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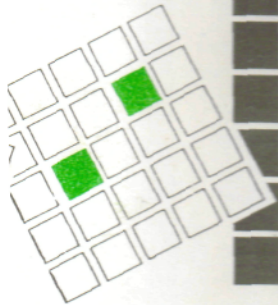
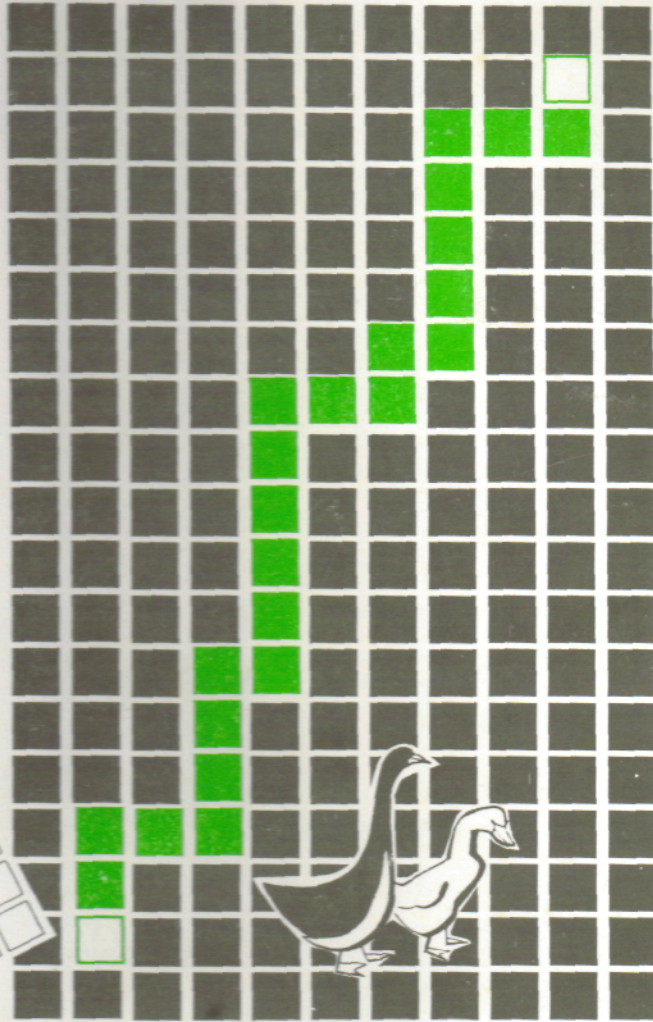
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# REPORT ON THE TWENTIETH WEST INDIES AGRICULTURAL ECONOMICS CONFERENCE

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## Introduction

The Twentieth West Indies Agricultural Economics Conference was held at the Grafton Beach Resort, Tobago, during 18-22 April, 1990. The Conference was sponsored by the Caribbean Agro-Economics Society, the Tobago House of Assembly, and the Department of Agricultural Economics and Farm Management of The University of the West Indies, St. Augustine, Trinidad. The theme of the Conference was "**Economic Development Through the Revitalization and Modernization of Agriculture.**"

The Conference attracted over 60 participants from the Caribbean, Central America, the USA, the UK and India.

The presentations in the opening ceremony ushered in an atmosphere of cordiality, and enthusiasm, as well as established the challenge facing the Conference. The challenges were fourfold:

- (1) The search for implementable and effective development models appropriate to the Caribbean.
- (2) The development of strategies for revitalizing and modernizing the agricultural sector.
- (3) The establishment of an administrative capacity for effective implementation of strategies; and
- (4) Identification of areas of research to generate information for evaluating the development pathways and refining strategies.

This report gives the way these challenges were addressed in the Conference.

The current world environment within which these challenges were addressed is characterized by a host of contradictions and often confusion in theory and practice and a rapid changing world situation. The attack on the

Nobel Laureate Sir Arthur Lewis in the early Seventies and subsequent encomiums on him in the late Eighties by the same individuals exemplify the contradictions. The (b) current attack on Lewis' archrivals leaves wide open the debate on economic theorizing and development impact in the Caribbean.

Latin America and Caribbean economies generally declined during 1989. Regional (c) exports grew by some 9% and imports rose 8%. Jamaica, Guyana and Trinidad and Tobago with 68% of the CARICOM population showed real GDP declines of 1.7%, 2.9% and 5.2% respectively during 1980-85 while the OECS grew by 4.2%. The contribution of the agricultural sector to (d) GDP varies from 4% in Trinidad and Tobago to 25-35% in Dominica and Belize, to 40% in Guyana; while agriculture accounts for 8-9% of the employed labour force in Antigua and Barbados compared with 25-36% in Guyana and Belize. (e)

The formation of great trading blocks - US/Canada/Mexico and the European Economic Community - and the political changes in Europe could have serious trade and aid implications. It is clear that aid flows to Europe will affect Latin America and the Caribbean adversely. It is against this background that the crises in the agricultural sector were examined and addressed. (f) (g)

The crises in the agriculture sector could be put succinctly as follows: (h)

- (a) Fiscal, export and price policies favoured the industrial and service sectors and were inimical to agri-

cultural development in the Sixties and Seventies.

Cheap food policies for urban, industrial and service workers, the sharp decline in basic commodity prices and increasing input costs impacted adversely on the agricultural sector.

Over-valued exchange rates resulting in lower returns from agricultural exports than the market would normally dictate thereby giving signals for alternatives outside of agriculture.

Concessionary agricultural credit policies encouraged capital-intensive technologies where labour-intensive ones should have prevailed.

Insecure tenure and expectations militated against agricultural growth and development.

The absence of a sound agro-industry frustrated the agricultural production sector.

The existence of tariffs and non-tariff barriers in the developed countries constrained market penetration.

The dismantling of agricultural subsidies in the Region while they remained in the developed worlds put the regional sector at a disadvantage.

## **Lessons from Modernization of Agriculture**

Modernization consists largely of using improved planting material; mechanized cultivation, harvesting and processing; chemical fertilizers and pesticides; and optimal water control. As economic growth and development take place, the agricultural sector contribution declines but only at a slow pace. Growth in agricultural income is influenced positively by the growth in labour productivity. However, indicators of modernizing inputs failed to explain significant variations in labour productivity and real income in agriculture.

The examination of the Indian experience showed:

- (a) Modernization of agriculture increased significantly total factor productivity - the higher the pace of modernization, the higher the growth in total factor productivity.
- (b) Acceleration in total factor productivity more than compensated for deceleration in growth of factor inputs, especially land.
- (c) A pre-condition to agricultural modernization is increased investment - gross capital formation.
- (d) Modernization of agriculture makes the sector more resilient and less sensitive to weather conditions.
- (e) Government support is required to ensure remunerative prices and to

provide incentives for the use of modern inputs.

- (f) Modernization impacts positively on employment levels, adoption of new technology and to some extent equity in the distribution of income.

These positive aspects of modernizing agriculture underpinned the focus on resource mobilization for research, economic policies in support of selected strategies, imperatives for agro-industrial development, technological issues in the development process, the special case of agricultural development in Tobago and social and human planning issues included in the modernization and revitalization of agriculture.

## **Resource Mobilization**

A debt for equity conversion mechanism provides an opportunity for financing research and development projects in many developing countries. The debt for development concept hinges primarily on converting foreign debt into local currency. Conditions such as efficient use of the funds for the specified project only, the capability of the applicant to execute the project, a minimum of fundings going into overheads and independent control by the applicant with minimum governmental interference are anticipated.

The competition for research funds is intense; but private sector support for research and development on relevant problems in the Caribbean would be assured through purposeful involvement and dia-

logue with the private sector.

The University of the West Indies has an unique role in the mobilization of resources for research and development. The strategies of the Faculty of Agriculture for resource mobilization in the 1990's and beyond include:

1. Diagnosis of generic and specific problems of agricultural development in CARICOM for discussion with the national agricultural sectors in the Region.
2. Formulation of technology-oriented B.Sc. Programmes in Crop Production, Livestock Production and General Agriculture, with substantial inputs of agribusiness training, on a multi-campus basis, designed to provide a new generation of Caribbean farmers, entrepreneurs and extension agents in the Region.
3. Formulation of technology-oriented 1-year M.Sc. programmes in areas of identified need, in addition to existing M.Phil and Ph.D. research programmes, to produce a cadre of highly trained leaders and researchers, for the agricultural sectors in the Region.
4. Formulation of three inter disciplinary research programmes designed to address the major problems of the Region in areas of sustainable development, product development and policy evaluation.

Introduction of a commercial component of Faculty activity including.

A university agricultural (holding) company

A commercial farming company

A Tropical Agriculture Publishing House (TAPH) to repatriate Tropical Agriculture, the Faculty's journal.

Constitution of an International Centre for Tropical Agricultural Sciences (ICTAS) with inter-faculty units including Faculties of Agriculture, Engineering, Natural Science and Social Science.

Formulation of an Out-reach Programme with three major thrusts as follows:

The existing Caribbean and Agricultural Extension Programme (CAEP) with a farm-home management-systems approach to agricultural extension

A Continuing Education Programme in Agricultural Technology (CEPAT) of short courses in areas of identified need, designed to upgrade the technological and management skills of

practitioners at all levels in the agricultural sector.

A Programme for Coordination of Tertiary Agricultural Training designed to upgrade the training in agricultural technology offered at the Technical Colleges of the Region to 3-year Associate Degrees.

The recognition of these programmes by Governments and institutions both public and private, farmers and agricultural entrepreneurs in the Region is the first step in the mobilization of resources through The University of the West Indies.

### **Economic Policies in Support of Strategies**

Economic policies in support of modernizing strategies rest heavily on sound economic information for making policy decisions. Cost of production studies in various geographic locations provide a sound base for conducting price, production and income support programme. Farm record summaries provide current information on income and expenses while detailed cost studies of agricultural enterprises allow delineation of particular problems. The challenge of policy-making is how to merge the values and objectives of participants in the quest to obtain a valuable set of decisions that provide equity and efficiency for the society as a whole.

Although the 1983 Caribbean Basin Eco-

nomie Recovery Act (CBERA) of the United States Congress allowed duty-free status for certain agricultural products, it did not exempt exports of beneficiary countries from other non-tariff barriers, thereby limiting trade liberalization in scope and effect. Agricultural exports from these countries to the United States in 1988 were less than 63% of their 1981 level in real 1980 dollar terms, largely due to US sugar import quotas. In general, US trade barriers have been more effective in restricting agricultural trade than its trade development programmes. Non-tariff barriers are often of greater impact than tariff barriers. The non-tariff hurdles that had to be surmounted in the case of the export of the buffalypso from Trinidad and Tobago to the United States exemplified well the problem.

### **Agro-Industrial Development and the Commercialization of Agriculture**

The expansion of the agricultural sector in the Region is intricately bound to a parallel and coordinated development of agro-industrial capability. Establishment of backward and forward linkages has been plagued by major constraints including:

- (a) problems of assuring supplies from the domestic agricultural sector including factors of quality, quantity and reliability of supplies;
- (b) a poorly developed and maintained infra-structure for the production, processing and marketing of food crops;



- (c) relatively high cost per unit of raw material compounded by scales of production resulting in high cost per unit output;
- (d) a lack of managerial and trained personnel with an adequate knowledge of proper processing technology;
- (e) high cost and unavailability of packaging materials;
- (f) lack of policies and related measures to protect and promote small scale agro-processing into a potentially viable sector;
- (g) low foreign exchange reserves;
- (h) high cost of financing agro-industrial enterprises due to rigid collateral requirements and high interest rates.

Perhaps the most crucial of these constraints centres around that of increased primary agricultural production, the solution of which will require a substantial injection of resources.

The export potential of agro-industrial products and horticultural commodities was considered good but external markets could not be accessed if production and marketing practices resulted in outputs of poor quality. Government policies and practices in respect of inputs to these enterprises were in some cases inimical to development.

The experience of the Caribbean Agricul-

tural Trading Company (CATCO) in export agriculture indicated problems pertaining to finance availability, quantity and quality of products, handling, storage and transport and management. With expanding markets CATCO had an optimistic future if the financial constraints could be minimized.

### **Technological Issues in the Development Process**

A genuine concern for the environment dominated the presentations and discussions on chemical and biological pest control. Issues like fruit and food contamination and ground water contamination suggest that future crop protection technologies should be environmentally friendly.

Biological control was perhaps the most environmentally sound but the length of time for the development of reliable systems and the possibility of the introduced natural enemy of the pest itself becoming a pest after its adaptation to the environment and reduction of its host population mitigated the wider use of biological control systems.

The use of chemicals will continue with companies expending large sums on research to develop chemicals that conform to safe use guidelines. Perhaps the most serious issue with chemical control is its abuse by farmers including application rates and the non-use of protective gear. Farmer education on the correct use of chemicals was therefore of utmost importance.

It was agreed that internationally, extension is still the largest problem-solving agency

and its potential in stimulating agricultural development was becoming widely recognized. However, it is only one component in the process and effective collaboration with other agencies was critical to the success of modernization and revitalization of agriculture.

While extension undoubtedly has a significant role to play in getting information to farmers and farmers problems to researchers, objective measures on the performance of extension in respect of output, effectiveness and impact remain elusive. One US study showed extension as contributing very little to factor productivity, whereas research was found to have the highest impact. This was contradicted by another US study which showed a high positive return for expenditure on the extension service. The Indian experience was that the Green Revolution could not have succeeded without extension and that Government expenditure on extension was quite high.

If underdeveloped countries are to achieve sustained economic growth they must consider as a major priority, monitoring global developments to anticipate changes and take appropriate action. Development of both the agricultural and industrial sectors is important in attaining balanced and sustained economic growth.

A self-reliant approach to mechanization - based on indigenous manufacture with optimum use of local labour, production methods and materials - seems to be the most appropriate strategy for developing countries. Therefore, a major challenge for agricultural engineers is to design and develop

commercially viable machines based on local production and aimed at small farmers in the developing countries.

Revitalization of agriculture requires the development of new hybrid varieties, the use of marginal, hitherto unproductive lands, and the economic use of fertilizers and insecticides. Modernizing agriculture calls for the use of new technologies, production of basic machinery and equipment, biological control of insect pests, commercializing agriculture, improving marketing facilities and arrangements including transportation facilities and government policies supportive of small farmers.

Worldwide there has been a progressive decline in the success rate of agricultural projects. The underlying causes centre around:

- (a) inadequate treatment of institutional capability to implement projects;
- (b) high frequency of technical misjudgements in respect of production targets;
- (c) unrealistic assessment of adoption rate and new cultural practices by farmers;
- (d) the difficulties in securing beneficiary participation;
- (e) the project preparation environment which allows limited time for preparation and puts pressure for optimism on project feasibility.

The solution of these problems lies in building national project preparation capacities, incorporating greater flexibility in projects, ensuring beneficiary participation and continuous monitoring and evaluation.

### **Agricultural Development: The Case of Tobago**

The review of the structure and status of agriculture in Tobago with particular reference to current farming systems and alternative organizational structures concluded that the small family owned and operated farm was the appropriate organizational form for redevelopment of agriculture in Tobago. This conclusion was supported by two major positive features of the small family farm - family governance and greater resource efficiency. With family governance there was usually much lower transaction costs and family solidarity meant a more stable structure and greater social benefit arising out of a more equitable distribution of income generated by greater efficiency in resource use.

### **Social and Human Issues**

The agricultural sector constitutes cultivators with varying levels of commitment to agricultural production, access to resources and social and economic relations. Their interrelationships are strongly influenced by their non-agricultural sector connections. An analysis based on the relational aspects of the agrarian and non-agrarian linkages leads to a far more profound understanding of their constitution than the dualism thesis of plantation and peasant. Further, the role of the State in defining options

available to members of various agricultural strata must be explicitly incorporated in the analysis.

The development of a holistic programme of agricultural transformation makes tracking of these critical influences essential. This requires careful and continuous monitoring of household member(s) involved in agricultural production. What is needed is a collaborative long term research and development project involving governmental and non-governmental agencies with representation from farming communities with objectives that include alleviating the production and productivity crises and ameliorating the conditions of men and women in agriculture.

It must be recognized that special emphasis should be focused on the role of women in the rural development process by virtue of their dual role of production/ distribution and reproduction. Research should focus, therefore, on the peculiar circumstances of women in the production/distribution system in the wider context of gender issues pertaining to rural development.

Rural development is a dynamic state characterized by the progressive removal of obstacles to the enjoyment of democratic rights, freedoms and wealth by all segments of the population outside major city limits. This multifaceted people-oriented concept involves issues ranging from nutrition and health to employment, farm incomes and prices, industrialization, transportation systems, people participation in decision-making, the environment, education, sport and culture, rural to urban migration and a

host of other welfare concerns pertinent to the quality of life. The central issue is equity in the allocation of costs and the distribution of benefits between and within rural and urban populations.

Nutrition and health are major components of the rural development thrust in terms of ultimate goals as well as means of enhancing the process in pursuit of other development goals. Development contributes to good nutrition and health status through the provision of a wide variety of goods and services to meet the requirements for energy, growth and repair, and protection against diseases.

The principal causes of ill health and mortality in the Caribbean are nutrition-related; directly or indirectly. These diseases include energy-protein malnutrition, anaemia, obesity, heart disease, cardiovascular diseases, diabetes mellitus, diarrhoeal diseases and cancers.

Addressing the problems calls for strategies that impact on the availability and accessibility of safe, wholesome and nutritious foods to all segments of the population and enhance people's knowledge, attitudes and practices in respect to food choices. A diversified rural agriculture is particularly suited to addressing the food needs. The instruments for diversification include:

- (a) Changes in land ownership and tenure, farming systems and marketing arrangements.
- (b) The development of a strong agro-industrial programme based on

domestic production.

- (c) Incorporating nutritional considerations in the design of farming systems and agro-industrial, and food marketing.

Progressive increases in the atmospheric concentration of carbon dioxide and radioactive trace gases within the next four to six decades could undoubtedly influence such agrometeorological variables as temperature, precipitation, humidity, evapotranspiration and soil moisture. Agriculture is, most sensitive to climatic changes and increased temperatures caused by, for example, a doubling of atmospheric carbon dioxide concentration can have severe repercussions for agricultural production.

In the Caribbean basin, where precipitation is the key parameter, it is anticipated that the eastern regions would experience a longer and more severe dry season and thus a greater dependence on irrigation for agriculture. In other areas (west), increases in precipitation are projected especially in the dry season and this would lead to less dependence on irrigation water.

Increases in sea level occasioned by global warming could be disastrous for low lying areas contiguous to coastlines. Agricultural planning in these areas should recognize such imminent possibilities and take the necessary precautions.

(Editor's note: The Proceedings of the 20th West Indies Agricultural Economics Conference will soon be published. *See* Editorial.)