

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

A POLICY FRAMEWORK

ERADICATING POVERTY AND UNIFYING GUYANA

A CIVIL SOCIETY DOCUMENT

ANNEX 17

MANUFACTURING AND TECHNOLOGY

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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 The treatment of the Annexes as historical documents occasionally produced another kind of difference, the main example of which is the Annex on Energy which was written before the privatisation of the Guyana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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ANNEX 17

MANUFACTURING AND TECHNOLOGY

I. Basic Features Of The Sector

A. Background

Current economic theory and practice recognise that the progress of a country's development directly correlates with expansion in the privately-driven manufacturing and agro-processing sector. Growth in the latter results in sharp increases in output and labour productivity as a result of deeper backward and forward linkages. In turn, employment creation effects of the manufacturing and agro-processing sector positively influence the pattern of ownership of income and wealth, and thus weaken the factors militating in favour of endemic poverty. Hence, in the pursuit of prosperity, most countries tend to highlight a policy for the rapid expansion of the manufacturing and agro-processing sector.

For the process to be most rapid and to have the greatest impact, certain conditions must be satisfied, among the most significant being:

- coherence between macroeconomic policy and sector strategy;
- promotional reliance on the private sector;
- supportive infrastructure;
- augmentation of labour force skills through training;
- an enabling legal environment;
- appropriate financial, fiscal and monetary instruments, and
- strengthened institutions.

These interacting factors, along with the progressive elimination of preferential arrangements and other barriers, are critical to but not sufficient for the definition of a workable, demand-driven manufacturing and agro-processing policy framework. The sector progresses best in an open, competitive market in which investment decisions are based on dynamic comparative advantages.

Manufacturing and agro-processing are together defined in this National Development Strategy as the application of technical knowledge and processing equipment, in alliance with capital and labour, to the transformation of locally-available or imported raw materials and/or intermediate inputs into final or intermediate products for the domestic and/or export markets. These include agricultural (marine, forestry, livestock, crops), industrial and mineral materials.

Guyana's manufacturing and agro-processing sector developed against a background of official policy and mechanisms designed to encourage the establishment of light industries for import

substitution in the late 1950s and early 1960s. Production by essentially small-scale enterprises was targeted solely at the domestic market, which was and still is relatively small.

Some producers enjoyed production under a regime that either restricted importation of locally-produced commodities or discouraged importation through tariff measures. There was also a regime to provide encouragement for investment and offer generous fiscal incentives, and Government provided infrastructure and institutional arrangements for the establishment of industries. It was during this period that the first industrial site was established at Ruimveldt and the Industrial Development Corporation was created.

The raw material inputs to manufacturing were mostly imported, financed by foreign exchange generated mainly from the exports of sugar, bauxite, and rice. This sector requires regular access to foreign exchange for its operations. Thus, decline of the export-oriented sugar, bauxite, and rice industries during the 1970s and 1980s, accompanied by adverse macroeconomic policies, led to the virtual collapse of the local manufacturing sector over the last two decades. Very recently, however, there have been indications of a revival, at least in some subsectors.

B. General Characteristics

Guyana is manifestly rich and abundant in commercially-exploitable natural resources, and the range of its micro-climatic conditions is conducive to varied agricultural production. Outside Guyana, areas such as the Caribbean, North America and Western Europe offer immense market opportunities for manufactured products¹ via the enabling CBI, Lomé and CARIBCAN arrangements and, of course, the single market, CARICOM. Some of these markets are consistent with Guyana's known resource endowment and in the case of others, Guyana could readily develop the required comparative advantage for the production and export of manufactured products. In spite of these possibilities, growth in the manufacturing sector has been limited, and it has therefore not contributed significantly to the gross domestic product (GDP) of the country, with the exception of bauxite processing and sugar milling. In a typical manufacturing nation, the share of manufactures in total production increases in relation to the expansion in national income, if not more rapidly; thus the growth of the secondary sector (which apart from manufactures includes engineering and construction) rises as value is added in the processing of materials and products, invariably at the expense of the primary sector's (raw materials=) share. The tertiary sector (basically, services) also develops at the expense of the primary sector in the typical model.

In contrast, in Guyana the secondary sector's share of GDP was actually higher in the period 1950-75 than it has been in recent years. In part, this has been because of inadequate policies both at the macroeconomic level and for the manufacturing sector. A cursory review of phases in the country's political development and the attendant economic strategies adopted by successive governments would highlight this fact.

Table 17-1 below highlights pertinent characteristics of the manufacturing and agro-processing sector that underpin its importance to the national economy. The number of operating units has risen in keeping with output and employment trends. In key subsectors such as engineering and wood products, there has also been significant expansion in average plant size due to the consolidation of old units and the establishment of new ones.

It can be seen from the table that while natural resource-based subsectors such as wood processing and agro-processing, account for the bulk of the employment in manufacturing, there are other important subsectors such as textiles and metal working.

For convenient review, the manufacturing and agro-processing sector can be subdivided as follows:

- metal fabrication, foundry and machine-related products
- leather, textile and packaging products
- beverages
- chemical and paper related products
- food and food-related products
- marine-related products
- forestry-related products
- mineral-related products
- livestock and dairy-related products
- other products

¹ Hereafter the phrases "manufacturing" and "manufactured products" will be taken to include agro-processing and its products. The discussion excludes the rice and sugar processing industries since they are treated in other Annexes.

For the purposes of intersectoral linkages and sector diversification, these subdivisions are all related. However, while manufacturing faces a number of issues and constraints cutting across the sector and sector-wide concerns will be addressed, each subsector also has its own unique problems. Each will therefore be examined briefly in order to isolate the key policy issues which require attention in the formulation of an overall policy.

Table 17-1
Profile of the Current Manufacturing Sector

Category of Activities	Principal participants	Products	No. of Operators (Approx.)	Employment (very approx.)	Source of Inputs	Export Markets	Value Added
1. Fabricated metals (including small workshops)	ACE, BEV Enterprise, BACIF, GNEC, GRL, IDI Engineering Industrial, IEL Engineering, Parris Manufacturing, etc.	Grass and via castings pumps, facilities, fabrication for the sugar, rice and mining sectors	50	2,000	Imported principally	CARICOM, North America	Not significant
2. Textiles (including garments)	Atlantic Garments, Gobins, Sanata Textiles, etc.	An assortment of finished garments for ladies, men, children, ties, handkerchiefs, etc.	75	5,000	Imported principally	CARICOM, North America	High, because of low wage rates, relatively
3. Leather and leather-related (including bags, footwear, etc.)	Bettencourt Bags, Shoe World, IDS Holdings, Wrays	Bags, Shoes, Belts	20	1,000	Local and imported	CARICOM	High
4. Minerals (metallic and non-metallic)	Omai, LINMINE, BERMINE, Golden Star and a number of jewellers	Bauxite, gold, diamond jewelry	120	8,000	Local	Europe, North America, CARICOM	Significant
5. Forestry and wood-related (p)	Plywood Industries Limited, Toolsie Persaud Limited, Willems Timber and Trading Barama, Mazaharally, CRL, Precision Woodworking, Shiva, Ideal, etc.	Sawn lumber, furniture, veneers, poles, piles, plywood, logs	200	20,000	Local mainly. Small amounts of imported inputs	North America, CARICOM, Europe. Export value approx. US\$50m annually	Very high because of large usage of local inputs
6. Chemical and chemical-related	Guyana Pharmaceutical (GPC), Rome Manufacturing, Continental Industries Limited, Demerara Oxygen Company Limited	PVC pipes and fittings, pharmaceutical (drugs), mosquito nets, pants, domestic and industrial gases	30	2,000	Mostly imported	CARICOM, North America	Not significant
7. Paper and paper-related	Sapil, Guyana Publications Limited	Packaging materials, newspapers	10	1,000	Mostly imported	CARICOM	Not significant
8. Food and Food Processing (p)	Banks DIH, Vinelli, Amazon Caribbean, Guyana Limited, Chins, Guysuco	Jams, jellies, chowmein, curry powder, cereals, ice cream, sugar	35	30,000	Local and imported	CARICOM, North America, ACL	Significant
9. Beverages – alcoholic and non-alcoholic	Banks DIH, DDL, Verdun	Soft drinks, rum, beers, malta, start	10	2,500	Imported	Europe, North America, CARICOM	Very significant
10. Livestock related (p)	Lidco, small farmers, Guysuco	Beef, milk	1,000	5,000	Local	-	Significant
11. Others	GRL, Colgate Palmolive, Guyana Limited, Demerara Tobacco Company Limited	Refrigerators, stoves, toothpaste, detergent, cleansers, cigarettes	10	500	Imported	CARICOM	Not significant

Source:

(p):- includes operators and employment in the primary sector.

C. The Subsectors of Manufacturing

1. Minerals, Sand, Stones, Rocks and Clays

Guyana is rich in mineral resources and the geological surveys and exploration activities undertaken to date underscore this fact. However, the only minerals exploited to date on a commercial basis have been manganese, bauxite, gold and diamonds. Semi-precious stones are widely available but not yet exploited commercially. Petroleum is known to exist but is not commercially produced. Only a few of the widespread deposits of clay types suitable for a variety of ceramic applications are being commercially exploited and exported to Trinidad and Tobago. Apart from construction and recreation for which it is being used locally and exported in small amounts, sand is also a vital raw material in the manufacturing process. Bauxite and gold have been the only products from the earth subject to some amount of processing.

All the above products have significant long-run potential as inputs for the global manufacturing process. They are also energy-intensive and require extensive investment and perspective planning. In the short and medium run, the minerals with the greatest economic potential appear to be gold, diamonds and semi-precious stones. However, the processing of the primary product is fairly limited, and little attention has been given to finding an innovative approach to the secondary process.

This part of the subsector has both large and small operators, OMAI at one extreme and the pork-knockers at the other. Responsibility for the sector on the Government's side is vested in the Guyana Geology and Mines Commission (GGMC) and on the part of the operators in the Guyana Gold and Diamond Miners' Association (GGDMA). Successive governments have focused policy largely on the foreign exchange potential, particularly of gold, and less so on diamond and semi-precious stones, rather than more comprehensively on the contribution they could make to expanding the national manufacturing base. Had governmental policies for producing, purchasing and taxing been more realistic, a large part of the trade probably would not have been diverted to the informal sector, as was recently revealed to have happened. Table 17-2 below highlights the officially declared production and input figures for both gold and diamonds. At the moment semi-precious stones are neither produced in nor exported from Guyana.

Table 17-2
Gold and Diamond Production and Exports, 1970-1995

	1970	1980	1985	1990	1991	1992	1993	1994	1995
Gold production (ounces '000)	-	-	10.6	38.7	59.3	79.6	309.8	375.6	289.5
Gold export (in mill USD)	-	-	-	25.2	20.4	24.6	99.8	128.0	94.7
Diamond production (in mill USD)	-	2.6	1.7	1.4	2.1	2.0	2.0	2.7	3.1
Diamond export (in mill USD)	-	1.9	0.8	1.2	1.5	1.3	1.2	1.5	1.9

Source: Research Department, Statistical Bulletin, Bank of Guyana, Georgetown, Dec. 1995.

2. Marine Products

The marine subsector has been a cornerstone of the economy in processing and exports for a number of years, as Table 17-3 below indicates. In addition to processing and export, the subsector encompasses harvesting in the offshore and coastal zones and inland fisheries. Little attention has been given to protection and coast guard supervision.

The offshore and coastal zone components of the subsector currently concentrate on quality prawns, largely for external markets, although significant quantities of snapper and grouper are also caught. Export values have fluctuated, reflecting both price movements and changes in the size of prawns being caught. Total harvest volumes have also fluctuated over the years, and artisanal fishermen are reporting much reduced catches. The structure of the

subsector is such that it embraces large operators, for example, Georgetown Seafoods Limited (GSL) with 43 trawlers and its own plants for processing, deep freezing, packaging and storage, and local operators with just one to three trawlers. There used to be several overseas trawling fleets based in Georgetown, but the Government's imposition of duties on imported fuel used by the foreign-based fleets drove many of them to the duty-free haven of Suriname. Nonetheless, most trawlers operating out of Guyana's ports are still foreign-owned. In retrospect, this partial switch in location was seen as desirable in the light of the requirements of a sustainable harvesting regime, i.e., to avoid further stock depletion.

The bulk of the prawns caught are merely beheaded and/or shelled, blast frozen, packaged and exported to markets in North America. Further processing of quality prawns would not add much value. There is a serious need to effectively patrol the fishing grounds to ensure strict adherence to the sustainable management plan and to deter illegal trawling. To implement a meaningful policing system, the Government would need to join with the Coast Guard and related services of other countries and patrol the fishing grounds. There is also need for Government, in conjunction with the subsector operators, to promote the consolidation and/or expansion of the domestic fleet on a strictly commercial basis, with emphasis on pelagic species of the continental slope and beyond. High investment needs and high insurance costs are formidable barriers to entry into and expansion of the subsector, and these should be urgently and seriously addressed.

Coastal zone fishing is dominated by independent operators and co-operative members who specialise in catching seabob and fin species close to shore, largely for the domestic market.

Table 17-3 highlights the production trends and exports of prawns and finfish. Exporting is done largely via co-operatives, and specialist processing firms such as Bruce E. Vieira Limited (BEV) and intermediaries. The sophistication of the BEV plant (in terms of technology, management and scale) points to the direction in which both the co-operatives and the other operators could productively move in terms of adding value.

Inland fishing, largely in the rivers, lakes and the many drainage and irrigation canals, is the most underdeveloped element of the subsector. Because it is a subsistence activity, it does not readily lend itself to organisation and quick improvement and will probably continue more or less in its present form over the medium term, although Annex 13 indicates some ways to improve its productivity.

By contrast, there is considerable scope for aquaculture in the brackish waters along the coast which are most suitable for the commercial cultivation of prawns and fish. Private investment should be encouraged in this field, to bring in technology as well as capital. There is a ready export market, especially for cultivated prawns.

Table 17-3
Marine Products: Production and Trade, 1970-1994

		1970	1980	1988	1989	1990	1991	1992	1993	1994
Prawns	Prod (tons)	1,927	2,142	1,866	1,810	1,557	1,927	1,511	1,747	2,168
	Exp (in Mill USD)	2.5	3.1	23.1	22.4	23.5	18.6	13.0	11.4	13.1
Fish	Prod (tons)	29,315	35,108	41,216	32,437	32,985	35,998	37,097	37,200	29,992
	Exp (in Mill USD)	n.a.	1.3	n.a.	n.a.	2.9	3.6	2.4	3.5	4.1

Source: Bank of Guyana and the Statistical Bureau

3. Forestry Products

Products derived from wood draw from the extensive forest resources of Guyana (18.0 million hectares, of which 13.5 are commercially exploitable), governed by a fragile Amazonian eco-system. The management of the subsector is vested in the Guyana Forestry Commission (GFC) and the interests of operators is represented by the

Guyana Forest Products Association (GFPA). The forest products subsector is highly segmented and embraces logging, saw milling, plywood manufacture, charcoal production, furniture manufacture, and the making of prefab structures, among others. Operators range from individuals with chain saws to large firms. The saw milling and plywood operations tend to be vertically integrated. In recent years, the subsector has attracted significant foreign investment, e.g., Barama, Demerara Timbers Limited, CRC, and UNAMCO, and this has induced extensive competition in the market and forced local firms to upgrade technologies and management systems in the battle to retain and gain market share.

The structure of output and exports is shown in Table 17-4 below. In 1994, the subsector as a whole, like rice and sugar, surpassed earlier production, but did not set export records for all products. The most positive developments in the subsector are:

- a. the emergence of plywood as a principal export, accounting in 1995 for USD18.3 million, 95 percent of which originated from the Barama operation; and
- b. the expansion of production and export of furniture, totalling USD 5.1 million in 1994.

Unfortunately, the share of prefabricated structures, which hitherto occupied a prominent position in export, has shrunk on account of limited supply capacity and an inability to conform to delivery deadlines. The principal operators in the subsector, CRL and National Screen Printers Limited, have since shifted the structure and focus of their business operations. There exists, however, a market niche for prefabricated houses, and the GFC and GFPA need to design and implement a marketing strategy to recapture this niche.

Plywood, no doubt with Barama and Plywood Industries Limited (PIL) as the sole manufacturers, will take care of itself. Both output and export should continue to increase sharply. Furniture manufacturing calls for a farsighted strategy, based perhaps on the emulation of Precision Woodworking Limited (PWL), Furniture Industries Limited (FIL), and MSFIL, which rely on progressive management, state-of-the-art technology, standard designs and competitive pricing to penetrate and capture overseas markets.

A strategy for forestry products would have to address the potential of the subsector to increase the range of other high value-added manufactured wood products such as handles, veneers, hardboards, and matchsticks, for example. The subsector obviously has a tremendous contribution to make to the national development process. Products such as millwork, furniture and floors produce much more employment per cubic metre of wood harvested from the forest than plywood does.

Table 17-4
Output and Export of Forest Products, 1970-1995

OUTPUT									
PRODUCT	UNIT	1970	1980	1990	1991	1992	1993	1994	1995
Greenheart logs	Cu. ft	3793	2462	1399	1481	1754	1869	2103	n.a.
Other logs	Cu. ft	2628	2527	2015	2094	2116	4155	4319	n.a.
Sawn lumber	Cu. ft	490	318	2075	2923	5897	8498	9703	n.a.
Plywood	In mill USD	n.a.	n.a.	1.3	0.8	2.7	1.9	7.5	18.3
Furniture	In mill USD	n.a.	1.4	2.1	3.3	3.8	4.4	5.1	n.a.
Prefab buildings	In mill USD	2.6	3.1	0.7	0.6	1.1	0.8	0.4	0.5
EXPORT									
Greenheart logs	Cu. ft	80	200	2.1	80	14	121	180	n.a.
Other logs	Cu. ft	29	62	n.a.	45	n.a.	29	40	n.a.
Sawn lumber	Cu. ft	1364	260	139	209	256	304	410	533

Plywood	In mill USD	n.a.	0.6	0.6	0.6	1.5	1.3	5.5	17.3
Furniture	In mill USD	n.a.	0.4	1.1	1.5	1.9	2.2	2.5	n.a.
Prefab buildings	In mill USD	0.7	1.1	0.5	0.4	0.8	0.7	0.3	0.4

Source: Statistical Bureau and Bank of Guyana

4. Dairy and Livestock

Some of the production centres for dairy and livestock, inclusive of beef, mutton, pork, poultry, eggs and milk, are spatially mismatched in relation to the demand points. This is particularly true of beef, along with mutton, in which the country largely satisfies its needs. There is significant import of chicken and eggs from North America and milk products from Europe. The import bill in 1995 averaged USD 1.6 million per month, with chicken and eggs accounting for close to 75 percent. Table 17-5 below highlights the domestic production trends in this area.

The beef and dairy cattle population is estimated by the NDDP at 255,000 head and is free from foot and mouth disease. Producers cover the spectrum in terms of size and location. Guyana was once a beef exporter and was almost self-sufficient in dairy products in the 1950s and 1960s.

a. Dairying

Dairy production is concentrated along the coastal belt in order to facilitate quick access to markets. There are only three large commercial units with modern milk processing facilities, namely Fairfield Investments Limited (FIL), Guyana Sugar Corporation (GUYSUCO) at Versailles, and Livestock Development Corporation (LIDCO). GUYSUCO also has a cheese plant which is not operational on account of an inadequate volume of milk. LIDCO also maintains a manufacturing and packaging plant for milk products in Georgetown. Both GUYSUCO and LIDCO management could benefit from a close examination of the more effectively-run FIL. The bulk of the existing milk production comes from farmers with between one to 25 head of cows, who are in close proximity to Georgetown. Despite the efforts of successive governments to expand production via the NDDP, milk output has been on the decline, as shown on Table 17-5.

Table 17-5
Dairy and Livestock Production Indicators, 1980-1995

	1980	1990	1991	1992	1993	1994	1995
Beef (thousand tons)	2143	1672	3021	4200	3840	-	4190
Pork (thousand tons)	712	535	447	600	1137	-	1280
Mutton (thousand tons)	...	56	44	71	53	65	...
Poultry (thousand tons)	2112	1789	1718	3084	4067	6236	7229
Eggs (million)	10.8	11.3	5.3	7.3	8.5	18.0	30.4
Milk (thousand litres)	2.3	1.7	1.6	1.6	1.1	0.8	0.8

Source: Research Department, Statistical Bulletin, Bank of Guyana, Georgetown, December, 1995, and Statistical Bureau.

Contributing to this trend are low prices for milk products, supply difficulties in and the high costs of feed supplements, the enforcement of municipal and local government laws on grazing, and the disappearance of community pastures with much pasture land supplied to housing. The lack of pasteurising, storage and transport facilities causes considerable spoilage and adds incalculably to costs.

b. Beef

The Rupununi had been the principal supplier of beef until a 1969 insurrection in that area caused the dislocation of its large ranches. Those that have remained, inclusive of the Rupununi Development Company (RDC), have suffered from rustling of late, the closure of the railway system and the termination of the Guyana Airways cargo flight from Lethem. These have made it impossible to maintain and expand the shipment of live animals and carcasses from the Rupununi. As a result, some trade has developed with the regions across the Takatu River. The Rupununi has immense potential for the expansion of production which is stymied by inaccessibility to markets. In this respect, the projected completion of the road to Lethem and the lifting of restrictions on air traffic (Annex 8) should provide great assistance to production in the Rupununi.

There are many other ranches closer to the consumption points, the sizes of which vary over time as owners switch land use away from cattle to rice and vice versa. There are also innumerable small farms with herd sizes varying from five to 100 cattle, frequently as part of a mixed farming practice. Despite the experience of the Rupununi, beef production has been on the increase overall.

c. Mutton

This is the least popular meat in Guyana but demand appears to have surged recently, as depicted in Table 17-5. In the Guyana context it is not a versatile meat that readily lends itself to processing activities. This may alter in the medium term with changing tastes and a continuing growth in the demand for meats in general.

d. Pork

Pig farming, with two exceptions, Bounty Farms Limited (BFL) and C and F Meat Centre (CFMC), is small in scale and is, as a rule, part of mixed farming operations. Pork, as Table 17-5 shows, is the third ranking meat by volume of production. Both BFL and CFMC have modern facilities for the dressing and packaging of pork and for the manufacture of ham, bacon and sausages.

e. Chicken and Eggs

By far the most popular meat in Guyana is chicken, in which the country was near self-sufficient in the 1950s and 1960s. The expanding production, shown in Table 17-5, only partially satisfies ballooning demands. The bulk of the demand is satisfied by imports from North America; imports also account for most of the eggs consumed locally and all the eggs used for the reproduction of meat birds and layers. This component of the subsector is dominated by medium-sized farms rearing between one and 5000 birds on a batch basis.

5. Processed Foods

Guyana boasts an extremely wide cross-section of foods manufactured locally for both the domestic and export markets. Traditional products are rice and sugar. However, non-traditional products are increasingly holding their own against the influx of foreign products that has resulted from liberalised trade policies. Indeed, a positive element of the structural adjustment programme has been fewer import restrictions, enabling the ready availability of machinery, fertiliser and pesticides among other inputs. The current business environment is far removed from the pre-1980s period with its concomitant market distortions, and ought to allow more new manufacturers to enter the market and existing manufacturers to expand and become more export-ready.

Though the quantity and value of non-traditional exports have consistently risen, for example, from 2,102 tonnes in 1993 to 4,662 tonnes in 1995, the latter with a value of approximately US\$3.1 million, demand has consistently outstripped supply for both domestic and overseas markets. As a consequence, domestic prices have spiralled upward for most locally-produced foods. A case in point is that the price of eddoes increased by nearly 100 percent between 1994 and 1995, while imported potatoes (from North America and Europe), which are often used as a substitute, are cheaper than the local produce.

The New Guyana Marketing Corporation (NGMC) is responsible for advising farmers and manufacturers on production, processing and marketing of non-traditional agricultural products. However, this institution does not have sufficient human and capital resources to effectively dispense its mandate. According to the New GMC, the major agro-processing products exported in the three years between 1993 and 1995 are:

- Juice - Carambola
- Beverages - Ground coffee
- Condiments - Achar, carambola (preserved), cherry pulp, guava, puree, crushed pepper and dried sorrel
- Other - Pineapple and guava jam and jelly, cassava bread and starch, and coconut shell powder

Entrepreneurs engaged in local agro-processing are generally motivated by identifying niche markets, particularly in the Caribbean and North America. However, greater emphasis ought to be placed on high-valued products, and plans and programmes to capture significant market share outside niche markets. Additionally, market research ought to focus on "off season" produce in North America and Europe. Mexico, Central America and Kenya have effectively utilised this strategy to export tomatoes to the USA and vegetables to Europe during seasonal "windows".

Conglomerates have been the major local players in the manufacture of food and food-related products. The two brewery giants, Banks DIH and Demerara Distilleries Ltd. (DDL), threatened with declining profit margins, have successfully ventured into the food business. Banks DIH, with over 8,500 shareholders and hundreds of persons in its employ, is not only manufacturing alcoholic and non-alcoholic beverages but biscuits, snacks, cereals and tomato ketchup. Packaging and labelling are up to international standards. Local ingredients are mainly used in their manufacture, for example, snacks are made from rice flour, plantain flour and sugar, among other products. DDL, famous world-wide for its Demerara rums, purchases the bulk of the locally-produced molasses from GUYSUCO, refines it and uses it for producing rum, vinegar, liqueurs and methylated spirits. DDL has recently ventured into the seafood business. Edward B. Beharry Co. Ltd. is another conglomerate associated with the food business. For a number of years it has produced sweets and bubble gum, and also manufactured curry powder, baking powder, custard powder, black pepper and pasta products.

Vinelli Industries Ltd., with a work force of 300 individuals on a factory area of 44,000 square feet, produces ice-cream, frozen novelties, pasta products, bakery products and snack foods. They are integrated vertically through a 3,300-acre farm which produces rice, coconut and fruits which are partially utilised by the manufacturing process. Sterling Products Ltd., established since 1955, produces among other food products Golden Cream margarine, which is a household name, and UMDA Phalka Ghee for local and export markets. Ricks and Sari is also a household name for the production of curry powder, pepper sauce and tomato ketchup.

6. Metal Fabrication, Foundry and Machine Related Products

This subsector has been gaining momentum within recent years, primarily because of the high cost of procuring metal products from overseas sources and the difficulty experienced quite recently in accessing foreign exchange for the purchase of metal, steel and iron components.

The major concentration in this sector is the manufacture of brass and iron castings and pumps, and the fabrication of equipment for the sugar, rice and mining industries. Most of the items produced are for replacements or spares and the repair of engine blocks and crank shafts.

The major operators, including Industrial Engineering Limited (IEL), BEV Enterprises, Brass Aluminium and Cast Iron Foundries (BACIF), GRL, IDI Engineering, and Swiss Machinery, have installed quite modern and sophisticated equipment and are manufacturing and fabricating top quality parts and components.

The scope for the development of this sector is great, and new small operators surface almost on a regular basis to add to the ingenuity and innovation of Guyanese craftsmen and women. These craftsmen and women benefit from training courses at the local Technical Vocational Institutes, the University of Guyana, the GITC and even overseas training programmes.

7. Leather, Textile and Packaging Products

This subsector is not well developed but has the potential of making a substantial contribution to the growth of the economy. The major producers are Shoeworld, Sanata Textiles, SAPIL, Caribbean Clothing Co. Ltd., Guyana Fertilisers Ltd., and R.C. Bettencourt and Company Ltd.

Given the heavy incidence of livestock rearing in the Lethem-Rupununi area, this Region can be seen as a potential area for the development of the leather industry in all its diverse forms (shoes, belts, bags, etc.). Leather treatment facilities can be set up quite easily, and with the relevant research and development programmes put in place, the prospects for dynamic leather craft and related industries subsector should be bright.

8. Beverages

This subsector, which includes the distilling and/or manufacturing of soft drinks (aerated), beer, Malta, wines and rum, is becoming a very significant contributor to the manufacturing sector. Within recent years, a greater degree of competition has been infused into the subsector with the two giant operators, DDL and Banks DIH now introducing beverages with international brand names on a regular basis. Along with these two major manufacturers there are several smaller operators, primarily in the manufacture of soft drinks, for example, Verdun, and Rahaman's (Republic Soda Factory Ltd).

The following table depicts the rise in the production of beverages between 1990 and 1994.

Table 17-6
Beverage Production, 1990-1994

	1990	1994	Percent increase
Rum (litres)	12.5	25.3	102.4
Beer (Litres)	10.5	10.0	(4.7)
Aerated (cases)	1425	3449	142.0
Malta (cases)	2004	203.8	2.0

From all indications, the manufacturers in the sector are mainly devoted to import substitution, through which the relatively high volume of imports of exotic beverages will be partly replaced by the manufacture of such beverages on the local market, basically under patent operations. This subsector contributes significantly to the employment profile of the country.

9. Chemical and Paper-Related Products

This subsector produces mainly for the satisfaction of local needs. Guyana Pharmaceutical Corporation, the largest operator in the subsector, is involved in the manufacture and dispensation of a number of drugs. Between 1990 and 1995, its production of liquid preparations increased from 206,000 litres to 227,900 litres.

Given the diversity of available herbs and other inputs locally, the subsector can be developed to a stage where it would not only satisfy local needs, but could find overseas markets once the requisite quality and standards are met.

Paper-related activities (printing, publishing, etc.) are carried out by many computer companies, and by Guyana Publications Ltd., and they cater basically for the needs of the local inhabitants. There are some operations devoted to the production of simple packing materials based on imported paper.

10. Other Products

This category includes the operations of such companies as Guyana Refrigerators Ltd. (GRL), Colgate Palmolive Guyana Ltd., and Demerara Tobacco Company Ltd.

These companies save the country much-needed foreign exchange by making products available on the local market which would otherwise have had to be imported.

Within the context of a much broader and more clearly-articulated development strategy for the manufacturing sector, a number of small manufacturing entities can be established for the satisfaction of local needs, saving foreign exchange and generating more employment and income.

C. Science and Technology

Science may be defined as the knowledge ascertained by observation and experiment, critically tested, and systematised and codified under general principles. Technology is the use of knowledge for the production of goods and services to meet the development needs of the population. As such, the value of S&T is not confined to the productive sector, but includes all other sectors of society, i.e., the service and support sectors. The traditional perception of S&T is that it contributes to research and development associated with the productive sector, and within it the manufacturing sector.

The science and technology sector in Guyana is made up of a number of different research institutes. There has been some division of labour among these institutions, but the major emphasis is on agriculture and mining.

Research organisations that currently play a prominent role in research and development in the country are:

1. The Institute of Applied Science and Technology (IAST)
2. The National Agricultural Research Institute (NARI)
3. The Guyana Rice Development Board (GRBD)
4. Several international and foreign-funded organisations.

The Institute of Applied Science and Technology (IAST): This institute has a number of research interests, ranging from mining to agriculture. It also houses the laboratories of the National Bureau of Standards and contains a range of important research equipment. The IAST has however not lived up to its full potential. With current restructuring efforts on the way, it is expected that a revitalised IAST can play a leading role in the development of new technologies and processes.

The National Agricultural Research Institute (NARI): This institute was established by the Government of Guyana in 1984. More details on its operation are given in Annex 11 of the National Development Strategy. In summary, NARI currently focuses on two areas: (1) advising Government on the promotion of diversified and sustained agricultural development and the optimisation of agricultural production through research and (2) facilitating the use of improved technology and maintaining feedback systems with farmers on the performance of new technologies and processes.

Along with NARI, the 1984 Act also established the Agricultural Research Committee (ARC), which supervises and controls the functions of the Institute.

The Guyana Rice Development Board (GRDB): This board is concerned with the overall development of the rice industry in Guyana, including research. Its research activities were previously performed by NARI but have been shifted because of the widely-held perception that NARI was not performing well. The successful housing of

several activities related to rice, such as research technology transfer and marketing, under one institution, provides a good example of how organic linkages between different aspects of an industry may be successfully merged.

International Organisations: International organisations such as the Inter-American Institute of Cooperation in Agriculture (IICA) and the Caribbean Agricultural Research Institute (CARDI) have been involved in agricultural research and extension in Guyana for some time now. These organisations have carried out several projects in most of the regions of Guyana, and have reported successful grass-roots initiatives which have enhanced the productivity of farmers.

There are other organisations involved in research and development. With regards to agriculture, this includes GUYSUCO, and the Faculty of Agriculture of the University of Guyana.

With regards to manufacturing, the Linden Mining Company (LINMINE) once boasted a well-equipped laboratory and research facility that focused on research on the bauxite industry. The level of emphasis placed on R&D is a true reflection of the state of the company. Today, both are in decline. On the other hand, the foreign-operated company in Berbice, BERMINE, has a fairly well equipped R&D laboratory, boasting highly-sophisticated equipment for chemical testing and analysis. Other large companies such as Banks DIH and DDL have developed technologies in-house that are focused on their own needs, and these are rarely extended to the wider manufacturing community.

Other engineering firms in Guyana are making an increasingly significant contribution to the development of appropriate technologies. Among these are IEL, and BASIF. Many of these technologies have been directed at the gold mining industry and the pace of their development has expanded in keeping with the needs of the industry. Of note is the relative speed with which these technologies are disseminated to the entire mining community despite the absence of a formal extension network. This can be largely attributed to the fact that the technologies are Asold and easily obtainable. More importantly, they have been developed in response to the direct requirements of users who generally have the same needs. This can be contrasted with the case of other agriculture (excluding rice and sugar), where there is a lack of linkages between needs, research and extension.

II. Policies of the Sector

A. Past Evolution of Policies

1. Pre-Independence to 1960

British economic policy on colonial development was explicit in its assumptions. It was to secure the supply of vital raw materials for Britain's industrial machine and guarantee outlets for its manufactured products. The natural resource base of Guyana meant that the country lent itself, more than many other colonies, to a pattern of export of primary commodities. These included cotton, rice, sugar, timber, gold, bauxite and manganese. Further, investments were directed to these areas by the Imperial Preferential Trading and Sterling Payment System (PTSPS), which ensured that the local market was saturated with imported manufactures. This policy spawned the local merchant class which, due to its intrinsic interests, evolved a vision of development as synonymous with the prosperity of distributive agencies, and enunciated it via the Georgetown Chamber of Commerce (GCC) which was created in 1889. The PTSPS drove not just the production structure, but the framework for development across the country.

To ensure the timely movement of goods at low cost, a reliable, albeit limited physical infrastructure was developed, all publicly-owned, except power. Basic social services evolved, particularly education - boosted by an efficient public/private schooling system - in order to meet the expanding demand for a literate and skilled labour force. The UK Companies Act of 1892 applied to the incorporation of firms locally, and the UK Tax Ordinance of 1895 was modified and applied.

British economic policy and attendant instruments did not visualise the development of a local manufacturing sector. Yet the emergence of elements of such a sector could not be prevented. Specific cases in

point are the processing of cane and rice, namely, factory milling. In addition, both the First and Second World Wars, which disrupted transatlantic supply between Britain and Guyana, boosted some manufacturing activities locally, e.g., bakeries, sawmills, and factories for matches, cigarettes, beverages, soaps, garments, machinery maintenance and fabrication. As a result, the manufacturing sector accounted in 1960 for 3.4 percent of GDP compared with 2.1 percent in 1950. However, an enabling integrated policy framework was not put in place to sustain development, although some key elements were present, as earlier highlighted.

2. Pre-Independence, 1962 - 1966

The establishment of a self-governing administration in 1962 led to the adoption of important measures with respect to manufacturing. The government of the day (the PPP) established the first industrial estate at Ruimveldt, provided fiscal breaks to investors, particularly in the rice milling and sawmilling subsectors, and facilitated further secondary manufacturing in fields such as paints, packaging, and confectionery. It may have gone further in these directions had it had access to external resources or control over all aspects of macroeconomic and financial policies.

3. Post-Independence, 1966 - 1988

For a decade after independence (1966-1975), the then government (the PNC), was mostly preoccupied with the consolidation of its political base in the context of a newly-independent nation. Its coalition partner, the UF, representing local manufacturing interests and more generally the private sector, insisted on an open economic policy as a *sine qua non* for participation in the Government. This was effected, and found reflection largely on the monetary and financial plane: restrictions on foreign exchange movements were abolished in 1967 and market determination of interest rates permitted in 1968, in order to boost domestic and foreign investments in the local economy. Investment expansion in the late 1960s and early 1970s led to record increases in the output of manufacturing even without the benefit of an enunciated, clear-cut manufacturing policy. As a result, manufactures accounted in 1972 for 5.9 percent of GDP.

Following the 1968 election which resulted in a PNC administration, its macroeconomic policy and sectoral strategy were no longer constrained by a market-oriented coalition partner. Accordingly, in 1969 the Government contracted the services of Professor Arthur Lewis to prepare the first Five-Year National Development Plan (FYNDP), 1972-1976. Arising from the discussions on the FYNDP and preceding its implementation, the Small Industries Corporation (SIC) was established in 1971 and the Guyana Agricultural and Industrial Development Bank (GAIBANK) in 1972. The SIC was mandated to design and implement sectoral policy and to identify projects, and GAIBANK was made responsible for evaluating and financing both small and large manufacturing and agricultural projects and industrial estates.

The first FYNDP attempted a comprehensive definition of the framework for manufacturing policy. It sought to combine elements from the Puerto Rican model with the principles of self-sufficiency and an enlarged role for the State. Specifically, it advocated:

- a. import substitution industrialisation;
- b. preferential development of high forward linkages projects;
- c. intensive utilisation of indigenous materials; and
- d. equitable distribution of industries on a regional basis.

SIC was later charged with detailing the policy framework and ensuring execution and GAIBANK was tasked with project evaluation and financing in order to implement the policy.

While the FYNDP was infused with some pragmatic and positive ideas and elements which could have contributed somewhat to the development of the sector, SIC and GAIBANK never produced an integrated framework as an operational strategy. Even if they had succeeded, the intensity of the overall thrust towards an inward-looking policy would have limited their success and reinforced the old supply-oriented development strategy of the British, a strategy which the Coalition Government had attempted to reverse with its open door policy.

Moreover, the entire first FYNDP was soon superseded by a more radical, all-embracing perspective on economic development, bereft of the pragmatism of the Lewis Plan.

After 1974, economic policy favoured the import-substitution model. Its key features were:

a. State control of the "commanding heights" of the economy through public ownership of the operating entities in the production and distribution of both essential and non-essential services. This was accomplished via an extensive nationalisation programme, which focused initially on foreign investment and subsequently on domestic investment (inclusive of real estate and productive entities). In the process, even the mixed ownership of the education and training system was altered in favour of State ownership.

b. Deficient management of public sector enterprises (PSEs). The new PSEs took no account of market access, management capacity, or the availability of technology. Hence, instead of contributing revenue to the exchequer, the PSEs became net users of funds. This was aided by their preferential access to external public inflows, domestic savings garnered in the largely nationalised commercial banking system and generous national subventions.

c. A co-operative subsector, largely created by the State, that also became dependent on public transfers, largely via public subventions, commercial banking write-offs and GAIBANK lending (yet to be recovered). Again, instead of the co-operatives providing support to the manufacturing sector at the margin, they ended up as yet another category of competitor for diminishing resources, on a playing field which did not favour private sector operators.

d. A crowding out of the private manufacturing sector by the public and co-operative sectors, in terms of access to physical space, investment opportunities and financial resources.

Monetary, financial and tax policies that began to work assiduously against the manufacturing sector as the economy became subject to stringent supply management arrangements, at the expense of weakened market forces and price signals. These policies included:

- (i) *Foreign Exchange Controls.* As export earnings slumped, foreign exchange became scarce. Manufacturers were unable to remit due payments and arrears began to build up. As a result, the Bank of Guyana (BOG) introduced in 1977 the External Payment Deposit Scheme (EPDS) to eliminate commercial arrears. Further deterioration in foreign exchange availability meant, however, that the EPDS could not effectively respond to the ballooning demands for transfers. Priority imports thus became subject to strict licensing and foreign exchange queuing. At the beginning of the 1980s the Export Development Fund (EDF) was created to ease the pressure on export-oriented manufacturing, but the resultant delays in the acquisition of imports adversely affected production. This caused the emergence and fuelled the expansion of the parallel economy in foreign exchange and then in imports and exports of goods and services. While on the one hand it further constrained the formal sector by flooding the market with cheap, often non-dutiable manufactured products, on the other hand, it provided inputs for the manufacturing sector, albeit at higher costs, thereby keeping a part of the sector going. But overall it worked against the sector's development.
- (ii) *Exchange Rate Management.* During this period the Guyana dollar was devalued on several occasions. While these devaluations were intended to reduce the financial losses of the PSCs, the public sector deficit, borrowing from the banking system, and

government subventions, they did not succeed in creating an enduring equilibrium value for the exchange rate. After each devaluation the exchange rate was again controlled at its new level and hence fell behind the trend in domestic inflation once again. A disproportionate share of the cost of the devaluations was shifted onto the manufacturing sector. Apart from rising input costs the sector had to carry, electricity tariffs, for example, were increased (97.5 percent in April, 1987), and wages raised (16.3 percent), owing to bargaining by the Trades Union Congress to cushion the effects of devaluation on workers. Accordingly, operational costs moved upwards, while the disequilibrium in the exchange rate meant that prices

- (iii) received for manufactured products (import substitutes and exports) could not rise in proportion to costs.
- (iv) *Pricing Policy.* In the early 1980s, controlled prices were introduced on a wide range of commodities in an attempt to minimise the rate of price inflation. The market prices of these goods underestimated the true social cost of inputs. This divergence between controlled prices and the opportunity costs of inputs exerted a negative impact on the growth of the manufacturing sector. Resources were thus reallocated from the manufacturing sector to the service sector.
- (v) *Consumption Tax Policy.* Consumption tax was imposed on both imported inputs and manufactured goods for the domestic markets. Measured in terms of world prices, this system of consumption tax reduced the international competitiveness of manufactured exports. Manufacturers faced unfair competition from the parallel economy in which goods entered illegally. This unfair trade practice also prompted many firms to switch their real resources from the secondary to the tertiary sectors.
- (vi) *Interest Rates.* During this period, the spread between savings and interest rates was inordinately narrow, and both were below the World Bank estimated rate of inflation. This in effect deterred savings and increased borrowing largely by the PSEs and the parallel economy operators.

e. Deteriorating public finance and the breakdown of financial discipline compounded the above trends. The lack of funds to maintain or develop the publicly-owned physical infrastructure meant that power supply became unreliable, roads impassable, the telephone system less functional, and water supplies quite erratic, while unit output costs kept escalating and were transferred in part to users. The situation was further compounded by ineffective attempts to regionalise the management of some of these services, an arrangement which also worked against the manufacturing sector.

f. Parallel to these developments, there was a deterioration of the social infrastructure. The health, housing and sanitation subsectors received minuscule funding as did the education, training and personnel development sector. While the Government had a perspective on the latter, it simply did not have the wherewithal to implement it. The system was thus incapable of responding to the personnel needs of the manufacturing sector, and indeed of the economy as a whole, and this proved to be yet another constraint to the sector's development.

Due to the complete re-organisation of the State Planning Secretariat in 1983 and the ineffective functioning of the Ministry responsible for manufacturing, there was a complete vacuum of institutional arrangements to support and promote the Private Sector. Under the pressure of local private sector and international agencies (WB/IMF), GUYMIDA was established. However, in spite of its sound objectives, the agency could not function effectively due to weak institutional strength and leadership.

Overall, the performance of the public sector entities was nothing short of catastrophic. Mismanagement and political paramountcy literally brought surplus-generating operations into deficit positions, and they became for a number of years a continuous drain on an economy which was badly short of financial resources, and which had to borrow externally in order to sustain public expenditure at minimal real levels.

During the 1980s, real GDP continually declined at the pace of 2.8 percent per annum for the period 1980-1988.² In summary, State domination of the economic base culminated in technical, organisational and financial problems in key sectors, compounded by falling world demand for Guyana's key export commodities. Interest on foreign debts and losses in public enterprises added to the pressure on Government finances. By the mid-1980s, the Government was unable to service its debt obligations and ceased making payments to most bilateral and multilateral lenders.

With economic activity virtually retrogressing year after year, it became obvious that the core of the problem was rooted in a mixture of incorrect policies administered by the political directorate and too tight a stranglehold of the Government on economic activities.

The worsening economic situation lowered real wages and consumption and resulted in a wave of migration overseas of skilled Guyanese, adding to an already adverse situation.

4. Economic Liberalisation, 1988-1992

Over this period a major reorientation of the economy was undertaken and a Structural Adjustment Programme (SAP) launched. Some of the general measures initiated under the SAP were:

- a. the elimination of most controls on prices and foreign exchange;
- b. the reduction in tariffs, trade restrictions, and subsidies;
- c. the rationalisation and denationalisation of some public sector corporations;
- d. the promotion of direct investments, both local and foreign;
- e. attempts at rehabilitation of the physical and social infrastructure and limited introduction of cost recovery measures;
- f. overhaul of the public services and the re-establishment of a degree of financial discipline in the Government.

With the above-listed measures underway, relations were soon normalised with the multilateral agencies and a Policy Framework Paper (PFP) agreed upon with the IMF and the World Bank in 1989. This paved the way for significant debt relief, balance of payments support, and receipt of funds from both the bilateral and multilateral institutions for the rehabilitation of the physical and social infrastructure to facilitate rapid implementation of the SAP. In recognition of the fact that compliance with the PFP would entail further short-term adjustment difficulties for the impoverished lower-income groups, the donor agencies also made commitments to provide financial support for an amelioration or social safety net programme.

With the implementation of the general measures of the SAP and with external financial support now flowing, in 1991 and 1992 the economy registered positive growth for the first time in over fifteen years. As some confidence was re-established in the economy, the SAP induced significant new investment flows. Among those from overseas were OMAI (Canada), Reynolds (USA), Barama (Korea), and DTL (UK). From the CARICOM region came Caribbean Resources Limited (Trinidad), CARICOM Rice Mills Limited (St. Vincent), the Alesie Group (Aruba), and Grace Kennedy (Jamaica). The Kayman Sankar Group, Demerara Distillers Limited and Continental Agencies were some of the locally-based firms that embarked on an extensive programme of domestic and overseas investment activities. The leading local investors during this period were DDL, KSL, Banks DIH, IEL, and IDI, to mention just a few.

Parallel to the new investments and in some cases, as a result of these, but more in the context of the overall SAP, the sugar industry was turned around under private management, and the rice industry surged forward with the

² World Bank, Guyana. *From Economic Recovery to Sustained Growth*. IBRD, Georgetown, Guyana: 1990, p.3.

elimination of restrictions on prices and the exchange rate, as did gold and diamond output and trade. Timber products followed suit. But in bauxite, LINMINE's fortunes slipped even further.

On balance, the economy responded well to the SAP. However, the lag between the implementation of the general measures of the SAP and the scheduled flow of resources aggravated social pressures, and the long delays in the preparation and execution of the interventions listed in the PSIP for the rehabilitation and expansion of the physical and social infrastructure, detracted from the potential impact of the SAP on the pace of the economic turnaround.

But what specific measures did the SAP envisage for the secondary sector and what were the effects of the general SAP measures on manufacturing? The answer to the first part of the question is unambiguously "none", while the answer to the second part is more complex and has several aspects to it.

First, the impact of the financial, monetary and trade reforms, all intended to restore market forces and price signals, had varied short-term implications for firms in the sector. Those with a weak financial base and cash flow problems found the cost of commercial bank borrowing prohibitive, due to the introduction of positive real interest rates. Servicing of debts denominated in foreign currency became an insurmountable problem for others, due to the sharp devaluation of the Guyana dollar against the principal trading currencies. The upward adjustment in the prices of imported inputs, and of domestic raw materials and intermediates with high import content such as electricity and transport, adversely affected cost structures, relative to prices in the short run; however, this effect was reversed over time. For many firms, the problems of adjustment were compounded by competition from imported manufactures, supplied via both the parallel market, largely without duty being paid, and the official market at reduced tariffs. Several export-oriented manufacturers, including of GRL, Ideal, Beesons, and Wrays did not, by way of compensation, benefit from expanded and/or new markets quickly enough, and they almost became bankrupt.

Yet, over the medium-term, as the beneficial effects of the reforms worked themselves through, most of the firms in question readjusted and emerged stronger. The real devaluation of the Guyana dollar eventually had the expected effect of shifting price-cost ratios in the direction of greater profitability for both the primary and secondary sectors. Those firms with a strong financial base and/or market niche abroad quickly overcame the "disruptive" effects of the adjustment measures and further strengthened their position. Among them were DDL, KSL, IEL, and Banks DIH.

Second, the general measures visualised in the SAP were intended to create an enabling environment for operators in the sector. Divestiture, encouragement of private investment, greater foreign exchange availability, removal of price controls, all were meant to expand the space and scope for, and remove the restrictions on, manufacturing and other components of the private sector. And the results bear this out. Investments in the economy revived; and while the international ones were largely directed to natural resource sectors, most had a strong manufacturing (milling and processing) component. More significantly, they were principally for export-oriented projects.

Third, in some cases the potential beneficial effects were not allowed to unfold fully, and thus fundamental obstacles to the progress of the manufacturing sector remained. For instance, the conduct of the Internal Revenue Department (IRD) and Customs and Excise Department (CED) in relation to the interpretation of tax laws and regulations and administration of taxes, levies and duties was not completely consistent and transparent. Fiscal policy packages remained a source of contention. Lack of full coordination between the Ministry of Finance and the Ministry of Trade pre-empted the key operating agency in this area, namely GUYMIDA, from effectively discharging its responsibilities. This, plus the lack of a clear policy in the granting of incentives, deterred some manufacturing investments that might otherwise have occurred. The tendency to politicisation of appointments made the EPC, for example, ineffective. The mandate of GUYMIDA in relation to its policy responsibility for manufacturing was not renewed, nor was the mission of GAIBANK fulfilled in respect to financial support for manufacturing activities.

Overall, although there remained no specific policy for manufacturing, the general measures produced, on balance, desirable structural changes. The share of the secondary sector and particularly, of manufacturing, increased in total production, albeit marginally.

But the general measures in the SAP, while necessary, were not a sufficient condition to induce the private sector to renew and expand investments on the required scale to significantly augment manufacturing output. Even if the irritants and obstacles to the manufacturing sector referred to above had been removed in a timely way, and GAIBANK, GUYMIDA and the EPC had been rendered fully effective, these steps might not have made a significant difference to the performance of the manufacturing sector. What the SAP lacked were clear pointers and specific measures addressed to the particular concerns of the private sector in general, and the manufacturing sector in particular. These could then have been followed up by the concerned sectoral agency, GUYMIDA, in developing a coherent framework for the manufacturing sector. (Annex 28 presents many of the issues concerning the development of the private sector).

5. Economic Liberalisation 1992-1996

To date, the present Government has continued the SAP, emphasising poverty reduction, human resource development and a return to financial accountability. This National Development Strategy in effect represents the culmination of an effort to formulate a distinctly Guyanese framework for economic policy and to provide much more sectoral specificity to that framework than has been available.

In the period between 1992 and 1995, priority was placed on modernising the instruments of fiscal and monetary policy, with the institution of the mechanism of Treasury Bills and the promulgation of the Financial Institutions Act, among other measures. The accumulated, inherited financial problems of GAIBANK forced its merger with GNCB, accompanied by special measures to deal with delinquent loans. Two new private banks opened their doors to the public, so that it can now be said that there is a robust and diverse private banking sector. In the fiscal area, the tax base has been widened considerably, although more remains to be done on that score, and Public Service salaries have begun to recover some of the ground lost in real terms over the preceding years. Fiscal revenues have increased in real terms, but concerns remain about the tax structure and tax collection, and in response, a proposal has been developed to form an overarching Revenue Authority with the requisite mandate and staffing.

Inflation was controlled successfully, foreign exchange reserves began to increase again, and the arrears on foreign debt payments were significantly reduced. Recently, a very significant reduction in the outstanding stock of external indebtedness was achieved.

Privatisation efforts slowed while a stocktaking was carried out, with GNEC and Guyana Stores representing the most notable privatisations in recent years. The additional distribution of shares in DDL was not well-responded to by the public. Recently, however, the privatisation programme has accelerated, starting with GEC. See Annexes 7, 9 and 28 in this regard. Several more enterprises have been earmarked for sale recently, including GCIS, NBIC and LINMINE. Large-scale direct foreign investments also slowed in the early 1990s, but following a review of the relevant tax policy they now appear to be on the upswing again. A Caribbean financial entity (Citizens Bank) has invested in Guyana and a new foreign investor agreed in early 1996 to take over Demerara Timbers Ltd.

As for the institutional dynamics of the manufacturing sector, GUYMIDA was abolished in 1991 and all but one of its functions transferred to the Ministry of Trade, Industry and Tourism (MOTTI). The remaining function was assigned to the new Guyana Office for Investment (GOINVEST), but concerns about the effectiveness of this last institution have led to its being reviewed in Annex 28, and proposals have been made for its modification.

MOTTI is still very much understaffed at the higher levels, as are other agencies of the Government, a reflection of the long-term fiscal crisis. Perhaps for this reason the Coldingen Industrial Estate got off to a slow start, with only two operators in place out of a projected 32. Similar concerns beset the proposed Eccles Industrial Estate. Annexes 27 and 28 have concluded that emphasis in the future should be placed on an export processing zone (EPZ), closely linked to an enhanced deepwater port.

Other landmark legislation approved recently includes a repeal of the Exchange Control Act, bringing the legal framework into conformity with actual practice regarding the exchange rate, and the Environmental Protection Act.

B. Science and Technology

1. Past Policies of the Sector

The first Government efforts at formulating a Science and Technology policy can be traced back to 1974, when a mechanism was created for the initiation, coordination and implementation of a comprehensive national Science and Technology policy. Act No. 26 of 1974 placed this responsibility at the Ministerial level under the control of the Minister responsible for Economic Planning and Development. The Act also created the National Science Research Council (NSRC). By the end of 1975, a Secretary-General was appointed, temporary offices were identified and staff had been employed.

The functions of the NSRC are largely spelled out in the Act giving it wide powers and authority over the development of Science and Technology in the country. Areas of authority include:

- X directing all research in the country;
- X determining Apriorities for scientific and technological activities in Guyana≡;
- X advising Government on the Aallocation of funds for scientific research and on the recruitment and use of research staff≡;
- X advising Government on Amanaging and coordinating scientific activities at various levels, including the establishment of Research Institutes≡, and
- X reviewing and advising on the Aprograms and budgets of research institutes≡.

Since its inception, the NSRC has been responsible for the establishment of the Bureau of Standards, the National Agricultural Research Institute (an extension of the Department of Research of the Ministry of Agriculture) and the Institute of Applied Science and Technology. Notwithstanding these successes, the NSRC has largely failed to achieve its objectives. This failure should not be associated with the NSRC itself or its staff. Instead it should be largely linked to the original objectives; surely, no organisation could be expected to successfully achieve the objectives that the NSRC was set. The intention that it should centrally plan the Science and Technology sector could only have led to a disaster.

In 1985, the Government again placed emphasis on the Science and Technology sector. A State paper on a draft national Science and Technology policy was prepared. However, it did not advocate any radical reforms of the NSRC in the direction of permitting strong influence from the productive sector.

To date, the NRSC remains inactive. The Science and Technology sector remains fragmented, synergistic relationships are poor, and the potential users of Science and Technology remain unserved.

2. Current Policies of the Sector

To rectify the current situation, some efforts are currently being pursued, but these are not linked in a cohesive policy. The recently-created GRDB has taken on responsibility for research in the rice sector because relevant research is not being undertaken by NARI. The effective linkages that the GRDB has formed between the wants and needs of rice farmers should provide a good basis for research.

The performance of NARI as it focuses on the remainder of the agricultural sector, primarily Aother agriculture≡, remains to be seen. Recent reforms at NARI include the appointment of a new Director. The Institute of Applied Science and Technology has also undergone some reforms in recent times, including closer collaboration with the private and service sectors.

III. Issues and Constraints

A. Regional Imbalances in Manufacturing Facilities and Inputs

A casual review and quick mapping of processing facilities and inputs would highlight an important inconsistency - that raw materials which can be processed are often not located where optimal returns are possible, taking into account the high cost of transporting bulk commodities. In some cases there are inadequate processing facilities where there are considerable low-cost primary inputs. For instance, Region 2 has an abundance of such produce as coconuts, cassava, plantain, nibbi, coffee beans, carambola, citrus, pineapple, and guava. They readily lend themselves to the production of oil and animal feeds, pulps, jellies jams, juices (fruits and citrus), chips, crisps, bread, flour (plantains and cassava), furniture, and ground coffee. Yet there are only two old, antiquated manufacturing operations in the Region producing jams and jellies of a quality that sells country-wide and could possibly be exported. There is thus considerable scope for manufacturing and agro-processing activities in Region 2. The same is true for Region 9 with its vast potential for dried and processed meats, and the processing of cashews and peanuts to take just two examples. Here again there is ample scope to establish viable local entities.

B. Export Processing Zones and Industrial Estates

Industrial estates have already proven their usefulness as a mechanism for the promotion of manufacturing and agro-processing in Guyana. They offer the users benefits of externalities and scale and common services at significantly reduced unit costs. The industrial estates of Ruimveldt and Beterverwagting, where all the sites are beneficially occupied, are cases in point. For industrial estates to succeed, they have to be located at the source of either labour, markets or materials. Adequate physical infrastructural facilities, such as access to transportation, power, water, and telecommunications, are critical. The inadequacy of existing facilities partly explains why the Government is currently having difficulty encouraging genuine manufacturers, and not land speculators, to avail themselves of opportunities at the Coldingen complex.

A recent version of the industrial estate which has attracted much attention is the science park, based on the application of high technology, and focused on activities with a high component of value added. In addition to requiring all the conditions essential for the success of industrial estates to be present, they need linkage with research and development institutions which can supply technological knowledge and advice. The science park concept is worth exploring in association with the National Agricultural Research Institute (NARI) and the Institute of Applied Science and Technology (IAST). In the case of NARI, viable ventures could be supported in the genetic propagation of high value, seasonal exports to temperate markets. Similarly, in the IAST case, high technology manufacturing could be supported in the electrical and electronic fields. MOTTI could spearhead their establishment in consultation with the relevant private sector bodies.

Another possibility in this area is to develop a technology-based manufacturing zone in the field of more sophisticated wood processing and link it to the proposed centre of excellence in forest products at the University of Guyana (see Chapter 20).

The establishment of an Export Processing Zone (EPZ) is another mechanism for the promotion of manufacturing and agro-processing. Most of the CARICOM member countries, particularly Jamaica and Barbados, have long-established EPZs. But the success story of EPZs in the Caribbean is the Dominican Republic. There the concept, implemented in 1970, was credited with the creation of 165,000 jobs by 1993. The static, short-term gains from an EPZ are largely employment creation and foreign exchange earnings. The dynamic gains tend to be more diverse, and derive from the development of linkages between the EPZs and the primary and tertiary sectors. Without strong linkages of this nature, the danger always exists that firms could pack up and leave the EPZ. However, on balance, EPZs are strongly conducive to the expansion of manufacturing and agro-processing. The conditions for their success are similar to those of industrial estates and science parks. Hence, they pose no unique set of challenges in terms of establishment and operation. As such, they should be promoted. Here again, the

Government, specifically MOTTI, will consider the establishment and promotion of EPZs. Barbados, Brazil, Honduras and the Dominican Republic provide useful ideas on how the Government might proceed.

C. Competitive Performance

While the manufacturing and agro-processing sector offers considerable scope for expansion in the future, broader changes within the economy could undermine its long-term potential competitiveness. A complete assessment of these will have to await more comprehensive data on the sector as a whole. Meanwhile, a preliminary review of the available data suggests important concerns regarding the sector=s competitiveness.

Table 17-7 below indicates that in a number of key manufactured items, Guyana may not be a competitive producer, even where it is held that the country has a comparative advantage in terms of having the required raw materials and technical competence. The table points to the fact that in two of the three manufactured items listed therein, costs of production are lower in Jamaica and in all four items they are higher in Guyana than in Mexico, the Philippines and Egypt.

Table 17-7
Cross Country Comparison of Cost Structure for
Manufactured Products in 1994

	Jamaica	Mexico	Phillippines	Egypt	Guyana
Cotton - Dress shirt (in USD)	1.14	0.98	0.73	0.81	1.12
Bottled beer (in USD/300 ml)	0.17	0.16	0.14	0.15	0.21
Unsmoked bacon (in USD/kg - Streaky)	1.94	1.78	1.59	-	2.40
Plywood - 2" (in USD - AQ/BS)	-	3.60	-	5.01	5.2

What is the source of the high costs? Table 17-8 attempts to shed some light on this in a regional comparison. True to form, of the four countries involved, Guyana=s labour costs are the lowest. As one would expect, energy and international transport costs are the highest here. (International costs do not affect the comparisons of costs of production shown in Table 17-9, but of course they do influence competitiveness). Greater industrial instability and rising transaction costs are both becoming formidable impediments to business establishment and expansion. Transaction costs include the time spent in paperwork with the Government.

Still, Guyana=s labour cost advantage in 1994 was sufficient that it should have offset the other factors mentioned. Thus, Tables 17-7 and 17-8 pose the question - what are the unidentified, additional factors that cause our costs to be so high in an international comparison? Consumption taxes are no doubt responsible in part for this result, but at least part of the answer must also reside in the exchange rate, which determines our costs in US dollars. After we gained competitiveness by the 1991 devaluations, movements in the exchange rate failed to keep up with our rates of inflation, so once again our goods became expensive in foreign currencies. Seen in this light, the comparisons in Table 17-9 represent a strong danger signal for the future viability of our industries, including sugar and rice. Another consideration is that these industries are quite likely to face declining real prices on world markets.

In addition, Guyana=s cheap labour costs are rapidly becoming a thing of the past. For example, cost-push inflation originating largely in the sugar cane subsector could create problems for agro-processing, where margins tend to be small.

Table 17-8
Competitive Factors - 1994 Manufacturing Cost Structure

	Jamaica	St. Lucia	Grenada	Guyana
Cost of energy (USD/per KWH)	0.08	0.07	0.09	0.18
Semi-skilled wage rates (USD/per day)	6.10	7.03	5.96	5.34
Number of strikes (Private sector/public utilities)	7	5	3	11
Transport cost (USD/20' container to Miami)	900	1,240	1,491	2,200
Transaction cost	High	Low	Low	Very high
Technology	Appropriate	Appropriate	Not appropriate	Not appropriate

We are an export economy, so maintaining competitiveness is vital to our very survival. The issues raised here suggest that the very top priority must be assigned to sustaining a policy framework that aids competitiveness. This means that the liberalisation of the economy has to be taken to the point where:

1. The remaining vestiges of protectionism which sheltered and nurtured import substitution manufacturing (uncompetitive production of goods primarily for the domestic market) are fully dismantled (with some provision for the protection of infant industry and for targeted development retained).

2. Manufactured and agro-processed exports such as rum, rice and sugar, which are subject to special preferential arrangements via CARIBCAN, Lomé and CBI, begin to effectively respond to the progressive decline in the level of preference dictated by global changes.

3. Wage bargaining, taxes, tariffs and the exchange rate do not become converted into instruments that destroy the competitiveness of our productive base.

Adjustment of the sector to a competitive market environment, in which comparative advantage drives output and exports, has become all the more urgent in the light of the irreversible enlargement of trading blocs such as NAFTA and the EU, the implications of the Uruguay Round, and the establishment of the WTO as successor to GATT. However, the adjustment must proceed in a manner that minimises dislocation in social costs, specifically to the sector and more generally, the economy. The proposed policy in manufacturing and agro-processing must address what could be classified as the key challenge to the sector, namely, the transition from protected and preferential markets to the dynamics of the competitive global market place. Once this is achieved, the sector would have been launched on the path to sustainable development.

D. Business Ethics

There is also need to focus on the ethical dimension of the conduct of representatives of the business community and, particularly, manufacturers who are also exporters or importers of final and/or intermediate products and/or base materials for transformation. This pertains to strict and timely compliance with the existing laws, regulations and guidelines laid down by the competent authorities in the public interest.

Far too often, the view prevails in segments of the business community, sometimes with justification, that laws, regulations and guidelines are inappropriate. In such cases, there is a tendency for normally law-abiding individuals to circumvent established procedures, particularly in the area of taxes, duties, and pricing policies, and to induce public functionaries to bypass them. This approach in a maturing society, where the case is being advocated for the business community to feature with increasing prominence in the development thrust, is ill-advised. It has negative consequences for revenue targets, equitable distribution and public morality. There is urgent need for the corporate agencies of the private sector to design and implement a code of conduct, and to sanction its members for non-compliance. The private sector must recognise that as its scope to operate is expanded via an improved enabling environment, its response to the ensuing challenge must in part entail a discernible effort to improve corporate behaviour.

E. Regulatory Arrangements

The manufacturing sector needs a regulatory mechanism that either prevents monopolistic behaviour, mainly in terms of pricing policies, and/or reviews and approves potential mergers which could lead to monopolies.

In both cases, monopolies could work against the public interest, moreso in a small economy such as Guyana's. In principle, what provisions are there to stop, say, the sugar manufacturer or the plywood producer from exploiting his/her monopolistic position and selling his/her product on the local market at significant margins? Similarly, what rules are currently on the statute books that would prevent, say, DDL and Banks DIH from either colluding on prices in relation to alcoholic and aerated beverages or merging to form a single entity? While the latter may make sound economic sense and prove most rewarding for shareholders, it may not serve the public interest, especially that of the consumers of manufactured products. Hence, it is vital to begin to look at the design of an appropriate, arms-length, autonomous oversight agency; in this pursuit, the private sector agencies will no doubt have a leading role to play.

F. Institutional Roles and Linkages in the Manufacturing Sector

As with the manufacturing sector the world over, in Guyana institutional actors have proliferated at the governmental, private and consumer levels. Their respective roles, scope and interactions are yet to be clearly defined in relation to the promotion of the manufacturing sector.

1. Governmental Agencies

At the governmental level, the relevant agencies fall into two categories. In the first category, the apex institution, the Ministry of Trade, Tourism and Industry, is currently the responsible body for policy making, implementation, and monitoring for the manufacturing sector. Specific aspects of its sectoral responsibility, such as the one-stop investment promotion function and the trade promotion function, are vested in the Guyana Office for Investment Promotion and the Guyana Export Promotion Council. Neither of these has yet achieved full effectiveness. MOTTI, which itself has retained core responsibility for the sector, does not have sufficient capacity for policy design. Its management is preoccupied with the day-to-day tasks and related activities of the management function, with little policy coherence. At the central level, the Ministry of Finance, through its fiscal, monetary and planning instruments could, and does, profoundly affect the course of the sector. MOTTI does not have the capacity to relate to basic issues for the sector at the key political and technical levels. The feeling in the private manufacturing sector is that there is a distinct asymmetry in authority. Unless some balance is restored, MOTTI might find that when it comes to policy design for the manufacturing sector, it has the responsibility without the authority to deliver effectively, while remaining accountable for sectoral performance.

In the circumstances, it seems necessary to review the effective roles and 5-year performance of these four institutions, namely, the Ministry of Finance, the Ministry of Trade, Tourism and Industry, GOINVEST and the Export Promotion Council.

Other agencies with a role to play in the manufacturing sector are the Guyana Forestry Commission (GFC) and the Geology and Mines Commission (GGMC), since outputs from the areas covered by both the GFC and the

GGMC are subject to the manufacturing process. The Ministry of Agriculture, by virtue of its responsibility for crops, livestock and fisheries, must also have a say in the design of a national manufacturing policy.

The other category of governmental agency comprises the quality assurance bodies. These are responsible for the setting, monitoring and enforcing of standards and quality principally, but not exclusively, in the manufacturing sector. They include the Food and Drugs Department, the National Bureau of Standards, and the Public Health Office of the Municipality, among others. There are no inter-linkages between these bodies and they do not function in the context of a clear Government sectoral policy. In the absence of such a policy, they tend to go off at a tangent and have become minimally effective.

It may not be possible to have a one-stop agency for investment promotion due to the legal status of our government institutions and Ministerial authorities, but a co-ordination committee may be created to review the work of these institutions on a periodic basis, with appropriate inputs from key public stakeholders. This should ensure the effective participation of all relevant agencies in decision-making.

2. Consumer Bodies

At the second level, there are the Guyana Consumers' Association (GCA) and the Consumers' Advisory Bureau (CAB). They are institutionally weak and lack adequate financial support. They attempt as best as they can to represent the public interest with respect to manufactured products, among others. The fact that they have no statutory base and that their relationship with the Consumer Affairs Division of MOTTI is ill-defined, hinders their effectiveness. Despite the similarity in function, there is no interlinking between the two bodies. Perhaps it would be best for MOTTI to consider divesting its responsibility for representing consumer interests to the GCA and CAB, giving them attendant support and statutory power, while maintaining representation on their boards.

3. Private Sector Bodies

At the third level, namely that of corporate, private sector interests, institutions have multiplied over the years in response to perceptions that existing agencies have responded inadequately to the interests of differing constituencies, particularly in relation to core governmental agencies. There are two types of private sector bodies. Among the first category is the Georgetown Chamber of Commerce (GCC), which began in 1889 with strong merchant class interests; GCC added Industry to its name, thus becoming GCCI, one hundred years later in 1989. There are affiliated bodies in the counties of Berbice and Essequibo. The creation of the GCC was followed much later by the establishment of Guyana Manufacturers' Association (GMA) in 1956; this was in response to the expanding manufacturing lobby, whose interests were felt at the time to be inadequately addressed by the GCCI as an import and distributive trade body. The task of the GMA, like that of the earlier GCCI, was to represent the interests of its membership in relation to the governmental agencies concerned with the sector. In 1963, the Consultative Association of Guyanese Industry (CAGI) came into being to represent the collective interests of private and public sector operations largely, but not exclusively, in the production of goods and services. In the 1980s, it became more oriented to public sector interests and found an important niche in training and consultancy within the economy as a whole.

Efforts from the late 1980s and early 1990s to integrate these various bodies to enable the private sector to speak with one voice vis a vis the Government, and to serve the overall and particular interests of the various constituencies more effectively, failed. In an attempt to supersede intractable difficulties of personality and organisation that existed chiefly between the GCCI and GMA, the umbrella Private Sector Commission (PSC) was created in early 1992. The

expectations for this new body have not materialised and the PSC management has been accused of being ineffective.

Organisational fragmentation has to be overcome by the members themselves in the interests of more effective representation of sectoral interests at the national and governmental levels. In addressing policy matters with governmental agencies, members also need to more visibly integrate the concerns of other private sector groups with a strong interest in manufacturing. These include the Guyana Forest Products Association and the Guyana Gold and Diamond Miners' Association

An institutionalised process of continuous consultations between these three levels of agencies has to be put in place at the earliest opportunity, in order to significantly improve on the design and execution of an all-embracing policy for the manufacturing sector. Partisan consultations and the persistence of organisational conflicts will certainly work against a full and beneficial involvement of the private sector in the process of accelerated development of the manufacturing sector of Guyana.

4. The National Science Research Council

Inasmuch as the National Science Research Council is non-functional, there is clearly a vacuum for coordination of R&D activities. The NSRC/NSTC is responsible for basic coordination of S&T institutions and for ensuring that the needs of the manufacturing industry are met. The absence of such coordination has led to the fragmentation that is being experienced in the sector at present. There is not even an inventory of previous and current work in S&T institutions.

The non-basic research work programmes of NARI and IAST should be driven by the needs of the manufacturing and agro-processing sector. Research results could then be more readily commercialised and both NARI and IAST could strengthen their financial autonomy. The management of both institutions needs to be more pro-active in developing and presenting profiles of technology-driven projects and opportunities to the business community. This could be within or outside of the context of the proposed science park schemes.

To translate these proposals into reality in the context of a clear policy on manufacturing and agro-processing, a useful mechanism would be working groups embracing the relevant private sector institutions and teaching and research agencies, chaired by the MOTTI, and with the NSRC/NSTC playing the role of secretariat. The Ministry of Education might be invited to participate in this arrangement. A similar model may be adopted for the service sector.

G. Physical Infrastructure

1. Telecommunications

Privatisation has resulted in very significant improvements in the provision of telecommunication services but there are still important deficiencies. Services are now supplied on a reliable basis on the coastlands. This, allied with transmitting and related systems for hinterland communication, and with the recently introduced cellular telephones and beeping systems, provides a network of telecommunication services which is helpful to manufacturers and, indeed, to the entire country. However, the telephone lines network has not yet been extended to a desired level.

2. Energy

The state-owned Guyana Electricity Corporation has been recently privatised, and is now the Guyana Power and Light Company. It is projected that its costs will rise at least in the short-term. When it is recalled that the costs under the GEC were so high that they contributed to the uncompetitiveness of the manufacturing sector, this projection of even higher charges seems frightening. However, it is hoped that in the medium and long terms costs will be significantly reduced and that, in addition, the costs now incurred because manufacturers are forced to install power-generating sets of their own, will be eliminated. It is also fervently wished that the reliability of power supplies would be much enhanced.

3. Transportation

The main roadways are in differing stages of deterioration. Recently, the Government earmarked large sums of money for the rehabilitation of existing, and the construction of new, roadways. However, the Lethem-Linden road should be included in the programme as an urgent priority, as underscored in Annex 8.

Improvements are being made with respect to air transportation, especially to the hinterland areas. However, a resumed bulk-cargo service which is commercially viable is needed. Limitations on private air carriers need to be reviewed (Annex 8). Water transport has benefited from rehabilitation and refurbishing of existing ships, making available a more dependable water transport system, but further improvements of the ferry services are urgently needed.

Manufacturers themselves need to enter into discussion with the ocean freight lines servicing the country on improved rates to North America and Western European destinations.

4. Water

Water supply has been a major deficiency but a programme is in place for its improvement.

H. Social Infrastructure

1. Basic Education

The development of a viable manufacturing sector depends critically on a literate and numerate work force, produced in a system of quality basic education embracing all school ages. This could be achieved through the re-introduction of the public/private schooling system and by the Government placing the appropriate priority, hence resources, on this level of education. See the extensive recommendations in this regard in Annex 18.

2. Technical and Vocational Training

The network of technical and vocational institutions providing training in the array of skills and techniques essential to the efficiency of the manufacturing and agro-processing sector is in disarray. Some institutions are not clear on their mission and all are in dire need of improvements to physical facilities, a revision of the curriculum, and, the introduction of relevant programmes, in keeping with the dynamics of the marketplace.

Above all, a system of management which links these institutions with the workplace of the manufacturers is required. In this regard, the industrial attachment underway at the University of Guyana points to the direction in which technical and vocational training should be moving. Annex 27 discusses this issue and presents key recommendations for fundamentally revising the system of technical and vocational training.

3. Tertiary Education

The private sector on the whole feels that graduates coming out of the University of Guyana into technical and managerial positions find it difficult to function effectively in the work place. In general there are communication problems, questions about the relevance of the imparted technical and managerial expertise, concerns about leadership quality, and an apparent lack of independence and drive on the part of the graduates.

All of these concerns should be urgently reviewed by the staff and management of the University in order to improve its product and render it more relevant to the dynamics of the marketplace.

4. Research and Development

Research and Development is fully discussed under F4.

I. Industrial Relations and Labour Markets

The British Labour Act of 1912 and its many amendments, the last having occurred in 1995, provide the framework for industrial relations in Guyana. The industrial relations record indicates higher volatility in Guyana than in the rest of CARICOM, particularly in relation to the manufacturing sector, but within this, there is no evidence that the private sector is more prone to strikes than the public sector. For instance, GUYSUCO (in factories and workshops, not fields) and GPC had two and three strikes respectively in 1995, which was matched only by Toolsie Persaud Limited (TPL) in the private sector.

The manufacturing sector in Guyana is characterised by two types of operating firms. Family-owned enterprises dominate in terms of number, with methods of management varying considerably. However, they share a paternalistic approach to labour, with all the limitations of such an approach (including the view that unions are a nuisance, and that their leaders should only be related to in the event of a strike). The second type is the large shareholding firm, both local and foreign, where the management of industrial relations is given due attention.

This pattern of ownership, and the contrasting approaches to and styles of management, are partly the source of both the stability and volatility of industrial relations in the sector. Over the years the shareholding firms have established mechanisms for regular consultations with the trade unions and have put in place proven procedures to address and resolve grievances before they result in industrial action. Some of these firms have even gone further. Banks DIH, for instance, with hundreds of employees in various manufacturing and agro-processing activities, has only had one strike in its sixty-year history. In its category, it has traversed farthest along the path of workers' participation in management. Here, the labour force is consulted in the process of decision-making. This more enlightened approach to the management of industrial relations is a source of stability in union and management. This has not been the case for some other firms of respectable size.

There are significant imperfections in the labour markets. The labour legislation is in process of being updated. The framework it presently provides is derived from the period of import substitution industrialisation. It needs to be modified to better balance the interests of the two key social partners, with a neutral public authority. Further, as the structure of ownership in the sector shifts over time from the family-owned to the shareholding type firms, industrial relations stability should improve. But it would certainly help for other shareholding firms to review the experience of Banks DIH to see what lessons could be learnt and to put them into practice. Harmony in the sector is a key factor in a competitive marketplace. Consideration should be given to employee shareholding ownership plans which could help the process.

J. Livestock and the Agro-processing Sector

The livestock and dairy subsector faces a number of shared constraints to expansion. The first pertains to stockfeed. While rice bran, copra meal and molasses are available, the element of seasonality occasionally generates a mismatch between supply and demand and thus artificially forces up the price. The key component of stockfeed is protein which is imported as concentrates. It is costly, and proper formulas for blending imported inputs with local materials are yet to be worked out. Most farms improvise without a basis of scientific research.

The second constraint is abattoir facilities. Those under municipal ownership and management are neither sanitary nor functional. The private sector has demonstrated that it can efficiently run such facilities. Both Bounty Farms Limited and C and F Meat Centre have their own modern abattoir facilities, which are most efficient.

Third, backward integration of the livestock sector is generally insufficient. As the cases of BFL and CFMC have shown, backward integration contributes significantly to value added. The scope for further processing of livestock products is considerable. While ham, bacon, and sausages are being processed, quality and variety could be enhanced and new products introduced such as dehydrated meats for soup mixes and other manufactured food preparations.

The agro-processing industries can be aided enormously if greater effort is made towards large-scale orchard production for crops. Far too often, there is inconsistency in both the quantity and quality of fruits produced.

K. Issues and Constraints in Science and Technology

1. Institutional Mechanisms for Coordination

One of the principal issues facing the Science and Technology sector is the lack of oversight. However, oversight must be distinguished from the Acontrol≡ of the sector that formerly prevailed under the authority of the NSRC. It implies the establishment of organisational linkages between needs, research and development, and delivery. These linkages are most lacking in agriculture and are exacerbated by the fact that farmers are mostly rural-based Xaway from where the research is being done.

Given the scarcity of resources, it can be expected that for many years there will and should be a great deal of interdependence within the sector for manpower, facilities and equipment. As proposed elsewhere, a coordination unit could serve the role of facilitating these linkages. This form of oversight should be distinguished from that of determining what research and technologies should be developed, which is better decided at the local level by the users and developers of technologies. There should be no centralization of authority in directing the course of Science and Technology. This condition is key if scientists and engineers are to be given the freedom to respond to changing demands for new technologies.

One key requirement for advancing the sector is information-sharing among the different actors in research and development. There is therefore need for a “clearing house” of information involving the different actors. Information-sharing leads directly to the need for a relevant data base, which is absent in Guyana. The University of Guyana=s library is focused on the needs of students and does not meet the requirements of the nascent research industry. Library facilities at IAST and NARI are lacking. The cost of operation of a proper data base facility at a central location should not be inordinately expensive and may be funded by a donor agency.

2. Organic Linkages

This problem is especially severe in the agriculture sector. In the Crops and Livestock Department of the Ministry of Agriculture, NARI and the agriculture-focused institutions, there seems to be a lack of representation and understanding of the needs of farmers. Some feel that research is not driven by the needs of farmers (Annex 11). Clearly, better linkages need to be developed between the needs of farmers, research and extension, and mechanisms need to be worked out to achieve this. Community participation is important and community needs should drive the research agenda. The delivery of the results of such research should then follow as a logical extension. The use of one institution in the field of agriculture to perform research, extension, marketing and crop reporting should be explored as advocated in Annex 11 of the National Development Strategy.

IV. Sectoral Objectives

A. Manufacturing

The principal national objective for the manufacturing sector is that it increase its contribution to the economy=s overall development. As this Annex has demonstrated, in the past the relative contribution of the sector has been quite low, both by the standards of the developing world in general and relative to Guyana=s potential. There are three aspects to this broad objective:

1. Promoting a rapid increase of production and employment in the manufacturing sector, including agro-processing.
2. Stimulating a judicious degree of diversification, in keeping with Guyana=s current and potential comparative advantages.
3. Encouraging the wider use of relevant and adaptable modern technology.

Put another way, the overall roles of the manufacturing sector are to enhance the vertical integration of principal resource-based sectors and to produce a constantly more diverse and widening stream of goods. This means not only expanding outputs such as millwork, furniture, doors and mouldings, veneers, etc., and industrial diamonds, processed gold, polished semi-precious stones and jewellery, but reviving former traditions in sectors such as metal working and textiles, building vigorously on the rich base of non-traditional agriculture to produce a variety of processed foods, and introducing, over time, the manufacture of entirely new products.

Meeting these challenges will be crucial to Guyana's movement to a higher stage of development in the first decade of the next century. The obstacles in the path are formidable, but the potential is there to be reaped, for the benefit of all citizens.

The seven operational sub-objectives set out for the private sector as a whole in Annex 28 are all directly relevant to achieving the broad objectives established for the manufacturing sector.

B. Science and Technology

With regard to the manufacturing sector, the overriding objective of a Science and Technology policy is to create an environment where appropriate research and development can take place. In the context of Guyana, the following specific objectives have to be achieved if a Science and Technology policy is to be successfully implemented:

1. The establishment of organisational mechanisms to make the sector more efficient.
2. The establishment of mechanisms for improving the linkages between needs, research and extension.
3. As one of the organisational mechanisms, the establishment of a clearing house for information.
4. The creation of financial incentives that make research and development attractive to firms, research institutes and individuals.

It is clear from the foregoing that proposals for the research agenda in Guyana are focused on the needs of the productive sectors of the economy. Little attention has been paid to research in other sectors, for example, in health or the pure sciences. This is deliberate, recognising the absence of the sophisticated laboratories and infrastructure needed to conduct such research. One can, however, envisage that as the country develops and better infrastructure is put in place, there could be a shift in the objectives of the research agenda.

V. The Strategy

In this Annex, many elements of the required strategy have been developed in the course of the discussion of issues and constraints. Here, they are summarised briefly and complemented by additional policies of importance for the sector.

A. Manufacturing

1. Export Processing Zones

The creation of two export processing zones, one in Demerara and the other in Berbice, is one of the foundations of this National Development Strategy as regards the promotion of the manufacturing sector. It is essential that the EPZs be located within close reach of deepwater harbours. Accordingly, the area around the improved port facility in Berbice recommends itself for this purpose. However, another EPZ will be established in

Demerara, once the deep water harbour facilities are created there. The Demerara harbour EPZ appears to be essential if the increased export and import traffic, envisaged through the establishment of the road to Brazil, materialises. The harbour in the Berbice River will be deepened, principally by dredging the channel, until the goal of permitting ships of 60,000 dwt to pass easily is attained.

The EPZs will cater only for production for export. Rebates on duties and consumption taxes will be offered upon the certification of the export activity. Emphasis will be placed on those industries with backward linkages to production in the primary sector in Guyana, although selected other industries will be accepted as well. The EPZs will be accompanied by industrial infrastructure in the form of land, water, electricity, roads and telecommunications. Government will make land available nearby for construction of housing and, as the zones develop, schools and other social infrastructure will also be provided.

A pre-feasibility study will be carried out for the EPZs, specifying possible industries and their markets abroad, the layout of the zones and the infrastructure requirements, costs, and the time phasing of its development. Work necessary to provide suitable harbour facilities will also be analysed in the study. The review of the financing mechanisms will include the possibility of a BOOT operation by an international corporation with experience in the manufacturing sector and in exporting.

In the same vein, the prospects for a science park warrant careful exploration, particularly in connection with a potential centre of excellence at the University of Guyana, either in geology and mining or in forest management and utilisation.

2. Policies to Maintain the Sector's Competitiveness

These policies are presented comprehensively in Annex 28. They are of the highest importance for the manufacturing sector to be able to prosper in the future. Some of the most important of these policies include labour force training, improved mechanisms for industrial relations, a more uniform and liberal tax regime, and the maintenance of a stable exchange rate over time. It is worth reiterating that the manufacturing sector in Guyana is now at a competitive disadvantage vis a vis other countries in the region in these four policy areas, and that this disadvantage offsets a goodly portion of the cost advantage which Guyana obtains from its relatively low-cost labour. The improvements cited are therefore urgently needed. The policies outlined in Annex 28 in respect to the privatisation programme, and the acceleration of that programme, are also highly relevant to the future of our manufacturing sector.

3. Institutional Aspects of the Private Sector and Business Ethics

The leadership of the private sector needs to strengthen the internal cohesion of the business community and increase the representativeness of its consultative organs. Clearly, a soul-searching review of the structure and function of the PSC is needed. One way to increase the interest of members of such an organisation is to launch a programme of events, including workshops on particular policy issues, with guest speakers from the private sector of other countries. It would also be important to organise fact-finding visits of teams of eight to ten private sector leaders to other countries. Once members find that the sessions of the organisation have more promising content, a greater willingness to work together collegially will probably emerge. International donors may be willing to support an amplified programme of this nature.

A Task Force will be set up to focus on Smart Partnerships, a new framework for encouraging and managing businesses. Such an initiative would encourage community members to work together. International donors may also be willing to support an amplified programme of this nature.

The Task Force will also implement measures to encourage private sector-led initiatives, and nurture a knowledge-driven economy and export-led growth. The media will be used by the Task Force to facilitate its work.

A Joint Action Plan will be developed by private sector entrepreneurs and public sector support agencies, which formulates a mutually agreed structure of responsibilities based upon their institutional capabilities. The Action Plan will focus on the effective transformation of enterprises and will contain measures to drive value-added changes into those enterprises, increase productivity, efficiency and morale to strengthen export-led growth, and decrease waste and turn-over. It will have a quick and time-bound plan and methodology.

4. Regulatory Arrangements

Although the economy will not be controlled, certain protective measures will be put in place to regulate various aspects of commerce and production. These will assist in the elimination of malpractices such as importing expired items and relabelling them. Regulatory batch testing by the Food and Drug Agency (FADA) will be institutionalised, especially in food and food-related products including fertilisers, pesticides, and insecticides.

5. Physical and Social Infrastructure

Full implementation of the recommendations of Annexes 7, 8, and 15 will be of the utmost importance for restoring the competitiveness of our manufacturing sector, which now suffers unwanted increases in the cost of production because of the inadequacy of the infrastructural networks. Similarly, full execution of the programmes of Annexes 5, 18, 19, and 23 related to the environment, health, education and housing, will be essential to enable the country to attract and retain the calibre of managers and specialist professionals that its nascent manufacturing sector requires in order to develop.

In a world of increased mobility of professionals, the so-called amenities of living, some of them very basic indeed, are of increasing importance for the development of the productive side of an economy, and Guyana should not consider itself an exception in this regard.

6. Industrial Relations

As pointed out in the foregoing discussion, the Labour Act has become an anachronism. It requires review and updating, with an orientation toward replacing a confrontational labour-management relationship with one that is more consultative and cooperative, and giving greater emphasis to labour force training and to policies that increase labour mobility. The current legislation builds rigidities into the system of employment when a modern economy demands greater flexibility.

7. Industry and the Amerindian Community

Too often in discussions of industrial policy, little or no consideration has been given to the possible role of the hinterland communities, including the Amerindians. A more balanced regional development, wherever it makes commercial sense, would have the advantage of generating more stable employment and lowering the incidence of poverty in the hinterland. Such development could be based on small-scale manufacturing and agro-processing, and specialised developments such as the proposed regional gold refineries (Annex 16). In this respect, the completion of the all-weather road to Lethem and the lifting of restrictions on private air services will be essential ingredients of the policy. The potential of the Rupununi, especially in vegetables and livestock products, will be integrated into the rest of the economy, as well as other hinterland areas that are endowed with deposits of semi-precious stones and other resources.

8. Policies for Selected Subsectors

a. Processing Semi-precious Stones

The GGMC and GGDMA will commercially rehabilitate the lapidary operations, perhaps initially as a pilot project, to demonstrate their possible commercial viability. Gold and diamonds which locally are used, specifically

for the manufacture of jewellery for the domestic market and informal export, will be supported by the following strategy:

- (i) The infusion of design expertise, state-of-the-art technologies, training of craftsmen and upgrading of management in order to reduce unit costs and to break into the higher-value market niches.
- (ii) The transformation of the informal into formal exports and the expansion of marketing opportunities. Again the GGMC and GGDMA will, with the existing manufacturers and distributors and other established parties, detail an operational strategy that will enable the country to capture an increasingly larger stream of the potential benefits which the raw materials in question are capable of offering by way of manufacturing activities.

b. Credit for Fishermen

Credit policies in relation to fishermen will be addressed; here, there may be a special niche role for an institution like the Institute for Private Enterprise Development (IPED). This may be pursued in association with donor agencies with a traditional interest in the building of this subsector, but in the context of an overall national policy framework.

c. Livestock Processing

Government will divest itself of abattoir services and have them transferred to the private sector on strict performance conditions; while strengthening the capacity of the municipal agencies to monitor compliance with tariffs and sanitary standards.

9. Best Potential Industries in the Short to Medium-Term³

Potential investment opportunities in the short-to medium term include the following:

- a. Systematic expansion of the agriculture sector to produce standard quality produce which can satisfy regional and extra-regional demand.
- b. Development of a packaging industry catering to the needs of local as well as export markets.
- c. Re-organisation of the furniture industry to meet international demand.
- d. The development of value-added industries based upon agro-waste products such as rice husk-based silica, and press boards of various dimensions.
- e. Development of a small-scale ceramic industry.
- f. Development of a high technical service industry.
- g. Development of support services industries.
- h. Establishment of an oil refinery to refine crude oil.
- i. Development of an electronic industry.
- j. Modernisation of the craft industry.

³ This list was substantially developed for the core document of the National Development Strategy. See pp 195-196.

A clear vision is needed for the development of the manufacturing sector. To put the appropriate policies in place, Government will seek the cooperation and extensive involvement of the private sector. Closer networking and collaboration among the various support agencies will be developed and the regional structure will be strengthened to deal with developmental requirements.

This should create a dynamic, vibrant and diversified business sector fully capable of meeting the challenges of the global economic environment.

B. Science and Technology

In this section, the discussion of a strategy for Science and Technology is limited to the role of S&T in relation to the productive sector.

1. Need for a Coordinating Body

The National Science Research Council, will be resuscitated as a coordinating body for S&T, its organisation and functions better constructed and defined. As a first step, the agency will be reconstituted as the National Science and Technology Council (NSTC), which better recognises the symbiotic relationship between Science and Technology, as well as reducing the emphasis on the traditional form of research.

a. Staffing and Funding.

There will be clear and appropriate Ministerial or equivalent responsibility for Science and Technology. This will require much greater staffing than is now awarded to this area.

While the NSRC/NSTC can charge user fees to organisations and individuals, this could be inadequate for its functioning. The Government will therefore make budgetary allocations to the NSRC/NSTC out of its national budget. The private sector will also be encouraged to contribute. The establishment of targeted pots of funds, for example, an Aindustrial research fund≡ funded by the private sector, will guarantee funds for a specific research activity each year.

The issuing of research grants will be a major source of funding for research. Funding can also come from contributions from fundamental research activity in areas such as Biodiversity, Forest Research and foreign-funded S&T projects in Guyana. All such projects, while administered by their respective sectoral agencies, will be set up so as to divert some funding for S&T coordination in the country.

b. Functions

The NSRC/NSTC will maintain a properly functioning library and information source, with continuous updating of all research information. A data base on current local research activities, the potential of indigenous materials, the needs of industry, and the potential for collaboration between researchers, will be part of this resource.

The agency will assist in the development of new technologies by awarding grants, scholarships and internships. The body should itself not engage in research activities. It will not dictate the research agendas of any institution, though it may award grants from its budget for specific work which it determines has priority, and similarly, a sponsoring agency that is funnelling money through the NSRC/NSTC may earmark such money for specific research.

c. Accountability and Participation

Measures will be put in place to keep the resuscitated NSRC/NSTC active. This can occur only if the user community (the community of researchers, developers and industry) insists on a high degree of accountability, including annual reports (both written and oral) to Parliament, or reports back to interest groups that pay user fees

and dues to the NSRC/NSTC. An established ratio of administrative costs to its active research budget may be one way of measuring the efficiency of the NSRC/NSTC.

Active participation of the private sector in the growth and development of S&T activities and of the NSRC/NSTC is equally important. The private sector must recognise that as the recipient of much of the benefits of the activities of a revitalised Council, it must contribute tangibly and significantly to its sustenance.

The NSRC depends on the commitment of the research community to use and support its activities. In this regard, some measures will be put in place to ensure that participating institutions fulfil their obligations, such as notification and periodic information requirements (for example, monthly information summarising new research activities, progress in ongoing research, and new appointments. If such obligations are not met in a satisfactory manner, the defaulting institutions may be barred from using the services of the NSRC/NSTC, receiving research grants or having current research grants terminated.

a. Composition

The composition of the NSRC/NSTC is also important for its success. In its new form, the NSRC/NSTC will have a balance between representatives of technology users, research institutions and Government. It will not be very large. Technology users may be represented by interest groups such as the manufacturers' and farmers' associations.

2. Other Organic Linkages

The recommendation in Annex 11 of the Strategy for integrating research, extension, marketing and crop reporting into one institution will be pursued. This would, of course, absorb the functions of NARI. The new institute may also include the agriculture-related functions of the IAST; if not, there should be careful coordination between the two in their activities. This structure should encourage research that responds to community needs. By integrating crop reporting and marketing on one side, scientists will have a much better idea of research requirements. Research findings can in turn be distributed through agriculture extension.

3. Markets for Technology

The development of a market for the sale of technology is important for several reasons. While the Government can be expected to provide certain extension services in agriculture, it cannot do so in other industries. Marketing of technology (whether developed by the private or public sectors) is the most efficient way to distribute technology. In agriculture it will also lessen the burden of extension on the Government which can focus its efforts on meeting the needs of small farmers and leaving the larger farmers to pay for extension services.

The marketing of technology will also provide financial incentives for people to become involved in its development. Again, this will reduce the burden on Government as the profit incentive will provide the motivation for the private sector to be more actively involved in all aspects of technological development.

Science and research will also be made more attractive to those working in the public sector. A formal mechanism that adequately compensates researchers for the work they do will be determined at all institutions where personnel have the capacity and opportunity to conduct research. The compensation may be directly linked to the sale of the technology, that is, the researcher gets an established percentage of all sales of the technology. Thus, the active marketing of technology need not only be for technology which is developed privately. This practice would also provide an indirect mechanism which guides researchers in responding to market demands. (This would, of course, not hold in the case where research institutes develop technologies under contract with a firm. In this case royalties from the sale of the technology will depend on the agreement between the firm and the institute.)

Marketing will not necessarily be carried out by the research institute. For example, the University of Guyana, IAST or NARI may develop a technology and sell it through a marketing agency or an interest group such as a farmers' association or a miners' association. Mechanisms will, however, be put in place to ensure that in the case of agriculture, the sale of technology does not discriminate against small farmers. The recommendation in Annex 28 for the establishment of a

technology transfer unit in the Guyana Marketing Corporation, which can ensure that small farmers have access to technology, is endorsed.

The development and sale of technology in a market environment also implies the development of appropriate patent and copyright laws. Without these, the profit motive from developing technologies is eroded. This is an area on which a resuscitated NSRC/NSTC will focus immediately.

VI. Legislative Changes

The legislative changes required to implement this policy framework for manufacturing are effectively those described in Annexes 27 and 28, supported by the legislative programmes of Annexes 12, 13, 14 and 16. It is important to emphasise the need for full implementation of this legislative agenda, for partial measures would still leave the manufacturing sector at a handicap. It is equally important to carry out the many policy changes that do not require legal changes, but can be put into effect by means of decisive administrative action within the present legal framework.

The National Science Research Council Act No. 26 of 1974 will be revamped to reflect the policy directions indicated above. Important aspects or amendments are:

- Amending the Act to reflect less Government representation and more collective representation from the private sector. Organisations such as LINMINE, GUYSUCO, the Office of the President and the National Council of Local Democratic Organs will be dropped from the legislation and replaced by representatives of the private sector and farmers= organisations.
- Certain powers of the NSRC/NSTC will be removed, such as its powers to review and advise on the programs and budgets of research institutes and to determine priorities for scientific and technological activities in Guyana.
- In line with the general thrust of the new policy recommendations, the NSRC/NSTC will no longer have the sole authority to Advise on suitable arrangements for planning, managing and coordinating scientific activities at various levels, including the establishment of Research Institutes.≡

Legislation governing institutions such as NARI will be rewritten to remove the element of control imposed over these organisations, but retaining the coordinating role of the NSRC/NSTC.

Patent and copyright laws will be developed. Other annexes of the National Development Strategy, for example the annex dealing with Amerindian development, highlight the need for similar laws. While in the case of Science and Technology the context is different, the preparation of these laws should be consistent across sectors.

APPENDIX

A Summary of Telecommunications Policy

The Government recognises the positive contribution an efficient and modern telecommunications system is likely to make in the development of the economy of Guyana. This was the main rationale for privatising, in 1991, the Guyana Telecommunications Corporation (GTC), which was a public corporation wholly owned by the Government. In view of the economic situation then prevailing in Guyana and the conditionalities of the Structural

Adjustment Programme, the Government found it impossible to finance the extension and modernisation of the telecommunications system. Besides, the Government then in power was moving towards accepting privately-owned enterprises in all sectors of the economy, including public utilities.

GTC was privatised by converting it into a private limited company called the Guyana Telephone & Telegraph Company Limited (GT&T) and selling 80 percent of the shares of the new company to an overseas investor, the Atlantic Tele-Network Limited (ATN).

When the agreement for privatisation was signed on the 18th June, 1990, GTC had about 21,000 telephone lines. This has now increased to 47,845 lines. GT&T has also introduced fax service and cellular telephone service in a limited manner. It has now submitted a new three-year plan which projects:

- an addition of 6,000 to 6,500 new lines each year over three years;
- provision of digital switches for at least nine (9) exchanges;
- initial introduction of wireless services to grow with operating experience;
- the spread of service to all communities not currently being served, both on the coastland and in some populated interior locations, in three years;
- utilisation of relevant technology, e.g., domsat, wireless;
- two additional sites to DAMA to build out-access to interior locations with greatest demands;
- gradual changing of the old line plant in the Georgetown area;
- the construction of the infrastructure for telecommunication development in the future, such as debit card platform, data/Internet platforms, fibre ring in Georgetown, network security through the Skeldon/Linden fibre link, mobile cellular expansion, and a fibre link throughout the coastline in Guyana.

The expansion plan is under review by the Public Utilities Commission, an independent regulatory body empowered to regulate public utilities in Guyana, which has obtained the services of an international consulting group, with considerable experience in communications, to advise it. While finalising the expansion plan, the Acapulco Declaration of American Regional Telecommunication Development Conference (Acapulco, 31 March - 4 April, 1992) is expected to be taken into account.

The licence granted to GT&T imposes on it an obligation to provide universal service, that is, to provide telecommunications service to every person who requests the provision of such service at any place in Guyana. The Acapulco Declaration contemplates that the number of telephone lines in each country in Latin America and the Caribbean should reach a density of 20 lines per 100 inhabitants.

The Agreement between the Government and ATN and the licence granted to GT&T provide for monopoly rights for twenty years, renewable at the option of the licensee for another twenty years, in respect of most of the telecommunications operations. One telecommunications service which is not subject to this monopoly is the mobile cellular telephone service.

The various agreements and declarations relating to the establishment of the World Trade Organisation make provision for the introduction of competition. The Government of Guyana is a party to these agreements and declarations. In view of this, and having regard to Condition 36 of the licence granted to GT&T, the Government will be entering into negotiations with GT&T with a view to introducing competition in all areas of telecommunications service.