

**NATIONAL DEVELOPMENT STRATEGY  
(2001-2010)**

**A POLICY FRAMEWORK**

**ERADICATING POVERTY AND UNIFYING GUYANA**

**A CIVIL SOCIETY DOCUMENT**

**ANNEX 12**

**NON-TRADITIONAL AGRICULTURE**

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## **The Annexes to the National Development Strategy: An Explanatory Note**

In June 2000, the National Development Strategy (NDS) of Guyana was formally presented to the President of Guyana and the Leader of the Opposition in the form of a core document, a 348 page distillation of the main elements of the analysis of the Guyana situation and the resulting strategy for action drawn from material prepared by 24 sectoral committees of the National Development Strategy Committee (NDSC). While Chapter 1 of the core document provides an outline of the origins of the NDS and the methodology of its preparation, the purpose of the present note is to explain the Annexes to the core document.

The Annexes are edited versions of the original drafts that the sectoral committees prepared, using a format that facilitated systematic thinking, though at the cost of some repetition. They are therefore longer than the corresponding Chapters of the core document, and also differ from them in other ways:

1. While the Annexes were individually edited in terms of their content, in the core document, disagreements or dissonances between Chapters were removed; for example, if the Chapter on the Private Sector proposed a strategy for Education that was in contradiction with a strategy proposed in the Chapter on Education, the two were rationalised.
2. While the core document was updated with the most recent data where possible, the Annexes generally retain their original data; for recent economic and social statistics, the attention of readers is particularly drawn to the recently completed *1999 Guyana Survey of Living Conditions*. In addition, again because of differences in when they were prepared, what was a Bill at the time of the original draft may have become an Act by the time the core document was being edited. This type of difference may be footnoted in the Annexes.
3. The treatment of the Annexes as historical documents occasionally produced another kind of difference, the main example of which is the Annex on Energy which was written before the privatisation of the Guyana Electricity Corporation, and whose strategy was largely preempted by that privatisation; while the edited Annex deliberately relied on the original material, new material was developed for the core document. These differences may also be footnoted.

It is worth noting that the updates found in the core document usually demonstrate the soundness and continued applicability of assessments made on the basis of earlier data or other information.

There are fewer Annexes than there are Chapters in the core document. For various reasons, some sectoral committee drafts were finalised in the same format as the Chapters of the core document, and there would therefore be little difference between the Chapter and the corresponding Annex. (Examples of this are the Macro-Economic Strategies and the Management of the economy; Sugar; Urban Development; Land; Housing; and The Family). The core document also includes Chapters for which there were no corresponding sectoral committee drafts; the first three Chapters of the core document (Origins and Methodology, National Objectives and Governance) are examples.

For those sectors where there are both separate Annexes and core document Chapters, the titles and numbering of the two correspond except in two cases: one, the corresponding Annex for the Chapter on Manufacturing is titled Manufacturing and Technology and includes material on Science and Technology that the core document had placed elsewhere; and two, the corresponding Annex for Chapter 4, Macro-Economic Policy, is Annex 4, Financial Sector Policy, because the material prepared for the Financial Sector Policy Annex was incorporated into the Chapter on Macro-Economic Policy.

The National Development Strategy was published in summarised form (the core document) for the practical reason that few people would have the time to read the over 700 pages represented by the Annexes. Yet the Annexes have a clear value. They include background information and assessments that were too detailed for inclusion in the core document, but which trace the process that shaped the strategy. Above all, they preserve for us and for posterity the earlier thinking, and the full range of thinking, of the women and men whose work provided the foundation of the NDS. In doing so, they honour the labour which the sectoral committees put into distilling their own work and life experience and the views of the public they consulted in the process. It is this foundational material that is now being published, making the National Development Strategy of Guyana available in both summary and extended forms.

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## LIST OF ACRONYMS

AITCC	Agricultural In-Service Training Communication Centre
CARDI	Caribbean Agricultural Research and Development Institute
CXC	Caribbean Examinations Council
FTC	Farmers' Training Centre
GAIBANK	Guyana Agricultural and Industrial Development Bank
GMC	Guyana Marketing Corporation
GRDB	Guyana Rice Development Board
GSA	Guyana School of Agriculture
Ha	Hectares
IICA	Inter-American Institute for Cooperation on Agriculture
INSAP	Intermediate Savannas Agricultural Project
IPED	Institute of Private Enterprise Development
ISED	Institute of Small Enterprise Development
MNS	Ministry of Natural Resources
MOA	Ministry of Agriculture
NARI	National Agricultural Research Institute
NDDP	National Dairy Development Programme
NDS	National Development Strategy
NGMC	"New" Guyana Marketing Corporation
NSSU	National Surveillance Service Unit
NTC	Non-Traditional Crops
REPAHA	Regional Education Programme for Animal Health Assistants

RPA

Rice Producers' Association

SSEE

Secondary School Entrance Examination

# ANNEX 12

## NON-TRADITIONAL AGRICULTURE

### I. Basic Features of the Sector

Non-Traditional Agriculture in Guyana represents that component of the agricultural sector that excludes rice, sugar, forestry and fishing, and is commonly referred to as the "non-traditional crops (NTCs) and livestock sub-sector." A wide range of commodities is produced by the sub-sector for local consumption and export. Crops are classified under the broad headings of ground provisions, vegetables, citrus, fruits (other than citrus), seasonings, oil crops, grain legumes and grains. Livestock categories include dairy and beef cattle, swine, poultry, sheep, goats, wildlife and other livestock (e.g., rabbits and bees).

The major non-traditional crops are the following:

*Cereals and Legumes:* Corn, blackeye, minica and others; *Oilseeds:* Peanut and coconut; *Ground Provisions:* Cassava, sweet potatoes, eddoes, yam, tania/dasheen, plantains; *Vegetables and greens:* Tomatoes, cabbage, pumpkin, bora, ochro, boulanger, squash, cucumber and other vegetables; *Herbs, Spices and Seasonings:* Eschallot, hot pepper, ginger, tumeric and other spices; *Fruits:* Banana, pineapple, pear, carambola and watermelon; *Other Fruits:* Mangoes, genip, cherry, awara; *Citrus:* Lime, grapefruit, orange, other citrus; *Other crops:* Coffee, cocoa and cotton, pasture/forage, ornamentals and floriculture.

Table 12-1 shows that the production of non-traditional crops is geographically distributed across the ten regions but within these regions, concentrated along the coastal belt and the riverain areas, in some enclaves in the intermediate savannahs, and in the townships which border neighbouring countries, holdings are small. The Rural Farm Household Survey showed that 75 percent of the 25,000 farmers in rural coastal Guyana occupied holdings less than six ha and produced a variety of crops and livestock. Acreage under NTCs and livestock was given as 65,000 ha (40,000 ha - crops, 25,000 ha - livestock), with an additional 48,000 ha classified as unused land.<sup>1</sup>

Except for coconut palms, almost all of the fruits, vegetables, legumes and ground provisions are grown by a large number of small farmers across Guyana, while the production of coconut palms by large farmers is concentrated along the coastal regions. Small farmers produce all fruit and most vegetables grown in Guyana, 80 percent of the grain crops, 60 percent of the coconuts, and 40 percent of the palm oil. Governmental enterprises account for the rest of the production of coconuts and palm oil.

Table 12-1

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<sup>1</sup> The 1982 Rural Farm Household Survey is unfortunately the most recent.

Production of Other Crops by Regions in 1994  
(000 pounds)

Regions	Cereals and legumes	Oilseeds	Ground prov., veg. and greens	Spices and Seasonings	Citrus	Other Fruits	Others
1	1,576	7,100	32,215	2,400	905	2,750	1,610
2	409	19,755	6,465	0	2,521	25,200	77,060
3	297	12,298	64,600	1,035	8,985	1,115	23,175
4	163	3,965	16,148	1,892	380	545	1,760
5	177	18,319	6,480	2,629	274	5,760	3,560
6	973	11,330	12,357	2,917	3,695	0	4,441
7	31	100	2,855	0	0	153	560
8	116	10	16,088	0	0	95	0
9	233	165	10,410	0	0	0	0
10	5,402	2,950	0	0	0	0	0
Total	9,377	75,992	167,618	10,873	16,760	35,618	112,166

Source: Ministry of Agriculture

Non-Traditional Agriculture comprises farming systems that are small in scale, use a low level of technology, and are labour-intensive. Subsistence farming, a tendency to stick to traditional agricultural practices, and the lack of supportive services to encourage farmers to adopt improved methodologies for increasing production and productivity, also characterise the sub-sector. Export potential remains relatively untapped. However, the sub-sector's contribution to the livelihood of rural households, national food security, and foreign exchange earnings cannot be regarded as insignificant. Guyana is self-sufficient in vegetables (including root crops and tubers), fruits, beef and mutton. Eggs, poultry and milk production have increased in recent years. Export markets are opening for a wide variety of crops and will gain momentum with the advent of improved marketing arrangements. The cases of pineapple and plantain are especially noteworthy, but there is also a growing awareness of production and export possibilities for many other non-traditional crops.

## II. Policies of the Sub-sector

### A. Past Evolution of Policies

Government economic policies during the early 1970s to the mid 1980s emphasised State intervention with the aim of arriving at food self-sufficiency. The major industries of the country, sugar and bauxite, were nationalised. Private sector investment was stymied by a variety of macro-economic and sectoral policies, including rationing of foreign exchange resulting from unrealistic valuation of the dollar. Price controls characterised price policy in Guyana, supported by direct purchases and sales of produce by the Guyana Marketing Corporation (GMC). These consumer-oriented price policies resulted in low investment and neglect of already existing agricultural enterprises. In the case of the coconut industry,



Government attempted to run the plantations on its own. The portion of agricultural commodities that the country was unable to produce was imported. In addition, most inputs, from agrochemicals to machinery services and credit, were subsidised. These policy orientations proved to be counterproductive, and the situation was exacerbated by adverse trends in the external terms of trade. The consequent decline of the economy is well-known.

In spite of the economic difficulties during the 1970s and 1980s, agricultural development projects for special commodities or in specific areas were instituted to bolster activity in the sector. These included the Black Bush Polder Irrigation Project, the East Coast Essequibo Development Project, the Coconut Rehabilitation and Small Farm Development Project, the Integrated Food Crop Development Programme, and the National Dairy Development Programme. Independent agencies were formed to manage these programmes, which were aimed at increasing production from private farmers through the provision of support in land acquisition, infrastructural development and subsidised services. These policies had an immediate impact despite implementation problems, as they contained strong incentives for farmers.

In 1988, the direction of the economy began to be steered by structural adjustment measures carried out by Government: lifting of bans on food imports, privatisation of some public assets, elimination of price controls, introduction of private sector management into the sugar industry, reduction or elimination of the import licensing and import tariffs on agricultural inputs, and establishment of a floating exchange rate for the local currency. This led to a resurgence of private initiative throughout the economy.

## **B. Current Policies**

Government's current policy is to support initiatives that increase the earnings from traditional exports (sugar and rice), while encouraging production of domestic food commodities and non-traditional exports. The private sector will be the main engine of growth, but Government will attempt to ensure that all publicly-owned infrastructure and facilities are operated efficiently. The Ministry of Agriculture has given priority to upgrading nurseries, strengthening the research, extension and marketing systems, and improving access to land for agricultural development. Within the past two years, emphasis has been placed on improving drainage and irrigation systems, farm to market roads, and market sites and wharves. Much is still to be done in these and other areas, and the unreliable electricity supply and lack of potable water are of major concern.

Land availability will continue to be a problem in view of the resurgence of rice activity, and the future development of NTCs and livestock seems to lie in those coastal areas farther south of the presently cultivated strip, as well as in the intermediate savannahs. The focus on the development of such areas invites research and development activities as well as appropriate investments in infrastructure for production, agro-processing and marketing. Market research and information systems will also need to be in place for derivation of sustainable and environmentally sound agricultural production systems for commercial agriculture.

The NTCs and livestock sub-sector can contribute significantly to the overall economy. Efforts must continue to increase production, reduce price fluctuations and increase consumption

of specific items. Moreover, the ultimate goal should be to improve the livelihood of the farmers involved in non-traditional agriculture. Exports and agro-industry must increase, and the sub-sector deserves comprehensive policy guidelines which will cater for the following overall objectives and needs:

- increases in producers' incomes
- risk reduction
- market expansion
- technological advancement
- collation and dissemination of information on markets
- infrastructural improvement
- education and training
- promotion of farmers organisations/community groups
- financial support services

Government must develop a more detailed programme for NTCs and livestock, parallel to that established for rice and sugar.

### **III. Issues and Constraints**

#### **A. Broader Issues and Constraints**

##### 1. Land and Infrastructure

The administration of State lands is inefficient, leading to frustration of farmers' efforts to obtain information on leases and the availability of unutilised idle land, and to imprecision in the identification of boundaries. There is also no clear demarcation of which land falls under the jurisdictions of the Lands and Surveys Department, the Geology and Mines Commission, and the Forestry Commission.

There is growing competition for available land among traditional crops, NTCs, livestock, and housing and industrial land development. Moreover, many lands now used by NTCs and livestock are constrained by a lack of maintained infrastructure and access. Historical layouts of drainage and irrigation infrastructure are consistent with what is required for rice and sugar but are not necessarily appropriate for economic production of NTCs and livestock. Yet Government has not made the necessary modifications to the infrastructure on the land, even in cases where farmers wish to concentrate on NTCs and livestock.

##### 2. Extension Services, Research and Development

Extension services and research and development work in agriculture are under the jurisdictions of the Ministry of Agriculture, semi-autonomous State agencies, input suppliers and regional and international agencies. Limited funding, staff shortages, and infrequent meetings of personnel impede collaboration and coordination. Research is sometimes unrelated to farmers' needs and spread out over a wide range of crops in diverse geographical zones.

The sub-sector is not structured along lines similar to those developed for rice and sugar. As a result, incentive packages and specific programmes for some components of the industry have been neglected.

The extension services of the Ministry of Agriculture (MOA) cannot function optimally due to staff shortages (estimated at 70 percent), lack of transportation, awkward accounting arrangements for payment of salaries, reimbursements and allowances, and low salaries. Due to these constraints, the 1994 Extension Services Programme could achieve only 50 percent of its targeted regional visits and 30 percent of its in-service training, and all regional training sessions were cancelled in that year.

### 3. Socio-Cultural and Economic Constraints

The issues in this area are praedial larceny, a high incidence of migration, especially of youths, from rural to urban areas, and gender discrimination.

#### 4. Marketing

##### a. Market transparency

Production of NTCs and livestock is not guided effectively by market intelligence services. Seasonality of export demand, weather patterns, and input price fluctuations create a very unstable supply of produce, ranging from gluts to scarcity. Input availability, soil types, farmers' experiences and perceived demand govern production levels and farmers' choices of commodities. There is poor organisation among farmers at local and national levels, and hence little exchange of experiences on these crops and no coordinated effort to obtain information on external markets.

There have been some attempts by the NGMC to improve Market Intelligence Services relative to the local market. With the use of the Price Board and the main regional markets, as well as the collection and dissemination of weekly wholesale price averages through the public media, some information has filtered to the rural farming communities. Efforts have also been made to disseminate world market prices from MNS-Switzerland.

Concerted efforts must however be made to improve organisation among farmers, in order to ensure a more coordinated approach to accessing market opportunities.

##### b. Transportation

Inadequate transportation infrastructure and poor transportation services are a major impediment to the marketing of agricultural products within and out of Guyana. Poor transportation services contribute to the wide spread between ex-farm and retail prices. Riverain producers and consumers are subject to very limited transportation linkages. Water and road transport are unreliable and high-priced. Local roads are in a condition of disrepair.

Exporters are seriously inconvenienced due to bad port facilities, limited cargo space, and the frequent need for transshipment of goods through Trinidad and Tobago.

c. Storage and handling

The very unreliable power and potable water supplies are major causes of post-harvest losses and a serious constraint to the development of milk pasteurisation units and meat storage facilities. The country has a paucity of trained cadres in post-harvest technology and very few entrepreneurs in agro-processing. A high percentage of wastage results, and less than one percent of total production is exported. The six established wholesale marketing centres (except Black Bush Polder) have been sidelined by private initiatives and local retail markets (34 municipal and 36 roadside), and they are poorly serviced with basic amenities.

d. Market Information

Since essential marketing linkages (local and overseas) are limited, knowledge on existing trends in prices and demand and supply situations is restricted. Information (on existing acreages, cost of production, seasonality, etc.) required by farmers for planning purposes is poorly collated.

e. Product Standards

There is growing concern about the improper handling of foods in production, manufacturing, transportation, storage and other stages in the farm-to-market chain. The health and nutritional status of the population is affected by contamination, adulteration, or the presence of industrial pollutants, environmental contaminants, toxins and chemical residues in the food consumed. The Government Analyst's Department, faced with several constraints (finances, laboratory facilities, staff), cannot effectively oversee all stages of food production, and the staff of that department seems to concentrate its activities on the microbiological surveillance of retailed food.

A Pesticides and Toxic Chemical Control Bill, which addresses legislation for chemicals entering Guyana, is pending Cabinet approval<sup>2</sup>. The presence of chemical residues in food, however, is not fully addressed in that Bill and should be dealt with in additional legislation.

Legislation to ensure adherence to standards for inputs used by the sub-sector is also not enforced. There are several anomalies associated with foreign language labels, defective machinery, parts and tools, low quality or expired drugs, and incomplete or unclear manufacturers' instructions.

## 5. Credit and Investment

The highly risky nature of agricultural production in an environment that is not supportive of its development (poor extension services, low level technologies of production, praedial larceny, droughts and floods, poor infrastructure, land tenure insecurities, lack of collateral, etc.) is not conducive to the procurement of lines of credit. Lending agencies do not seek out business in rural districts and are truly ignorant of farmers' financial needs. A failing of

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<sup>2</sup> The Act has since been passed.

the two major agricultural lending agencies (GAIBANK and ISED), in the past, is that they did not seek to recover funds expeditiously from defaulters, an approach which helped to create a poor credit servicing mentality in rural areas and in turn, to increase the difficulties farmers face in obtaining new credit.

Prospective investors in NTCs and livestock have been unable to fulfill the conditionalities of their creditors, and have been discouraged by unattractive terms for financing. Misleading investment guidelines and favoured treatment to foreign investors further exacerbate the investors' dilemma. Tax evasions and nonpayment of duties are prevalent in the system.

#### 6. Rural Development Centres and Agricultural Cooperatives

Many difficulties encountered by farmers producing NTCs and livestock stem from their lack of cohesiveness as a group and their inability to be heard as a single voice. Little emphasis is placed on the formation of community groups. Cooperatives have died because of a lack of political will and vibrancy among their membership.

#### 7. Labour and Other Inputs

For the most part, over the years, agricultural labour has moved into the rice, logging and sugar sub-sectors, or totally out of agriculture. The difficulties that farmers experience in obtaining basic inputs (particularly from overseas) and the low prevailing income levels are disincentives to the development of the subsector.

#### 8. Education and Training

##### a. Youth

Although agriculture is a major contributor to the economy of Guyana, youth awareness about agriculture is not considered a priority in the primary school educational curriculum. The teaching of agriculture in primary schools was catered for by the fifth component of the SSEE syllabus, but this was discontinued in the early 1980s due to financial and staffing constraints. At the secondary school level, Agricultural Science is offered at CXC. Over the last three years, 11 percent of all CXC entrants wrote the examination, with an overall pass rate of 36 percent.

The MOA, through its Youth Development Programme, carried out just eight agricultural training activities in 1994, mainly in the rural districts. The unit cites lack of transportation, audiovisual aids, finances, and trained staff among its many constraints to better functioning.

##### b. Adult

Pre- and post-service training in agriculture are provided by the Faculties of Agriculture and Education of the University of Guyana, the Guyana School of Agriculture (GSA), the Regional Educational Programme for Animal Health Assistants (REPAHA), the Agricultural In-Service Training Communication Centre (AITCC), MOA and NARI. Some constraints to their effectiveness are a shortage of teaching instruments, an absence of programmes to meet developmental needs, underpaid staff, an insufficient complement of skilled teachers, and limited funding. The lack of interest of young persons in agriculture has resulted in a lowering of the

matriculation requirements of tertiary education institutions. The end result is under-qualified and poorly trained graduates, unable to function in the farming communities to which they are later exposed.

c. Continuous farmer training

Apart from the Dairy Training Centre at the St. Stanislaus College farm, there is no teaching institute established specifically for training farmers, and the producing community has no established linkage for further training beyond what is minimally carried out by the Extension Services and the NGMC.

**B. Specific Issues and Constraints**

1. Crops

Guyana is virtually self-sufficient in all crops except spices and legumes. In recent years, vegetable production has increased while production of forage, fruit, and root crops has dropped. The agri-business and agro-industrial development of the sub-sector is in the hands of small, limited-resource independent operators, and the supply chain is characterised by low productivity, high post-harvest losses, high prices to consumers and praedial larceny. Nonetheless, the sector provides sustenance to the rural poor, most of whom are self-employed in agriculture or workers in the rice and sugar industries, both of which are seasonal.

Export volumes of non-traditional crops have increased through the initiatives of small traders rather than through organised and adequately financed operations. Poor water management; a lack of updated information on cropping, farm management and agro-processing techniques; limited access to credit; and deteriorated feeder roads are all important constraints to sub-sector growth.

a. Agronomic Practices

Most of the crop farmers in Guyana are involved in mixed crop farming. Agronomic practices developed over the years are consistent with systems of low-level technological packages. The lack of effective extension services, and the limited availability of inputs and their high costs (quality planting material, fertilizers, pesticides, machinery) in a risky activity without assured markets, militate against the adoption of technically sound agronomic methods in crop production.

Technological packages should concentrate on environmentally-friendly tilling methods and on counteracting soil toxicity.

b. Germplasm Supply

Governmental and private agencies carry out germplasm production. The MOA has nine established nurseries administered through the Nursery Rehabilitation Programme, which supply citrus, avocados and other fruit plants. These nurseries are unable to satisfy demand for plants, and apart from using old stock, are in need of infrastructural rehabilitation. This problem is

being addressed and IICA is providing the technical assistance to the contractors who will repair the nurseries.

The National Seed Programme has a well-defined Seed Policy and Seed Programme and is progressing favourably. Vegetable and legume seeds are respectively produced at the MOA's Seed Technology Unit, Mon Repos and at Ebini (through a collaborative CARDI/NARI programme). Grain legume production has been given more research attention than vegetable seed production, and certification of seed, seed marketing and extension are areas that still need to be more comprehensively addressed.

NARI's tissue culture programme supplies plantain, pineapple, yam, cassava, sweet potato and bora plantlets. The hardening of these plantlets at nurseries prior to sale is not yet practised.

Private nurseries and imported seed are now contributing to germplasm supply, but there is much scope for expansion.

#### c. Plant Protection and Quarantine Services

The inadequate monitoring of ports places the country's agriculture at risk. Guyana's plant health capabilities are poor, and as such, the country is unable to make definitive statements on the incidence of pests and diseases. This affects the ability to export.

The Quarantine Services office has no authority to withhold a consignment after Customs' clearance. Very often, because of the ignorance of the staff of the Customs Department, importers are allowed to clear agricultural products without import licences, phytosanitation certificates or inspections from Plant Quarantine Officers. The relevant officials must be informed about international Trade Regulatory Mechanisms already in place or imminent.

The country has no facilities for bulk treatment of fruits and vegetables earmarked for export.

## 2. Livestock

Guyana is "self-sufficient" in all animal products except milk and poultry.<sup>3</sup> Milk and poultry production have, however, increased over the years and were at 8.75 million gallons and 13.7 million lbs. in 1994, respectively. The production responses in the milk industry can be attributed to Government's intervention through the creation of the National Dairy Development Programme (NDDP) in 1984 (milk production was then at 2.8 million gallons), and the removal of consumption taxes and duties on inputs into the poultry industry in 1991/1992 (production was then at 3.1 million lbs.). Despite these initiatives, livestock production in Guyana is way

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<sup>3</sup>Self sufficiency here means that we do not import these products, and not necessarily that we meet consumption needs.

below its potential capacity. The industry requires a well-coordinated infusion of support services to sustain and increase production, and ultimately to capture export markets. Low-level technology applications prevail in the subsector, and farmers (particularly pig and small ruminants producers) are operating at subsistence levels constrained by several factors.

a. Nutrition

Liveweight gains, milk production and reproductive performance of all livestock classes are sub-optimal because of inadequate nutritional programmes. Feeding of livestock in Guyana is affected by feed supply (both in terms of quantity and quality) and by lack of application of the basic principles of animal nutrition.

The supply of readily available energy-based feeds, rice bran and wheat middlings, has been reduced abruptly by preferential export markets for cargo rice and unlimited imports of processed flour. Rice bran requirements per annum for the estimated 160,000 livestock units of cattle and 10,000,000 pounds of poultry are 27,580 tonnes,<sup>4</sup> an amount that far exceeds the local production of 7,500 tonnes.

Protein feeds are imported at high costs, contributing to the elevated prices for poultry and pork.

Ruminant producers continue to compete with traditional crop farmers for available land for pasturage.

b. Animal Health

The country's livestock population is relatively disease-free except for endo- and ectoparasitic burdens and their associated diseases (*babesiosis* and *anaplasmosis*). Tuberculosis in cattle has been identified in some enclaves, and the country has not been declared free of foot-and-mouth disease although it has not occurred since 1976. Poultry producers have been experiencing undiagnosed conditions of respiratory ailments and nervous (tremor) syndromes. Pigs and small ruminants continue to be affected by endo-parasitic burdens that have not been evaluated.

The veterinary services offered by MOA are very poorly supported, and veterinarians are incapable of carrying out their functions because of lack of transportation, drugs, equipment and facilities. A case in point is the inability to carry out the Bovine Tuberculosis Eradication Programme because transportation is inadequate.

c. Genetic Improvement

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<sup>4</sup>Calculated at 1lb./livestock unit/day, and 10 percent of diet for poultry with a food conversion ratio of 2:3.



There are no specialised breeding programmes in place, except for cattle via the National Dairy Development Programme's Artificial Insemination Service, which uses imported frozen semen from improved beef and dairy breeds. In due course, regional stud (breeding) stations must be established to continue this programme, using locally-produced semen.

For sheep, CARDI has initiated some work on multiplying the Barbados Blackbelly, stabilising the Corentyne White, and acquiring other suitable breeds.

Poultry and swine breeding are *ad hoc*, and consist mainly of a selection process, while introduction of new breeds for these classes of livestock is at a standstill.

For all types of livestock, financial constraints and lack of physical facilities inhibit progress in animal breeding in relation to acquiring germplasm for tropically-adapted breeds from overseas, and establishing evaluation programmes.

There is no monitoring agency to document and evaluate what is occurring in the field, though it is known that farmers are experimenting with breeding based on their own preferences and experiences.

#### d. Management

The constraints highlighted under the paragraphs relating to nutrition, health and genetic improvement show the low level of management practices in livestock rearing. Poultry and pig rearing are basically intensive, while cattle, sheep and goats graze extensively in very diverse management systems. Ruminant livestock are generally considered as a family asset only to be drawn upon as the need arises and not to be developed economically. Farmers do not venture to find markets for their meat animals, but will sell when approached by butchers and middlemen. Poultry farmers tend to plan for the immediate future and frequently make market predictions that lead to economic losses and cause serious disruptions in supply. New approaches to integrated farming practices have not caught on with the farming community, despite the fact that many small producers have both livestock and crops on their farmsteads. Often, one activity will be undertaken to the detriment of the other, (e.g., rice and cattle).

## IV. Sectoral Objectives

Non-traditional crops are generally quite labour-intensive and, when exported, rank very highly as foreign exchange savers and earners. To date, they represent a significant unrealised potential for Guyana. Equally important economic opportunities lie in the agro-processing of non-traditional crops and livestock. The overall objective of policy in this sector is to increase the rate of growth of its output, in the knowledge that this will mean important increases in rural incomes, employment and foreign exchange earnings, and reductions in rural poverty.

To fulfill this overall goal a number of broad objectives and more specific supporting objectives must be met. Both are set out below.

### A. Broader Objectives

1. Land and Infrastructure

a. To provide prospective and present farmers engaged in NTCs and livestock with information on land by improving the efficiency of land administration, thereby reducing the time taken between registering interest in and the acquisition of land.

b. To increase the acreage available to the farmers, improve the accessibility of available coastal lands and the intermediate savannahs, and ensure a more diversified agricultural economy through a liberalised leasehold policy and inclusion of non-traditional crops in the planning of land development schemes.

c. To implement all of the recommendations of the National Development Strategy (NDS) concerning reforms in agricultural land policy, taking forestry development into consideration (see Chapter 22, Core Document).

2. Extension Services, Research and Development

a. To improve emoluments for Government-paid staff, and equip research, extension and development agencies with facilities that will allow for full execution of their roles and functions in meeting the needs of producers.

b. To formalise a coordinated programme that makes optimal use of human and physical resources to provide adequate support services to agriculture, taking into account the particular needs of non-traditional crops and livestock.

c. In general, to implement the recommendations for institutional reform in Annex 11 of the National Development Strategy.

3. Marketing

a. To encourage more regular supplies of commodities, thus helping to stabilise prices.

b. To make the physical flow of produce from one point to another more efficient, thus reducing price differentials between the producer and consumer levels.

c. To provide a physical environment conducive to better storage, handling and processing of NTCs and animal products.

d. To ensure that producers have speedy access to information on technologies of production and marketing opportunities.

e. To cater for product development and promotion, and to deal with equivalence problems.

f. To provide consumers with quality products that are free of disease and contaminants (chemical or otherwise), and to ensure that inputs are properly labelled in keeping with approved standards.

4. Credit and Investment

- a. To make available credit more accessible and to have loans serviced more effectively.
- b. To encourage new investment into the sub-sector.

5. Rural Development Centres and Agricultural Cooperatives

To unify the producers of NTCs and livestock into interest groups, and to foster the activism of these groups in close association with the extension and research service and development agencies.

6. Labour and Other Inputs

To attract labour, increase the flow of other inputs into the subsector, and ensure increased production and productivity.

7. Education and Training

- a. To develop a positive attitude towards agriculture and agricultural careers among our youth.
- b. To capitalise on early agriculture awareness and interest, by providing high-standard institutions for tertiary education which can attract students of high calibre from Guyana and other Caribbean territories.
- c. To establish a Farmers= Training Centre (FTC).

**B. Specific Objectives**

1. Crops

a. Agronomic Practices

To develop improved systems for increased production and productivity through research, and to transfer these new technologies to crop farmers effectively.

b. Germplasm Supply

To see that farmers are provided with adequate quantities of quality seed and planting material at the appropriate place and time, and at an affordable price.

c. Plant Protection and Quarantine Services

To strengthen the plant health and quarantine services to ensure the identification, control and eradication of pests and diseases existing in Guyana and the prevention of entry of new pests and diseases into the country.

2. Livestock

a. Nutrition

- (i) To increase the production of animal feeds.
- (ii) To employ proven and relevant animal nutrition principles in the rearing of livestock for optimal growth, reproduction and milk production.

b. Animal Health

- (i) To gain a greater understanding of the health status of the various classes of livestock in Guyana.
- (ii) To obtain veterinary clearance on foot-and-mouth disease.
- (iii) To strengthen the veterinary division of the Ministry of Agriculture.

c. Genetic Improvement

To progressively improve the quality of the national herds.

d. Management

To encourage farmers to treat their livestock holdings as a business entity, and adopt management practices that will yield more attractive profits.

e. Institutional Strengthening

To widen the scope and improve the quality of livestock.

## **V. The Strategy**

### **A. Land and Infrastructure**

1. The Lands and Surveys Department will be strengthened via better emoluments, equipment, staff and training in order to bring about improvements in the following areas:

- a. distribution of State lands based on improved surveying capability and decision-making processes.
- b. coordination of land use with other land management agencies.

- c. efficiency of services to farmers relating to access to information, surveying needs, valuation, etc.
- d. guidance on land usage based on land capability studies.
- e. land auction, tender processes and land development.
- f. specific targeting of the Intermediate and Rupununi Savannahs.

Leasing arrangements will be reviewed to allow for longer, transferable leases that will better serve as collateral, and the institutional impediments to land rental will be removed. The National Development Strategy develops a full set of recommendations related to land policy (See Chapter 22, Core Document).

- 2. Policies will also be directed at forming participatory programmes for:
  - a. operation and maintenance of drainage and irrigation schemes.
  - b. development and maintenance of feeder roads and dams.

#### **B. Extension Services, Research and Development**

1. Working conditions and emoluments will be improved to make them competitive with those of the private sector.

2. An information centre will be created to facilitate collection, storage and retrieval of agricultural information (with NARI as headquarters). The use of media in communications will be increased and through computerisation encouraged.

3. Research and development studies will be concentrated in selected commodities and in geographically delineated zones. Selection of the commodities will be based on production potential and marketability, e.g., coconuts, pineapple, passion fruit, peppers. Research will be a function of the ongoing needs of the developing sub-sector. In farm mechanisation, labour saving systems will be developed. Agro-processors will be encouraged in their initiatives by timely responses to their concerns. Post-harvest losses will be addressed. Producers will be guided on selection of plant or animal germplasm, and agronomic/husbandry practices suitable to their operations.

4. Private sector involvement in agricultural extension will be facilitated. In agro-processing ventures, manufacturers will be encouraged to invest in providing extension services to producers of primary products and suppliers of inputs (fertilizers, pesticides, machinery, veterinary drugs, etc.) to invest in extension services to promote their products.

5. The use of scarce manpower resources will be optimised at both community and national levels, thus involving farmers themselves in the extension effort.

6. The National Science Research Council will be resuscitated, comprising heads of agricultural agencies and institutions, to ensure collaboration and exchange of ideas on a regular basis. An organisational structure that fully considers provision of support services to agricultural production will be created. NARI is suggested as the repository of scientific research, equipped with the staff and facilities to support the developmental and production agencies (NGMC, NDDP) directly linked to the producers. The establishment of new agencies or the strengthening of existing agencies will be needed, so that previously neglected sub-components (e.g., poultry, pigs, planting material) can now be addressed.

7. A National Livestock Development Agency will be established, similar in structure and function to the semi-autonomous NDDP, and incorporating the NDDP as well as development programmes pertaining to small ruminants (sheep and goats), swine, apiculture, rabbits and farmable wildlife (e.g. alligators, iguana, deer, etc.).

See also the recommendations regarding research and extension activities in Annex 11 of this Strategy.

### **C. Marketing**

1. An advisory services agency (possibly the NGMC) that is fully aware of market opportunities and informs farmers of these opportunities on a timely basis will be established. The agency will also help producers find inputs and obtain access to markets, direct farmers' concerns to relevant agencies, and establish a computerised information network with linkages to overseas markets. The encouragement of agro-processing as the thrust for the future will be the focus of this agency.

2. The Transport and Harbours Department will regularise and increase its services across the main waterways. Improved airline linkages to overseas markets will be negotiated. Private sector involvement in the provision of reliable road and water transport will be encouraged. Government will continue to prioritise its road repair programme in the rural districts. See the more complete set of recommendations in this regard in Annex 8 of this Strategy.

3. In the area of basic infrastructure, Government will ensure electrification and potable water supplies to the rural districts.

4. Government will train more individuals in post-harvest technology. It will revisit the concept of marketing centres, and the management of the municipal markets will upgrade facilities for weighing, storage, sanitation, communication, banking, parking, rate collection, etc., in an all-encompassing effort to provide more adequate service to buyers and sellers. Ways to involve the private sector in the management of marketing centres will be explored.

5. The Bureau of Standards and the Analyst's Department, in collaboration with the private sector and consumer-based agencies, will be encouraged to work together to establish a framework that guarantees the quality and safety of food. Legislation provided by the Food and Drug Act of Guyana will be updated to conform with international standards for chemical and disease-free food (fresh and processed).

6. More attention will be paid to the area of input standards, and legislation to control the influx of defective goods and enforce punitive action against defaulters will be established.

7. In keeping with the Government's philosophy of ABuy Local, an aggressive anti-import education campaign will be pursued, supported by measures that subtly or overtly constrain importation while actively promoting local products.

#### **D. Credit and Investment**

1. Credit agencies will be sensitised to farmers' financial requirements by extending their outreach programmes into the rural communities. This will be fostered by the Rural Development Centres and Agricultural Cooperatives network, which will assist its membership in preparing proposals. The credit agencies will also introduce small loan schemes for farmers without collateral, for example, group lending.

2. Relevant agencies will collaboratively establish a clearly-defined and comprehensive policy that helps investors obtain accurate and complete information about taxation, duties, concessions, land acquisition and financing. An investors' guide with a procedural flow of activities from planning to implementation will be produced by GOINVEST.

3. See also the recommendations on agricultural finance in Annex 11.

#### **E. Rural Development Centres and Agricultural Cooperatives**

1. The NDDP has made a positive step by registering all cattle owners in Guyana and unifying them in village groups, regional associations and national congresses. A similar arrangement exists for the rice farmers via the RPA, with the GRDB acting as a regulatory body. This type of organisation will be encouraged for the NTCs and other livestock producers, with support from the NGMC, IICA, CARDI, and the Extension Division of the Ministry of Agriculture.

2. Agricultural cooperatives will be revamped to encourage the formation of self-help societies whose aim is to improve the economic welfare of their members through planning and management. Government will support these groups via direct contracts for supplying food to Government-managed institutions and feeding programmes for schools and the needy.

3. Agricultural fairs, competitions, and exhibitions will be revitalised to awaken the spirit of the communities.

#### **F. Labour and Other Inputs**

1. Movement of labour into the sub-sector will take place only if there is a perception that the sub-sector can provide profits and an improved quality of life. To achieve this, rural development centres and agricultural cooperatives will be part of a multidimensional approach to creating an environment that supports community development.

2. Private sector involvement in the provision of inputs will be encouraged through the developing of contract farming options, which allow the producer to concentrate all his or her efforts on production while being furnished with the necessary materials.

3. Government and private investors will foster the creation of machinery pools and fabrication units to cater for the mechanisation needs of farmers.

4. Policies will be implemented to reduce bureaucratic procedures in the acquisition of imported inputs.

5. Government will take active steps to encourage reputable international fruit marketing firms to come to Guyana and enter into contract farming.

### **G. Education and Training**

1. Agriculture will be re-introduced into the primary school curriculum. The poor perception of agriculture has to be changed by a fundamental approach that is introduced early in life at the primary level, with much emphasis on practical agriculture through 4-H Club-type activity. This will set the stage for higher interest at the secondary level and remove the stigma that negatively influences on agricultural development.

2. Scholarships, bursaries, students= loans and guaranteed employment will be used to attract a better quality of student to tertiary training institutes.

3. Learning institutions will be better equipped with teaching instruments - laboratories, audiovisual aids, experimental plots and cages, and greenhouses. Improved working conditions and salaries will be provided to attract a higher calibre of teaching staff.

4. The teaching of practical agriculture will be emphasised (apprenticeships, vacation assignments, field trips, and research assignments).

5. The promotion of agriculture as both a technically feasible and economically viable business venture will be emphasised in the curricula of our teaching institutions.

6. The mandate of the FTC will be to promote awareness of technology advancement and educate farmers continuously on developments in agriculture. The FTC will cater for residential courses and be equipped with audiovisual and publishing facilities for production of films, radio programmes and newsletters that can be disseminated through the media.

### **H. Agronomic Practices**

1. The Crop Improvement Programme and the Extension Service units of the MOA, in collaboration with research agencies, will create programmes that are applicable to existing farming conditions and consistent with the varying levels of farmers' economic resources. Priority will be placed on developing agronomic programmes for crop varieties that have assured markets (particularly export markets). Cropping systems that allow for continuous supply of those food crops that are traditionally seasonal will also be given particular attention.



2. Water management, control of weeds, pests and diseases, fertilizer application and soil fertility, land preparation, planting methods, harvesting, and crop suitability for various ecological and climatic zones will be specifically considered.

3. The concept of biological methods within an integrated pest management strategy will be considered, emphasising environmental considerations.

#### **I. Germplasm Supply**

1. Government will introduce a programme for achieving self-sufficiency in local germplasm supply, addressing the issues of collection, characterisation, certification and varietal improvement. If importation must continue in the short run, strict guidelines for quality standards, adaptability and phytosanitation will be introduced. The promotion of germplasm collection and storage of crop types specific to Guyana, which are characterised as 'exotics', will also be highlighted.

2. Supplying germplasm has an enormous potential for cost recovery. Government will aim at removing subsidies in this venture, a measure which may cause farmers to be more careful in the handling and care of purchased planting material.

#### **J. Plant Protection and Quarantine Services**

1. A survey on the main pests and diseases affecting local crops will be conducted.

2. Programmes to control, prevent and eradicate major pests and diseases identified in the survey will be developed. Help will be solicited from international agencies in developing a cooperative programme between the relevant agencies (Customs, Plant Quarantine Services, research and developmental agencies) to ensure execution of functions and success of the programme.

3. Workshops on critical pest and disease problems will be organised and crop farmers will be informed about their incidence, locations, and control methods on a timely basis.

4. Plant quarantine staff will be strengthened, trained and equipped. Plant quarantine laws will be revised to provide greater authority to officers in the execution of duties, and new surveillance points will be opened on the country's borders to restrict the entry of pests and diseases.

5. A National Surveillance Service Unit (NSSU) will be established.

#### **K. International Cooperation**

The Government will seek continuing international cooperation in the field of non-traditional crops and livestock. IICA's programme has been a particularly encouraging example in this regard.

## L. Livestock

### 1. Nutrition

#### a. Feed Supplies

- (i) *Energy-based Feeds* - The production of alternative energy feeds (low quality rice, corn, sorghum, or cassava) to counteract the decline in the supply of rice and wheat by-products will be pursued. Private investment will be encouraged, and government will direct the proceeds from rice export levies into infrastructural development for such production.
- (ii) *Protein Feeds* - A rendering plant to produce high-protein meat meals from the quantities of fish, poultry, swine and ruminant processing wastes that are presently discarded will be encouraged.
- (iii) *Pasturage* - The estimated 270,000 head cattle, 300,000 head sheep and 150,000 head goat populations of Guyana require 200,000 acres (90,000 ha) of pasture to support them adequately. Efforts will be made to improve the productivity of the saline soils to the north, and the acid soils farther inland that are presently available for coastal livestock rearing.
- (iv) Research will continue on developing nutritious forage species adaptable to soil conditions, and land use capability studies will seek to determine the most appropriate areas for livestock rearing.

#### b. Education

An animal nutrition project that aims at educating farmers on correct feeding principles will collaboratively be undertaken by all relevant agencies (MOA, NDDP, CARDI and IICA). Classroom and practical training sessions are necessary to create awareness and eradicate the many misguided and uneconomical practices prevailing, and in this regard, ongoing extension programmes will be vital.

### 2. Animal Health

1. The Veterinary Laboratory at Mon Repos will be rehabilitated to provide all the services needed for disease surveillance and laboratory diagnostics. Diseases of immediate concern are tuberculosis, bovine paralytic rabies and brucellosis, since clinical evidence points to their presence in Guyana. The laboratory staff will also be involved in disease eradication programmes and in developing systems of herd health prophylaxis. Clients will be charged for services.

2. Clearance for the export of beef from Guyana hinges on proper abattoir facilities, a functional diagnostic laboratory, and well-equipped field veterinarians. Government will seek to put these facilities in place and initiate beef exports. Increased rates for slaughtering will

provide the finances necessary to ensure adequate conditions at the abattoirs and to maintain inspection programmes.

3. The Government will improve the emoluments of veterinary staff, and provide transportation and facilities to allow them to execute their functions. Charges for drugs and surgical procedures will contribute to cost recovery. Core funding, however, will remain the responsibility of the Ministry of Agriculture.

A survey of the health status of all livestock in Guyana will be undertaken as a priority measure.

### 3. Genetic Improvement

1. The livestock development programme for Guyana will include an Animal Breeding Unit, under the jurisdiction of the Government. The Unit will support itself by the sale of breeding stock, charges for artificial insemination, and donor-financed projects.

2. It is important that breeds be fully identified, breed performances be evaluated, and cross-breeding programmes be established to derive optimal performance parameters. In sheep, the Corentyne white breed has shown superiority on empirical evidence. A complete study will be carried out to measure all technical performance parameters of this breed. Other proven tropical breeds for sheep, goat and pigs will be introduced to upgrade local performances and studies will be made to evaluate their performance. In addition, tropically adapted breeds will be introduced into a national breeding programme.

### 4. Management

Extension services must be fully functional and integrated to obtain any improvement in farm management practices. Proven management packages tested for practical applicability and financial feasibility will be provided to farmers for adoption. Integrated farming systems will be encouraged, to allow farmers to market produce and be self-sufficient in their household requirements for meat, milk and vegetables.

### 5. Livestock Research

The following areas of livestock research will be emphasised: on-farm management systems; nutrition, especially mineral/trace element requirements and the use of chemical growth and production enhancers; reproductive physiology; applied breeding and genetics; livestock diseases, especially as they relate to endo- and ecto- parasitisms; the sociology of farming groups; the post-harvest storage and shelf life of product; the use of antibiotics and anti-parasitic drugs and the development of resistance to them; the environmental impact of production systems; and production methods and their relation to inhumane animal stress.

