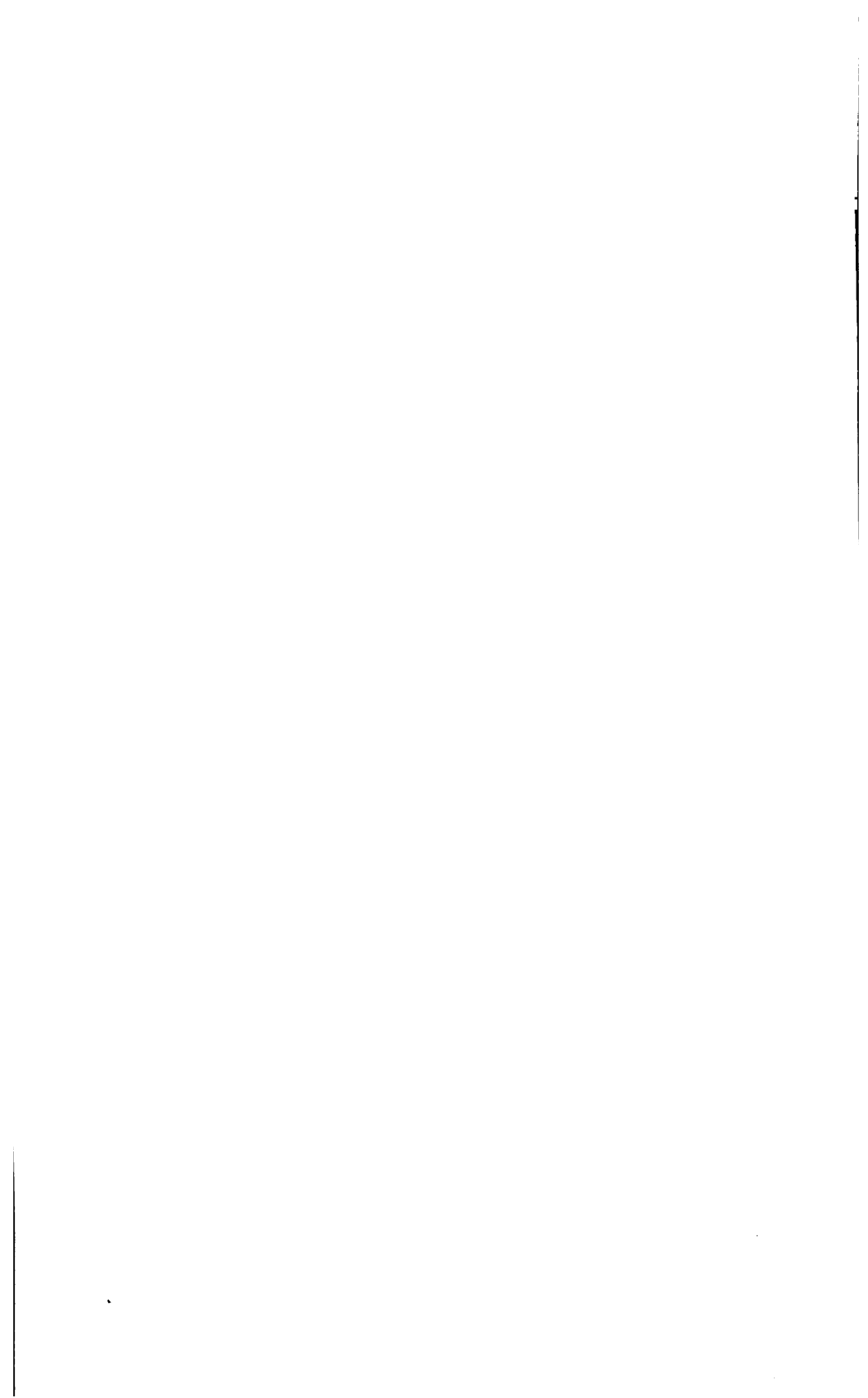
REPORTS, RESULTS AND RECOMMENDATIONS
FROM TECHNICAL EVENTS SERIES
ISSN-0253-4746
A1/SC-91-07

March, 1991
San Jose, Costa Rica

"The views expressed in signed articles are those of the authors and do not necessarily reflect those of the Inter-American Institute for Cooperation on Agriculture."

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1. INTRODUCTION

Rural poverty in Latin America and the Caribbean (LAC) is a growing problem and little is being done to attack its structural roots. An important structural element of rural poverty is the declining quality of the human resource base and its growing inability to cope with the challenges of living in a turbulent and rapidly changing socioeconomic environment. A second structural element is the growing degradation of natural resources in rural areas. Sachs (1989) presents abundant evidence that the deepening of poverty goes hand in hand with the exhaustion of soils and forests, the growing scarcity of natural energy and water, low productivity of the land, the shortages of food and consequent malnutrition.

The LAC debt burden has contributed to the deterioration of the natural resource base in many ways. The pressure of debt repayment leaves little time to plan and take action for the future. Resources that could otherwise be spent on programs that enhance increased production and natural resources and the environment have been used for debt repayment. The way LAC evolved towards its current situation of poverty and indebtedness is without doubt associated with the behavior of international capital markets, which have contributed to multiplying the outstanding debt. However, there are also important structural elements in LAC society and its institutions which are to a great extent responsible for this increasingly difficult situation.

Lack of perception of the above structural elements, associated with political insensitivity within the international financial agencies, led LAC countries to opt for the structural adjustment programs (SAPs) and the accompanying structural adjustment loans (SALs) early in this decade. The latter are mainly geared to alleviating external balance of payments situations and promoting the liberalization of the economies, through required institutional changes and fiscal adjustment. Ten years of fruitless effort in transforming the structural conditions, and strong criticism from the less developed countries (LDCs), is bringing this quasi-philosophy to an end. The international community is looking for new approaches in solving structural problems and for mechanisms to transform debt liability into new resources for the alleviation of poverty (IICA, 1987, 1989; Knudsen and Nash, 1989). It has been proposed that the countries immediately adopt sound policies, undertake institutional reforms and make strategic public investments, as key elements of a



strategy that would open the door to private investments aimed at reactivating productive sectors and taking care of urgent social responsibilities.

In looking ahead, we must recognize that time preference behavior among agricultural producers and consumers is at the heart of decisions on resource use and consumption, savings and investment. Attitudes towards sustainable agriculture may be compromised by expedient public policy. Sustainability requires valuing the future: when the future matters, currently available resources are frequently used with discretion to avoid degradation and/or exhaustion. The sociopolitical environment is one determinant of the attitude towards sustainability, but economic policy can also give preference to the present over the future, encouraging the maximization of short-term profits rather than long-term welfare.

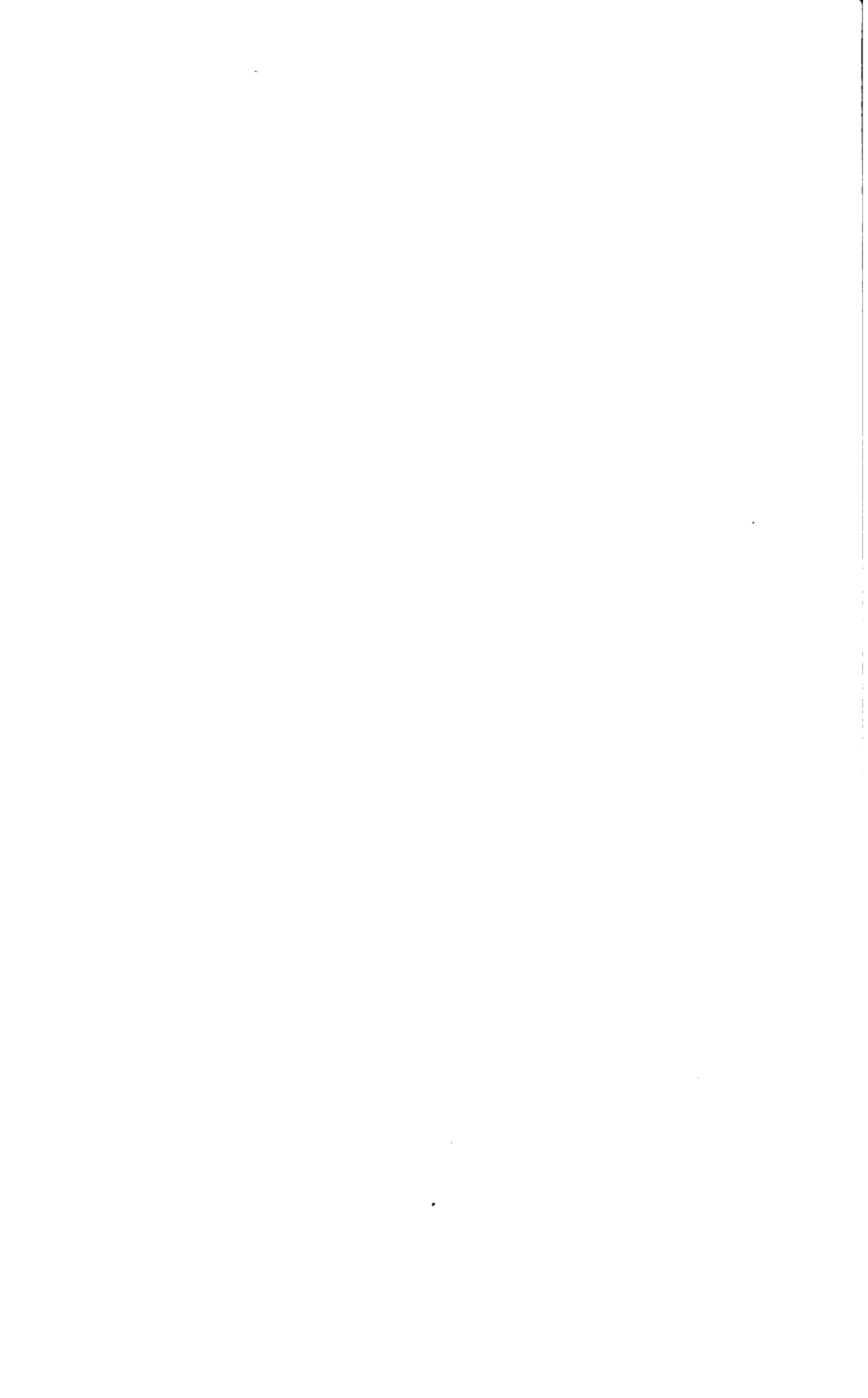
In an analysis of economic policy for the sustainable development of agriculture, one confronts the limitations of capitalist or market economic theory as regards the concepts of environmental enhancement. The concept of externalities, for example, was introduced as an appendix to economic theory to account for the shortcomings of market economics. Goodland and Ledec (1987) highlight the main policy related issues for which economists and ecologists provide conflicting prescriptions, and suggest an agenda for research on the economics/ecology interface. This is particularly necessary, as the authors emphasize, because present-day neoclassical economic theory and its applications to development policy seriously overlook or undervalue major ecological concerns. Interesting progress is being initiated to elaborate a conceptual framework for sustainable development and the role of markets in current and future resources allocation. Redclift (1988) discusses how market relations have entered the analysis of environmental change at a simplistic aggregate level, by merely suggesting that the market has been an obstacle to the achievement of better environmental conditions. He argues for a more vigorous link between development and sustainability, for which the workings of the market must be incorporated into the model.

When looking for development alternatives, a major issue of concern is the challenge of modernizing agriculture today, usually narrowly associated with capital intensity and higher short-term

productivity. Pomareda (1989) stresses that engaging in modern agriculture means developing the capacity to cope with the current conditions, while maintaining an ability to do so in the future. Economic instability, socio-political turmoil, abundant non-discretionary information, rapidly changing technology and "always new" capital inputs are realities of the present and probably of the future. All these factors cause an excessive concern about present competitiveness, as if Keynes's concept of the "long run" is the only one that matters. Still, one must remember that we arrive at the long run only if we live through the short run.

Sustainable development is attracting the attention of the international community within the framework of what is referred to as the World's Common Future (Brundtland Commission, 1987). To achieve common interests, we must specifically analyze economic relations among countries, particularly between North and South, as well as within nations, and between rural and urban societies. The commitment must be global, multipartidary and multisectorial. Within the realm of agriculture, achieving sustainability requires a multidisciplinary effort, and clear interinstitutional relations. We attempt to produce a policy framework that does not only consider on farm and agroindustrial technology, but also communal rural society, and then domestic and international trade, with particular focus on the latter.

This concept does not ignore, but rather borrows from, the more global views regarding sustainable development. Pearce (1988) notes that sustainable development has become the catchword of the 1990s. The challenge, Pearce points out, is the understanding of a concept that can be integrated into practical decision making. He suggests categorizing sustainable development as economic change subject to "constancy of the natural capital stock." Simply, sustainability means making good things last, making them permanent and durable; and this is the simpler road we have taken in the writing in this paper. The approach to sustainability, however, varies drastically between a developed and a developing country. In the case of the latter, the challenge is to increase productivity of the natural resources now, yet preserve their quality, under severe financial and human capital resource constraints. In the developed nations, neither the pressure on current productivity of agriculture nor the abovementioned constraints are substantial.



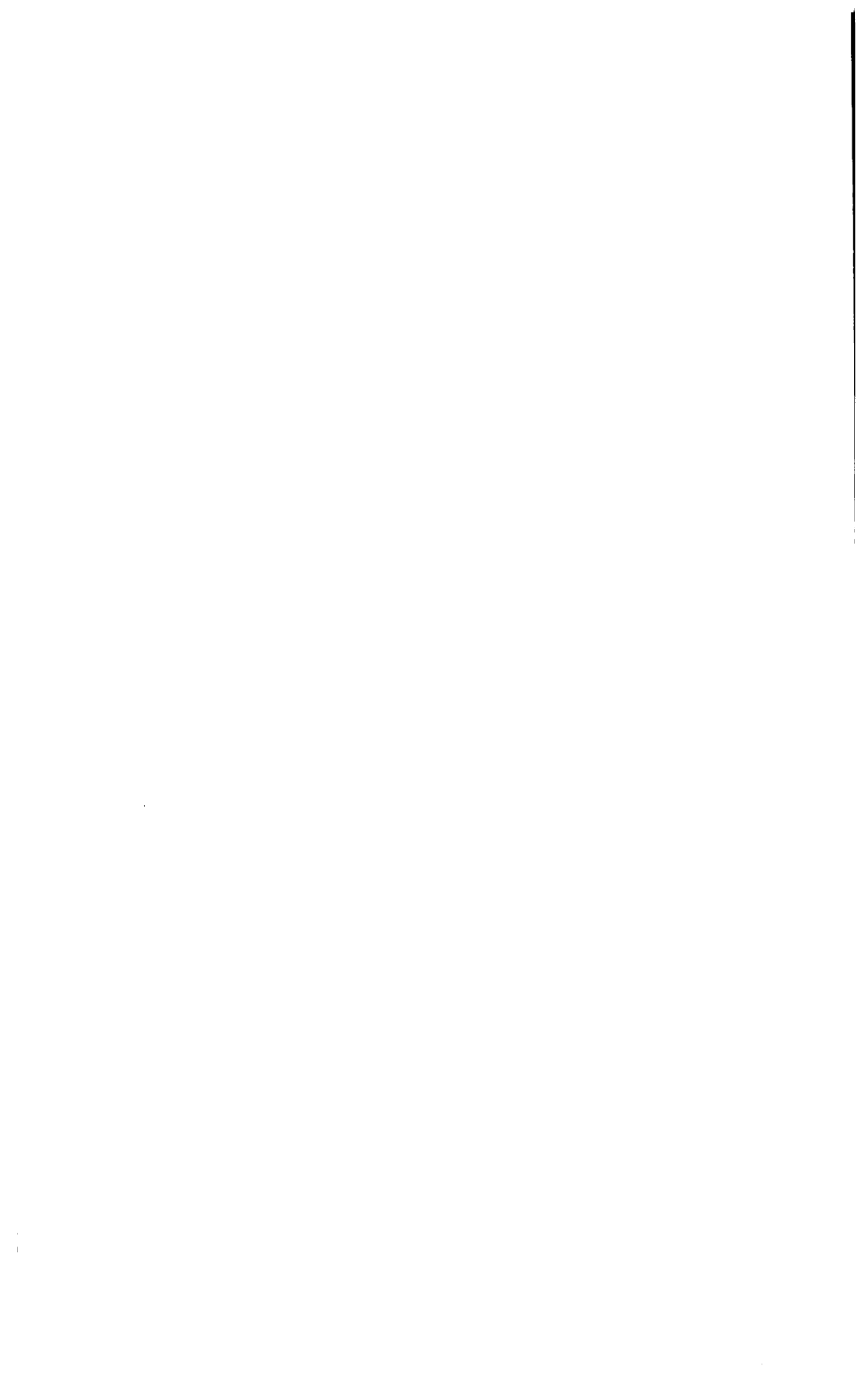
Section 2 focuses on the policy issues that arise in the pursuing of sustainable agriculture and the need for institutional capabilities in specific areas where policies are required. Section 3 highlights the governmental responsibilities and needs for adequate institutions that are able to guide the sustainable development of agriculture. In this section, particular reference is made to the need for adequate information to develop policies and for an appraisal of the extent to which sustainability has been achieved so far.

2. THE POLICY ISSUES AND INSTITUTIONAL NEEDS

A first comment regards policy needs for a specific development strategy. Latin America and the Caribbean are being stimulated to participate more and more in international agricultural trade. This requires increased competitiveness. At the same time, the developed world is turning its concern towards sustainability, resource enhancement and being better prepared in general for the future.

The risks of an agroexport model for LAC that does not introduce criteria of sustainability are of concern. The export-led orientation of grain production in the 60s and 70s in the U.S., to take advantage of favorable world markets, is an experience that we do not want to repeat. Doering, Schmitz and Miranowsky (1988) have argued that in the U.S., for example, social costs of agricultural exports may be well be in excess of the benefits realized, due not only to fiscal costs of subsidies, but also to externalities such as soil erosion and silting from intensive cropping and subsequent fall in land value and land market prices.

Being able to increase agricultural competitiveness and volumes traded could mean allocating more natural resources to current use, thus sacrificing future use (Sutton, 1988). This also means being more concerned with the present than with the future; thus, the issue emerges of how rational is it to engage in increasing current agricultural trade if it is not to be sustainable. Or, alternatively, how rational is it to increase current trade at the expense of future agricultural production and declining capacity for sustainable growth.



The challenge, of course, is in adopting a development strategy that allows satisfaction of current needs and that is viable in the long run. Policies are needed to induce technology patterns and agroindustrial development that is growth-oriented and concerned with intertemporal equity.

The currently pursued strategy of non-traditional agricultural exports depends heavily on chemical inputs, as evidenced by the case of Chilean fruits. To the extent that it is recognized that the technology for production of exports leaves higher amounts of undesirable residues in air, soil and water, the strategy must also be re-examined in light of world interest of a cleaner environment. In this re-examination, a consideration should be given to the use of chemical inputs on crops such as cotton and coffee, where the cost of chemical inputs as a percentage of per hectare costs of production has systematically increased over the last 20 years. Furthermore, the direct effects on human health of inadequate and excessive use of these inputs has been raised in many countries such as El Salvador and Nicaragua where pesticide use in cotton has taken so many lives. Progress is underway to create and make available sufficient information for LAC and other developing countries on the risks involved in the import and subsequent domestic use of chemicals. The "prior informed consent" mechanism under discussion within the UNDP environment program will require a written agreement between the exporting and importing nations prior to export of a dangerous chemical or insecticide that is prohibited or restricted in the producing country.

The evolution of debt-trading mechanisms is, undoubtedly, an opportunity to rethink a LAC-external agroexport proposal. Alternatively, an immediate effort must be made to develop mechanisms to use converted debt funds to finance intra-LAC agricultural trade within an inter-American sustainability framework. These funds should also be channeled towards projects that allow ecological conservation, resource enhancement, and human capital development, all of which will contribute to a more sustainable agriculture and reduction of structural causes of rural poverty.

At the heart of a development model for agriculture is the adoption of modern technology. Current technological practices in primary agricultural production (crops and livestock) show substantial variability; however, they respond to technological policy, which in

the last two decades has had a growing focus on increased productivity (measured as farm yields). Government goals and even, unfortunately, to some extent, the international agricultural technology generation and transfer system have privileged increases in annual yields of crops. Little attention has been given to a sustained increase in yields with decreasing dependence on (transitory) inputs such as fertilizers and chemicals (English *et al.*, 1984). Currently the 14 member institutions of the CGIAR, and others, like CATIE, are preparing to deal with sustainability in a more direct way, by focussing on resource management technologies.

Efforts oriented towards developing the human capital base and thus directly increasing the marginal product of labor are too timid (See Pomareda and Smith, 1985). Rather, the commodity-oriented chemical intensive technology has attempted to indirectly increase the marginal product of rural labor via labor displacement from the rural areas, as is evidenced by the use of herbicides rather than unskilled labor for weeding, without cost analysis, ecological, and social considerations.

Controlling crop pests and diseases is effectively achieved in the short run by using pesticides and insecticides, which prevent yields from falling below expected values. Over time, the use of these inputs allows for yields to be less variable. However, in spite of this use, yields can vary over time due to climatological factors such as drought, excessive humidity and rainfall. This source of instability can be substantially ameliorated by investing in regional irrigation and drainage projects of appropriate watershed management projects with on-farm irrigation and drainage facilities. However, on-farm investments for resource management have declined substantially, primarily due to the orientation of banks toward short-term loans.

There are examples of agricultural technology oriented towards the enhancement of the natural resource base, directly increasing the marginal product of labor with few capital inputs. This is the case of the reconstruction of terraces, forest plantations, furrow irrigation, intercropping, farming systems, range management, and others that in some cases also are more labor-intensive. The complementarity between human and non-human energy is a key element in the sustainability of agriculture; an important effort is necessary to substantially increase the amount of energy provided by



other sources than chemicals, e.g. organic fertilizers, solar energy, biomass energy, and others (Ramsay, 1985).

In many countries of LAC, overvalued exchange rates, subsidized interest rates and prices of inputs, and products were prevalent until very recently, and favored the current pattern of technological change. Economic policies (macro and sectorial) condition technological change for primary production and for the structure of agroindustries (Piñeiro and Pomareda, 1988; Pomareda and Torres, 1989) as they influence the relative prices of agricultural goods and the prices of all agricultural products relative to those of non-agricultural goods, including transitory inputs and wages. The most important effect in relation to sustainability occurs when farm profitability declines steadily. The return to investments in farm land development, conservation or resource enhancement are also depressed as farmers tend to rely more on transitory inputs.

Price guaranty programs, and to some extent crop insurance (both highly costly to governments), discourage farming systems and risk reduction investments, such as irrigation. Also, short-term subsidized credit, currently the most common subsidy for agriculture, becomes useful to farmers for purchasing transitory inputs. Long-term credit is non-existent, thus making resource management less viable and rewarding in the long run.

The development of agroindustry is strongly encouraged as part of a new model for growth in the agricultural sector. Agroindustry based on use of domestic primary products and selective imported components can have significant multiplier effects and therefore serve as an engine for growth. In promoting this model, however, one must appraise the many years of experience during which biased economic policies have, on one hand, encouraged unsustainable agroindustries, while on the other also supported agroindustries that have contributed directly to resource degradation.

Regarding the unsustainability of agroindustries, effective protection has favored an input-output structure of production that can easily collapse when such protective measures are removed. Fiscal constraints are forcing governments into such adjustments and evidence already indicates that many agroindustries will disappear unless they transform their technological base. This is the moment

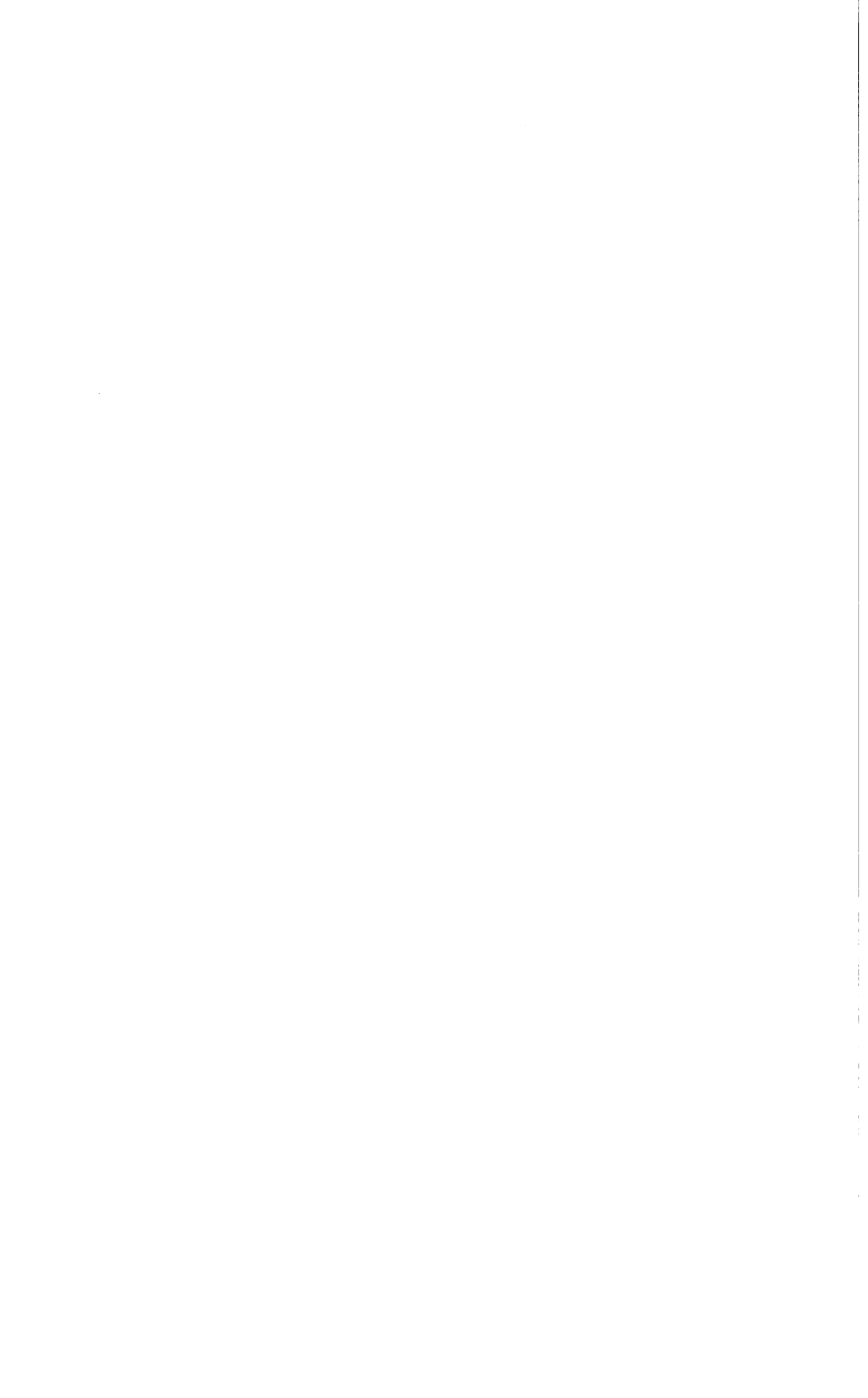
for agroindustries to reexamine their role in a sustained development model for the agricultural-agroindustry complex, one with a less negative impact on the environment.

That some agroindustries cause major resource degradation is clear. Irrational policies that undervalue wood and wood products are responsible for deforestation, and may be more destructive than cattle grazing, usually thought to be the main cause of deforestation. The above applies not only to policies for the production of solid wood, but also for ground and pressed wood products. Also, the relative prices of energy sources accessible to the rural population are the primary cause of deforestation throughout LAC and most of the developing world (Islam, Morese and Soesastro, 1984).

An equally important issue related to the absence of legislation and economic policy for treatment of agroindustrial residues like those from coffee "beneficios." Coffee processing wastes pollute rivers in Costa Rica, for example, at the height of the dry season, precisely the worst time; lack of rainfall produces very high concentration of undesirable materials. Unless surcharges are imposed on such practices, agroindustries will continue to be artificially competitive. They will be costly to society in the short run, and unoperative in the long run. Many agroindustries have directly visible negative impacts on natural resources. An example is shrimp farming in Ecuador, which has become the most dynamic sector of the economy. There are concerns that the practices used will contribute to devastate coastal lands through salinization and deforestation.

The structural conditions of agroindustries have not been sufficiently studied so that sound decisions can be made. In fact, because agroindustry is usually considered as part of the industrial sector, little analysis is made of its backward linkages with primary agricultural production. If we accept that agroindustry begins with the collection, cleaning, and packing/processing of primary products, then we can trace many aspects of economic policy that will, through the agroindustrial sector, become means of achieving sustainable agriculture.

The population-natural resource imbalance is in some cases so drastic that sustainable and equitable life in rural areas seems impossible. In Haiti and northeast Brazil, the situation is alarming.



It should be recognized that land tenure systems, particularly non-ownership of land, discourages attitudes, cultural practices and on-farm investments that would contribute to sustainable agriculture. Of course, the situation is aggravated by the absence of land markets and financial mechanisms that favor their operation. These should be developed, along with titling, resettlement and other policies oriented towards a more equitable distribution of land.

Adopting a strategy for sustainable agriculture requires those living in rural areas to adopt correct individual and communal on-farm practices. Communal efforts will be more challenging. One of the areas of the world where natural resources have been systematically lost over hundreds of years is the Andes of Bolivia, Peru and Ecuador. Quite recently, an analysis of indigenous technologies revealed their high value for natural resources enhancement (CONCYTEC, 1985). This report also highlighted important achievements reached through the participation of rural communities. In contrast, it has been shown that resource loss in rural Haiti is strongly associated with a lack of communal organization and a preoccupation with individual and family survival.

Soil conservation and salinity control require drainage systems that join water outflows of many farms and become a permanent liability for those households located downstream. The quality of irrigation water and run-off, as well as the danger of landslides, can be substantially diminished by reforestation and watershed development programs. The availability of energy for farm and off-farm works can be substantially increased by small solar and hydroelectric plants. The above initiatives must be a joint effort of the government and those directly benefitted by the projects. Unfortunately, however, public projects have seldom been developed with the necessary participation of beneficiaries. Furthermore, the paternalistic attitude of the public sector has hindered the formation and strengthening of private organizations.

Regarding the potential role of non-governmental organizations in the preservation of the environment, a recent pronouncement of IDB (March 20, 1989) encourages the active participation of NGOs in the process of project design. The issue has been raised in relation to the experience of various IDB projects, particularly those for integrated rural development, rural road construction and irrigation projects. Explicit consideration of

environmental issues is now mandatory in all new rural development projects to avoid future problems of soil salinity, deforestation and lowering of water quality. These considerations may require additional costs, but methods for the appraisal of project benefits must also be revised to assure that annual economic returns are no longer the sole indicator; indicators reflecting the tenets of sustainable agriculture must be given more weight.

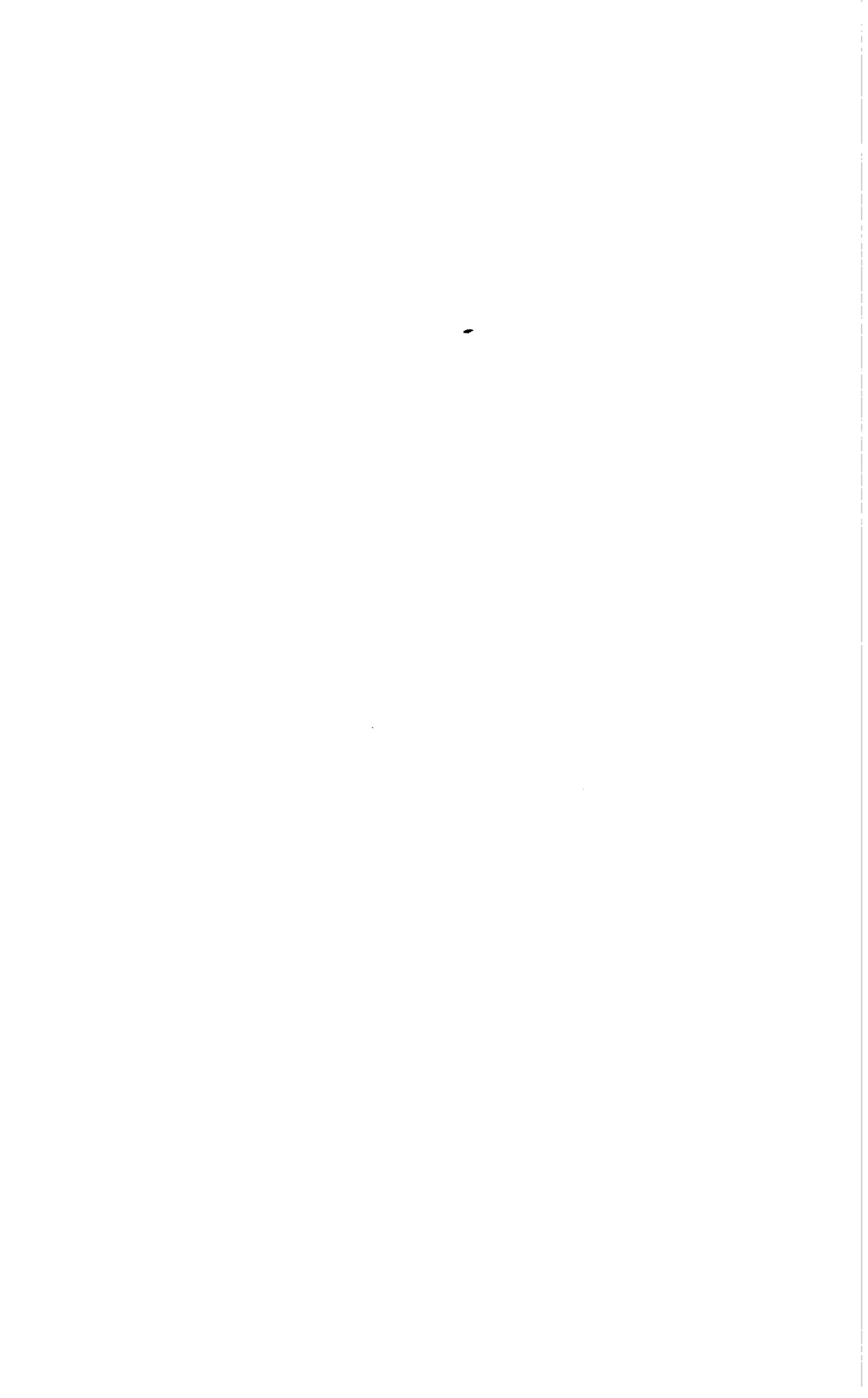
Looking ahead, rural education seems to be one of the strongest means to achieve sustainable agriculture. The more organized rural groups can benefit substantially from education for appropriate use and management of chemical products, soil and water conservation, development of alternative energy sources, forest development, production of organic fertilizers, and many other ways of contributing to achieve sustainable agriculture.

3. CHALLENGES IN INSTITUTIONAL DEVELOPMENT

Achievement of sustainable agriculture must be conceived as a social responsibility, of concern to the rural and urban populations and the public and the private sectors. Because of the many disciplines that converge in the attainment of sustainable agriculture, the working relations among and within institutions have become fundamental (Johnson, 1989).

It is unlikely that a single national institution can have within its organization, mandate and work plans all the elements for a global contribution towards sustainability. Public institutions involved in agriculture specialize in matters including generation and transfer of technology, management for resource use, services for commodity production, processing and trade, among others. Although public policies are designed and managed for the above issues, little can be achieved unless economic policy takes into account the technological and organizational requirements for sustainable agriculture. Thus, effective relations among national institutions are mandatory for an integrated policy framework on sustainable agriculture.

The previous section has highlighted problems and policy issues directly related to the achievement of sustainable agriculture. Behind these policy issues there are institutions and institutional



systems within which the policies are conceived, designed and managed. Within the typical institutional system responsible for policies that influence agriculture one can name: Ministries of Finance and Central Banks, who, with considerable autonomy, design, adjust and manage the key instruments of macroeconomic policy. Their coordination is crucial as regards the IMF and World Bank; however, they maintain a close working relation with public authorities responsible for development strategies (Ministries of Planning) and sectoral policies (Ministries of Agriculture and Industries). Policies for the agricultural sector have become, during the structural adjustment process, a subset of little relevance. The challenge for public agricultural authorities is greater in the understanding and negotiating of macroeconomic policies (so they will not work against agriculture and will contribute to public investment strategies) that strongly induce private investment in agriculture, for example, rural infrastructure, and which develop human resources in rural areas.

For an adequate policy framework to be in place, the institutional system must act in coordination, balancing private and social interests and multisectoral conflicts. For Ministries of Agriculture and private organizations involved in agriculture, the great challenge ahead is understanding and pressing for a global development strategy in which agriculture is an integral part, and in which sustainable development is a goal replacing transitory economic performance. For this, they must reconsider the specific functions, organization, working mechanisms, staff and staff development programs which in essence imply major institutional reforms. These, however, must emerge from the countries' own understanding and commitment, not through conditional external imposition. Recognition of a complex policy design and management system, as referred in the previous section, implies that institutions must invest in themselves to upgrade their capacity in a sustained manner.

At the international level, the sustainability of agriculture is not just the concern of agencies directly involved in agriculture, but also for those that channel financial resources for development. For these agencies, the challenge ahead is twofold: First, to provide fresh resources and financial conditions that facilitate policy reform, investment programs and institutional changes that will help to reverse the ongoing process of degradation of natural resources and

decapitalization of agriculture. Second, within the outlook for global economic reform, international financial development agencies will play an important role in the development and management of debt funds for resource enhancement, institutional development and the alleviation of poverty in the affected nations.

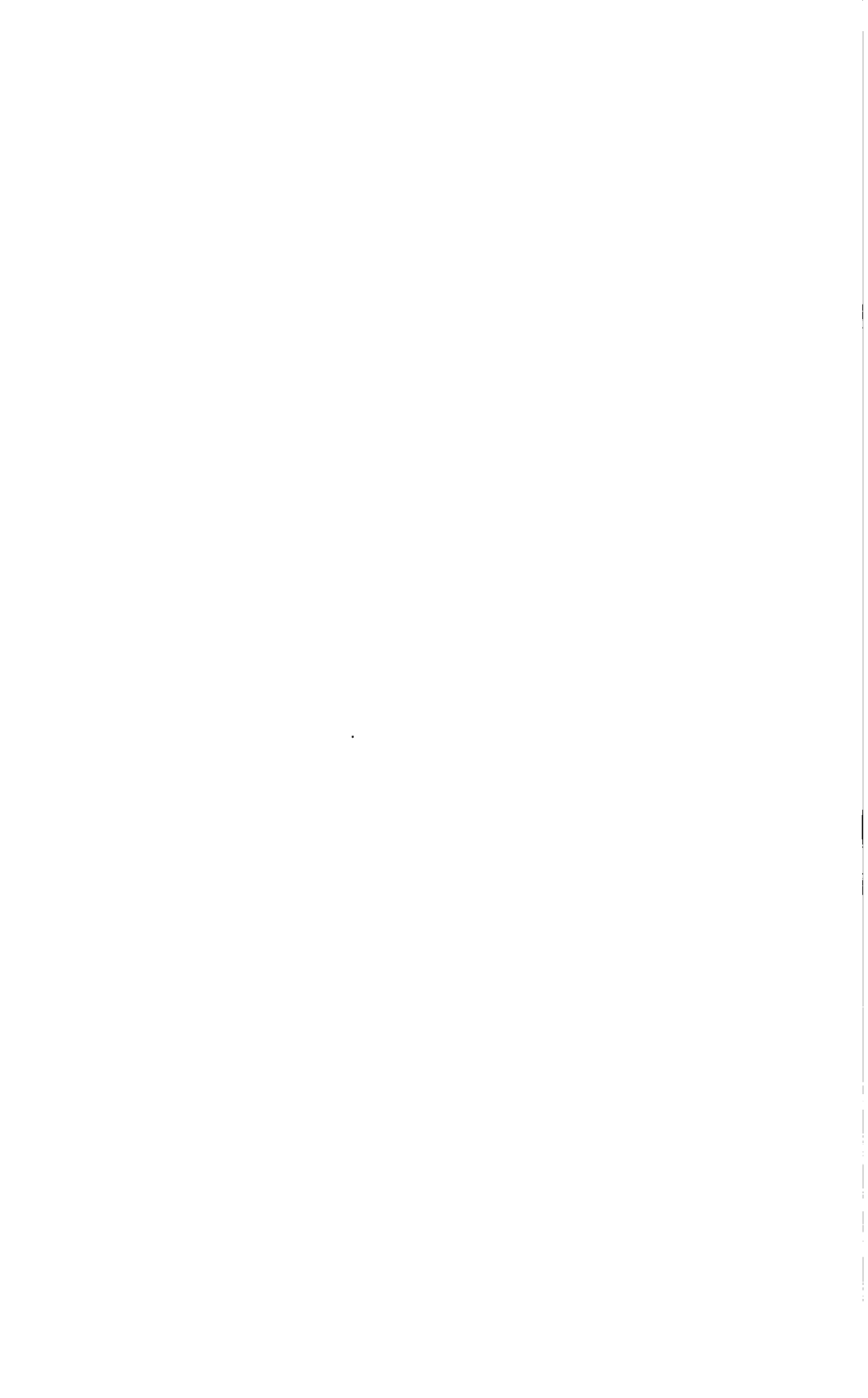
For international agencies involved in technical cooperation for agriculture, the strongest commitment should be assistance to the countries that will allow them to promote sustainability, that is, to have the basic resources that will allow them the "luxury" of planning for the future. This must be the focus of any initiative that attempts to make agriculture sustainable. If we accept this, then international agencies must begin with in-house efforts to develop their capacity to properly conceptualize the challenge ahead and to work with the countries in the development of strategies and policies for sustainable agriculture. They must work jointly with the countries in research, training, exchange of experiences and diffusion of information. The fruits of this effort will be, among others, an increased capability to provide technical assistance. This should in turn be oriented towards strengthening domestic capabilities for policies and projects in which the tenets of sustainability, in both conceptual and operational terms, are always built in.



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PRRET-A1/SC

no.91-07

Autor **Public policy and institutional challenges in the achievement of sustainable agriculture**

Título **ment of sustainable agriculture**

Fecha Devolución	Nombre del solicitante
26 JUN 1980	

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