

Report No. 2218-TR

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Economic Position and Prospects of *TR-PIM ABR* Trinidad and Tobago

(In Two Volumes)

Volume I: The Main Report

December 19, 1978

Country Program Department II (LC2)

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CURRENCY EQUIVALENTS

Until December, 1971

US\$1.00	=	TT\$2.00
TT\$1.00	=	US\$0.50

From December, 1971 to July, 1972

US\$1.00	=	TT\$1.84
TT\$1.00	=	US\$0.54

From July, 1972 to June, 1976

The TT\$ was allowed to float
in line with sterling.

As of May, 1976

US\$1.00	=	TT\$2.65
TT\$1.00	=	US\$0.38

Since June, 1976

US\$1.00	=	TT\$2.40
TT\$1.00	=	US\$0.42

This report is based on the findings of an economic mission which visited Trinidad and Tobago in February/March of 1978. The mission comprised Messrs. Murray Ross (Mission Chief), Frederick Z. Jaspersen (Mission Deputy Chief), Ms. Constance Bernard (Fiscal Analyst), Messrs. John Foster (Petroleum Economist-Consultant), Juan Carlos Jordan (Balance of Payments Specialist-OAS), V. Panoutsopoulos (Statistician), Christopher Pratt (Industrial Engineer), W. Sikorski (Construction Sector Specialist), William Ward (Project Preparation and Budgeting Specialist-EDI), and Robert Young (Education and Manpower Training Specialist-ILO). The mission was assisted by the efforts of Messrs. C. Applewhite (Agricultural Economist) and B. Decaux (Industrial Economist) in conjunction with work conducted for the Caribbean Group for Cooperation in Economic Development.

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COUNTRY DATA - TRINIDAD & TOBAGO

<u>AREA</u>	<u>POPULATION</u>	<u>DENSITY</u>
5128.0 km ^{1/}	1,114,800 (mid-1977)	.. per km ^{1/}
	Rate of Growth: 1.1 (from 1970 to 1976)	.. per km ^{1/} of arable land

POPULATION CHARACTERISTICS 1977

Crude Birth Rate (per 1,000)	22.3
Crude Death Rate (per 1,000)	6.2
Infant Mortality (per 1,000 live births)	26.9

INCOME DISTRIBUTION 1975-76

% of national income, highest 5%	18.0
lowest 20%	3.1

ACCESS TO PIPED WATER 1975-76

% of all dwellings - urban)	58.6%
- rural)	

NUTRITION 1974

Calorie intake as % of requirements	105.0
Per capita protein intake	65.0

HEALTH 1975

Population per physician	1970
Population per hospital bed	240

DISTRIBUTION OF LAND OWNERSHIP 1963

% owned by top 10% of owners	31.1
% owned by smallest 10% of owners	1.5

ACCESS TO ELECTRICITY 1970

% of population - urban)	77.0%
- rural)	

EDUCATION 1973-74

Adult literacy rate %	92.4
Primary school enrollment %	111.0
Secondary school enrollment %	37.0

GNP PER CAPITA in 1976^{1/}: US \$2,185

GROSS NATIONAL PRODUCT IN 1977ANNUAL RATE OF GROWTH (% constant prices)

	US \$ Mln.	%	1970-76	1977
GNP at Market Prices	2,936.0	100.0	3.2	7.8
Gross Domestic Investment	746.1	25.7	6.5	20.3
Gross National Saving	918.6	31.6	21.4	14.2
Current Account Balance	172.5	5.9	.	.
Exports of Goods, NFS	1,399.4	48.2	0.3	-3.5
Imports of Goods, NFS	1,164.5	40.1	3.4	5.5

OUTPUT, LABOR FORCE AND PRODUCTIVITY IN 1977

	Value Added		Labor Force ^{2/}		V. A. Per Worker	
	US \$ Mln.	%	Thousand	%	US \$	%
Agriculture	88.1	2.9	57.6	13.4	1,529.5	22.0
Industry	1,872.5	62.4	158.5	36.8	1,181.4	169.7
Services	1,038.9	34.7	199.2	46.2	5,215.4	74.9
Unallocated	.	.	15.5	3.6	.	.
Total/Average	2,999.5	100.0	430.8	100.0	6,962.6	100.0

GOVERNMENT FINANCE

	General Government			Central Government		
	(TT\$ Mln.)	% of GDP		(TT\$ Mln.)	% of GDP	
	1976	1976	1974-76	1976	1976	1974-76
Current Receipts	2,204.9	35.5	32.9	2,126.7	34.2	31.7
Current Expenditure	1,231.2	19.8	18.3	1,232.6	19.8	18.2
Current Surplus	973.7	15.7	14.7	894.1	14.4	13.5
Capital Expenditures	731.4	11.8	8.7	729.9	11.7	8.7
External Borrowing (net)	-79.7	-1.3	-0.7	-79.7	-1.3	-0.7

^{1/} The Per Capita GNP estimate is at 1976 market prices, calculated by the same conversion technique as the 1977 World Atlas. All other conversions to dollars in this table are at the average exchange rate prevailing during the period covered.

^{2/} Total labor force; unemployed are allocated to sector of their normal occupation. "Unallocated" consists mainly of unemployed workers seeking their first job.

.. not available
.. not applicable

COUNTRY DATA - TRINIDAD AND TOBAGO

<u>MONEY, CREDIT and PRICES</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
		(Million \$TT outstanding end period)				
Money and Quasi Money	737.4	833.3	1,083.0	1,416.6	1,898.5	2,385.8
Bank Credit to Public Sector	154.0	207.3	-320.7	-1,115.2	-1,647.7	-2,865.5
Bank Credit to Private Sector	500.4	583.4	653.6	878.7	1,239.6	1,742.5

(Percentages or Index Numbers)

Money and Quasi Money as % of GDP	34.5	32.4	26.8	26.2	30.5	33.5
General Price Index (1960 = 100)	151.7	174.2	212.5	248.6	277.6	310.2
Annual percentage changes in:						
General Price Index	9.9	14.8	22.0	17.0	9.7	11.8
Bank credit to Public Sector	-	34.6	-254.7	247.7	47.7	73.9
Bank credit to Private Sector	-	16.6	12.0	34.4	41.1	40.6

BALANCE OF PAYMENTS

	<u>1975</u>	<u>1976</u>	<u>1977</u>
	(Millions US \$)		
Exports of Goods, NFS	1,234.4	1,324.1	1,399.4
Imports of Goods, NFS	864.9	1,010.6	1,164.5
Resource Gap (deficit = -)	369.5	313.5	234.9
Interest Payments (net)
Workers' Remittances
Other Factor Payments (net)	-78.2	-100.8	-32.0
Net Transfers	-21.2	-30.0	-30.4
Balance on Current Account	270.0	182.6	172.5
Direct Foreign Investment	202.8	101.4	137.7
Net MLT Borrowing	-3.9	-51.1	152.8
Disbursement:	11.2	10.6	160.3
Amortization	15.1	61.7	7.5
Subtotal	198.9	50.3	290.5
Capital Grants			
Other Capital (net)	-25.7	-9.9	-10.4
Other items n.e.i	-81.7	-63.6	-47.7
Increase in Reserves (+)	-361.5	-159.4	-500.3
Net Reserves (end year)	684.6	844.0	1,344.3

MERCHANDISE EXPORTS (AVERAGE 1975-77)

	<u>US \$ Mln</u>	<u>%</u>
Mineral fuels & Lubricants ^{2/}	866.2	41.8
Food, Beverages & Tobacco	84.0	4.1
Chemicals	62.4	3.0
All other commodities	1,058.1	51.1
Total	2,070.7	100.0

EXTERNAL DEBT, DECEMBER 31, 1977

	<u>US \$ Mln</u>
Public Debt, incl. guaranteed	283.2
<u>DEBT SERVICE RATIO for 1977</u> ^{3/}	<u>%</u>
Public Debt, incl. guaranteed	0.6

RATE OF EXCHANGE

Through April 1976 - Floating with Pound Sterling

Since April 1976, pegged to US dollars

at TT\$2.4 = US\$1.00

TT\$1.0 = US\$0.417

IBRD/IDA LENDING, April 1978 (Million US \$):

	<u>IBRD</u>	<u>IDA</u>
Outstanding & Disbursed	58.7	.
Undisbursed	14.4	.
Outstanding incl. Undisbursed	73.1	.

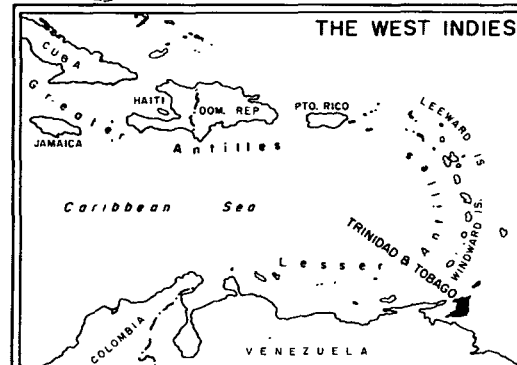
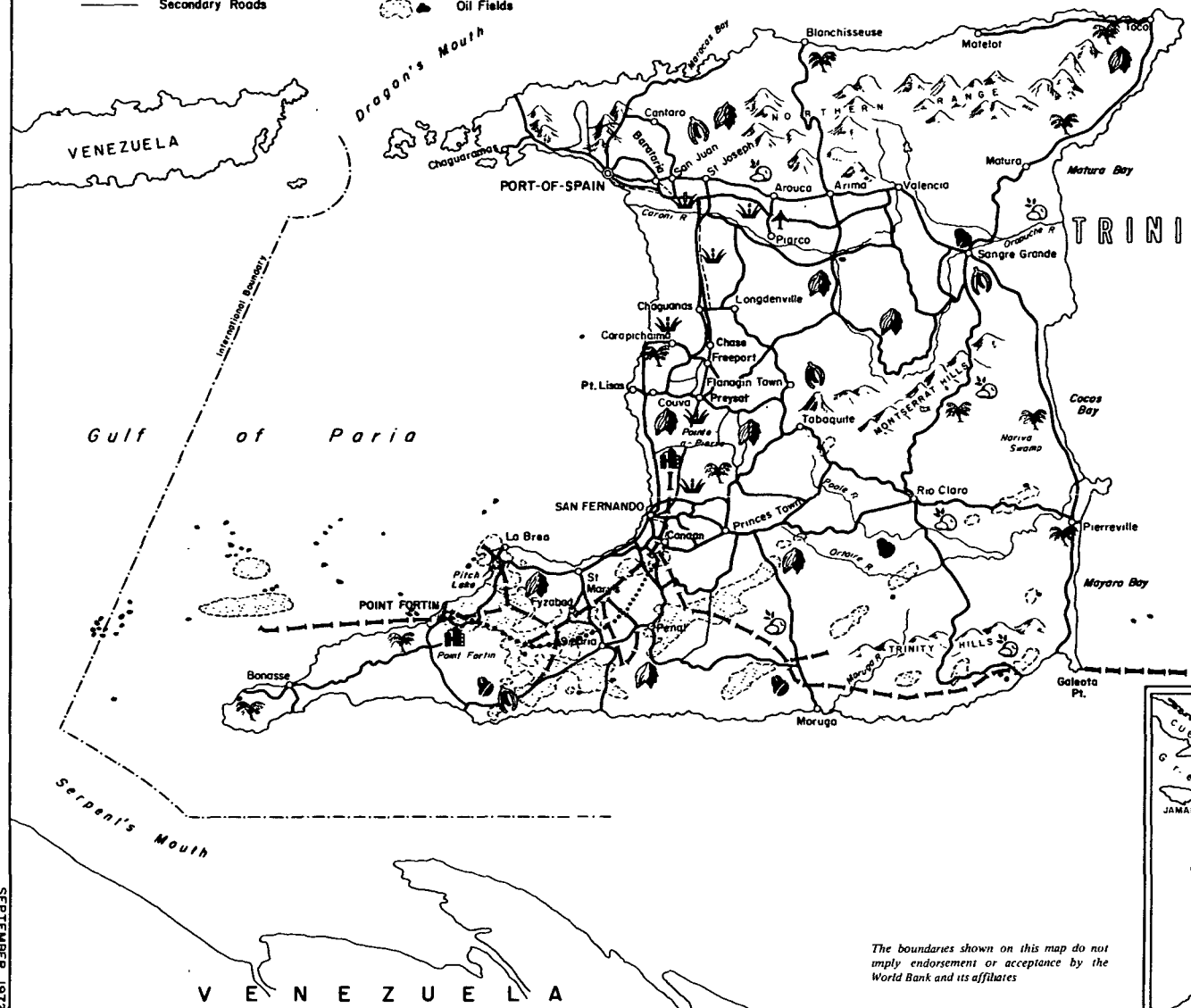
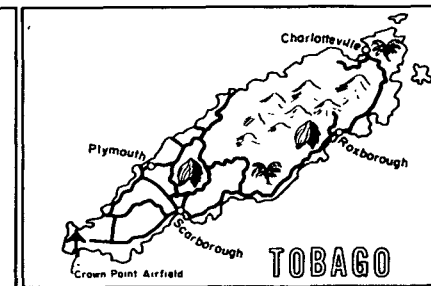
^{1/} Including domestic exports and re-exports.^{2/} Net of trade under petroleum processing agreement.^{3/} Ratio of Debt Service to Exports of Goods and Non-Factor Services.

. . not available .

. not applicable

TRINIDAD AND TOBAGO

- | | | | |
|--------------------------------------|--------------------------------|------------|--------------|
| — Southern Highway | - - - International Boundaries | Sugar Cane | Citrus Fruit |
| - - - Engineering Studies | Airport | Cocoa | Coffee |
| Future Extension of S. Highway | - - - Oil Pipelines | Coconuts | Bananas |
| — Main Roads | Oil Refineries | | |
| — Secondary Roads | Oil Fields | | |



The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates

SEPTEMBER 1972

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SUMMARY AND CONCLUSIONS

Recent Economic Trends

1. The economy of Trinidad and Tobago has been undergoing a structural transformation during the past several decades. Once largely dependent on tropical export agriculture, the economy has gradually evolved into a modern diversified semi-industrial complex, with agriculture now contributing only about 3% of GDP. The discovery and exploitation of petroleum and gas some three decades ago have played a vital role in this process. Although relatively poor in these natural resources which as recently as the late 1960s accounted for only 15% of GDP, they have exerted a disproportionately large influence at the margin in determining the state of both public finances and balance of payments and thereby on the fate of the economy. Thus, through most of the 1960s a vigorous petroleum sector provided modest surpluses for capital formation in the rest of the economy. Conversely, a secular decline in petroleum production between 1968 and 1972, resulting from depletion of existing fields, generated a serious deterioration in the fiscal and balance of payments situations.

2. After a serious deterioration in the country's economic growth and external position between 1968 and 1973, resulting from a secular decline in petroleum production, the discovery of additional petroleum reserves and the quadrupling of world oil prices at the end of 1973 led to a dramatic upturn in Trinidad and Tobago's economic situation. Government revenue from the petroleum sector rose from 20% of total revenue in 1972 to 70% in 1975, while the share of petroleum in total exports increased from 58% to 83% during the same period. By 1975 the petroleum sector constituted almost 50% of total GDP.

3. The decline in petroleum output during 1968-72 was somewhat mitigated by the rapidly expanding manufacturing sector. Since achieving statehood in 1962, the Government has encouraged industrialization through a variety of measures. Domestic manufacturing was promoted through generous fiscal incentives, duty free access to imports of raw materials, intermediate and capital goods, as well as by provision of fully developed industrial estates, concessionary credits and technical assistance. One of the key incentives for inviting industries and protecting existing "infant" ones has been the policy of quantitative restrictions. This policy enables the authorities to limit or prohibit the importation of commodities or their substitutes if they are manufactured or likely to be manufactured domestically. It is embodied in a "negative list" which contains some 450 categories of commodities. Under the impetus of such powerful incentives, the manufacturing sector largely based on import substitution, rapidly accelerated its growth. By the end of the last decade the share of manufacturing in GDP rose to about 10% and it employed approximately 64,000 workers or 16% of the labor force. This rapid expansion and diversification of manufacturing continued in the late 1960s and early 1970s and was largely responsible for a modest growth of GDP during the period when petroleum production and refining were on the decline.

4. The performance of the agricultural sector has on the whole proved quite disappointing. Despite concerted efforts by the authorities to encourage food production for the domestic market by means of input subsidies and price support policies, little success has been achieved except in the production of poultry, eggs and pork. In the meantime, with growing population and rising incomes, food imports increased to US\$153 million in 1977 from US\$52 million at the beginning of the decade. A similar trend prevailed in the case of export agriculture. Sugar, the single most important crop which accounts for about half of the value added in agriculture, has experienced a steady decline in output since the early 1970s. Widely fluctuating world prices for the major export crops, loss of rural manpower to more rapidly expanding sectors of the economy, rising production costs, inadequate agricultural services and, in the case of domestic food crops, a weak marketing system have all contributed to the decline of agriculture over the past decade. The urban-rural wage differential has reputedly widened and rates of rural to urban migration, already high in the 1960s and early 1970s, are believed to have increased still further. As a consequence, agriculture's share of GDP accounts for only 3% and its employment has declined from 25% of the labor force in 1970 to 15% at present. Absolute net declines in the rural labor force have given rise to the paradox of seasonal labor shortages in agriculture, high urban unemployment and underutilization of land resources.

5. The combined impact of declining petroleum exports during 1968-72 and the subsequent world inflation and recession had serious repercussions on Trinidad and Tobago's open economy. The loss of petroleum revenues adversely affected both public finances and balance of payments. The Government resorted to substantial domestic and external borrowing to finance fiscal deficits and to bolster its declining foreign exchange reserves. As a consequence, a traditionally low-inflation economy experienced increases in retail prices of 15% in 1973 and 22% in 1974. The improved foreign exchange position, which permitted a somewhat liberalized import policy, the easing of world inflation and consequently of import price increases, and by means of sound and monetary management aimed at preventing monetization of increased foreign exchange reserves, price inflation was brought down to 10% in 1976. Throughout this period money wages in key manufacturing industries lagged behind price inflation. Real wages in 1975 in the food and beverage industries were some 15% below the level of 1971, in textiles some 30% lower and in clothing some 25% lower.

6. The relatively sluggish growth of the economy and especially the pattern of growth over the past decade or longer, have been responsible for creating a chronic unemployment problem. With a total population estimated at 1,115,000, Trinidad has a labor force of 431,000, of which 301,000 is male and 130,000 female. Population growth since 1960 has been quite moderate--1.67% average annually--as a result of an aggressive official family planning program and substantial emigration. Nevertheless, unemployment rates of between 13 and 15% have been reported during the 1970s. These rates include both "job seekers" and "other unemployed." Excluding the latter category, the rates decline to between 8 and 10% of the labor force or approximately 35,000 to 40,000. The incidence of unemployment is highest in the 15-24 age

group. The persistence of this chronic unemployment problem constitutes a serious economic and sociological problem. In some measure it is the result of the slow growth path of the economy. However, the problem has many other ramifications. In the case of the young unemployed, it frequently represents inadequate or inappropriate preparation for the labor market. The stagnation of the agricultural sector, and government policy favoring high degree of mechanization of industry, have contributed their respective share to the problem. Without revival of agriculture and reorientation of industrial policy, any major reduction in unemployment will be difficult to achieve over the medium term. In the meantime and with the view of alleviating some of the unfavorable consequences of unemployment, the Government has instituted a special works program and has adopted a wage subsidy scheme to induce contractors to hire inexperienced help. These measures, combined with provision of free school lunches and free school busing, appear to have improved somewhat income distribution. This achievement is in line with government policy to use part of the increased petroleum surplus to improve welfare of the lower income groups.

7. The external sector of Trinidad and Tobago has been of great importance for the past several decades. It is an open economy with exports and imports of goods and non-factor services now constituting 47% and 39% of GDP, respectively. External capital has been a major factor in financing the country's economic development, with direct foreign investment accounting in recent years for 25% of gross domestic investment. The economy is dependent on imports for almost all of its capital goods, a substantial proportion of its intermediate and consumer goods and foodstuffs. Petroleum is now responsible for 92% of merchandise exports and sugar for less than 4%. Exports of nontraditional products, consisting mainly of processed foods, textiles, other light manufactures, and increasingly of machinery and equipment, grew rapidly in the late 1960s and early 1970s, albeit from a low base. Since over half of these exports have been to the CARICOM market, they have been adversely affected by the recent import restrictions imposed by some of the larger CARICOM members. By pegging the TT\$ to the pound sterling until May 1976 and since then to the US\$, the TT\$ has depreciated against the SDR by 43% and against the US\$ by 22% between 1970 and 1977. However, since mid-1976 the exchange rate has risen slightly against the US\$ and has rendered exports less competitive. The failure of nontraditional exports to grow by more than 10% annually appears to have been more the result of an inappropriate industrial incentive system and an inadequate concentration on promotion of these exports than of a "petroleum-determined" exchange rate.

8. During 1976 and 1977 Trinidad and Tobago's overall economic position improved considerably. Spurred by a construction boom which began in 1976, the non-petroleum sector of the economy expanded vigorously. A boom in construction and construction-related manufacturing activities greatly expanded the entire manufacturing sector and services. The number of jobs available increased and despite more rapid growth of the labor force, the unemployment rate is estimated to have fallen from 15% to 14% and of "job seekers" from 10% to 8% between 1975 and 1977.

9. Large overall surpluses in the public sector accounts contributed to substantial surpluses in the balance of payments for the fourth consecutive year, raising gross international reserves to over US\$1.3 billion, equivalent to 14 months' imports by year-end 1977. Large increases in revenues continued to exceed both current and capital spending, and allocations to the Long-Term Development Funds, which constitute an important share of foreign exchange reserves, exceeded drawdowns from these funds by over TT\$900 million. Despite its overall surplus the Central Government sold new securities in the domestic capital market amounting to TT\$80 million in order to reduce the liquidity position of the commercial banks and to provide an appropriate long-term instrument for financial institutions legally excluded from the short-term money market. Additionally, the Inter-American Development Bank was permitted to sell TT\$25 million in the local capital market. The Government's efforts to control inflationary pressures through prudent fiscal and monetary management and increased use of subsidies and price controls, was only partially successful and the retail price index rose by almost 12% in 1977 as compared with 10% in the preceding year.

Growth Constraints and Development Policy

10. The dramatic increase in petroleum revenues has made it possible for Trinidad and Tobago to undertake high levels of development expenditure without being constrained by the availability of financial resources. While this situation is expected to continue over the medium term, Trinidad and Tobago's proven petroleum reserves, estimated at eight years, are limited and the Government cannot rely on the continuation of petroleum revenues at their present level in real terms over the longer term. Accordingly, the major thrust of the Government's development policy is the utilization of the country's substantial natural gas deposits in large, capital-intensive, export-oriented industrial projects to ensure a substitute for the possible loss of foreign exchange earnings and Government revenues stemming from the eventual decline in petroleum production. At the same time, continued efforts to promote petroleum exploration and development so as to minimize production declines are planned. Efforts are also being made to accelerate development of the manufacturing and agricultural sectors in order to diversify the export base, promote import substitution and generate employment.

11. While there has been substantial improvement in Trinidad and Tobago's economic position during the last two years and the Government's careful management of the increase in petroleum revenues has relieved fiscal and balance of payments constraints to economic growth over the medium-term, there still remain a number of constraints which impede accelerated development of the economy. The absorptive capacity of the economy is limited by acute shortages of trained manpower. Communication, transportation and other infrastructure lag seriously behind the requirements for accelerated development. Efforts to solve these problems are underway, but serious bottlenecks in the construction industry will have to be surmounted. Moreover, the inefficiency and low productivity of manufacturing and agriculture, the shortage of entrepreneurial, managerial and skilled manpower resources, and the scarcity of well-trained management personnel in the public sector will have to be overcome.

The development prospects will largely depend on implementation of appropriate policies to cope with these serious constraints.

12. The Government's development emphasis is on the creation of a modern energy-based industrial complex. Successful implementation of this phase should go a long way in maintaining strong public finances and balance of payments positions in the event that petroleum resources are gradually depleted. Since these large plants are by their very nature highly capital intensive, their contribution to the solution of the unemployment problem is likely to be minimal. What is needed, therefore, is an equal thrust in the direction of developing agriculture and small- to medium-scale manufacturing both of which are relatively labor intensive. Although the Government has channeled large resources into agriculture, especially food production, the results thus far have been most disappointing. A completely new approach to agricultural development appears to be dictated, including conversion of large government sugar estates into small farms with diversified cropping patterns. This is likely to be the most promising approach for increasing output and labor productivity, raising incomes of the rural population to the point of reducing rural-urban migration and at the same time eliminating the heavy losses of the state sugar corporation.

13. With respect to small- and medium-scale industry, progress has been much more satisfactory, but the industrial incentive policies which stimulated growth of manufacturing may well have outlived themselves and require some basic revamping. This is particularly so with respect to favoring capital goods imports. Most of the industrial development has been of an import-substitution type, although some progress has been made in export-oriented manufacturing. By and large industry is inefficient, suffers from low productivity and is high cost and high price by international standards. In large measure this has resulted from overly protectionist policies. If manufacturing is to realize its full potential for generating remunerative employment opportunities through industrial growth, the existing incentive system needs to be rationalized, competition enhanced, costs and prices reduced and economies of scale enjoyed. These objectives can best be achieved by eliminating the "negative list," reducing protective tariffs and offering strong incentives to firms for exporting marginal outputs. Although the prevailing wage scales do not appear excessive in absolute terms, until labor productivity is raised, the Government may consider granting wage subsidies or tax rebates to firms which create jobs through exports. Public finances are sufficiently strong to use such measures during a transitional period while industry is being rationalized. An alternative approach to rendering small and medium scale industry competitive in world markets is through appropriate adjustments of the exchange rate.

Sectoral Development

14. Petroleum. Proven reserves in Trinidad and Tobago are estimated at about 700 million barrels, sufficient to sustain production for eight years at the current rate of output, while probable reserves are estimated at a similar amount. Oil production comes from three main sources: onshore

Trinidad, the offshore Soldado field in the Gulf of Paria, and the Amoco offshore fields. Present evidence suggests that production from the Amoco fields is at about its peak, and can be expected to level out and start declining in the next few years. No significant change in production levels is foreseen for the Soldado field during the next five years. Production from the onshore fields during the next five years is likely to be boosted somewhat by the fiscal incentives granted in 1976 for exploration and development; thereafter a resumption of the decline in onshore production is likely. Accordingly, national oil output is likely to gradually decline from 245,000 b/d in 1978 to about 230,000 b/d in 1982, falling further to somewhere in the region of 150,000 b/d by 1990. These production levels assume increased use of secondary recovery techniques and continuation of the trend of the past five years of no significant new discovery of additional sources of crude petroleum.

15. Total refinery throughput has fallen steadily since 1971. The principal reason is that exports of products from these refineries have been adversely affected in their basic market, the United States, through the protection accorded to US domestic and Virgin Islands refineries by the US crude oil entitlements program and by the license fees and import duties imposed on refined product imports. While the US Administration is currently proposing changes in its entitlements and oil imports program, some measure of protection for US refineries is expected to continue. However, US demand for refined products, particularly residual fuel oil, is likely to grow at a faster rate than planned expansion of US refinery capacity. Such a development would operate to the advantage of foreign refineries. The Trinidad and Tobago refineries are well placed geographically to take advantage of growth in US imports of refined products.

16. While natural gas has been produced in Trinidad and Tobago for a number of years, primarily in association with crude oil production, it remains a minor share of total hydrocarbon production in Trinidad and Tobago. However, offshore exploration during the past decade has resulted in the discovery of large deposits of unassociated natural gas. Current estimates of gas reserves are 17,000 billion standard cubic feet in four locations around Trinidad and Tobago. Tentative agreement has been reached with two US companies, Tenneco and People's Gas, to complete construction of a 500 million standard cubic feet per day LNG plant by 1984 with production destined for export to the United States. To be financially viable, it is estimated that this project would require a price for LNG delivered to US interstate pipelines of US\$4.50 per thousand cubic feet in the mid-1980's (US\$2.80 in 1977 dollars). Such a price is likely to prevail if the current administration in the United States is successful in gaining support for its energy program.

17. Energy-Based Industrialization. Trinidad and Tobago's medium-term development strategy is based on the promotion of capital-intensive, energy-based industry which will utilize the country's natural gas resources and diversify its economic base. In addition, some of the projects may lead to development of downstream activities which diversify and expand employment in the manufacturing sector. Projects include a recently completed ammonia

plant undertaken as a joint venture with W.R. Grace's subsidiary Federal Chemicals and a much larger ammonia/urea plant in partnership with Amoco. A large methanol project, to be conducted as a joint venture with the US-based firm, Borden, is currently at an early stage of preparation. In order to utilize the cheap source of energy which is available in Trinidad and Tobago and to further diversify the industrial sector, the Government is also proceeding with a gas fired, direct reduction iron and steel plant. Finally, the Government is now planning to double capacity of the existing cement plant in order to eliminate supply shortages which could hold up construction activity. In addition to these projects and the LNG complex, the Government is considering an aluminum smelter to process alumina produced in other Caribbean countries and a petrochemical complex which would produce olefins and aromatics.

18. Future prices will greatly influence the success of these projects. In the case of the LNG plant, these are particularly critical and to some extent uncertain, due to their dependence on internal political developments in the US. The likelihood of continued depressed world steel prices prevents the steel mill from showing much financial promise, although the Government expects broader economic benefits to result from the possible downstream generation of labor-intensive industry. The pricing of output is particularly important in the case of the cement plant, since the continued use of price controls on cement would quickly turn the project from a net contributor to a net user of Government funds. Finally, the success of the ammonia and urea projects is based on the projected recovery of international prices for these commodities from their present depressed levels. A second vital factor to the success of the energy-based projects is their timely implementation. Their size and highly technical nature may make them especially prone to slippages and cost overruns. Smooth implementation will require a well-organized and carefully orchestrated effort, involving the continued development of adequate infrastructure, the elimination of serious bottlenecks in the construction industry, and the training or importation of skilled labor, technicians and managers.

19. Despite their magnitude, the energy-based projects are so highly capital-intensive that they are likely to generate relatively little direct employment, although the short-term employment impact in the construction industry will be strong, and down-stream industries developing in the mid to late 1980's may be more labor-intensive. Consequently, over the next decade Trinidad and Tobago will have to depend heavily on growth of local manufacturing, the service sector and agriculture to reduce its high rate of unemployment.

20. Manufacturing. Manufacturing activity in Trinidad and Tobago consists largely of light import-substituting consumer goods industries. The sector accounts for 16% of total employment but output has grown unevenly over the past decade and its substantial employment generating potential has not been developed. Expansion has been rapid during the last two years in response to strong domestic demand arising from increased income and consumer spending and from reduction of sales tax on a wide range of goods.

21. Local manufacturing in Trinidad and Tobago is promoted through generous fiscal incentives, duty-free access to imported raw materials, quantitative import restrictions which include some 450 commodity groups, technical assistance and concessionary credit. The generalized fiscal incentives do not appear to be well focused to achieve the objectives of increasing efficiency, expanding exports and creating employment. Moreover, in some cases they are overly generous since existing tariffs and quantitative restrictions assure financial viability. Such incentives do not sufficiently take into account the need to encourage an efficient use of resources over time. The incentive system is heavily biased toward import-substitution (without adequate concern for economic efficiency), and export incentives are inadequate. Since medium and small-scale manufacturing is one of the most significant sources of employment over the medium-term, it is important that substantial resources be committed to its development in the years ahead. In view of the scarcity of skilled labor, unskilled labor-intensive light manufacturing industries are most suitable to the country's resource endowment over the medium-term. Given the limited market within Trinidad and Tobago and CARICOM, and the continuing economic problems in some of CARICOM's more important members, extra-regional export market diversification should be a major goal of Trinidad and Tobago's manufacturing development strategy.

22. Agriculture. Widely fluctuating world prices for Trinidad and Tobago's major export crops, a widening urban rural wage differential, sharply rising production costs, inadequate agricultural services and, in the case of domestic food crops, a weak marketing system have all contributed to a decline of Trinidadian agriculture over the past decade. Despite considerable untapped potential for increased food production, the country has become progressively more dependent on imports to satisfy its food requirements. The Government is determined to reverse the recent trend toward greater dependence on food imports through a system of subsidies and price supports and through increased investment in the agricultural sector. However, the subsidy program is expensive and difficult to administer, and apparently has not contributed significantly to increasing output. Similarly, the price support program, while potentially a more effective way of increasing rates of return and investment in agriculture, does not currently have much effect on agricultural production, since the guaranteed minimum prices generally have been and continue to be well below market prices.

23. Sugar, the single most important crop, has undergone a steady decline in production since the early 1970's. At current world prices, large scale government estate production and refining of sugar is being carried out at a loss. Most of the good land in Trinidad and Tobago is on the government-controlled sugar estates, and opportunities for expansion of family farm units are limited. More intensive cultivation of the best land in high value food crops could increase labor productivity and income from agricultural activities and thus narrow the urban-rural wage differentials and migration. Assuming that sustained improvement in world sugar prices does not occur, it would appear advisable over the medium term to shift land under sugar cultivation to more intensive cultivation of high value crops with production cooperatives or family farms as the principal units of production.

24. Construction. As a consequence of severe building material, managerial and skilled labor constraints, the growth of the construction sector has been erratic, and the industry has been unable to respond fully to recent increased demand. As a result, construction costs are increasing more rapidly than other prices. Unless measures are adopted to ease management, skilled labor, and building material shortages, these bottlenecks in the industry will persist in the medium term and are impeding the development program. In addition to shortages of building materials such as cement, aggregate and timber, inadequate planning and coordination as well as poor project design and supervision have been identified as major causes of construction industry inefficiency.

25. It is estimated that the demand for additional skilled labor in the sector will increase by about 20% annually over the next several years or by about 5,000 persons per year. Existing output, about 2,000 in 1977, is currently far short of this number. In the past, the result of this situation has been that contractors have used semi-skilled labor to the detriment of work quality. While such labor is cheaper, it is more than proportionately less productive and cost of construction is increased. Measures for increasing supply of skilled labor should be implemented as soon as possible.

26. The Government has initiated action to reduce future supply constraints in the construction industry. In addition to expansion of the cement factory, attempts to increase the production of aggregate for concrete and road construction and of clay for manufacture of bricks are underway. Planned steel mill capacity will be more than sufficient to alleviate any supply shortage of steel which currently exists. In order to control price increases in the industry, the Government has decided to introduce price control of the main construction materials, permit duty-free import of certain building materials, and abolish the quantitative restrictions on imports of building materials.

Education and Manpower Training

27. Higher education in the future will be more closely geared to the manpower needs of the economy. This development reflects the Government's intention to reorganize and expand higher education by emphasizing research, science and technology. At the same time, attempts will be made to improve the entire education system through rehabilitation of unsuitable facilities in primary schools, an accelerated construction program to support the implementation of the Government's policy of universal secondary comprehensive education which would include a substantial dose of science and technology oriented courses, and the provision of facilities for accelerated training programs for teachers in the technical, vocational and agricultural fields where there is a shortage of teachers. Teacher quality is a problem at all

levels; the Government is planning a new approach to teacher in-service training through the establishment of Teachers' Development Centers, aimed at continuous reorientation of all teachers so that they can keep abreast of developments in education brought about by rapid economic, social and cultural changes.

Financing Development

28. Private Investment. The Trinidad and Tobago Government is actively concerned about fostering the rapid expansion of the private sector in the economy. In contrast to the situation in the late sixties and early seventies, the 1974 influx of petroleum wealth has enabled the Government to become a net creditor of the banking system and greatly expanded the financial resources available to the private sector. The Government has successfully used fiscal and monetary policies to curtail the inflationary impact of the rapid accumulation of foreign exchange reserves, and its continued presence as a net creditor in the banking system has permitted rapid expansion of credit to the private sector and a simultaneous reduction in growth of the money supply. The authorities are aware that the favorable fiscal situation may not continue indefinitely and that adequate growth of credit to the private sector in the future will depend increasingly upon greater mobilization of private savings. Plans are therefore being made to assure the long-term growth of the private sector through mobilization of increased domestic savings, and more efficient allocation of such resources to productive investment.

29. The capital market in Trinidad and Tobago is small and availability of medium and long-term financing for fixed investment is quite limited despite the Government's efforts to increase the provision of such credit through specialized financial institutions. Currently, a major portion of such credit is provided by the commercial banks through roll-over of short term debt. The recent shift in the distribution of banking system credit away from the productive sectors of the economy toward consumer credit has heightened the Government's concern with development of the country's capital markets and the need to channel increased financial resources to these sectors. If growth of the non-petroleum private sector is not to be retarded, increased access to secure forms of long-term finance must be provided. To stimulate growth of the country's capital markets, statutory modifications, which would provide insurance companies greater leeway in the investment of their funds, are under consideration. In addition the authorities are planning to create a Unit Trust to broaden the base for mobilization of domestic savings by introduction of an instrument which spreads investor risk over a wide range of stocks.

30. Demand, however, is not currently the major constraint to growth of the securities market; it is rather the limited supply of securities. Most new issues have in recent years been over-subscribed, and stock prices have appreciated much more rapidly than growth of profitability of companies whose securities are publicly traded. Since 1973 the Government has acquired equity in a number of companies with a view to eventually selling its shares to the public. Such action would assure an adequate supply of securities

being offered to the public in the near-term and would contribute to creation of a stock exchange by expanding public trading of shares of private firms. The present authorities have been reluctant to do this, however, until a Unit Trust is created since they believe that the current market is fragmented and vulnerable to manipulation. Creation of the Unit Trust should be accelerated as it would help to create the conditions in which the Government can achieve its objectives of divesting itself of the equity it has acquired and fostering increased confidence in the market so that local firms are encouraged to finance their investment with equity capital.

31. Public Sector Finances. The quadrupling of oil prices at the end of 1973 permitted public sector savings to average about 20% of GDP during 1974-77, dramatically alleviating the previous constraint on public sector investment. The Government responded to the sudden influx of petroleum wealth by: (1) initiating a greatly expanded investment program designed to diversify Trinidad and Tobago's economic base, provide employment, increase public sector participation in the economy, and upgrade social and economic infrastructure including education and health facilities; (2) establishing a level of foreign exchange reserves sufficient to ensure the continuation of an ambitious investment program in the future; and (3) attempting to improve the welfare of the entire population through the provision of expanded social and economic services at subsidized rates.

32. Revenue from crude petroleum exports is expected to level off beginning in 1979. It is hoped that, through the development and utilization of Trinidad and Tobago's natural gas reserves, an alternative source of revenue will come on stream before petroleum revenues begin to decline. An illustrative five-year public sector investment program which provides for the launching of most of the energy-based projects and their required infrastructure, the maintenance of present levels of investment in other areas as a proportion of GDP, and the continuation of a modest investment program financed by the rest of the public sector could cost slightly over TT\$10 billion during 1978-82, averaging about TT\$2 billion a year or about 18% of GDP. Even assuming a fall-off in petroleum revenues in real terms during the 1978-82 period and consequent deterioration in the level of public sector savings as a percentage of GDP, with careful management including current expenditure control, the authorities should be able to finance about three-quarters of an investment program this size from public sector savings. The rest of the financing would consist of net external borrowing (approximately half project-tied and half from Eurodollar loans), moderate levels of domestic borrowing, and depreciation funds of newly established energy-based enterprises.

33. Although the development of energy-based industry will partially compensate for the loss of petroleum revenues, it is not expected to contribute sufficient resources to offset such a decline completely. Assuming the energy-based projects are implemented on schedule, their revenue contribution will compensate by 1990 for about half of the petroleum revenue shortfall as a percentage of GDP. Accordingly, the level of public sector savings is likely to fall further toward the end of the decade unless the Government controls current expenditures carefully in the years ahead, maintains the elasticity

of non-petroleum revenues by foregoing additional tax concessions, takes the measures necessary to assure the profitability and hence the revenues received from new industrial projects, and reduces the level of subsidies as a proportion of GDP.

34. To facilitate the efficient implementation of the expanded public sector investment program over the next few years, further efforts to strengthen the project planning and implementation system are essential. The planning system should be broadened to include all the wholly-owned and majority-owned companies. The Government's abandonment of a five-year plan approach to investment has led to several serious problems. First, it prevents the authorities from rationalizing the availability of funds with the medium-term requirements of the investment program. Second, it hinders a realistic assessment of the implications of present projects and programs for future current expenditures. Finally, single year planning increases uncertainty by failing to provide an indication of future manpower requirements. Resumption of multiyear financial planning would make it possible to identify and develop scarce skills and minimize bottlenecks in the implementation of the development program.

Balance of Payments and Growth Prospects

35. The external sector of Trinidad and Tobago has been of exceptional size and importance for the past several decades. Since 1973, the country has enjoyed large, though declining resource surpluses, which, together with the rapid growth of direct foreign investment and, in 1977, substantial external borrowing by the public sector, increased international reserves to the equivalent of 14 months of imports of goods and non-factor services by end 1977. However, the petroleum windfall which dramatically increased the country's import capacity in 1974 has increased the import dependence of non-petroleum sectors of the economy without simultaneously increasing exports of these sectors. The challenge facing the authorities is to expand exports of the non-petroleum economy and thereby reduce its large resource gap rapidly enough to offset the expected decline in the resource surplus generated by the petroleum sector.

36. The possibility of a gradual decline in petroleum production during the next decade will have a significant direct impact on economic growth and on the country's external position. Even assuming strong growth of investment and a continuation of the construction boom, output of the non-petroleum economy is unlikely to expand at more than 7%-8% annually in real terms during the early to mid-1980's. If these high rates of growth of the non-petroleum economy are achieved and petroleum declines now projected, growth of GDP will average about 4% during 1979-1983. It will not be easy, however, for Trinidad and Tobago to sustain such high growth of the non-petroleum economy; growth of at least 8% of industry, construction and services and of between 1% and 2% in agriculture would be required.

37. Because of the expected decline in petroleum exports and the substantial capital goods imports required by the large industrial projects, a resource gap is likely to develop in 1979 which will not be eliminated

until the mid 1980's when all the large projects are fully on stream. Gross external borrowing by the public sector is expected to average about US\$200 million annually during the 1978-82 period. While foreign exchange reserves are projected to decline slightly in the early to mid-1980's, they are not likely to fall below US\$1.4 billion or the equivalent of six months of imports in 1984, and thereafter are projected to resume their growth. This level of reserves would be more than sufficient to assure the country of adequate external liquidity, and it should be in a favorable position to increase its non-project external borrowing during 1981-84 by an amount sufficient to maintain international reserves at the high level achieved in the late 1970's.

38. On the assumption that the large energy-based industrial projects are implemented according to schedule, especially the important LNG project, after 1984 Trinidad and Tobago is expected to be able to sustain economic growth averaging 5% to 6% and a strong external position. As a consequence of the external borrowing undertaken during the period of heavy import-intensive investment in the early to mid-1980's, Trinidad and Tobago's external debt service ratio would increase from less than one percent of export earnings at present to a peak of 10% in 1986, declining thereafter to about 4% in the late 1980's.

39. While the country's future import capacity and economic growth will depend on external factors such as favorable price developments for the country's major exports, internal economic policies will be of even greater importance, particularly with regard to the level of investment, generation of domestic savings and profitability of the energy-based projects. The level of investment required for implementing these projects and maintaining strong economic growth is high compared to past levels. While Trinidad and Tobago should have little difficulty mobilizing external resources for financing a major portion of these investments, domestic savings will also have to play an important role.

40. Given reasonably sound management of the economy and timely execution of the investment program, growth of the economy should not be constrained by the external sector. Rather, the major constraint to growth during the next decade will be the capacity of the country's non-petroleum economy to transform the economic surplus generated by the petroleum sector into productive investment for expanding its own output and employment. Serious though not insurmountable problems confront important sectors of the economy. Efforts to overcome these constraints will have to be geared toward accelerated development of the country's human capital and creation of an appropriate incentive system which serves the fundamental development requirements of the non-petroleum sectors of the Trinidadian economy.

I. RECENT ECONOMIC TRENDS

1. The economy of Trinidad and Tobago has been undergoing a structural transformation during the past several decades. Once largely dependent on tropical export agriculture, the economy has gradually evolved into a modern diversified semi-industrial complex, with agriculture now contributing only about 3% of GDP. The discovery and exploitation of petroleum and gas some three decades ago have played a vital role in this process. Although relatively poor in these natural resources which as recently as the late 1960s accounted for only 15% of GDP, they have exerted a disproportionately large influence at the margin in determining the state of both public finances and balance of payments and thereby on the fate of the economy. Thus, through most of the 1960s a vigorous petroleum sector provided modest surpluses for capital formation in the rest of the economy. Conversely, a secular decline in petroleum production between 1968 and 1972, resulting from depletion of existing fields, generated a serious deterioration in the fiscal and balance of payments situations.

2. The decline in petroleum output during 1968-72 was somewhat mitigated by the rapidly expanding manufacturing sector. Since achieving statehood in 1962, the Government has encouraged industrialization through a variety of measures. Domestic manufacturing was promoted through generous fiscal incentives, duty free access to imports of raw materials, intermediate and capital goods, as well as by provision of fully developed industrial estates, concessionary credits and technical assistance. One of the key incentives for inviting industries and protecting existing "infant" ones has been the policy of quantitative restrictions. This policy enables the authorities to limit or prohibit the importation of commodities or their substitutes if they are manufactured or likely to be manufactured domestically. It is embodied in a "negative list" which contains some 450 categories of commodities. Under the impetus of such powerful incentives, the manufacturing sector largely based on import substitution, rapidly accelerated its growth. By the end of the last decade the share of manufacturing in GDP rose to about 10% and it employed approximately 64,000 workers or 16% of the labor force. This rapid expansion and diversification of manufacturing continued in the late 1960s and early 1970s and was largely responsible for a modest growth of GDP during the period when petroleum production and refining were on the decline.

Agriculture

3. The performance of the agricultural sector has on the whole proved quite disappointing. Despite concerted efforts by the authorities to encourage food production for the domestic market by means of input subsidies and price support policies, little success has been achieved except in the production of poultry, eggs and pork. In the meantime, with growing population and rising incomes, food imports increased to US\$153 million in 1977 from US\$52 million at the beginning of the decade. A similar trend prevailed in the case of export agriculture. Sugar, the single most important crop which accounts for

about half of the value added in agriculture, has experienced a steady decline in output since the early 1970s. Widely fluctuating world prices for the major export crops, loss of rural manpower to more rapidly expanding sectors of the economy, rising production costs, inadequate agricultural services and, in the case of domestic food crops, a weak marketing system have all contributed to the decline of agriculture over the past decade. The urban-rural wage differential has reputedly widened and rates of rural to urban migration, already high in the 1960s and early 1970s, are believed to have increased still further. As a consequence, agriculture's share of GDP accounts for only 3% and its employment has declined from 25% of the labor force in 1970 to 15% at present. Absolute net declines in the rural labor force have given rise to the paradox of seasonal labor shortages in agriculture, high urban unemployment and underutilization of land resources.

Petroleum Expansion

4. Prospects of substantially accelerating economic growth from its rate of about 3% annually greatly improved after 1973 with the discovery of additional petroleum reserves and the quadrupling of world oil prices. An important new oil field off the country's east coast came into production at the beginning of 1972, and substantial natural gas resources were found offshore. As a result, increased offshore production more than compensated for the secular decline in land-based production and the petroleum sector's share in GDP increased more than fourfold between 1972 and 1975. More significantly, government revenue from the petroleum sector rose from 20% of total revenue in 1972 to 70% in 1975, while the share of petroleum in total exports, excluding exports of petroleum which is imported under processing agreements, increased from 58% to 83% during the same period. By 1975 the petroleum sector (including refining) constituted almost half of total GDP.

5. In order to ensure that the benefits of higher world petroleum prices would accrue to the country and not exclusively to the foreign oil companies, the authorities adopted the system of "tax reference prices" used by most oil exporting countries in the Middle East. As a result, Central Government revenue increased eightfold in 1974. Continued increases in world petroleum prices and, as a consequence, in Trinidad and Tobago's "tax reference" price, produced additional increases in government revenue averaging 29% annually through 1976. The authorities reacted prudently to these rapid increases in revenue. They were careful to avoid establishing excessively high levels of current expenditures and abrupt increases in investment spending on development projects for which detailed planning had not yet been completed. As a consequence, the Government generated sizable overall surpluses, which were credited to a number of special development funds deposited with the Central Bank for the purpose of financing future investment. These funds were invested abroad and constituted a substantial portion of the country's international reserves. Foreign exchange reserves increased an average US\$325 million annually from 1974 on and reached US\$844 million, equivalent to ten months' imports, by the end of 1976.

Prices and Wages

6. The combined impact of declining petroleum exports during 1968-72 and the subsequent world inflation and recession had serious repercussions

on Trinidad and Tobago's open economy. The loss of petroleum revenues adversely affected both public finances and balance of payments. The Government resorted to substantial domestic and external borrowing to finance fiscal deficits and to bolster its declining foreign exchange reserves. As a consequence, a traditionally low-inflation economy experienced increases in retail prices of 15% in 1973 and 22% in 1974. The improved foreign exchange position, which permitted a somewhat liberalized import policy, the easing of world inflation and consequently of import price increases, and by means of sound and monetary management aimed at preventing monetization of increased foreign exchange reserves, price inflation was brought down to 10% in 1976. Throughout this period money wages in key manufacturing industries lagged behind price inflation. Real wages in 1975 in the food and beverage industries were some 15% below the level of 1971, in textiles some 30% lower and in clothing some 25% lower.

7. The "dual" character of the economy has brought about a wide dispersion in wage rates and earnings. Average weekly earnings in the highly productive petroleum industry are between three and four times the average weekly earnings in textiles and about twice those in food processing and in the sugar industry. The range in absolute terms is between TT\$325 weekly earnings for wage earners in the highly remunerative petroleum industry and TT\$67 in the lowest paying branches of the textile industry. The index of minimum wage rates (1970 = 100) for manual workers rose for all industries to 258 by 1977, while in the case of petroleum workers it rose to 274 and in the manufacture of wearing apparel to 247. Thus, apparently the wage differentials have been widening with petroleum workers enjoying greater success in maintaining their real wages during the highly inflationary years than workers in other branches of industry. The absolute hourly wage rates--US\$3.50 in petroleum and between US\$0.65 and US\$1.00 in textiles--are on the face quite competitive in comparison with Trinidad's major trading partner in the European Economic Community and in the Western Hemisphere. Neither are the wage differentials greater than those that prevail in modern industrial societies. Nonetheless, it is frequently alleged that the relatively high level of remuneration of petroleum workers is responsible for the high wages in the rest of the economy and for the high level of unemployment. The petroleum sector certainly had a profound effect on the overall labor market--both directly and indirectly--but the available statistical evidence points to the acceptance by workers in the nonpetroleum sectors of wages equivalent to between 25% and 50% of the petroleum wage scales.

Unemployment

8. The relatively sluggish growth of the economy and especially the pattern of growth over the past decade or longer, have been responsible for creating a chronic unemployment problem. With a total population estimated at 1,115,000, Trinidad has a labor force of 431,000, of which 301,000 is male and 130,000 female. Population growth since 1960 has been quite moderate--1.67% average annually--as a result of an aggressive official family planning program and substantial emigration. Nevertheless, unemployment rates of between 13% and 15% have been reported during the 1970s. These rates include both "job seekers" and "other unemployed." Excluding the latter category,

the rates decline to between 8% and 10% of the labor force or approximately 35,000 to 40,000. The incidence of unemployment is highest in the 15-24 age group. The persistence of this chronic unemployment problem constitutes a serious economic and sociological problem. In some measure it is the result of the slow growth path of the economy. However, the problem has many other ramifications. In the case of the young unemployed, it frequently represents inadequate or inappropriate preparation for the labor market. The stagnation of the agricultural sector, and government policy favoring high degree of mechanization of industry, have contributed their respective shares to the problem. Without revival of agriculture and reorientation of industrial policy, any major reduction in unemployment will be difficult to achieve over the medium term. In the meantime and with the view of alleviating some of the unfavorable consequences of unemployment, the government has instituted a special works program and has adopted a wage subsidy scheme to induce contractors to hire inexperienced help. These measures combined with provision of free school lunches and free school busing, appear to have improved somewhat income distribution. This achievement is in line with government policy to use part of the increased petroleum surplus to improve welfare of the lower income groups.

External Sector

9. The external sector of Trinidad and Tobago has been of great importance for the past several decades. It is an open economy with exports and imports of goods and non-factor services now constituting 47% and 39% of GDP, respectively. External capital has been a major factor in financing the country's economic development, with direct foreign investment accounting in recent years for 25% of gross domestic investment. The economy is dependent on imports for almost all of its capital goods, a substantial proportion of its intermediate and consumer goods and foodstuffs. Petroleum is now responsible for 92% of merchandise exports and sugar for less than 4%. Exports of nontraditional products, consisting mainly of processed foods, textiles, other light manufactures, and increasingly of machinery and equipment, grew rapidly in the late 1960s and early 1970s, albeit from a low base. Since over half of these exports have been to the CARICOM market, they have been adversely affected by the recent import restrictions imposed by some of the larger CARICOM members. By pegging the TT\$ to the pound sterling until May 1976 and since then to the US\$, the TT\$ has depreciated against the SDR by 43% and against the US\$ by 22% between 1970 and 1977. However, since mid-1976 the exchange rate has risen slightly against the US\$ and has rendered exports somewhat less competitive. The failure of non-traditional exports to grow by more than 9% annually appears to have been more the result of an inappropriate industrial incentive system and an inadequate concentration on promotion of these exports rather than of a "petroleum-determined" exchange rate.

Recent Developments

10. During 1976 and 1977 Trinidad and Tobago's overall economic position improved considerably. Spurred by a construction boom which began in 1976, the non-petroleum sector of the economy expanded vigorously. A boom in construction and construction-related manufacturing activities greatly expanded the

entire manufacturing sector and services. The number of jobs available increased and despite more rapid growth of the labor force, the unemployment rate is estimated to have fallen from 15% to 14% and of "job seekers" from 10% to 8% between 1975 and 1977.

11. Large overall surpluses in the public sector accounts contributed to substantial surpluses in the balance of payments for the fourth consecutive year, raising gross international reserves to over US\$1.3 billion, equivalent to 14 months imports by year-end 1977. Large increases in revenues continued to exceed both current and capital spending, and allocations to the Long-Term Development Funds, which constitute an important share of foreign exchange reserves, exceeded drawdowns from these funds by over TT\$900 million. Despite its overall surplus the Central Government sold new securities in the domestic capital market amounting to TT\$80 million in order to reduce the liquidity position of the commercial banks and to provide an appropriate long-term instrument for financial institutions legally excluded from the short-term money market. Additionally, the Inter-American Development Bank was permitted to sell TT\$25 million in the local capital market. The Government's efforts to control inflationary pressures through prudent fiscal and monetary management and increased use of subsidies and price controls, was only partially successful and the retail price index rose by almost 12% in 1977 as compared with 10% in the preceding year.

Table 1 - TRINIDAD & TOBAGO: SECTORAL GROWTH RATES IN GROSS DOMESTIC PRODUCT AT CONSTANT FACTOR COST

(%)

	1970	1971	1972	1973	1974	1975	1976 ^P	1977 ^P
Agriculture	1.79	1.75	7.14	-3.68	-7.64	5.68	2.08	-4.19
Domestic Agriculture	(-6.30)	(17.93)	(-5.46)	(27.64)	(-14.17)	(10.09)	(-1.88)	(-3.18)
Export Agriculture	(9.43)	(-11.34)	(20.72)	(-30.08)	(2.42)	(0)	(7.69)	(-5.49)
Mining	-1.57	12.99	17.65	2.14	2.98	10.24	6.36	1.86
Manufacturing	2.62	-3.28	4.77	-4.66	-5.14	-8.20	9.36	7.88
Oil Processing ^{/1}	(-3.26)	(-9.35)	(-2.44)	(-7.22)	(-11.82)	(-22.99)	(21.46)	(-8.24)
Food	(12.16)	(-1.68)	(4.97)	(-1.18)	(-3.44)	(-4.78)	(9.27)	(17.94)
Other	(9.48)	(7.31)	(16.32)	(-3.01)	(-1.03)	(6.99)	(-0.68)	(18.22)
Electricity and Water	-1.83	13.66	10.93	-2.71	-20.51	25.48	8.63	16.12
Construction	14.64	34.12	13.2	-5.58	-1.80	-3.89	27.60	8.83
Trade	2.63	2.02	-4.53	-7.84	-13.70	-6.51	28.10	-0.33
Transportation, Storage and Communications	5.68	6.28	-1.60	-3.55	4.31	8.98	-0.62	-0.87
Finance and Ins.	0.50	20.35	5.02	8.20	23.62	63.60	9.76	19.58
Ownership of Dwellings	1.94	2.94	5.55	2.07	28.39	-5.95	12.66	11.01
Government	1.49	33.16	-4.34	5.06	12.80	8.97	-7.25	-4.75
Services	-0.18	3.31	-0.62	8.88	12.77	-6.14	4.67	7.73
GDP at f.c.	2.74	8.22	3.22	-1.45	1.85	3.10	8.36	5.13
GDP at m.p.	2.91	8.35	1.85	-2.43	-1.11	2.60	7.74	4.05

^{/1} Includes fertilizers.

Source: Central Statistical Office and mission estimates.

P: Preliminary.

II. DEVELOPMENT PROSPECTS AND POLICIES

A. Introduction

12. While there has been substantial improvement in Trinidad and Tobago's economic position during the last two years and the Government's careful management of the increase in petroleum revenues has relieved fiscal and balance of payments constraints to economic growth over the medium-term, there still remain a number of constraints which impede accelerated development of the economy. The absorptive capacity of the economy is limited by acute shortages of trained manpower. Communication, transportation and other infrastructure lag seriously behind the requirements for accelerated development. Efforts to solve these problems are underway, but serious bottlenecks in the construction industry will have to be surmounted. Moreover, the inefficiency and low productivity of manufacturing and agriculture, the shortage of entrepreneurial, managerial and skilled manpower resources, and the scarcity of well-trained management personnel in the public sector will have to be overcome. The development prospects will largely depend on implementation of appropriate policies to cope with these serious constraints.

13. The Government's development emphasis is on the creation of a modern energy-based industrial complex. Successful implementation of this phase should go a long way in maintaining strong public finances and balance of payments positions in the event that petroleum resources are gradually depleted. Since these large plants are by their very nature highly capital intensive, their contribution to the solutions of the unemployment problem is likely to be minimal. What is needed, therefore, is an equal thrust in the direction of developing agriculture and small- to medium-scale manufacturing, both of which are relatively labor intensive. Although the Government has channeled large resources into agriculture, especially food production, the results thus far have been most disappointing. A completely new approach to agricultural development appears to be dictated, including conversion of large government sugar estates into small farms with diversified cropping patterns. This is likely to be the most promising approach for increasing output and labor productivity, raising incomes of the rural population to the point of reducing rural-urban migration and at the same time eliminating the heavy losses of the state sugar corporation.

14. With respect to small- and medium-scale industry, progress has been much more satisfactory, but the industrial incentive policies which stimulated growth of manufacturing may well have outlived themselves and require some basic revamping. This is particularly so with respect to favoring capital goods imports. Most of the industrial development has been of an import-substitution type, although some progress has been made in export-oriented manufacturing. By and large industry is inefficient, suffers from low productivity and is high cost and high priced by international standards. In large measure this has resulted from overly protectionist policies. If manufacturing is to realize its full potential for generating remunerative employment opportunities through industrial growth, the existing incentive system needs to be rationalized, competition enhanced, costs and prices reduced and

economies of scale enjoyed. These objectives can best be achieved by eliminating the "negative list," reducing protective tariffs and offering strong incentives to firms for exporting marginal outputs. Although the prevailing wage scales do not appear excessive in absolute terms, until labor productivity is raised, the Government may consider granting wage subsidies or tax rebates to firms which create jobs through exports. Public finances are sufficiently strong to use such measures for a transitional period while industry is being rationalized. An alternative approach to rendering small and medium scale industry competitive in world markets is through appropriate adjustments in the exchange rate.

15. The dramatic increase in petroleum revenues has made it possible to press ahead with high levels of development expenditure without being constrained by availability of financial resources. While this situation is expected to continue over the medium-term, the proven petroleum reserves, estimated at eight years, are limited and it would not be prudent to rely on the continuation of petroleum revenues at their present level over the longer term. Accordingly, the major thrust of the Government's development policy has been the conversion of the country's substantial natural gas deposits into a foreign exchange producing asset to substitute for the possible loss of earnings stemming from the eventual decline in petroleum production.

16. Since the completion of the third development plan in 1973, the Government has moved away from formal multi-year development plans, adopting instead annual plans which are implemented through the Government budget. These annual plans reflect the Government's commitment to diversification of the economy and the generation of additional export earnings and fiscal revenues through large, capital-intensive, export-oriented industrial projects which utilize the country's abundant natural gas resources. Such diversification, which is to be achieved through projects costing about US\$5 billion over the next eight years, has already begun to take place. A fertilizer plant (TRINGEN, a joint venture with Grace), which doubled existing capacity of amonia, entered production in late 1977. Construction has begun on a direct reduction medium-sized iron and steel mill to be fueled by natural gas. Other projects at various stages of planning include an additional fertilizer plant (Fertrin, a joint venture with Amoco), facilities for export of liquefied natural gas, a methanol plant, and an aluminum smelter. A special group within the government, the Coordinating Task Force, has been created to expedite their implementation. Given the substantial financing requirements of these high-technology projects, they are being developed under government ownership or as joint ventures between the Government and foreign private companies.

17. These large energy-based projects will require substantial infrastructure additions. Most of them are to be located on the leeward side of the island at Point Lisas, where there is a natural harbor which, with appropriate port facilities and dredging, will be able to accommodate ocean-going vessels. The Government has taken a lead position in the Point Lisas Port Development Corporation and has committed itself to providing the financial resources to develop the port, power, water and transport infrastructure required by the new industries. The Government regards the construction industry as pivotal

in the execution of the massive industrial diversification and infrastructure development effort. As a first step in providing the construction industry with larger quantities of cheap cement, the Government in 1976 acquired the local cement facility and plans to double output of this plant by 1982.

18. Infrastructure on the rest of the island and especially in and around Port of Spain lags seriously behind that which is required for accelerated development of the rest of the economy. Severe traffic congestion on the main east-west artery passing through Port of Spain is to be alleviated by an ambitious highway improvement program. As in much of the Caribbean, inadequate water supply is a serious problem. Trinidad and Tobago is attempting to relieve the acute shortages which have developed during the dry season by relatively large investments in dams and treatment plants. Communications within Trinidad and Tobago, particularly by telephone, are difficult. TELCO, the Trinidad and Tobago telephone company, is engaged in a six-year program aimed at correcting this deficiency by expansion of exchanges and replacement of obsolete equipment. Imports constitute about half of Trinidad and Tobago's GDP and serious congestion of the country's port facilities present a serious obstacle to accelerated development since all sectors of the economy are dependent on imports. The Port Authority has embarked on a major expansion program for Port of Spain to provide new container berths, modernize cargo-handling facilities and purchase new tug boats.

19. Since a substantial portion of infrastructure investment envisaged over the next several years constitutes construction of civil works, the Government is correctly placing high priority on increasing the capability of the construction industry. After a period of rapid expansion, growth of the construction sector lagged in 1977 when severe construction materials, skilled labor and management constraints developed. To the extent that this important industry is unable to overcome these constraints and "turnkey" projects (in which all construction is carried out by foreign firms and imported labor when such labor is not immediately available locally) are viewed as undesirable, the pace of development of new productive capacity and infrastructure will be retarded. There are a number of measures which the authorities can introduce to overcome these problems, as discussed in Section F of this Chapter, but important decisions will have to be made in the immediate future if this key sector is not to jeopardize implementation of the Government's development strategy.

B. The Petroleum Sector

20. Major changes have occurred in the petroleum sector since the early 1970s and it now dominates the economy of Trinidad and Tobago. The share of petroleum in Gross Domestic Product has increased from 20% in 1972 to 50% in 1977 and the sector now provides 85% of export earnings and 65% of Central Government revenue. This development is the result of the quadrupling of international petroleum prices since 1973 and the Government's successful efforts to encourage exploration and development of the country's hydrocarbon resources through fiscal incentives.

21. The start-up of petroleum production in 1972 from the fields offshore Trinidad's east coast has more than offset the decline in land based production and national output has increased each year, and is expected to reach a record high in 1978. However, proven and probable recoverable reserves are not large, and a decline in petroleum output could again occur in the years ahead. Large reserves of natural gas have been found in several offshore fields, and production has recently started in significant volume for domestic use.

22. Accordingly, there are three key areas where the Government's continued attention is required. First, continued strong efforts in exploration and development of petroleum resources are essential if oil is to maintain its important role in the economy. Second, markets will need to be developed for natural gas for use as fuel and raw materials by domestic industries. Third, Trinidad and Tobago is well situated and should press ahead to develop a large-scale LNG export trade in future years, provided that it can obtain an appropriate price for its production.

23. Exploration continues at about its highest level ever. Almost all exploration activity is taking place offshore, and promising new areas (predominantly gas) have been identified off the east, north and west coast of Trinidad. Very little exploratory activity has occurred onshore in recent years, but recent revisions in the income tax law have resulted in a substantial increase in development work in onshore fields which is reversing their former production decline. Much seismic work is being conducted onshore, using new improved technology, and increased use of deep drilling is being considered. The last round of leasing was in 1974. The Government is expected to invite bids in 1978 for offshore areas which have been relinquished by companies under the terms of existing licenses. Particular interest is expected to be shown in the surrendered half of the "reversed L-shaped block," a region to the southeast of the Trinidad coast.

24. Oil production comes from three main sources: onshore Trinidad, the offshore Soldado field in the Gulf of Paria, and the Amoco offshore fields. ^{1/} After steadily declining in the late sixties and early seventies to a low of about 129,000 b/d, national oil production improved sharply when the Amoco fields began producing, reaching 215,000 b/d in 1975. A fire at the Amoco terminal led to a brief downturn in 1976, but production was up again in 1977 to 229,000 b/d, and is expected to average 245,000 b/d in 1978, an increase of 7%. Present evidence suggests that production from the Amoco fields is at

^{1/} Onshore oil is produced essentially by three companies, in two of which the Government holds interests: Trinidad-Tesoro and TRINTOC; the third is Texaco-Trinidad Inc. These three companies also own equally Trinidad-Northern Areas Ltd., which operates the Soldado offshore field. The fields offshore the east coast of Trinidad are under license to Amoco Trinidad.

Table 2: CRUDE OIL PRODUCTION, 1968-1978
('000s barrels per day)

	<u>1968</u>	<u>1970</u>	<u>1972</u>	<u>1975</u>	<u>1976</u>	<u>1977</u> <u>Actual</u>	<u>1978</u> <u>Estimate</u>
Onshore	103.5	69.4	63.1	42.8	47.0	47.3	50
Offshore: Soldado	79.3	70.3	51.4	47.9	47.8	46.3	45
East Coast	<u>-</u>	<u>-</u>	<u>25.4</u>	<u>124.7</u>	<u>117.5</u>	<u>135.4</u>	<u>150</u>
Total	182.8	139.7	139.9	215.4	212.3	229.0	245

Source: Ministry of Petroleum and Mines.

about its peak. Production can be expected to level out and to start declining in the next few years. Indeed the decline rate could be in the region of 10% annually if further development efforts are not successful. However, development work is continuing, with a view to further delineation of the fields. The projections adopted in this report assume some success from these efforts and this would lead to a slower decline. No significant change in production levels is foreseen for the Soldado field during the next five years. Although development work continues, the possibility of production increases is seriously hampered by shortages of senior technical staff. Production from the onshore fields during the next five years is likely to be boosted somewhat by the fiscal incentives granted in 1976 for exploration and development of onshore fields. Thereafter this report assumes a resumption of the decline in onshore production.

25. Based on these considerations, national oil output is likely to gradually decline from 245,000 b/d in 1978 to about 230,000 b/d in 1982, falling further to somewhere in the region of 150,000 b/d by 1990. Proven reserves in Trinidad and Tobago are stated to be about 700 million barrels, sufficient to sustain production for 8 years at the current rate of output, while probable reserves are estimated at about the same amount. These reserves suggest that cumulative production during 1978-90 could be at about 970 million barrels. If the nation is to rely on oil in the 1990s as a main domestic resource for economic development, continued strenuous effort in oil exploration and development will be required to stem the national decline in oil output; however, to this end, the continuation of present government policy of providing a level of profitability sufficient to induce a continued high level of investment in oilfield development is advisable.

Table 3: PROJECTION OF CRUDE OIL PRODUCTION, 1978-1990
(‘000s barrels per day)

	<u>1978</u>	<u>1980</u>	<u>1982</u>	<u>1985</u>	<u>1990</u>
Onshore	50	55	55	45	35
Offshore: Soldado	45	45	45	40	30
East Coast	<u>150</u>	<u>140</u>	<u>130</u>	<u>110</u>	<u>85</u>
TOTAL	245	240	230	195	150

Source: Bank estimate.

26. There are two refineries in Trinidad and Tobago: the Trinidad and Tobago Oil Company's (TRINTOC) at Point Fortin and Texaco's at Point-a-Pierre; their designed crude oil distillation capacity is a total of 455,000 barrels per calendar day. The TRINTOC refinery processes domestic crude oil produced from its own fields and those of Trinidad-Tesoro for export. Texaco imports most of the petroleum for its refinery from Saudi Arabia, Iran and Indonesia under a petroleum processing agreement, for re-export to the United States. Production from the Amoco fields is exported as crude oil for refining abroad, predominantly in the United States.

27. Total refinery throughput has fallen steadily since its peak of 400,000 b/d in 1971, reaching 272,000 b/d in 1977. The principal reason for the secular decline in refining throughput is that exports of products from these refineries have been adversely affected in their basic market, the United States, through the protection accorded to US domestic and Virgin Islands refineries by the US crude oil entitlements program and by the license fees and import duties imposed on refined product imports. 1/ In February 1976 the US modified this program to the advantage of off-shore refineries in order to improve the competitive position of wholesalers of residual fuel oil on the US East Coast who receive their supplies from imports rather than from US refineries. Nevertheless, US refiners still appear to have the competitive edge and since 1976 US refinery production has continued to increase more rapidly than consumption in the US. US refineries are now operating close to capacity, in contrast to the under-utilized Caribbean and West European refineries.

1/ The US entitlements program was set up as a mechanism to preserve the competitive viability of refineries having access to a lower share than the national average of lower-priced domestic crude oil; domestic crude oil is subject to controlled prices, while crude oil import prices are uncontrolled. The entitlements program requires US refiners which process a relatively higher proportion of lower-priced domestic crude oil to acquire entitlements from those which process a relatively lower proportion. In October 1977 the average benefit which US refiners received from the entitlements program was US\$2.50 per barrel of throughput.

28. The US Administration is currently proposing changes in its entitlements and oil imports program, including a proposed crude oil equalization tax which would increase US oil prices to international levels and could result in the elimination of the entitlements program. The proposals are under review by Congress. Whatever the outcome, some measure of protection for US refineries is expected to continue. However, US demand for refined products, particularly residual fuel oil, is likely to continue rising during the next few years, at about 4% annually. This appears to be at a faster rate than planned expansion of US refining capacity and would operate to the advantage of foreign refineries. The proposed expansion of refining capacity in North Africa and the Middle East could pose competition to Trinidad and Tobago refineries in later years, as could the LOOP project (VLCC unloading facilities for crude oil imports into Louisiana) if and when it comes about. But the Trinidad and Tobago refineries are well placed geographically to take advantage of growth in US imports.

29. Despite the downtrend in refining throughput in Trinidad and Tobago there has been substantial investment carried out in recent years to modify and improve refinery capacity. In 1973 Texaco completed construction of a desulphurization plant with capacity of 100,000 barrels/day. This has increased the value of output and improved the competitive position of this refinery in US markets. TRINTOC is currently undertaking a major modification of its refinery to upgrade the range of products it manufactures to make it less vulnerable to market fluctuations. Currently the refinery produces a large proportion of high sulphur residual fuel oil. The proposed upgrading would include installation of catalytic cracking and would result in increased yields of higher-valued light ends, particularly of high octane motor gasolines, for which there is a more stable market.

Table 4: REFINERY THROUGHPUT, 1975-1990

('000s barrels per day)

	<u>1975</u>	<u>1976</u>	<u>1977</u> (Actual)	<u>1978</u>	<u>1980</u>	<u>1982</u>	<u>1985</u>	<u>1990</u>
<u>Crude Oil Throughput</u>								
Domestic Oil	75.3	89.6	92.6	95	100	100	85	65
Imported Oil	<u>159.5</u>	<u>231.7</u>	<u>180.0</u>	<u>187</u>	<u>225</u>	<u>275</u>	<u>325</u>	<u>345</u>
TOTAL	234.8	321.3	272.6	282	325	375	410	410

Source: Ministry of Petroleum and Mines and mission estimates.

30. Natural gas has been produced in Trinidad and Tobago for a number of years, primarily in association with crude oil production. While gas production has increased substantially since 1972 (7-1/2% annual average), it remains a minor share of total production of hydrocarbons in Trinidad and Tobago. Traditionally about half of the gas produced has been used as fuel

for the refineries and by T & TEC for the generation of power, and as a raw material input in the production of nitrogenous fertilizers. The remainder has been flared for lack of condensation facilities. A pipeline which takes gas from the east coast fields across the island to power generation facilities and an ammonia plant at Point Lisas has recently been completed.

31. Offshore exploration during the past decade has resulted in the discovery of large deposits of unassociated natural gas. Current estimates of gas reserves are 17,000 billion standard cubic feet in four locations around Trinidad and Tobago, but it is believed this may understate the actual situation. The Government views this gas as a source of inexpensive energy which can provide the basis for development of a diversified and expanded industrial base. The Government plans to undertake a number of large energy-based industrial projects, described in more detail in the following section, which will have first claim on utilization of this natural gas. Government technicians estimate that these plants will require between 8,000 billion and 11,000 billion standard cubic feet of gas depending upon the degree of success which the Government has in implementing these projects. An assumption of maximum natural gas utilization by the projects still leaves about 6,000 billion SCF as surplus, enough to support a 500 million SCF per day LNG plant for over 25 years. Independent consultants have been contracted by the Government to refine estimates of natural gas reserves. Should larger gas reserves be identified on the east coast continental shelf and the northern Gulf of Paria in the west as appears likely, size of the LNG facility could be expanded.

32. Tentative agreement has been reached with two US companies, Tenneco and People's Gas, to construct LNG facilities by end-1983 with production destined for export to the United States. The Government plans to take a 51% interest in the liquefaction plant. LNG would be shipped in tankers which might be jointly owned by Government and the two companies. The requisite studies are under preparation, including in-depth feasibility studies, site selection, shipping and environmental studies. First delivery is envisaged for December 1983, though there is always the possibility of slippage in view of the complex nature of the project.

33. The capital cost for a 500 mm SCF per day project is tentatively placed in an official estimate on the order of US\$1.6 billion in current dollars, of which US\$450 million would be for collection facilities (100% Government), US\$650 million for liquefaction (51% Government), and US\$500 million for tankers (51% Government). If the size were one billion SCF per day, the cost would roughly double.

34. The future world price of natural gas is the critical variable in assessing the attractiveness of the LNG plant. Negotiations have yet to take place to determine (a) the price at which producing companies would sell the gas at wellhead or production platform to the government-owned National Gas Company (or possibly the proposed National Energy Corporation), (b) the price at which the government corporation would sell gas to the liquefaction company, and (c) the fob or cif prices at which the LNG would be delivered to the foreign partners. Assuming costs as detailed in Appendix I, it appears that

the cost of LNG delivered to US interstate pipelines could be on the order of US\$4.50 per TCF in 1985 dollars or US\$2.80 in 1977 dollars. This includes an element of return (close to 15%) to the Government from its investments in gas production, pipeline, liquefaction plant and tankers, and from income tax imposed on production and liquefaction activities.

35. This cost is considerably higher than that of the first large-scale base-load project, El Paso I, which started up in March 1978, but is in the same range as those indicated in subsequent LNG projects which have received or are seeking US federal approval. These are still substantially higher than prices of the other main competing fuel in the residential heating market, distillate fuel oil, when they are compared at the burner tip, but they could approximate these oil prices if US energy policy is shaped so as to bring domestic oil prices up to international levels by the early 1980s. They are also much higher than US interstate gas prices which have been regulated at levels well below those of competing fuels, and somewhat above those of US intra-state supplies and overland imports from Canada and Mexico. US pricing policy for new domestic gas supplies is still being negotiated within Congress. The latest proposals under negotiation indicate that the prices for new domestic gas might rise substantially in real terms by 1985. The results of these negotiations are critical for the authorities to decide whether to proceed with the project. Provided that the export price can be set at a sufficient level to enable a reasonable return on the investment, Trinidad and Tobago appears to be well situated to develop a large-scale LNG export trade in future years which would help compensate the prospective decline in domestic oil production.

36. While the revenue impact of gas exports is not expected to be as great as that from oil exports, the Government is attempting to re-structure development contracts signed in 1974 to maximize their revenue impact. The revenue which the Government will indirectly derive from the country's natural gas through taxation and its share in the profits of the large energy-based projects is, of course, critical to maintenance of strong public finances and high levels of development expenditure throughout the 1980s.

C. The Energy-Based Industrial Projects

37. Trinidad and Tobago's medium-term development strategy is based on the promotion of capital-intensive, energy-based industry which will utilize the country's natural gas resources and diversify its economic base. It is expected that these projects could generate foreign exchange and Government revenues to partially compensate for possible decline of petroleum export earnings and tax revenues. In addition, some of the projects may lead to development of downstream activities which diversify and expand employment in the manufacturing sector. Projects most advanced in preparation include:

- (1) TRINGEN (Trinidad Nitrogen Co.) Ammonia Plant
- (2) FERTRIN (Fertilizer Co. of Trinidad) Ammonia/Urea Plant
- (3) Methanol Project
- (4) Iron & Steel Project
- (5) Expansion of Cement Plant
- (6) Liquefied Natural Gas Complex

38. A special group within the Government, the Coordinating Task Force, has been created to expedite the implementation of these projects. Planning began in 1975 and the Government has already set aside financial resources for their implementation. The authorities plan to locate most of the projects in the Point Lisas Port Area and are undertaking the necessary port, power, water and transport infrastructure development required by the new industries. The new 88 MW gas-fired power station of the Trinidad and Tobago Electricity Commission is now in place. Completion of the road system within the Point Lisas industrial estate has been delayed by strikes, but is now expected to take place by the end of this year. The Caroni-Arena dam project which will supply the Point Lisas industries with water has also encountered unexpected delays but it is now scheduled for completion in 1980.

39. At present, the projects are in varying degrees of preparation and implementation. No detailed analyses of the operations, timing or financial characteristics of the projects were furnished the mission. Accordingly, the mission has prepared tentative, illustrative financial projections based on general information provided by the Government for six of these projects. The Government has announced its intention of undertaking most of these projects as joint ventures with foreign firms, maintaining a minimum of 51% ownership, and financing the projects with a debt/equity ratio of approximately 70/30. These assumptions have been incorporated in the financial projections of each of the projects.

40. The first of the energy-based projects to be implemented was an ammonia plant undertaken as a joint venture with W.R. Grace's subsidiary Federal Chemicals, a firm with a long history of operations in Trinidad and Tobago. The jointly owned company TRINGEN was established and began construction in 1976. Located next to the present Federal Chemicals site, with which it will share port and loading facilities, the plant will cost US\$130 million and have a capacity of about 300,000 tons of ammonia per year, thereby doubling existing capacity. A take-or-pay agreement with the W.R. Grace Company provides the plant with a guaranteed market, and enabled the Government to avoid guaranteeing TRINGEN's external debt. The plant began production in October of 1977, and will reach full capacity in 1980. An additional US\$20 million of investment remains to be completed this year and will be financed entirely by external financial credits to TRINGEN, guaranteed by W.R. Grace. Based on Bank projections of an uptrend in the world price of ammonia, and given the Grace take-or-pay contract, the commercial and financial viability of the TRINGEN project appears to be assured. At full capacity, the project is expected to provide the Government with net income averaging US\$25 million ^{1/} annually. In addition, the project will generate depreciation funds of about US\$11 million a year, half of which will be available to the Trinidad and Tobago Government.

41. A related project, although much larger, is also being considered and construction may be initiated shortly. In 1977, the Government established FERTRIN in partnership with Amoco, the major petroleum producer in the country.

^{1/} The figures in this section are in current US\$ over the period 1978-1990.

The plant, to be located in the Point Lisas industrial complex, would consist of two ammonia producing facilities and a urea plant. It is estimated that an annual production capacity of 385,000 tons of ammonia and 530,000 tons of urea would cost about US\$350 million. Assuming that the agreement with Amoco is concluded this year, the plant could go into production by 1982 and reach full capacity by 1984. As a consequence of low capacity utilization, the mission has projected a cash deficit in the first year of operation of about US\$14 million dollars. At full capacity and assuming a favorable trend in prices of ammonia and urea, the average return on equity should be quite favorable, and would yield the Government an average US\$54 million annually. It is still unclear whether the Government will be successful in arranging a take-or-pay agreement with Amoco similar to that which has been arranged with W.R. Grace. At present, it is expected that the US, Europe and Central America will be the primary markets.

42. A large methanol project is currently being studied and is at an early stage of preparation. A preliminary feasibility study of the plant has been undertaken, and the Government has approved a United States-based firm, Borden, as a joint venture partner. Natural gas, the main raw material input for the plant, would be supplied by the cross-island pipeline to Point Lisas, which has recently been completed. Methanol can be processed further into other petrochemical products, and it is expected that the plant could eventually provide the basic feedstock for a petrochemical industry. The mission has prepared tentative financial projections for the methanol project which indicate that facilities for producing 330,000 tons annually would cost approximately US\$150 million. Assuming moderately favorable price developments for methanol as foreseen in the Bank's world commodity price projections, the project yields an attractive rate of return on equity and would, at full capacity, provide the Government with average annual net revenue of US\$21 million. It is estimated that this project could come on stream by 1982 and reach full capacity by 1985.

43. In order to utilize the cheap source of energy which is available in Trinidad and to further diversify the industrial sector, the Government is proceeding with an iron and steel plant. This project was initiated in 1976 when the Government established ISCOTT, the Iron and Steel Company of Trinidad and Tobago. In 1977 the company acquired a site in the Point Lisas Industrial Estate, and a contract was awarded to a Japanese firm for site filling. Work on this site began in September 1977. The plant will utilize a gas-fired direct reduction process and will rely on imported iron ore and oxide pellets. ISCOTT has entered into various contractual arrangements for the provision of technology, project management and engineering services from:

- (a) KORF Industries Inc., a German steel company which specializes in the production of sponge iron and the conversion of sponge iron into steel products;
- (b) Midrex Corporation (Subsidiary of KORF Industries), supplier of direct reduction technology; and
- (c) Hatch Associates, Ltd., an engineering consultant firm specializing in the design of steel-making facilities.

Capacity of the project will be about 550,000 tons of steel annually, which will be processed into 500,000 tons of wire rods, bars, and light structurals, and 50,000 tons of billets. The authorities expect that the CARICOM market together with Cuba and Surinam would absorb 100,000 tons, with the balance being exported to the US market.

44. Production is estimated to start in 1981, with full capacity reached in 1984. ISCOTT hopes to maintain competitive export prices and thereby gain access to the US market. The authorities believe that costs of production will be relatively low due to cheap energy supplied to the mill, proximity of the US market, lower freight costs than those in Japan and Europe, savings in freight costs for iron ore and pellets imported from Brazil, 1/ and use of modern and efficient technology. ISCOTT also hopes to benefit from the new US Reference Price system which prevents dumping from Japan and Europe. FOB prices for wire rods from Trinidad would be US\$200/ton (at 1980 estimated prices) which would be below the US Reference price.

45. Total cost of the project is now estimated to be US\$320 million, including training costs, land, and financial charges but excluding social infrastructure for the labor force. A portion of the US\$178 million equity has already been paid in by the Government and payments to equipment suppliers in the US, Canada, Germany and Japan have been initiated. KORF will have operational responsibility for the management of the plant, and a five-year contract to train Trinidadians has been signed with KORF. It is anticipated that lack of skilled labor and international marketing will be the most important problems to be overcome by the management of ISCOTT.

46. Preliminary financial projections indicate that, based on the present depressed picture for world steel prices over the medium term, the project is likely to run substantial cash deficits totalling about US\$75 million in the first three years of operation. Assuming that the project comes on stream in 1981, it should reach full capacity by 1984, by which time the cash flow situation should improve. Given the expected trend in world prices of steel, it appears that even at full capacity the steel project has only limited financial promise, averaging about US\$18 million/year contribution to Government revenues over the period 1984-1990.

47. In 1976, the Government acquired the privately owned local cement facilities because of its strategic importance in the construction industry. The Government is now planning to double capacity (250 million tons) of the existing cement plant. Demand in Trinidad and Tobago in 1978 is estimated at 300,000 tons, implying a deficit of 50,000 tons. In order to meet this deficit, the existing company has been permitted to import cement and clinker, which it has sold at subsidized prices on the domestic market. There is a clear need for increased domestic production of cement to meet future requirements. Mission estimates indicate that it would take an outlay of approximately US\$50 million to build a plant with a capacity of 270,000 tons annually.

1/ Japan is now importing iron ore from Brazil and Australia over much larger distances.

Assuming that production is sold at the international price for cement, the project would generate a moderate return on investment. Lower subsidized prices, however, would quickly eliminate any surpluses.

48. In addition to the projects discussed above and the LNG complex discussed in Section B above, the Government is considering several additional projects which are still at a preliminary stage of planning and are not likely to be initiated before the mid 1980s. Included in this group of projects is an aluminum smelter to process alumina produced in other Caribbean countries and a petrochemical complex which would produce olefins and aromatics. The basic feedstock of the petrochemical complex would be gas/oil. Output could include ethylene (450,000 tons annually), propylene (250,000 tons), and chlorine (100,000 tons). Such a project would probably include upgrading of the TRINTOC refinery to produce a suitable grade of oil for feedstock.

49. For the most part, the six large energy-based projects with which the Government is currently proceeding appear sound, although the Government will wish to undertake far more rigorous financial and economic analysis before proceeding with those not already underway. The viability of the projects, however, rests on a number of critical factors. Future prices, of course, will greatly influence the success of the projects. In the case of the LNG plant, these are particularly critical and to some extent uncertain, due to their dependence on internal political developments in the US. The likelihood of continued depressed steel prices prevents ISCOTT from showing much financial promise, although the Government expects broader economic benefits to result from the possible downstream generation of labor-intensive industry. The pricing of output is particularly important in the case of the cement plant, since the continued use of price controls on cement would quickly turn the project from a net contributor to a net user of Government funds. Finally, the success of the ammonia and urea projects is based on the projected recovery of international prices for these commodities from their present depressed levels.

50. A second vital factor to the success of the energy-based projects is their timely implementation. Their size and highly technical nature may make them especially prone to slippages and cost overruns. Smooth implementation will require a well-organized and carefully orchestrated effort, involving the continued timely development of appropriate power, water, port, and transportation infrastructure, the elimination of serious bottlenecks in the construction industry, and the training or importation of sufficient technicians and managers. The development of the required infrastructure has so far been delayed by strikes and skill shortages. The construction industry is crucial both to the development of infrastructure and to the building of the projects themselves, and manpower and supply bottlenecks will have to be eliminated if project implementation is to proceed smoothly. The authorities plan to obtain scarce technical and managerial skills by tapping the resources of foreign companies in joint ventures, by recruiting offshore, and by gearing domestic education and training programs to the needs of the industry-based projects. Continued careful planning for the nonfinancial requirements of the large projects is essential, however, for these areas are the most vulnerable to bottlenecks.

51. Despite their magnitude, the energy-based projects are so highly capital-intensive that they are likely to generate relatively little employment directly, although the medium-term employment impact on the construction industry will be strong, and down-stream industries developing in the late 1980s may be more labor-intensive in structure. Direct employment to be generated by the projects, however, is likely to be in the range of only about 5,000 jobs, as compared to a labor force estimated at about 500,000 in 1985. Consequently, over the next decade Trinidad and Tobago will have to depend heavily on growth of small- and medium-scale manufacturing, services and agriculture to provide employment for its growing labor force.

D. Manufacturing

52. The manufacturing sector (excepting petroleum, petroleum-based industry and cement) consists largely of light import-substituting consumer goods industries. These industries, which account for about two-thirds of value added in the manufacturing sector, consist mainly of food processing, clothing, building materials and assembly. Output of these goods has grown rapidly over the past decade relative to that of the rest of the economy, and now accounts for 8.6% of GDP and 16% of total employment. Expansion has been especially rapid during the last two years in response to strong domestic demand arising from increased income and consumer spending and from reduction of sales tax on a wide range of goods. Local assembly industries which produce such items as motor vehicles, household appliances, and television sets have been the major beneficiaries of rising consumer spending. Production of locally assembled motor vehicles rose by over 40% in 1976 and by about 20% in 1977. Manufactured exports, about half of which go to CARICOM, have grown more slowly in the past year as several countries in the Caribbean introduced import restrictions in order to overcome acute balance of payments problems.

Industrial Incentives

53. Manufacturing has been promoted through generous fiscal incentives, duty free access to imported raw materials, quantitative import restrictions which include some 450 items, technical assistance and concessionary credit. The industrial incentive system is heavily biased toward import substitution. The most powerful instrument for protecting local industry is the "negative list" which restricts imports of goods which would compete with domestically produced goods. Relatively high productivity and capital-intensive petroleum sector have exerted upwards pressure on wages in the rest of the economy and, as a consequence, labor costs in manufacturing are repeatedly high in relation to productivity. Duty free access to imported intermediate and capital goods and negative real rates of interest have resulted in adoption of relatively capital-intensive techniques of production and high import dependence. This, together with a small domestic market which precludes production runs large enough to achieve economies of scale, has resulted in high priced manufactured consumer goods relative to those prevailing in world markets.

54. In addition to quantitative restrictions on imports which compete with local industry, generous tax concessions are offered to firms which are approved by the Industrial Development Corporation (IDC) for the import substitution, export promotion or employment contribution which they make. Under the Fiscal Incentives to Industry Act of 1973, in which CARICOM harmonization guidelines were adopted by Trinidad and Tobago, tax holidays are granted according to the level of domestic value added and utilization of local labor. The share of national value added in total sales is weighted according to the proportion of the wage bill for nationals to total sales. Firms with over 50% local value added receive 9 years income tax holiday while those with 10% receive 5 years. The maximum incentive (10 years tax holiday) is provided to firms which export 100% of their production. Under this system industries with high levels of protection and high local prices receive a longer tax holiday than firms which operate efficiently and have lower domestic sales prices for their products. Additional fiscal incentives such as loss carry forward and plant and equipment allowances are also provided.

55. These fiscal incentives do not appear to be well focused to achieve the objectives of increasing efficiency and expanding exports of local firms which divide their sales between domestic and foreign markets. Moreover, they are in some cases overly generous since existing tariffs and quantitative restrictions assure financial viability. Such incentives do not sufficiently take into account the need to encourage an efficient use of resources over time.

56. Trinidad and Tobago's third five-year plan, which was completed in 1973, proposed an export promotion program aimed at accelerating growth of manufactured exports. It was recognized that the restrictive size of both the internal market and the CARICOM regional market made it imperative that export market diversification to include extra-regional markets be carried out. Plans to establish a vigorous program of export promotion have, however, not been effectively implemented. Existing export incentives which allow a tax credit are of limited use at present. They are not a concession as long as firms already enjoy generous tax holidays unless certain export criteria are attached to such holidays. With the exception of a prolonged income tax holiday for enclave industries which export 100% of their production, the tax credit for exports is too low. According to the present formula for calculation of the tax credit, a firm which derives most of its profits from exports would receive a tax credit equivalent to only 5% of the value of export sales. Incentives for firms which are just breaking into export sales, and export only a small share of their total output, are insignificant.

57. The Export Promotion Division of the Ministry of Industry and Commerce plays a useful role in promoting exports outside of CARICOM by providing information on export markets including customs duties, entry regulations, and participation in trade fairs. The Division suffers, however, from lack of staff and is handicapped by its lack of autonomy within the Ministry. It is expected that this situation will change in the near future as a decision has recently been made to increase the Division Staff and to promote joint export market development, an activity which the authorities

hope will lead to establishment of an exporting company, and to upgrade informational services regarding export markets and product adaptation for penetrating export markets.

58. General technical assistance is provided to manufacturers in Trinidad and Tobago through the Caribbean Industrial Research Institute (CARIRI) established in 1975. CARIRI was set up to provide technical and managerial services including project promotion through economic and technical feasibility studies, market surveys, quality control assistance and chemical analysis, particularly in connection with testing in food processing industries. Financial assistance to small and medium sized firms is provided by the Industrial Development Corporation (IDC), which also extends technical and managerial services to firms which are in the early stages of operation. The Development Finance Company concentrates on medium and long term credit to larger firms for fixed investment. While these agencies have expanded their operations in recent years, the services and credit they provide lag well behind demand for them.

Future Prospects and Policy Options

59. Trinidad and Tobago has a regional and international comparative advantage in the specialized heavy energy-based industries which it is developing. It is unlikely, however, that these large energy-based projects will have much of a direct impact on Trinidad and Tobago's unemployment problem. Small and medium scale manufacturing industry offers much better prospects for employment generation. It is important, therefore, that substantial resources be committed in the years ahead to development of medium and small scale manufacturing. Skilled labor will continue to be in short supply for many years to come and it would appear that unskilled labor-intensive light manufacturing industries producing such things as clothing, leather goods, footwear, ties, corsets, gloves, yarn, and thread, etc., are most suitable to the country's resource endowment in the medium term.

60. New investments in manufacturing industry should be formulated in terms of market prospects. Opportunities for further import substitution in the domestic market are limited. In view of the small market which is open to Trinidad and Tobago in CARICOM and continuing economic problems in some of CARICOM's more important members, extra-regional export market diversification should be a major goal of Trinidad and Tobago's industrial development strategy. Trinidad and Tobago's narrow resource base implies a high import content in the production of most goods. This should not handicap the country's exporters in competing in export markets since light processing of a specialized line of products can be just as efficient as more complete processing of a few products.

61. Successful development of efficient labor-intensive small and medium sized industry capable of exporting to extra-regional markets can be expected provided a favorable domestic economic environment is maintained in which local firms have access to imported inputs, distortions in the price system are minimized, and resource allocation is carried out reasonably efficiently. Sufficient medium- and long-term credit must be available to these smaller firms and special bridge financing may have to be given to cover transitional problems such as those currently experienced by firms which

previously exported a large share of their output to CARICOM countries now imposing quantitative restrictions on Trinidad and Tobago's exports. International competitiveness will have to be achieved and maintained if these industries are to be stable sources of employment over the long-term. This may be achieved through appropriate fiscal incentives for export activities so as to stimulate growth of exports. These could include tax rebates, transitional wage subsidies and fully equipped industrial parks in appropriate instances. An alternative approach of rendering small and medium scale industry competitive in world markets would be through appropriate adjustments of the exchange rate. Moreover, duty-free imports of capital and intermediate goods should be restricted to export industries, rather than to all manufacturing as the situation is now.

E. Agriculture

62. Agriculture provides 15% of total employment in the country and is the second most important source of foreign exchange earnings after the petroleum sector. Since the early 1970s however, production in the agricultural sector has shown a downtrend and now accounts for less than 3.0% of GDP. Sixty-five percent of arable land, which constitutes about half of the total area of the two islands, is under production of export crops (sugar, cocoa and coffee). Sugar, constituting the single most important crop and accounting for about half of the value added in agriculture, has undergone a steady decline in production since the early 1970s. Output of the other major export crops, coffee and cocoa, and of food crops and livestock has fluctuated widely in recent years, and with the exception of poultry has shown no upward trend since 1972.

63. Trinidad and Tobago has a rapidly growing domestic market for food products and is capable of absorbing foodstuffs at relatively high prices. However, it is estimated that only 30% of land well suited to food cultivation is currently being farmed this way and there is considerable untapped potential for increased food production. As a result, the country has become progressively more dependent on imports to satisfy its food requirement; food imports rose from US\$51.7 million in 1970 to US\$152.5 million in 1977. Although the country has traditionally imported a substantial portion of its food supply and exported a few staple crops, the Government is determined to reverse the recent trend toward greater dependence on such imports. Food crops are generally high value, intensively farmed products which yield high incomes relative to utilized land. Import substitution for such products could for the next several years generate sufficient employment and income to stem the outward flow of manpower from rural areas. To achieve this the Government is attempting to stimulate production of such products through a system of subsidies and price supports and through increased investment in the sector.

Sugar

64. Through the 1930s, sugar was Trinidad and Tobago's major source of foreign exchange, until it was eclipsed by petroleum around the time of the second World War. Despite recent production declines, it remains the country's second most important foreign exchange earner, as well as a major source of

rural employment (65% of total agricultural employment) and income. Cultivation of sugar is carried out on the best land in Trinidad and Tobago. At current world prices, however, large scale estate production and refining of sugar is being carried out at a loss, since costs of production in the sugar estates are high because of relatively high wages and widespread labor unrest. Labor is well organized in the sugar industry; wages are substantially higher than in the rest of agriculture and at about the same level as those received by urban unskilled labor.

65. In the early 1970s, the Government acquired the large sugar estates and is now the principal producer of sugar. The Government-owned Caroni, Ltd., the country's largest sugar estate, has incurred substantial losses since 1975, estimated at about TT\$80 million in 1977. Assuming that sustained improvement in world sugar prices does not occur, it would appear advisable over the medium term to shift land under sugar cultivation to more intensive cultivation of high value crops with production cooperatives or family farms as the principal units of production. Initially, it may be desirable to experiment with intercropping of food crops and sugarcane. Labor currently employed in the sugar industry which would be displaced by reduction of land allocated to sugar can be given access to sugar land for use as family farm units. Such a shift would reduce the drain on public finances and simultaneously contribute to the Government's objective of increasing production of foodcrops for the domestic market.

Poultry and Livestock Production

66. Poultry production has grown rapidly in Trinidad and Tobago over the last five years as the consequence of promotional activities of the large feed grain companies and the country is now self-sufficient in poultry and egg production. Pig farming is essentially confined to small farmers, but except for peak seasonal demand when imports are required to supplement local supplies, the country is virtually self-sufficient in pork production. About 70 percent of beef supplies and all of the country's butter, cheese and other processed dairy products are imported. A substantial supply of fresh milk is produced locally.

67. The major constraints to livestock production are the lack of a low-cost supply of livestock feed and, in the case of beef cattle, extensive grazing area. The local livestock feed manufacturing industry relies to a large extent on expensive imported inputs and livestock production costs in Trinidad and Tobago are high. While poultry feed is equally as expensive, the feed meat conversion rate is much more favorable for poultry and the high cost of feed does not have such a heavy impact on the final product price as in the case of beef. Increasing local production of corn and soybeans, and of by-products from grain milling and food processing, should contribute to development of less expensive inputs, but heavy dependence on beef imports is likely to continue for some time. Favorable results from research on the use of "canefeed" (chopped sugarcane mixed with urea, minerals and other supplements) for feeding beef and dairy cattle indicate good prospects for accelerated growth of both beef and dairy production through supplemental feeding with "canefeed."

Government Policy

68. Agricultural policy places heavy emphasis on subsidization of inputs. Fertilizer is subsidized at 50% of cost. Herbicides, insecticides and agricultural tools carry a 25% subsidy and are additionally exempted from import duties. Direct cash subsidies amounting to 1/3 to 1/2 of cost are provided to farmers for expenditures made on land preparation, soil conservation, irrigation, and crop and livestock production. In addition, a price guarantee program administered by the Central Marketing Agency (CMA), a buyer of last resort, has been established for 22 commodities produced for the local market. Under this program minimum guaranteed prices are set which cover costs of production and assure producers a 10% return on capital. Protection from external competition is provided through the negative list, and import licenses are required for a wide range of domestically produced food items.

69. Prior to 1974 the program for subsidizing agricultural inputs was largely an ineffective tool for promoting agricultural development. Subsidies were small and farmers, reportedly, had difficulty drawing amounts which they were due. With the expansion of Government resources from 1974 on, actual subsidies paid have risen substantially, reaching TT\$64 million in 1977. While it is likely that the subsidy system has become more effective than it was prior to 1974, the program is now expensive and difficult to administer. More importantly, it has apparently not contributed significantly to increasing output.

70. The minimum price support program, while potentially a more effective way of increasing rates of return and investment in agriculture, does not currently have much effect on agricultural production. With the exception of bananas, the guaranteed minimum prices have been and continue to be well below market prices even in periods of increased supply, and as a result the Central Marketing Agency plays only a minor role in the marketing of agricultural output. Prices have been kept low because the Government has been reluctant to (a) permit the CMA to pass higher purchase prices on to urban consumers or to (b) increase subsidies to the CMA to cover additional losses it would incur if it did not reflect higher purchase prices in prices at which it sells to the public. The Agency is understaffed and lacks the storage, grading and packaging facilities required for administering an effective price support system.

71. The Government is currently studying a proposal to merge the Central Marketing Agency into a new entity, the National Food Corporation, which would be involved in a broad range of activities, including marketing, bulk purchase and distribution of agricultural inputs, and project identification, planning and implementation. While this new corporation is presumably to be given the financial and manpower resources to overcome the deficiencies of the CMA, difficult decisions will have to be taken regarding the price support system. The only way to support farmgate prices and at the same time moderate price increases to the consumer is for the Government to make up the loss incurred by the marketing agency. While Government resources are expected to be sufficient over the medium-term to cover such increased subsidies without

reducing the level of investment which it can prudently execute, the projection of public sector finances presented in Chapter III indicates that this may not be the case over the term. If the situation should develop as those projections suggest, the Government may by the early to mid-1980s have to curb these subsidies or cut investment spending, thereby reducing the pace of economic development.

72. CMA has had a broad range of responsibilities, but without adequate trained manpower and financial resources the Agency has been spread too thin, and with the possible exception of its banana marketing activities has failed to satisfactorily carry out its responsibility in any area. In light of this experience and the outlook for less abundant fiscal resources in the future, the new Food Corporation should be highly selective in carrying out its mandate, taking on only those functions which it can successfully carry out. Rapid improvement in the capability of the private sector in food processing and marketing in recent years suggests that direct participation of the public sector in this area may not be required. Given the limited resources of the new Food Corporation it may best deploy its resources by developing its role as a central information, regulatory and advisory body to producers, consumers and intermediaries. It may be difficult for the Corporation to adequately provide such service if it is also involved in direct marketing activities.

Financial Resources for Investment

73. Government resources available to the agricultural sector have increased rapidly in recent years and now amount to about TT\$500 million. This includes TT\$120 million annual budget allocation to the Ministry of Agriculture for its research and extension services, \$40 million to the Central Marketing Agency, TT\$42 million to the Agricultural Development Bank and about TT\$300 million of cumulative appropriation to the Food Development Fund and other special funds. The Food Fund, the largest of these, is designed to promote increased local food production by financing rehabilitation of existing farm land, the opening of areas not yet under cultivation, expansion of livestock production and investment in rural infrastructure. This fund is disbursing slowly, however, as a result of inadequate project planning and the institutional weakness of the agencies operating in the agricultural sector. Projects already identified cover about 30,000 acres and entail upgrading of economic infrastructure on abandoned cocoa, coffee, coconut and citrus farms. In addition, about 5,000 acres of rice land are to be upgraded and 2,000 acres of swampland adapted for rice production. This fund should be gradually shifted on its orientation to financing costs of shifting land currently used for sugar to more intensive food crop production.

74. Agricultural credit provided at subsidized rates (6% for commercial farming, 3-1/2% for small scale farming) by the Agricultural Development Bank (ADB) has increased substantially in the past two years. The ADB's lending is concentrated on increasing production of food crops and livestock. While the ADB has increased its lending volume rapidly in recent years and has made a substantial contribution to development of Trinidadian agriculture, default rates have risen rapidly and have become a source of serious concern to the Agricultural Bank's management. Maintenance of a strong Development Bank for agriculture is essential to implementation of the Government's agricultural

development strategy. The long-term viability of the ADB depends in large measure on the ability of its management to gain control of and eventually reduce the default rate to a more manageable level.

Conclusions and Future Prospects

75. With the exception of wages paid to sugar workers, wages in the agricultural sector are about half of those prevailing in the service and industrial sectors, and small scale farmer income is generally low. Most of the good land in Trinidad and Tobago is on the Government-controlled sugar estates, and opportunities for expansion of family farm units are limited. As a consequence, there have been large net outflows of manpower from the rural to the urban sector, aggravating the urban unemployment problem. More intensive cultivation of the best land in Trinidad and Tobago in high value food crops could increase labor productivity and income from agricultural activities and thus narrow the urban-rural wage differential. Dairying, poultry production, and vegetable and fruit cultivation also provide full-time employment and are suitable for a family farm system of operation. Diversification and intensification of production on Trinidad and Tobago's best land and the settlement of new land are vital next steps in developing the country's agriculture and increasing the productivity and incomes of the rural poor. In order to accelerate the transition to more intensive use of agricultural land, the Government should upgrade the services which it provides to the agricultural sector and gradually convert its sugar estates to family farm units producing high value food crops, as well as sugar.

F. The Construction Industry

76. The recent construction boom has increased the construction industry's share of GDP from 4% in the late 1960s to 7% in 1977. Growth of the sector has been erratic, however, and in 1977 bottlenecks appeared which curbed its growth despite continued high demand for new construction. Severe building materials, managerial and skilled labor constraints continued to prevent the sector from responding fully to increased demand. As a result, construction costs are increasing more rapidly than other prices. The construction industry is pivotal in the Government's development program, accounting for about 50% of public investment expenditures. Unless measures are adopted to ease management, skilled labor, and building materials shortages, supply bottlenecks in the industry will persist in the medium term, given the continued high level of investment which the Government's development program implies.

77. The construction industry in Trinidad and Tobago is almost entirely comprised of domestic and foreign contractors with owner-builders and direct-labor operations accounting for an insignificant proportion of total activity. Domestic contractors have since the late 1960s grown in relative importance, especially as builders of residential housing and as subcontractors to foreign firms on civil works and highrise buildings, and now account for about half of the output of the industry. The public sector currently accounts for about two-thirds of total construction demand.

78. Regulations concerning tendering for public works do not exclude foreign contractors, and the award of contract goes to the lowest bidder, unless there are serious reasons to the contrary. such as the bidder's capability to carry out the work. The Central Tenders Board decides on the award of contract, taking into consideration advice of the technical services of the different Ministries which are concerned, but it rejects the lowest bidder only exceptionally. The foreign firms generally undertake large contracts such as port development, water supply installations, highway construction, large industrial plants and high rise buildings, for which local contractors find it difficult to compete because of lack of expertise and insufficient financing capacity.

Prospects and Problems

79. Government concern regarding the future prospects of the construction industry has led to creation of special study committees and adoption of a number of measures aimed at increasing the productive capacity of the construction industry. A Working Group was established in 1977 to look into the construction materials industry and to advise the Government on measures to alleviate periodic shortages and to reduce future price increases of such materials. In addition to shortages of building materials such as cement, aggregate and timber, these groups have identified inadequate planning and coordination, and poor project design and supervision as the major cause of construction industry inefficiency.

80. The Government views upgrading the capability of domestic contractors as a first important step in improving the efficiency of the construction sector. Most domestic contractors have become active only within the last 15 years. Many firms have shown rapid growth, have good entrepreneurial ability, and show strong potential for future development. A number of constraints will have to be eliminated, however, if the construction industry is to develop at an adequate pace. These constraints are:

- (i) managerial shortcomings in operation of the contracting enterprise and in organization and supervision of works;
- (ii) shortage of skilled labor, insufficient training facilities, rising labor costs and declining labor productivity;
- (iii) shortage of locally produced materials, quantitative restrictions on imports of such goods ("negative lists"), a cumbersome import licensing system and excessive delays in port handling;
- (iv) inefficient quarry operations;
- (v) inefficient local lumber operations;
- (vi) inelastic supply of manufactured building materials;
- (vii) lengthy bureaucratic procedures for building permits, delays in final contractual payments, inadequate price adjustment clauses;

(viii) inadequate consulting services, especially of architects and engineers.

81. Domestic contractors are frequently inefficient as a result of lack of professional and medium level technical staff. The Government has recently introduced two measures to solve this problem. In 1977 the Faculty of Engineering of the UWI was granted a substantial subsidy to increase the intake of Trinidadian students by 460, as compared to Trinidad and Tobago's basic quota of 160 entrants in 1976. This increase is to take place over a number of years. It is expected that by October 1978 the Trinidadian contingent will rise to 315 and the first "over quota" Trinidadian engineers will be graduated in 1980. In the meantime work permits are now being issued to contractors and consultants for hiring expatriate engineers. Delays in issuing permits have in some instances been excessive, however, and good candidates have as a result been lost. While this measure has been a major step forward, it should be extended to include site supervisors since, for a number of firms, site supervisors may have higher value than graduate engineers. Work permits for such middle level technicians are not yet available.

82. The problem of skilled labor is acute in Trinidad and Tobago. The two technical institutes (John Donaldson and San Fernando) do not have sufficient output to satisfy demand. While in the past the traditional apprenticeship method of training could satisfy the limited demand, emigration has depleted the available skilled manpower (2,567 skilled craftsmen emigrated between 1970 and 1976) while at the same time demand has increased considerably. Present training efforts which include special programs with youth organizations, "farming out" the training to contractors, and establishing senior comprehensive schools, are not adequate to meet the demand in terms of numbers trained or quality of training.

83. It would appear that the best solution to the problem is establishment of trade schools. It is estimated that the demand for additional skilled labor will increase by about 20% annually over the next several years or by about 5,000 men per year. Existing output is currently far short of this number (about 2,000 in 1977). The result of this situation is that contractors use semi-skilled labor to the detriment of work quality. While such labor is cheaper, it is more than proportionately less productive and cost of construction is increased. Formation of medium and lower level technicians and craftsmen should therefore be reviewed and measures found most suitable for increasing supply of such labor should be urgently implemented. Quality of instructors is of primary importance in the training process and if good instructors are in short supply locally, they should be brought from abroad.

84. In attempting to ensure an adequate supply of building materials, the Government has in recent years become directly involved in the production of such materials. In order to control cement production and prices, the Government took over the Trinidad Cement Factory in July 1976. Since the early 1970's cement production has been about 250,000 tons annually, permitting an export of 138,817 tons in 1970, which gradually decreased to 17,818 tons in 1976. In 1977 breakdown of equipment reduced output to 214,836 tons and about 70,000 tons were imported to cover the shortfall. To prevent similar occurrences in the future and to ensure adequate domestic supply,

the Governemnt has decided to build a second cement factory with a capacity of 300,000 tons annually. A turn-key contract is being considered so that the project is completed rapidly. Until the new cement factory starts producing, however, some cement will have to be imported. Particular attention will have to be given to overcoming delays in cement shipping, unloading and distribution, so that cement quality is not reduced.

85. Considerable attention is being accorded by the Government to the supply of aggregate for concrete and road construction, and to clay for manufacture of bricks. There are sufficient deposits of limestone, gravel, sand and clay in the country to satisfy the growing demand, but not enough is being extracted, causing shortages and delays in the progress of works. The annual output of aggregate is 1,175,000 cu. yd. Present demand is estimated at about 1,800,000 cu. yd. Permits for quarrying on Government land were previously issued for one year and are now being given for three years. Government concessions for quarrying should be long enough (e.g., 20 years) to allow for full depreciation of expensive equipment which for a good size quarry could cost about TT\$10 million. If the Government offers such a permit, it could provide information about quality and quantity of the reserve and specify output targets. Independent expert advice on aggregate production could assist the Government in formulating policies for ensuring an ample supply of aggregate at reasonable prices.

86. Reinforcing bars and structural steel are important basic inputs for the construction industry. Present consumption of steel is about 30,000 tons a year and will grow with increased construction and manufacturing activity. Currently domestic production is limited to about 7,000 tons annually, of which about half are reinforcing bars. As discussed above, the Government has decided to build a steel mill whose capacity will be more than sufficient to meet the needs of the domestic demand and will alleviate any supply shortage which currently exists.

87. Trinidad and Tobago has a fledgling building materials industry. Due to the limited market, these establishments are generally small, and for a number of items there is only one producer. The Government protects these new industries through quantitative restrictions on imports which compete with domestic production. As a result, many locally produced building materials are priced much higher than the imported item. Domestic output of such items frequently lags behind demand and the resultant shortages of materials slows down construction, wastes time of contractors in locating the needed materials and drives up prices of such goods.

88. The Government has been studying this problem in order to find solutions to the high cost and shortages of building materials and has arrived at the conclusion that it should: (i) introduce price control of the main construction materials; (ii) permit duty-free import of certain building materials; and (iii) abolish the quantitative restrictions on imports ("negative-list") of building materials. Abolition of the "negative-list" of building materials will be a beneficial measure to improve supply and may induce increased efficiency of some manufacturers. Duty-free imports of building materials should effectively limit price increases of construction materials and make price controls unnecessary to the extent that import licenses become readily available.

89. Procurement for public works is in the hands of the Central Tenders Board which handles all of the Government's requirements for supplies, with the exception of contracts of under TT\$2,000. Such centralization of procurement is detrimental to the efficient conduct of business, especially in matters like intervention of the Board in small contracts and in the extent of the Board's authority over technical contracts. Some degree of decentralization would increase the efficiency of procurement.

90. Contract documents currently allow only for adjustment of prices of some basic materials and do not permit an escalation clause to compensate for higher labor costs. An insufficient method of price adjustment tends to increase bid prices since bidders have to protect themselves against future losses which they have to estimate. Introduction of more flexibility in contractual arrangements would lower bids being submitted to the Tenders Board.

91. While domestic contractors can purchase technical assistance from consulting engineers and architects, they should also be provided with such service at a nominal fee by such institutions as the Management Development Center. The UWI has set up day and evening classes on management, and offers post graduate managerial and engineering courses. Day courses do not have the desired impact because a working professional finds it difficult to attend regularly. While night courses solve this problem, the participants are generally too tired to be effective over a prolonged period. The best arrangement may be short seminars. Additional technical assistance and training of contractors can also be provided through CARIRI.

92. Consulting services in Trinidad and Tobago are specialized in three main groups: architects, engineers and quantity surveyors. A project often has five contractual participants, adding to the above three the client and the contractor. While this appears to be a traditional practice in Trinidad and Tobago, a project should normally have three parties only: the client, the contractor and either an engineer or civil works, or an architect for buildings, to design and supervise the work. The function of quantity surveyors should be absorbed by architects and engineers. This would lead to less delays in performance of contracts, and final payments, and would eliminate excessive division of responsibility. Trained manpower shortages experienced by consulting firms should be overcome by the Government's policy to issue working permits for employment of graduate professional expatriates.

Summary of Recommendations

93. The following measures might be considered by the Government as possible ways to increase the efficiency of the construction industry:

- (i) to alleviate the construction industry's managerial shortages the Government could accelerate issue of working permits and allow the employment of expatriates as work supervisors in jobs where a high degree of experience (but not necessarily any university degree) is required;

- (ii) education and training of technicians and skilled craftsmen might be reviewed and necessary steps taken to ensure a steady supply of skilled manpower;
- (iii) free import of building materials should be considered;
- (iv) long term leases for quarries could be introduced so as to induce private sector investment in the necessary machinery, and production targets specified for the period of the lease;
- (v) the production of local timber might be reviewed from the point of view of utilization of the country's forestry reserves and reforestation by a team of experts specialized in this field;
- (vi) the tendering system for the public sector might be decentralized to ensure greater involvement of the technical agencies concerned;
- (vii) the system of performance bonding whereby the domestic contractor must provide full collateral for the amount of the bond, might be revised with a view to easing collateral requirements so that local firms can compete more effectively with foreign firms which usually obtain such a bond abroad, frequently with no collateral requirement;
- (viii) additional managerial and technical assistance for contractors could be made available through the appropriate existing institutions on terms which would attract the contractors' interest to such facilities;
- (ix) prefabrication of low cost housing should be reconsidered in light of the successful low-cost assembly line technology which is already available in the country;
- (x) the contractors association should be supported so that it can provide professional services to its members, and to establish a forum, where contractors can discuss their common problems.

G. Education and Manpower Training

94. The skilled labor bottlenecks in the construction industry are one instance of more widespread manpower constraints in the Trinidad and Tobago economy. The serious shortage of technical and managerial skills will be especially critical during the next few years, since it constitutes a major block to the preparation, implementation and eventual efficient management of the energy-based industrial projects, as well as the rest of the public sector investment program. The existence of a serious unemployment

problem side by side with skilled labor shortages has brought into sharp focus the importance of appropriate education and training in the efficient allocation of human resources over the next few years.

95. The Government in 1968 undertook a major reconstitution of the entire education system in Trinidad and Tobago, outlined in the fifteen-year Education Development Plan. The Plan's main objectives included provision of general education for all children up to 14 years, introduction of comprehensive education at the senior secondary level, reform and expansion of vocational agricultural and higher level technician training, and improvements in the preparation of teachers at all levels. The plan was reappraised in 1975, partially in response to the issues raised above, and increased emphasis was placed upon technical training. Moreover, it was decided that specialized craft training programs being offered in the vocational schools should be rejected in favor of an integrated, comprehensive program, in order to take advantage of the utilization of common facilities and common management. The critical role of denominational organizations in the educational system was also recognized.

96. The guiding principle of the Government's education policy is equality of educational opportunities, with the objective of meeting both individual needs and the manpower requirements of the economy. At the same time, the authorities are attempting to bring about a qualitative improvement in primary and secondary education through the design of new curricula, strengthening of libraries, introduction of additional science and technology-oriented courses at the secondary level, and the reorientation of teacher training. In order to expand the scarce supply of trained teachers, the Government is expanding the Valsayn Teachers' Training College, and is recruiting appropriately trained expatriate Trinidadians. However, additional facilities for teacher development may be required in the future to meet the requirements of an expanding and upgraded educational system.

97. The improvement of technical and vocational education is being given high priority by the Government. Several approaches are possible, each requiring careful exploration and constant adjustment to the changing needs of the country. This in turn requires continuous assessment of national skill training needs, and effective administrative arrangements to fully utilize and coordinate the resources of the formal and non-formal education training systems in a cost-effective manner. The active involvement of representatives of industry and labor in this process is essential. In principle, craft courses provided as part of the senior school curriculum, should not, as a rule, be terminal. In addition, narrow specialization should be avoided at this level of education. Such specialization should be left to the post-school level, where a variety of intensive courses responding to industry's specific needs should be available.

98. An important development in the field of post-secondary education and training is the proposed establishment of a National Institute of Higher Education (Research, Science and Technology). In the late sixties and early seventies, training in certain specialized professional fields and research activities relevant to industrial and agricultural development became the

concern of a body of local institutions. To improve the institutional framework of these institutions, which have been increasing in number and scope of activities, and also to provide a closer coordination between the operation of these institutions and the University of the West Indies, an Inter-Ministerial Committee was set up in 1977 to consider rationalization of the national effort in science, technology and specialized training. The main recommendations of the Inter-Ministerial Committee, now under consideration by the Government, include the establishment of a National Institute of Higher Education (Research, Science and Technology), the absorption into this proposed new Institute of certain existing organizations concerned with science and technology which now operate either as Government Agencies or under Acts of Parliament, the establishment of a National Council for advising Government on all matters relating to the University of West Indies and further University development, and also the establishment of two advisory bodies, a Council for Science and Technology for Development and a Council for Training.

99. Higher education in the future is expected to be more closely geared to the high level manpower needs of the economy. Unfortunately, severe shortages exist in the teaching staff in the technical and engineering areas at the University of West Indies. These shortages are exacerbated by the attractiveness of private sector compensation for scarce technical staff. To fill the gap over the short-term and to meet Trinidad and Tobago's immediate urgent training needs, the institution of more competitive salaries in the university, together with the import of high level teachers from abroad, may be the only solution.

100. The Government's education development plans for the next five years are mainly geared toward qualitative improvement but also to quantitative expansion required for the implementation of a universal five-year secondary comprehensive education. The Government is determined to proceed with the rehabilitation of the outmoded primary schools which have frustrated the efforts at qualitative improvements. The development of new primary curricula and learning materials and the reorientation of teachers are also under serious consideration by the Ministry of Education, in view of the projected abolition of the Common Entrance Examination by 1981. The Ministry of Education is considering the establishment of Teachers' Development Centers to assist both primary and secondary teachers in coping with the wide range of their students' abilities and disabilities. In keeping with Government policy regarding comprehensive education, the Ministry of Education is proposing the extension of all the existing senior secondary schools and composite schools to include vocational and agricultural wings and related facilities. The Ministry of Education also proposes the extension of existing junior secondary schools for the implementation of a full day school program for all junior secondary classes. This is expected to make possible a broader participation of both teachers and students in the educational process and thereby provide better opportunities for more effective educational guidance and vocational orientation. In the area of teacher training, the Government is planning the expansion of teacher training for technical teachers, the provision of facilities for teachers of agriculture and the increase in scholarships for those intending to become teachers.

III. FINANCING DEVELOPMENT

A. Financing Private Investment

101. The Trinidad and Tobago Government is actively concerned about fostering the rapid expansion of the private sector in the economy. In contrast to the situation in the late sixties and early seventies, when weak public finances forced the Government to preempt credit to the private sector in order to finance its growing deficit, the 1974 influx of petroleum wealth has enabled the Government to become a net creditor of the banking system and greatly expanded the financial resources available to the private sector. The Government has been successful in curtailing the inflationary impact of the rapid accumulation of foreign exchange reserves, and its continued presence as a net creditor in the banking system permitted a sharp expansion of credit to the private sector in 1976 and 1977, which underwrote the boom in the construction and manufacturing industries and simultaneous reduction in growth of the money supply. The authorities are aware that this situation will not continue indefinitely and that as the large surplus in the public sector is reduced (as discussed in Section B of this Chapter) adequate growth of credit to the private sector will depend increasingly upon greater mobilization of private savings. In order to assure the long-term growth of credit to the private sector, efforts to mobilize increased domestic savings, and to channel these savings more efficiently to productive investments, are required.

Inter-Sectoral Financial Flows

102. Substantial shifts in inter-sectoral financial flows have taken place in Trinidad & Tobago during the past five years. From the mid-1960s to 1973 the Household and the Rest of the World sectors were the two major sources of funds in Trinidad and Tobago, accounting for an average 43% and 52% of the financial surplus respectively. From 1970 to 1973 Trinidad and Tobago had an increasingly large external resource gap and the country was a net importer of capital. Public finances were weak during this period and central and local governments absorbed financial savings. Government non-financial enterprises accounted for an average 34% of the total financial deficit of the economy during this period. The statutory Boards, B.W.I.A. and the Telephone Company accounted for about 50% of this deficit. The corporate sector was the major recipient of funds, absorbing an average 60% of the financial investment which took place in the economy during this period.

103. The situation changed markedly during 1974-76, however, as a result of the sharp increase in earnings of the petroleum sector and the consequent increase in petroleum tax revenue received by the Government. The Central Government became the principal source of financial surplus in the economy, accounting for an average 53% of the total during this period. Non-financial government enterprises continued to be in deficit, however, maintaining their share of total absorption of financial resources of the economy at an average 34% during the period. Households continued as net savers with a relatively constant share of the total source of funds as during 1966-73. The Rest of the World, however, consistently absorbed funds from 1974 on as the Government built up balances with the Central Bank which were held abroad as part of the country's international reserves.

Monetary Policy

104. For several years prior to 1974, weak public finances forced the Government to be a large net borrower from the financial system. As a result expansion of net domestic credit, despite limits on credit to the private sector, exceeded growth in deposits and foreign exchange reserves declined. From 1974 on, however, this situation was reversed owing to the large surpluses generated by the Central Government, so that despite rapid growth of credit to the private sector, net foreign assets expanded rapidly.

105. Since 1973, monetary and fiscal policies have been directed toward reducing the rate of inflation by preventing the sharp increase in petroleum export earnings and foreign exchange reserves from resulting in explosive expansion of the money supply. Controls on Government spending and the buildup of substantial deposits with the Central Bank which have been held abroad have led to the sterilization of a considerable portion of the sudden accumulation of foreign exchange. During 1976 and 1977, growth of money supply (M_1) was reduced, declining from 51% in 1975 to 38% and 32% in 1976 and 1977, respectively, as aggregate demand management became more effective. Growth of the broader monetary aggregates also slowed in line with growth of currency in circulation and demand deposits as shown in Table 5. Sterilization would have been more complete and growth of money supply and inflation lower had it not been for increased transfers of the Treasury to the non-financial Government enterprises, and in 1976 and 1977 rapid growth of credit to the private sector.

CHART I. FINANCIAL DEFICIT OR SURPLUS AT CURRENT PRICES
1966-1976 (TT\$)

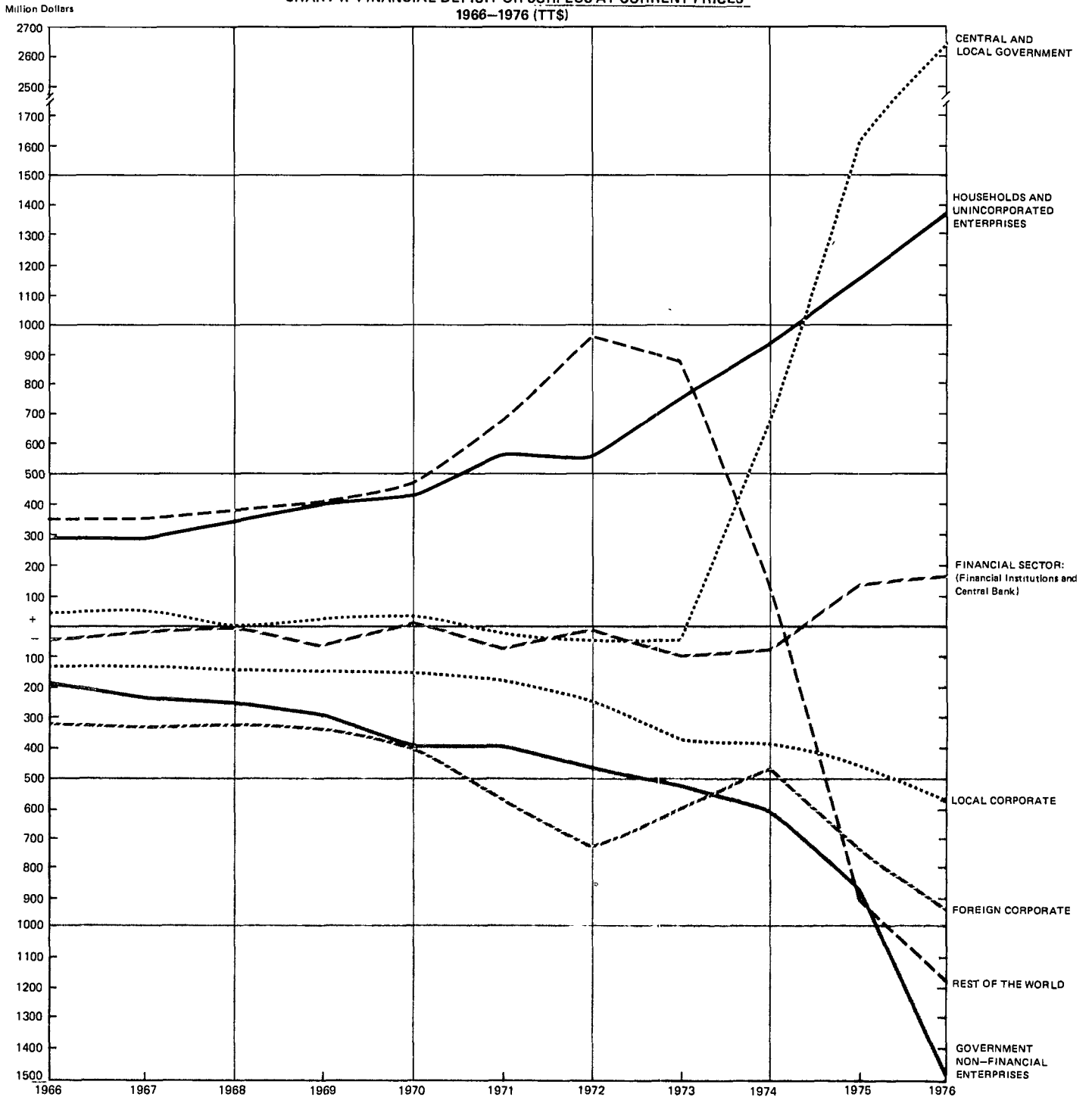


Table 5: TRINIDAD AND TOBAGO: CHANGES IN PRINCIPAL MONETARY AGGREGATES (%)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Money Supply (M ₁)	<u>0.9</u>	<u>32.8</u>	<u>50.7</u>	<u>38.1</u>	<u>31.7</u>
Currency	<u>-1.8</u>	<u>12.5</u>	<u>40.4</u>	<u>28.2</u>	<u>30.3</u>
Demand Deposits	<u>2.3</u>	<u>37.4</u>	<u>55.2</u>	<u>42.1</u>	<u>32.1</u>
Quasi-Money	<u>18.5</u>	<u>32.7</u>	<u>25.0</u>	<u>28.7</u>	<u>26.9</u>
Total Liabilities	<u>12.9</u>	<u>32.7</u>	<u>32.2</u>	<u>31.7</u>	<u>28.2</u>
Net Foreign Assets	<u>-19.7</u>	<u>894.5</u>	<u>121.9</u>	<u>39.1</u>	<u>46.0</u>
Net Domestic Credit	<u>21.3</u>	<u>-52.7</u>	<u>-140.2</u>	<u>-264.0</u>	<u>-453.7</u>
Public	<u>-3.9</u>	<u>-360.0</u>	<u>-215.3</u>	<u>-39.7</u>	<u>-74.5</u>
Private	<u>28.0</u>	<u>8.6</u>	<u>29.6</u>	<u>35.8</u>	<u>39.4</u>

Source: Central Bank of Trinidad and Tobago.

106. Rising personal incomes associated with generous wage awards and expansion of Government expenditures resulted in rapid increases in financial savings from 1974 on. Through 1976, banking system liabilities to the private sector increased more rapidly than credit to the private sector, and liquidity of the commercial banks increased. The increase in liquidity up to 1976 produced a decline in interest rates offered by commercial banks from 6.5% in early 1974 to 3.7% in late 1976, substantially below the rate of inflation. From May 1976 on liquidity of the commercial banks declined and interest rates rose to about 5% as a consequence of a higher level of demand for loans and reduced growth of deposits stemming from increased competition for such deposits from non-bank financial intermediaries. In order to mop up excess liquidity and limit aggregate demand by increasing interest rates, the Government issued bonds in the local capital market in 1976 (TT\$55 million) and again in 1977 (TT\$40 million in both May and October). Additionally, the Inter-American Development Bank was permitted to borrow TT\$25 million in the domestic market.

Distribution of Private Sector Finance

107. Since 1972 there have been notable shifts in the sectoral distribution of credit extended by commercial banks to the private sector. Despite accelerated growth of the economy in recent years, almost two-thirds of the increase in commercial bank credit to the private sector went for non-business loans to individuals rather than to the productive sectors of the economy. Loans for agriculture, industry and the distributive trades fell from 50% of total domestic credit in 1972 to 33% in 1976, while non-business loans to individuals increased from 32% to 49% during the same period, reflecting rising consumption and installment sales of consumer durables.

During 1977 there was some recovery of lending to the productive sectors of the economy in response to Government pressure to restrict lending for installment buying; manufacturing, agriculture and commerce increased their share to 40% of the total. The reduction of the volume of lending to the business sector may in part be the consequence of the growing participation of the Government in the ownership and financing of the manufacturing sector and commerce and, in the case of agriculture, to increased lending of the Agricultural Development Bank. Since 1973, the Government has provided financing to a wide range of businesses through purchases of equity, loans, advances, grants and subsidies.

108. Trinidad and Tobago has been experiencing a building boom in the last two years and the construction industry doubled its share of total credit over the period. Since 1974, however, the building materials industry has lost ground in the share of total credit to the private sector indicating that investment in this sector may have declined in recent years. Should this trend continue for any prolonged period, and imports of building materials continue to be restricted, this industry could become an even more severe bottleneck to implementing the country's ambitious development program.

109. Trinidad and Tobago has a number of privately owned non-bank financial institutions such as life insurance companies, savings banks, building societies and trust companies, which specialize exclusively in provision of real estate loans. In addition, finance companies which specialize in consumer credit, have grown considerably in recent years, successfully competing for deposits with commercial banks, life insurance companies and other non-bank financial institutions. These companies have been free to operate without government regulation and have no reserve requirements. Because of the rapid growth of the finance companies and because current legislation does not provide the Government with regulatory authority over such companies, the Government is studying the possibility of enacting new legislation which would cover all deposit-taking institutions.

Capital Market Development

110. The capital market in Trinidad and Tobago is small and availability of medium and long term financing for fixed investment is quite limited despite the Government's efforts to increase the provision of such credit through the specialized financial institutions such as the Development Finance Company, the Industrial Development Corporation, and the Agricultural Development Bank, all of which it controls. The shift in the distribution of banking system credit away from the productive sectors of the economy which has taken place in recent years has heightened the Government's concern with the development of the country's capital markets and the need to channel increased financial resources to these sectors. Because of the limited supply of longer term credit for fixed investment in Trinidad and Tobago, commercial banks effectively provide such financing by rolling over short-term loans. While this practice helps to meet the need for such credit, it makes manufacturing and commercial establishments vulnerable to short-term variations in liquidity of the banking system.

111. If growth of the non-petroleum private sector is not to be retarded, increased access to secure forms of long-term finance must be provided. The Government is well aware of this problem and has worked with the business and financial communities to develop solutions which simultaneously broaden the country's domestic financial resource base by expanding investor opportunities, and provide alternative sources of long-term financing for the private sector. The Government has agreed to and is currently in the process of reviewing the Insurance Act of 1966 which prohibits insurance companies from investing in securities with the purpose of providing greater flexibility to the insurance companies in the investment of statutory funds. As part of an intensified effort to move toward establishment of a stock market, creation of a Unit Trust is under consideration by the Government. Creation of such an institution would help to broaden the base for mobilization of domestic savings by introduction of an instrument which spreads investor risk over a wide range of stocks.

112. Demand, however, is not currently the major constraint to growth of the securities market, but rather, the limited supply of securities. Most new issues have in recent years been over-subscribed and stock prices have appreciated much more rapidly than growth of profitability of companies whose securities are traded publicly. For all practical purposes, foreign firms remain the only firms making public issues, and most of these have been in response to the Government's localization policy. Local firms have been reluctant to utilize the domestic capital market to raise funds, in part because most are family owned. Firms based in other countries in the Caribbean have in fact shown more interest in raising equity capital in Trinidad and Tobago than have local companies.

113. Since 1973 the Government has acquired equity in a number of companies with a view to eventually selling its shares to the public. This would assure an adequate supply of securities being offered to the public in the near-term and would contribute to creation of a stock exchange by expanding public trading of shares of private firms. The present authorities have been reluctant to do this, however, until the Unit Trust is created since they believe that the current market is fragmented and vulnerable to manipulation. Creation of the Unit Trust should be accelerated as it would help to create the conditions in which the Government can achieve its objectives of divesting itself of equity it has acquired and confidence in the stability of the market is built up so that local firms begin to finance their investment with equity capital.

114. Several factors suggest that Trinidad and Tobago can make considerable strides in strengthening its capital market over the medium-term. The high level of financial savings which are expected to be forthcoming in the years ahead as incomes grow, the excess demand for public issues in recent years and the Government's increasing attention to broadening the securities market and expanding the range of instruments in which the public can invest, makes it likely that Trinidad and Tobago will develop in the years ahead as the principal financial center in the Caribbean.

B. Public Sector Finances

Historical Developments

115. Trinidad and Tobago experienced serious fiscal problems in the late sixties and early seventies. As a consequence of reduced petroleum production, oil-dependent Central Government revenues stagnated, while at the same time current expenditures accelerated. The rest of the public sector contributed little in the way of savings. A secular decline in public sector savings resulted. As a consequence, in order to finance a modest public sector investment program, the Government relied heavily on external borrowing, both in the form of bilateral and multilateral loans as well as Eurodollar loans undertaken in the early 1970s. In addition, it expanded its borrowing from the banking system significantly between 1970 and 1973, thereby contributing to inflationary pressures. The rest of the public sector, although assisted by its depreciation reserves and modest levels of government guaranteed external borrowing, depended almost entirely on Central Government transfers for the financing of its investment program.

Impact of the Petroleum Price Increase on Central Government Finances

116. The quadrupling of world petroleum prices at the end of 1973 dramatically alleviated the savings constraint on public sector investment. The Government responded immediately to the price boom with a major overhaul of the tax system designed to tap the windfall profits of the petroleum companies. To augment petroleum revenues arising from a 45% income tax, an unemployment levy (a 5% surcharge on income tax) and royalties on petroleum production, the Government enacted a refinery throughput tax of between TT24¢ and TT38¢ per barrel of oil, depending on the grade petroleum, and instituted a production levy designed to fund a domestic subsidy on petroleum products. In addition, it raised the income tax rate for petroleum companies to 47-1/2% in 1974 and to 50% in 1975, and raised royalty assessment rates. Finally, it instituted a tax reference price system (similar to that used by most middle east oil exporting countries) whereby income tax was assessed on a petroleum price established by the Government, rather than on realized market price. As a consequence of the rise in petroleum prices and the Government's reform of the tax system, Central Government revenues expanded almost threefold in 1974 and continued to grow at an average nominal annual rate of about 28% in 1975-77. This level of revenue growth was achieved despite generous fiscal incentives enacted to encourage continued onshore exploration for petroleum and a gradual easing of personal income taxes and taxes on goods and services. Petroleum revenues accounted directly for over 80% of the increase, contributing about 65% of Central Government revenues in 1974-77, as opposed to less than 25% in 1971-73.

Table 6: CENTRAL GOVERNMENT REVENUES, CURRENT AND CAPITAL, 1972-77
(% of GDP)

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	Estimated <u>1977</u>
Petroleum Revenues	4.0	4.7	24.4	24.0	22.9	26.4
Non-Petroleum Revenues	<u>15.3</u>	<u>14.3</u>	<u>10.7</u>	<u>10.8</u>	<u>15.1</u>	<u>15.1</u>
TOTAL REVENUES	<u>19.3</u>	<u>19.1</u>	<u>35.1</u>	<u>34.8</u>	<u>38.0</u>	<u>41.5</u>
Petroleum Revenues As % of Total	<u>20.7</u>	<u>24.6</u>	<u>69.5</u>	<u>69.0</u>	<u>60.3</u>	<u>63.6</u>

Source: Ministry of Finance and mission estimates.

117. In response to the sudden petroleum wealth the Government attempted to: (1) initiate a greatly expanded investment program designed to diversify Trinidad and Tobago's economic base, provide employment, increase public sector participation in the economy, and upgrade education, health, other social sector facilities and infrastructure; (2) accumulate a level of foreign exchange reserves sufficient to ensure the continuation of an ambitious investment program in the future; and (3) improve the welfare of the entire population through the provision of expanded social and economic services at subsidized rates. To facilitate accomplishment of the first two goals, it established over 30 long-term development funds, each with a different development purpose. Monies were allocated to the funds through the budgetary process and could be spent only on capital projects which were consistent with the fund's purpose. As budgetary allocations to and interest earned by the development funds greatly exceeded their actual expenditures in each year of operation during 1974-77, they accumulated substantial balances, which were invested abroad by the Central Bank. Through the long-term development funds, the Government earmarked for future development over TT\$1.8 billion in 1974-77, approximately 35% of the incremental petroleum revenues during that period, and simultaneously demonetized a major portion of the increase, thereby curbing inflationary pressures.

118. In reflection of the Government's attempt to improve the welfare of its citizens, current expenditures grew rapidly during 1974-77. Although revenues during this period were substantially higher than current expenditures, the latter grew faster, averaging about 30% nominal growth annually. The increases resulted from spending growth in three overlapping areas:

- (1) wages and salaries, due both to negotiated increases in civil service wage and salary contracts and to an expansion in civil service positions resulting from the stepped-up personnel requirements of an expanding public sector;
- (2) growing expenditures on education, health and social welfare, particularly as a result of the Government's decision to subsidize private education and to undertake major new investment in these areas which required higher levels of current spending; and

- (3) attempts to moderate inflation and ensure the provision of low-cost public services through direct subsidies on goods such as petroleum, cement, flour and poultry, and to public utility companies like the Water and Sewerage Authority (WASA) and the Public Transport Service Company (PTSC), which generated increasingly large operating deficits each year. Increased subsidies to these public utility companies stemmed primarily from the low tariffs fixed for their services by the Public Utilities Commission.

Despite rapid growth of current expenditures, however, the Central Government was able to generate budgetary savings averaging about 19% of GDP during 1974-77.

119. The expansion in budgetary savings enabled the Government to reduce its reliance on external and domestic financing greatly. During 1974-76, the authorities contracted no significant new external debt, and utilized their financial resources to prepay amortization on external debt already contracted. At the same time, banking system credit to the public sector sharply contracted, although moderate levels of borrowing from domestic non-banking sources continued, thereby providing outlets for insurance companies' financial investment and absorption of a portion of the extra liquidity in the banking system. In 1977, however, the Government entered the Eurodollar market once again to raise TT\$360 million, obtaining favorable rates of 1-1/4% over LIBOR for 7 years. The Government entered the Eurodollar market despite substantial budgetary savings and the existence of sizeable reserves in order to establish a borrowing record prior to launching an investment program which will require substantial external borrowing, to provide financing for the energy-based projects already underway, and, finally, to maintain a high level of net official foreign exchange reserves, thereby enhancing the country's creditworthiness.

Table 7: CURRENT EXPENDITURES, 1972-77

	(% of GDP)					
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Wages and Salaries	9.7	8.8	8.5	6.9	7.5	9.0
Goods and Services	4.2	2.9	2.5	4.0	4.7	4.2
Interest	1.4	1.3	1.3	0.9	0.7	0.6
Transfers to Rest of Public Sector	3.1	3.3	3.5	3.4	5.1	5.8
Transfers to Private Sector	1.3	1.3	1.8	1.5	1.9	1.8
TOTAL	<u>19.7</u>	<u>17.6</u>	<u>17.6</u>	<u>16.7</u>	<u>19.9</u>	<u>21.4</u>

Source: Ministry of Finance and mission estimates.

120. The level of budgetary savings, together with the 1977 Eurodollar loan, was more than sufficient to finance a fivefold nominal growth in the average level of Central Government capital spending over the 1973 level. In addition to the construction of schools and health facilities, the purchase of over 420 buses for the Public Transport Service Corporation, a major expansion of water and sewerage, electricity and telephone systems, and construction of roads and bridges, the Government placed increasing emphasis on equity purchase, capital contributions, loans, and other transfers, predominantly to public enterprises. The rapid expansion of capital transfers reflected a number of developments. First, the Government chose to increase public participation in the economy for the reasons it set forth in a white paper entitled "Public Sector Participation in Industry" published in 1975: "(i) to accelerate the transfer of control of foreign-owned firms to local hands; (ii) to encourage and support local industry; and (iii) to save jobs in industries which, with rationalization, could be made viable." The Government emphasized, however, that it did not intend for the public sector to maintain a dominant role in the economy; rather, that it held the public corporations in trust for the people of Trinidad and Tobago until such time as efficient capital markets were established. A second reason for the growing importance of capital transfers in the Central Government capital budget during 1974-77 was a direct outgrowth of the above policy: a number of corporations purchased at the point of insolvency were unable to finance their own investment programs. Others, such as BWIA, were in continuous financial straits and required loans or capital contributions in order to amortize external debt or to cover retained losses. Finally, in 1976 the Central Government began to implement the first of the energy-based capital-intensive projects through equity contributions to newly-established firms.

The Rest of the Public Sector

121. Although the Central Government continued to dominate the public sector in Trinidad and Tobago, the rest of the public sector took on increased importance in the economy during 1974-77, as a consequence of the expansion in public participation discussed above. The Government purchased the assets of Shell Trinidad in 1974, gradually purchased the marketing assets of all the petroleum companies to establish the National Petroleum Marketing Company, and established the National Gas Company to develop natural gas for domestic use and release additional petroleum for export. At the same time, it established a National Bank, purchased the television and radio stations, obtained majority or minority interest in five hotels through the Industrial Development Corporation, and established a corporation for the development of Point Lisas Port. As a consequence of these activities, by the end of 1976 the public sector had expanded to include five public utilities, 21 wholly-owned companies and 13 majority-owned companies. In addition, the Government held minority participations in 12 more companies.

122. As the size of the rest of the public sector increased, however, its contribution to public sector savings steadily deteriorated. The low public utility tariffs set by the Public Utilities Commission led to increasingly large operating deficits for the utilities. CARONI, the government-owned sugar company, profited from the sugar price boom in 1975, but its finances deteriorated badly when prices plummeted in 1976. BWIA ran operating deficits continuously from 1971 on. Only a few corporations, among them TRINTOC, Trinidad-Tesoro and Textel, generated profits large enough to permit financing their own investment and substantial tax and dividend contributions to the Government. The National Insurance scheme also generated substantial funds, a portion of which was held in Government bonds. As a consequence of the overall deterioration in the savings performance of the rest of the public sector, however, by 1976 Central Government transfers to the rest of the public sector greatly exceeded the royalty, tax and dividend revenues received, reversing the trend of the previous four years.

123. As a consequence of its inability to generate adequate savings, the rest of the public sector depended heavily on the Central Government for the financing of its investment program. Through transfer payments the Government financed about 75% of the rest of the public sector investment program during 1974-77. Self-financed investment on the part of the rest of the public sector amounted to only about 12% of the total public investment effort in 1974-77, and consisted almost entirely of the capital spending of TRINTOC and Trinidad-Tesoro. These two companies took advantage of the increase in revenues and of Government incentives to undertake further land exploration for petroleum and natural gas. Financing was provided by depreciation funds, retained earnings, and external and domestic borrowing.

Future Prospects

The 1978 Budget

124. According to the 1978 budget estimates, for the first time since the petroleum price increase, the Central Government is likely to experience an overall deficit, amounting to about TT\$780 million, as compared to an estimated overall surplus of TT\$450 million the previous year. The Government's petroleum revenue estimates are quite conservative. However, even if revenues are TT\$400 million higher than budgeted, as mission estimates suggest, the Central Government will still generate an overall deficit of about TT\$370 million in 1978. There are two reasons for this development. First, as a consequence of the introduction of free school lunches and other welfare programs, rocketing costs for education and health, the impact of a 5% salary increase negotiated in 1976 and increased interest payments stemming from increased external borrowing, current expenditures are estimated to increase by 40% in 1978. Second, the authorities plan to implement an ambitious public sector investment program in 1978, with Central Government capital spending set at almost TT\$1.6 billion (a 60% increase over 1977). In addition to proceeding with the construction of schools and roads, the Government intends to provide over TT\$150 million for the continued

construction of the Iron and Steel Complex, TT\$70 million for the telephone system expansion, and about TT\$285 million for the further development of the industrial estate at Point Lisas. Loans and capital contributions to a number of companies, including TRINTOC, CARONI, BWIA and the National Fisheries will also be necessary.

125. To finance the overall deficit in 1978, the Government is increasing its Eurodollar borrowing to TT\$400 million, and will raise about TT\$100 million in the domestic capital market. The budget figures indicate that additional financing of about TT\$300 million, furnished through a drawdown in the Government's cash balances, is likely to be required, although a more favorable performance of revenues than is planned would make such a drawdown unnecessary. For the first time since the petroleum price increase, the Central Government in 1978 is unlikely to add substantially to its cash balances, and may even dip into its accumulated reserves.

Public Sector Investment and Financing: 1978-82

126. At present, the Government has prepared no official investment plan extending further ahead than the budget for 1978. It has, however, indicated that the general orientation of public sector investment for the next five years will be based on a development strategy of diversification of the economy away from petroleum. Such diversification is particularly important to Trinidad and Tobago over the next decade in view of the fact that proven petroleum reserves now stand at 8 years and petroleum production is expected to gradually decline beginning in 1979. While additional reserves may be located and developed, in view of the dependence of the Government on petroleum revenues it is only prudent for the authorities to plan for the possibility of a decline in Central Government revenues as a percent of GDP in the early 1980's. It is hoped that, through the development and utilization of Trinidad and Tobago's natural gas reserves, an alternative source of revenue will come on stream before petroleum revenues begin to falter. Accordingly, the main issues confronting the authorities are the following:

- (i) the impact of a possible decline in petroleum production on budgetary revenues;
- (ii) the amount of additional public sector savings generated by new projects, and the extent to which it can compensate for declining petroleum revenues;
- (iii) the financing, manpower requirements and timing of the energy-based projects; and
- (iv) the determination of the proper level of current and investment spending in light of probable availability of funds.

127. In an attempt to provide a preliminary assessment of these issues and to create a base for further analysis, the mission has prepared an illustrative five-year investment program, including projections of capital requirements, cash flow and fiscal implications for six of the large energy-based projects presently being implemented or under serious consideration. These projections indicate that approximately TT\$2.4 billion could be allocated to the energy-based projects during 1978-82. This figure is based on a number of assumptions with regard to financing of the projects, including a 70-30 debt/equity ratio, a joint venture arrangement in which the Government has a 51% share of ownership, a government guarantee of 51% of the external debt required to finance the project, and a number of other assumptions detailed in Appendix III. Another TT\$0.7 billion has been estimated for the development of the Point Lisas infrastructure required to support the projects. Other Central Government investment, projected to stay relatively constant as a percentage of GDP, could amount to approximately TT\$5.9 billion, with a sectoral distribution roughly equivalent to that which occurs in the 1978 budget. Finally, although budget figures for 1978 are not available for the rest of the public sector, the mission has allowed for about TT\$1.2 billion of investment financed by the rest of the public sector. Thus, a public sector investment program which includes the launching of most of the energy-based projects and their required infrastructure, provides for the maintenance of present investment levels in other areas, and assumes the continuation of a modest investment program financed by the rest of the public sector could cost slightly over TT\$10 billion during 1978-82, averaging about TT\$2 billion a year or almost 20% of GDP (as compared to an average of about 12% of GDP during 1974-77), with approximately 30% of the total allocated to the energy-based projects. This level of investment, although historically high, is nevertheless a "bare bone" estimate which assumes a moderate pace of project implementation, and excludes possible investment in an aluminum smelter and a petrochemical plant, as well as significant increases in the level of investment in non-industrial sectors.

128. Even assuming a fall-off in petroleum revenues during the 1978-82 period, and a consequent deterioration in the level of public sector savings as percentage of GDP, with careful management the authorities should be able to finance almost 70% of an investment program this size through public sector savings. Assuming that petroleum production levels off by 1980, Central Government revenues are likely to shrink from about 42% to 36% of GDP between 1977 and 1982. Consequently, it is essential that the authorities monitor current expenditures closely during the next few years in order to limit the erosion of public sector savings. Current expenditures have grown rapidly in the past few years, rising from a level of about 18% of GDP in 1973 to an estimated 27% in 1978. The authorities should be able to slow nominal current expenditure growth to an average 10% annually over 1978-1982, reducing current expenditure to about 23% of GDP by the end of the period. Such a reduction could be accomplished by:

- (i) maintaining the level of public and private subsidies constant in real terms;
- (ii) holding wage and salary increases roughly in line with inflation;

- (iii) freezing special welfare payments at their current level in real terms; and
- (iv) holding current expenditures associated with increased investment in the areas of health, education and welfare at a reasonable level or roughly 5% of investment in these sectors during the preceding year.

Assuming that the decline in real petroleum revenues takes place as expected, even this level of expenditure control will not suffice to prevent some deterioration in public sector savings during 1978-82. With no increase in the savings contribution of the rest of the public sector as a proportion of GDP, public sector savings should average 13% of GDP during the period (as compared to 20% in 1974-77), sufficient to finance almost 70% of public sector investment.

129. The authorities have stated their intention of financing about 70% of the joint venture projects presently contemplated from external debt. The remaining portion of the investment will be financed by equity, of which the Government plans to provide 51%. Moreover, it plans to continue to utilize the Eurodollar market to raise funds which will indirectly finance the equity contribution as well. By this strategy, the Government hopes to maintain its foreign exchange reserves at their present level in order to obtain the best possible terms on its external borrowing. At the same time it hopes to rely on the ability of its partners to obtain external financing at favorable terms on their own merit. In the case of the recently completed ammonia plant, for example, none of the external debt was government-guaranteed. In this regard, it is at present not clear what arrangements will be available for the other joint venture projects under consideration, and the projection of external inflows in Table 9 assumes that the Government will guarantee 51% of the debt financing in the joint venture projects.

130. Based on the above assumptions, net external borrowing could provide about 18% of the total public sector investment program envisaged for 1978-82. Approximately half of that amount would be generated by project-tied borrowing; most of the rest would arise from Eurodollar borrowings. Toward the end of the period, the beginning of heavy amortization payments on Eurodollar loans contracted in 1977 and 1978, as well as from new debt, will decrease net external inflows unless additional external borrowing is undertaken. The full impact of amortization payments on project-tied debt, however, will not be felt until the mid-1980's. Although the increased reliance on external debt will increase Trinidad and Tobago's debt service burden, the projected levels of debt service are well within Trinidad and Tobago's financial capacity.

131. The remainder of the public sector investment program will be financed from domestic sources, including depreciation reserves and net domestic borrowing. In projecting the availability of depreciation reserves, the mission has assumed that 51% of the depreciation reserves generated by joint venture projects will be available to the Government; the remainder

is assumed to be repatriated to the partner. The depreciation resources are likely to be utilized to finance the investment program of the rest of the public sector. At the same time, moderate levels of borrowing from the financial system will provide additional financing as well as affording appropriate outlet for the investment of insurance companies and other institutions with legal portfolio requirements. Should the investment program be financed in this manner, the authorities will be able to maintain their present level of cash balances.

Long-Term Implications of the Public Sector Investment Program

132. By the end of 1982, if implementation of the energy-based projects goes according to schedule, the major projects in the investment program should begin to come on stream with the exception of the LNG plant, which will not be constructed until 1984-85. At about the same time, the deterioration in real petroleum revenues is expected to begin to take place. The mission has made projections of revenues through 1990, based on the assumption that petroleum production declines at the rate of 5.2% per year after 1982. In addition to reduced levels of production, these projections reflect decreased profitability of the oil companies arising from the use of secondary and tertiary methods of recovery. They assume that increases in the rate at which refining throughput is taxed, the royalty assessment rate, and the tax reference price will move in line with international inflation. In addition, as production decreases, the production levy is projected to remain roughly constant in nominal terms, implying either a real reduction in the petroleum subsidy or the use of other funds to pay for it. Although any projections which extend so far into the future must be interpreted with caution, it appears that, barring new discoveries of petroleum, revenue measures which affect petroleum, or additional fiscal incentives, petroleum revenues could fall as a proportion of GDP from 18% in 1982 to 7% in 1990.

133. Assuming a 55% tax rate and total payout of net profit after taxes for each of the large energy-based projects, the contribution to Government revenues from the new projects is projected to increase steadily after 1982 and level off by the end of the decade. However, the increase in revenues will not entirely compensate for the petroleum shortfall; by the end of the decade the new projects will contribute revenues equivalent to about 5% of GDP, or about half of the revenue shortfall. If additional investment is implemented in the mid-1980's and comes on stream toward the end of the decade, the revenue picture would improve.

134. Accordingly, by the mid-1980s the Trinidad and Tobago Government may have to adjust to a lower level of current revenues as a percentage of GDP on a permanent basis. Although the development of industry will partially compensate for the loss in petroleum revenues, it is not expected to contribute sufficient resources to offset such a decline completely. A sizeable increase in depreciation reserves will result from the implementation of the large projects, but the authorities will probably have only limited access to these funds and they are accordingly not included in public sector savings. Given

this scenario, the level of public sector savings as a percent of GDP is likely to fall toward the end of the decade unless the Government controls current expenditures carefully over the next decade, maintains the elasticity of nonpetroleum revenues by foregoing additional tax concessions, takes the necessary measures to assure the profitability and hence the revenues received from new industrial projects, and continues to reduce the level of subsidies as a proportion of GDP.

Implementation of Public Sector Investment:
Issues and Recommendations

135. The next decade is likely to be a crucial and challenging period for Trinidad and Tobago, as the country undertakes investment aimed at shifting from an economy dominated by petroleum to one with a diversified and expanding industrial base. Given the central role of the public sector in guiding, financing and coordinating the transition, its organizational and administrative capacity will be vital to the successful implementation of the public sector investment program. Unfortunately, although understandably, the civil service apparatus has not kept pace with the expansion in the role of the public sector in the economy, and the greatly accelerated pace of investment.

136. The budgetary process, for example, at times impedes the efficient implementation of the development program. Government budgeting is based on an annual budget cycle. In the past, operating agencies made their budget requests to the Ministry of Finance just before the beginning of the Fiscal Year (January to December). Previous to 1973, there was little change from year to year, so that the procedure largely involved continuation of existing programs. The Ministry of Finance was able to evaluate Budget requests incrementally and quickly. The increase in the availability of financial resources after 1973, however, began to place stress on the budgeting mechanism. The operating agencies experienced difficulties in effectively planning the large numbers of projects they were asked to undertake, since the agencies were provided with staff with skills adequate for carrying out normal recurrent operations but inadequate for handling large-scale increases in development expenditures. In addition, the organizational structure was not designed to handle a large volume of projects; procedural arrangements did not exist within the agencies to plan and manage projects of the current magnitude and volume. At the same time, the Ministry of Finance experienced difficulty in processing the increasing numbers of project budget requests in the time available.

137. These difficulties led to the establishment of a "Preinvestment Fund" to assist in project planning in 1976. Unfortunately, the Fund did not fully solve the problem of adequate project planning, partly because the difficulty of locating and attracting sufficiently experienced personnel to the agencies remained a critical bottleneck. The following year the Prime Minister outlined a plan to establish "Planning Units" within the operating agencies to assist in project and program formulation. Though

some agencies had already established such units on their own initiative (notably the Ministries of Education and Agriculture) there was a perceived need to strengthen the existing units and to create units in agencies which did not have them. At this writing, some of the projected planning units still do not exist, and the existing units are seriously understaffed.

138. The Government has undertaken a number of other measures to strengthen the project planning and implementation system. Under an agreement with the OAS, a series of three-month courses on project planning and appraisal are being carried out in an attempt to improve the project planning skills of the agency staff. The IDB is providing technical assistance to the Programs and Projects Unit in the Planning and Development Division of the Ministry of Finance. These efforts should lead to some improvement in the project system. However, training on a larger scale will be needed to deal with the requirements being imposed upon operating agencies. Also, some reorientation of the project training activities should be considered; both to lead to more direct improvements in project formulation and to induce operating agencies to more readily release staff for training.

139. Although Trinidad and Tobago has utilized a five-year plan approach to public sector investment and financing in the past, the Government has recently opted to limit overall planning to the budgetary cycle, leaving detailed medium-term planning with regard to the implementation of individual projects to the Ministry or overseeing body concerned. Such an approach, although it provides the Government with considerable flexibility, has several serious shortcomings. First, it prevents the authorities from rationalizing the availability of funds with the medium-term requirements of the investment program. Second, it hinders a realistic assessment of the implications of present projects and programs for future current expenditures. Because investment causes most future changes in current expenditures, it is important that the capital and recurrent expenditures be forecast together in the process of project and programs planning. Thirdly, the approach creates unnecessary uncertainty in the private sector with regard to the skills which will be in demand over the medium term. Construction companies, for example, have indicated their reluctance to increase capacity significantly in the absence of an official investment plan. Finally, it fails to provide an indication of future manpower requirements, thus enabling sufficient lead time to develop scarce skills and minimize bottlenecks in the implementation of the development program.

140. Another area of difficulty is the lack of a regular system of communication and coordination among the individual agencies and with the Ministry of Finance. The periodic meetings of Permanent Secretaries no longer take place. The heads of agency planning units as yet do not meet on a regular basis to discuss and rationalize project and programs plans. The operating agencies themselves feel a need for these meetings. Periodic meetings between policy and planning officials representing all ministries should be established. This is particularly important because of the absence of a formal medium- and long-term plan.

141. The expanding participation of the public sector in the rest of the economy has been accompanied by considerable difficulty in bringing the wholly-owned and majority-owned companies into the planning process. In 1977, in an attempt to incorporate these entities more fully into the information and planning system for the public sector, an office for the supervision of public sector enterprises was established in the Ministry of Finance. Its object is to maintain up-to-date information on the financial operations and investment plans of the public companies. At present, however, considerable gaps still remain in the information it has collected on the rest of the public sector, and it has virtually no knowledge of the investment programs contemplated by the wholly- and majority-owned companies. It appears advisable that these companies, at minimum, be incorporated into the budgetary process, as now is done for a number of small agencies and some of the public utilities. The majority-owned companies in particular should be brought under more careful control in view of the extent to which public sector investment over the next five years is oriented to majority-owned joint venture projects. At present, funds are allocated to these companies as an equity contribution, but the actual expenditure of the funds is left to the company's management. The capital spending plans of the majority-owned companies should be an integral part of the Government's planning mechanism.

142. Another area where control over the operations of public enterprises could be improved is the administration of subsidies to public utilities and other enterprises. At present, tariffs for public services, such as water, transportation and electricity are set by administrative fiat below cost, and the Central Government covers the resulting operating deficits. However, this system makes it difficult to sort out the extent to which deficits result from low tariffs from the extent to which they reflect inefficiencies in management and cost control. In addition, the present subsidy system makes it difficult to target those economic groups which the Government wishes to benefit most greatly. The best example of this problem is the petroleum subsidy. Paid to the National Petroleum Company to cover the differential between the world market price and the domestic subsidized price, the subsidy will amount to almost TT\$100 million in 1978, and permits Trinidad and Tobago motorists to buy gasoline at the rate of US\$21 a gallon. The distributive impact of the subsidy is far from clear. While the subsidy benefits the users of mass transportation (already heavily subsidized), it also benefits the more affluent citizens who own cars. At the same time, it appears to counter the Government's efforts to deal with a serious traffic problem (as well as encourage the local auto assembly industry) by the use of high tariffs to discourage the import of foreign cars. In addition to controlling the growth of subsidies carefully, in line with the need to dampen current expenditure expansion, it would be advisable to improve their administration and to assess more carefully their implications for income distribution and their consistency with other economic policy.

IV. BALANCE OF PAYMENTS AND GROWTH PROSPECTS

A. Background

143. The external sector of Trinidad and Tobago has been of exceptional size and importance for the past several decades. Since the 1973 increase in world petroleum prices, the country's import capacity has increased markedly and the economy has become even more open. Exports and imports of goods and non-factor services now constitute 47% and 39% of GDP, respectively. The country is dependent upon imports for almost all of its capital goods, and for a substantial portion of its intermediate and consumer goods, including foodstuffs. External capital has also played an important role in Trinidad and Tobago's economic development by financing a major portion of its capital formation. Direct foreign investment has accounted for 25% of gross domestic investment during the 1974-77 period.

144. Trinidad and Tobago's balance of payments position changed abruptly as a result of the sharp increase in world petroleum prices in late 1973. Prior to 1973, while petroleum exports declined, imports rose rapidly in response to rising consumption and expanded investment in the petroleum sector, and as a result the country's resource gap reached 9% of GDP in 1972. Consequently, despite substantial inflows of private investment and external borrowing by the Central Government, the country's foreign exchange reserves fell to US\$38 million by the end of 1973, less than the equivalent of about one month's imports. Since the quadrupling of petroleum prices, however, the country has enjoyed large, though declining resource surpluses, which, together with the rapid growth of direct foreign investment and, in 1977, substantial external borrowing by the public sector, increased international reserves to US\$1,344 million by end 1977, equivalent to 14 months of imports of goods and non-factor services.

Table 11: TRINIDAD & TOBAGO: BALANCE OF PAYMENTS, 1970-77
(Million of US dollars)

	1970	1971	1972	1973	1974	1975	1976	1977 ^{3/}
Export of Goods and Non-factor Services	<u>329.8</u>	<u>357.9</u>	<u>400.4</u>	<u>549.1</u>	<u>1151.2</u>	<u>1234.4</u>	<u>1324.1</u>	<u>1399.4</u>
Merchandise f.o.b. (adj.) ^{1/}	209.9	192.9	227.9	304.8	922.2	985.6	1053.1	1087.6
Petroleum crude ^{2/}	(37.0)	(39.6)	(54.4)	(114.1)	(414.1)	(575.2)	(596.6)	(722.0)
Other	(172.9)	(153.3)	(174.8)	(189.9)	(508.1)	(410.4)	(456.5)	(365.6)
Petroleum Processing fees	28.6	28.6	29.6	89.0	63.3	56.7	72.4	63.3
Travel	23.9	31.8	33.6	40.7	54.5	75.1	75.8	86.1
Transportation	56.6	87.4	92.6	97.5	91.9	91.3	93.7	122.1
Other Non-factor Services	10.8	17.2	16.7	17.1	19.3	25.7	29.1	40.3
Imports of Goods and Non-factor Services	<u>346.3</u>	<u>434.1</u>	<u>502.2</u>	<u>507.0</u>	<u>662.2</u>	<u>864.9</u>	<u>1010.6</u>	<u>1164.5</u>
Merchandise c.i.f. (adj.) ^{1/}	276.2	355.7	422.1	406.8	528.1	740.9	861.9	965.0
Travel	22.9	24.6	27.1	23.7	25.8	33.4	37.2	55.0
Transportation	33.2	43.7	45.5	34.7	43.4	40.9	48.7	69.8
Other Non-factor Services	14.0	10.1	7.5	41.8	64.9	49.7	62.8	74.7
Resource Gap	<u>-16.5</u>	<u>-76.2</u>	<u>-101.8</u>	<u>42.1</u>	<u>489.0</u>	<u>369.5</u>	<u>313.5</u>	<u>234.9</u>
Investment Income (net)	-61.2	-62.3	-69.1	-87.1	-274.6	-78.2	-100.8	-32.0
Transfers (net)	-2.3	-5.1	-4.4	-9.6	-17.1	-21.2	-30.0	-30.4
Current Account Balance	<u>-80.1</u>	<u>-143.6</u>	<u>-175.3</u>	<u>-54.6</u>	<u>197.4</u>	<u>270.0</u>	<u>182.6</u>	<u>172.5</u>
Private Capital	<u>83.2</u>	<u>104.3</u>	<u>86.1</u>	<u>58.8</u>	<u>114.5</u>	<u>188.5</u>	<u>91.6</u>	<u>127.3</u>
Direct Investment	83.2	104.3	86.1	64.6	120.2	202.8	101.4	137.7
Other	-	-	-	-5.8	-5.7	-14.3	-9.8	-10.4
Official Capital	<u>1.4</u>	<u>25.5</u>	<u>19.7</u>	<u>29.0</u>	<u>-40.7</u>	<u>-15.8</u>	<u>-141.0</u>	<u>142.5</u>
Borrowing	1.2	12.7	21.8	28.5	14.6	-3.9	-51.1	152.8
Drawings	(7.5)	(19.4)	(27.1)	(37.3)	(55.2)	(11.2)	(10.6)	(160.3)
Amortization	(6.3)	(6.7)	(5.3)	(8.8)	(40.6)	(15.1)	(61.7)	(7.5)
Lending (net)	-	-	-	-	-58.8	-0.5	-89.8	-10.3
Other	0.2	12.8	-2.1	0.5	3.5	-11.4	-0.1	-
Net Non-Monetary Allocation SDRs	<u>84.6</u>	<u>129.8</u>	<u>105.8</u>	<u>87.8</u>	<u>73.8</u>	<u>172.7</u>	<u>-49.4</u>	<u>269.8</u>
Errors and Omissions	-19.7	35.1	37.8	-54.3	14.2	-81.2	26.2	58.0
Changes in Net International Reserves (- = Increase)	<u>7.8</u>	<u>-28.0</u>	<u>24.8</u>	<u>21.1</u>	<u>-285.5</u>	<u>-361.5</u>	<u>-159.4</u>	<u>-500.3</u>
Monetary Authorities (net)	10.9	-25.8	15.2	11.7	-280.5	-366.6	-158.2	-497.4
Commercial Bank	-3.9	-2.3	11.2	9.4	-5.6	4.2	-4.6	0.9
Government	0.8	0.1	-1.6	-	0.6	0.9	3.4	-3.9
Memorandum Item:								
Net International Reserves	55.5	83.5	58.7	37.6	323.1	684.6	844.0	1344.3

^{1/} Excludes trade under petroleum processing agreement.

^{2/} Crude petroleum is valued at Customs Prices.

^{3/} Preliminary estimate.

Source: Central Statistical Office and mission estimates.

145. Exports of crude petroleum and refined products (including UPA exports) amounted to 92% of total merchandise exports in 1977. During the 1950s and 1960s as refining capacity on the island expanded, exports of refined products increased their relative share in total exports. The trend reversed in recent years, as refinery throughput declined in response to increased protection provided to refineries operating within the United States, Trinidad and Tobago's major export market for refined products, and to recurring, prolonged labor difficulties in the Texaco refinery.

146. Since 1974 production of Trinidad and Tobago's traditional agricultural export crops, sugar, cocoa and coffee, has stagnated. Sugar now accounts for less than 4% of total merchandise exports and cocoa and coffee each represent less than 1%. In contrast to the rest of the Caribbean, tourism provides a relatively insignificant portion of total export earnings. Concentrated principally in Tobago, tourism has been deliberately limited by the Government and generated only US\$86 million in 1977. Exports of non-traditional products consisting primarily of processed foods, light manufactures, textiles and increasingly of machinery and transport equipment, remain relatively small in relation to total exports. While exports of these products grew rapidly in the late 1960s and early 1970s, over half have been directed toward the CARICOM market. Poor market conditions in CARICOM members which are experiencing severe balance of payments difficulties have adversely affected these exports in recent years. Including chemicals and other manufactured products which have a wider market, non-traditional exports, after reaching a peak in 1975, declined in 1976 and now are at about the level they were in 1974.

147. In 1973, as the country's foreign exchange situation approached crisis proportions, controls imposed over consumer credit began to take effect on consumer spending abroad. This, together with the reduction in capital goods imports stemming from completion of major development investments in the offshore AMOCO field resulted in a decline in merchandise imports in 1973. Since the surge of export earnings in 1974, imports have grown rapidly, reflecting large increases in capital and intermediate goods imports such as iron, steel tubes and transport equipment for use in the construction industry and for carrying out investment in the oil sector. During the last two years large Government-sponsored industrial projects and related infrastructure have absorbed increasing imports of capital goods. Imports of consumer goods, including food products, have increased less rapidly than capital good imports, but more rapidly than exports.

148. The importance of petroleum and petroleum-related products in the country's total exports strongly influences the direction of trade. Since the United States is Trinidad and Tobago's largest export market for petroleum products as well as for chemicals and fertilizers, its share in total exports is the largest and has been growing. Between 1971 and 1977 the importance of the United States as an export market has almost doubled from 40% to 71%. The share of the United Kingdom has fallen from 9% to 2%, and that of CARICOM countries has declined from 10% to 7% during the same

period. Although this trade shift toward the United States is in part a reflection of the increased price of petroleum, the trend described above began prior to the petroleum price increase.

149. Imports show less concentration among Trinidad and Tobago's trading partners. In 1976, 45% of imports came from the United States and 17% from the United Kingdom. Other Commonwealth Non-Caribbean countries accounted for 9% and the CARICOM accounted for 6%. The structure of imports has been changing in favor of the United States, whose share has increased from 33% in 1971. This increase in trade with the United States was a major factor in prompting Trinidad and Tobago to peg its currency to the US dollar in May 1976.

150. Since 1973 there have been important shifts in the capital account which, as in the case of the current transactions, have been related to the increase in world petroleum prices. As a result of more favorable world prices for petroleum, net inflows of direct foreign investment were about 70% higher in 1974-77 than in 1970-73. Offshore drilling both for exploration and development increased substantially. In marked contrast to developments prior to 1974, when the Government resorted to Euro-currency credits to bolster its budgetary operations, the Government's solid financial position since 1974 has permitted prepayments of close to US\$60 million of its Euro-currency debt. The Government also initiated a foreign lending program that included US\$100 million in loans to Jamaica, a US\$20 million loan to Guyana, and a US\$10 million loan to Barbados. In addition, the country purchased US\$5 million of IBRD bonds and US\$25 million of IDB bonds. As a consequence, there was a net outflow of official capital during 1974, 1975 and 1976, but this was for the most part more than compensated by the inflow of private capital.

151. In 1977, however, the Government departed from its policy of reducing public external indebtedness by borrowing US\$150 million in the Eurodollar market. This loan, contracted in spite of a large current account surplus and substantial private capital inflow, increased the country's already large holdings of foreign exchange. Its purpose was to establish Trinidad and Tobago as a regular borrower in world capital markets and to further increase reserves so as to better position the country for undertaking the sizeable external borrowing it plans to carry out in the years immediately ahead for financing the large energy-based industrial projects.

B. Future Prospects

152. Trinidad and Tobago's favorable balance-of-payments position in recent years and high level of international reserves stemming from the increase in petroleum exports hide some of the underlying weaknesses in the country's external accounts. These reflect a severe structural imbalance in the economy which, if permitted to continue, could over the long-term erode the country's strong external position. During the past decade imports have, with the exception of 1974, grown at a faster pace than exports. The petroleum windfall which dramatically increased the country's import capacity in 1974 has increased the import dependence of non-petroleum sectors of the

economy without simultaneously increasing exports of these sectors. As a consequence the resource gap of Trinidad and Tobago's non-petroleum economy increased from US\$73 million in 1973 to US\$386 million in 1977.

153. In the immediate future the balance of payments is expected to remain strong. As a result of high petroleum prices, an increase of petroleum production and the beginning of ammonia exports from the TRINGEN plant, total exports are expected to increase by almost 20% in 1978. Rapid growth of imports of capital goods to be used in the construction of the steel plant, power generating facilities at Point Lisas and other infrastructure related to the large energy-based industrial projects, and of consumer goods, including foodstuffs, is expected to result in a large increase in imports, estimated at about 40%. Despite continuation of more rapid growth of imports than exports, the resource balance should continue to be positive but sharply reduced from the 9.4% of GDP in 1977. While interest payments and profit remittances are expected to almost double in 1978 and absorb all of the resource surplus, direct foreign investment is expected to continue at a high level. In addition, the Government has decided to again enter the Eurodollar market for non-project borrowing. Foreign exchange reserves are expected to increase by between US\$100 and US\$200 million by the end of 1978.

154. The major determinant of economic growth and the country's external position in the years immediately after 1978 will be the change in petroleum exports. Petroleum production is expected to decline gradually during the 1979-82 period and more rapidly from 1983 on (about 5% annually). There has been considerable petroleum exploration activity in recent years which has resulted in some new oil discoveries but none have been of significant magnitude. Projected production levels are based on proven reserves of 700 million barrels and the assumption that about 40% of the probable reserves of about the same magnitude will prove commercially exploitable, and take into account increases in secondary recovery. Petroleum exports would follow these trends with somewhat sharper declines because of increased local consumption and increases in local crude used in refinery throughput. The volume of crude exports is expected to drop from about 150,000 b/d to about 110,000 b/d in 1985 and 85,000 b/d by 1990.

155. Declining petroleum production will have a significant direct impact on economic growth and on the country's external position. The petroleum sector is currently about half of Gross Domestic Product. Even assuming strong growth of investment and a continuation of the construction boom, output of the non-petroleum economy is unlikely to expand at more than 7%-8% annually in real terms during the early to mid-1980's. If these high rates of growth of the non-petroleum economy are achieved and petroleum declines as foreseen above, growth of GDP will average about 4% during 1979-1983. It will not be easy, however, for Trinidad and Tobago to sustain such high growth of the non-petroleum economy. While investment in the industrial sector is expected to be high, most of the large energy-based projects have long gestation periods. Execution of this investment will be determined in large measure by the capacity of the construction industry to improve its

efficiency and overcome the skilled labor shortage. While rapid growth of the construction industry will contribute to the short-term solution of the employment problem, growth of the agricultural, manufacturing and service sectors will have to accelerate if the employment problem is to be brought under control on a more permanent basis. Growth of at least 8% in industry, construction and services and of between 1% and 2% in agriculture will be needed to achieve a 7% to 8% growth of the non-petroleum economy.

156. Declining petroleum production will have an adverse impact on the balance of payments which in turn could constrain economic growth in the mid to late 1980s by limiting the country's access to imports, unless other sources of foreign exchange are developed. The challenge facing the Trinidadian authorities is to expand exports of the non-petroleum economy and thereby reduce its large resource gap rapidly enough to offset the expected decline in the resource surplus generated by the petroleum sector. This policy forms the core of the Government's medium-term investment plan which aims at creating an export-oriented industrial base which would utilize natural gas as a feedstock or as a source of energy. The Government is aware that these projects must be implemented expeditiously if the resource gap of the non-petroleum economy is not to outstrip the declining reserve surplus generated by the petroleum sector.

157. The mission has made long-term balance of payments projections on the assumption that the most important of these projects will be carried out as discussed in Chapter II, and come on stream between 1981 and 1985. Growth of imports in these projections is functionally related to investment (on a project by project basis for the large capital-intensive industrial projects), consumption and growth of output. A relatively optimistic assumption has been made that growth of the non-petroleum economy can be sustained at close to 8% through 1983 and that overall growth of GDP will average between 4% and 5% annually in real terms during this period. Because of the expected decline in petroleum exports and the substantial capital goods imports required by the large industrial projects, a resource gap is projected to develop in 1979 for the first time in seven years. This resource gap is projected to increase from about US\$50 million in 1979 (1% of GDP) to over US\$200 million (3% of GDP) in 1983. Thereafter, the resource gap will be narrowed as production from these projects begins to expand exports and the period of heavy import-intensive industrial investment comes to an end. By 1985 when the last of the large industrial projects, the LNG project, comes on stream the resource gap is projected to be eliminated and become a trade surplus on into the late 1980s.

Table 12: BALANCE OF PAYMENTS, PROJECTED, 1978-1985
(US\$ millions)

	1978	1979	1980	1981	1982	1983	1984	1985
Exports of Goods and Non-Factor Services	1,637	1,739	1,882	2,026	2,282	2,537	2,853	3,780
Imports of Goods and Non-Factor Services	1,630	1,787	1,931	2,155	2,417	2,754	2,952	3,596
Resource Balance	<u>7</u>	<u>-48</u>	<u>-49</u>	<u>-129</u>	<u>-135</u>	<u>-217</u>	<u>-99</u>	<u>184</u>
Net Investment Income	-109	-50	-36	-128	-185	-218	-264	-314
Net Transfers	-32	-34	-36	-38	-41	-43	-45	-48
Current Account Balance	<u>-134</u>	<u>-132</u>	<u>-120</u>	<u>-295</u>	<u>-361</u>	<u>-478</u>	<u>-408</u>	<u>-178</u>
<u>Private Capital</u>	<u>110</u>	<u>130</u>	<u>140</u>	<u>160</u>	<u>190</u>	<u>180</u>	<u>160</u>	<u>160</u>
Net Direct Foreign Investment	110	130	140	160	190	180	160	160
Other	-	-	-	-	-	-	-	-
<u>Official Capital</u>								
Disbursements	215	159	159	167	271	300	300	270
Amortization	<u>10</u>	<u>14</u>	<u>35</u>	<u>70</u>	<u>105</u>	<u>124</u>	<u>126</u>	<u>135</u>
Net Borrowing	205	145	124	97	166	176	174	135
Capital NEI	-40	-40	-40	-30	-20	10	10	10
Change in Net International Reserves (- = increase)	<u>-141</u>	<u>-103</u>	<u>-104</u>	<u>68</u>	<u>26</u>	<u>112</u>	<u>63</u>	<u>-127</u>

Source: Mission estimates

158. While the current account of the balance of payments will closely follow that of the trade balance, becoming negative in 1978, and peaking in 1983, it is projected to continue to be in deficit for several years after a trade surplus again begins to be generated. Execution of the large industrial projects will require large inflows of external capital in the form of direct foreign investment and external Eurodollar borrowing by the public sector. Profit remittance and interest payments associated with this inflow are therefore expected to increase rapidly in the early and mid-1980s, partially offsetting the impact of the improvement in the country's trade balance on the current account.

159. Trinidad and Tobago's international reserve position is expected to continue to improve, although at a declining rate through 1980 as capital inflows more than cover current account deficits in the balance of payments. Thereafter increasing direct foreign investment and external borrowing by the public sector is projected to compensate for most of the increasing current account deficit. Gross external borrowing by the public sector is expected to average about US\$200 million annually during the 1978-82 period. After 1982, non-project external borrowing is projected to increase somewhat and raise the total of external borrowing to an average US\$280 million annually through 1986. While foreign exchange reserves are projected to decline slightly in the early to mid-1980s with this pattern of external borrowing, they would still be about US\$1.4 billion or the equivalent of 6 months of imports in 1985 when reserves are projected to resume their growth. While this level of reserves would be more than sufficient to assure the country of adequate external liquidity, Trinidad and Tobago would be in favorable position to increase its non-project external borrowing during 1981-84 by an amount sufficient (estimated at an average US\$50 million annually) to maintain international reserves at the high level expected in 1980.

160. On the assumption that the large energy-based industrial projects are implemented according to schedule, especially the important LNG project, Trinidad and Tobago is expected to be able to sustain adequate economic growth, averaging 5% to 6%, and a strong external situation after 1984. As a consequence of the external borrowing undertaken during the period of heavy import-intensive investment in the early to mid-1980's, Trinidad and Tobago's external debt service ratio would increase rapidly from less than one percent of export earnings at present to a peak of 10% in 1986, declining thereafter to about 4% in the late 1980's.

161. Long-term projections of this nature can be substantially altered by unforeseeable developments in the economies of Trinidad and Tobago's major trading partners, in world capital markets, or within Trinidad and Tobago itself. Nevertheless, they do serve to underscore important conclusions regarding Trinidad and Tobago's development prospects and policies which are likely to remain unchanged in the coming decade. While the country's import capacity and economic growth will depend on external factors such as expansion of export earnings and large net capital inflows, internal economic policies will be of even greater importance, particularly in relation to the level of investment, generation of domestic savings and profitability of the energy-based projects.

162. The level of investment required for implementing these projects and maintaining strong economic growth in the rest of the economy is high compared to past levels. While Trinidad and Tobago should have little difficulty mobilizing external resources for financing a major portion of these projects, domestic savings will also have to play an important role. Through appropriate fiscal, monetary and incomes policies, the Government will have to assure that unrealistically high levels of consumption are not established. In view of the increasing participation of the public sector in a broad range of directly productive activities--realistic pricing policy will be crucial in assuring generation of adequate cash flow to cover a reasonable share of new investment requirements.

163. Given reasonably sound management of the economy and timely execution of the investment program, growth of the economy should not be constrained by the external sector, although the balance of payments situation is likely to be somewhat tighter in the mid-1980s than now. Rather, the major constraint to growth during the next decade will be the capacity of the country's non-petroleum economy to transform the economic surplus generated by the petroleum sector into productive investment for expanding its own output and employment. Serious though not unsurmountable problems confront these sectors of the economy. Efforts to overcome these constraints will have to be geared toward accelerated development of the country's human capital, improvement in efficiency and productivity, and creation of an appropriate incentive system which serves the fundamental development requirements of the non-petroleum sectors of the Trinidadian economy.

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PETROLEUM AND NATURAL GAS PRODUCTION

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PETROLEUM AND NATURAL GAS PRODUCTION

Introduction

1. For the past two decades petroleum has been the mainstay of the economy of Trinidad and Tobago. In 1977 it contributed about half of GDP, 55% of Government revenues and over 80% of adjusted export proceeds. The start-up of oil production in 1972 from the Amoco offshore fields provided a new thrust to oil production, as the older onshore fields and the offshore Soldado field were on the decline. There have been only minor oil discoveries since then, although efforts have been successful in further delineating the Amoco fields and in arresting the production decline of the other fields. Production from the Amoco fields is believed to have reached its peak, and future prospects are for a gradual decline in oil output from them and (after the early 1980's) from other fields. Total petroleum production is expected therefore to decline gradually from 1980 on as yields from secondary recovery investment progressively decline. Offshore exploration over the last decade has resulted in the discovery of very large gas deposits. While proven and probable oil reserves should prove sufficient to support the nation's economy over the next decade, gas could eventually replace oil as the primary source of foreign exchange and fiscal revenue.

2. Following the decline in oil production in the onshore and Soldado fields, the Government has played an active role in the development of the hydrocarbon sector and since 1974 has entered into several joint ventures with private firms. The Government is currently considering a proposal to form a holding company, the National Energy Corporation, which would control the Government's interests in energy-related companies. The proposed corporation would assume the functions of the Coordinating Task Force.

3. Exploration is carried out by foreign companies under several kinds of arrangements. Oil is presently produced under a system of licenses. In licenses issued since 1970, the Government has the option of acquiring minority equity participation in the blocks under license. Since 1974, it has entered into production-sharing contracts with foreign companies. It holds interests in two of the oil-producing companies: Trinidad-Tesoro and TRINTOC. Trinidad-Tesoro is owned 50.1% by the Government and 49.9% by Tesoro Petroleum, a company based in Texas. The joint venture was formed to operate British Petroleum, Trinidad, a subsidiary which was sold in 1969. The Trinidad and Tobago Oil Company (TRINTOC) is wholly government-owned and was formed in 1974 to acquire the assets of Shell Trinidad Ltd.

4. The Government owns one of the nation's two refineries through TRINTOC. It has taken over all domestic marketing of refined products, which now are conducted by its National Petroleum Marketing Company. It is responsible for all domestic marketing of natural gas through its wholly-owned subsidiary, the National Gas Company, formed in 1975.

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Exploration

5. In recent years the most active area for exploration has been offshore. Exploration is currently taking place at a relatively high level. Of the 17 rigs which are active, 5 are exploratory. Promising new areas have been identified off the east, north and west coasts of Trinidad. While they are predominantly gas areas, some oil has also been found. Exploration expenditure in 1978 is estimated at US\$300 million. Offshore Trinidad's east coast, Amoco is continuing exploratory work to delineate 15 oilfields. It has recently drilled two new exploratory wells, the results of which are reported to be encouraging, and has a semi-submersible rig (Mariner 3) under contract for work in another block offshore the east coast. Texaco has also made significant gas discoveries in this area alone (Block 3) and with Tenneco (Block 6), as has the Deminex mobile group.

6. A promising area where substantial exploration is taking place is the reverse L-shaped block off the southeast coast of Trinidad. This is an area relinquished by Amoco near its producing fields. It is under license to the South-East Coast Consortium (Texaco 30%, TRINTOC 50% and Trinidad-Tesoro 20%), which comprises the three shareholders in Trinidad Northern Areas Ltd. plus a government stake of 20%; the Government therefore has an effective 60% interest through TRINTOC and Trinidad-Tesoro. With Texaco as operator, the consortium has drilled at least ten exploratory wells and has found significant gas and some condensate deposits in three structures: Pelican, Oilbird and Kiskadee. 1/ A platform and production facility is being designed for installation by 1979 at an estimated cost of US\$85 million. The consortium has also made an encouraging oil discovery in the Ibis structure, at the very deep level of 15,000 feet. A decision is expected shortly whether or not it is commercial.

7. Trinidad-Tesoro is now producing about 2000 b/d of oil from its Galeota block off the south-east coast of Trinidad. It plans to build additional production platforms for an estimated US\$30 million, enabling 34 new wells to be drilled.

8. To the north, between Trinidad and Tobago, the Deminex/AGIP/Tenneco group hold licences on two offshore blocks. They have tested a well in this area at 10 million cfd of gas. They also hold three blocks there in partnership with Occidental; two wells have tested gas production at about 40 million cfd each. Drilling was deep, at 15,000 feet in 400 feet of water, and the

1/ The Pelican structure has been declared commercial and is thought capable of producing perhaps 150 million cfd of gas and 8,500 b/d of condensate. One well has been drilled in the Oilbird structure and has found gas. A second well has been drilled in 220 ft. of water into the Kiskadee structure and has flowed at 14.8 million cfd of gas and 715 b/d of condensate, while in second interval flowed at 14.7 million cfd of gas and 24 b/d condensate.

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wells are very costly. Development drilling of the structures awaits resolution of government policy for natural gas. Reserves are believed likely to be comparable to those already proven by Amoco offshore Trinidad's east coast in the amount of at least 5 TCF.

9. To the west of Trinidad, Texaco recently discovered a small oil structure and is constructing a production platform in Block 1, which is in the northern part of the Gulf of Paria. Off the south-west coast, it has set up a platform in the existing Point Ligoure field, with a view to developing 2000 b/d from 6 wells.

10. Very little exploratory activity has occurred onshore in recent years. Both TRINTOC and Trinidad-Tesoro have applied for Government approval to drill onshore. The new emphasis will probably be on deep drilling. The maximum depth of onshore wells is 8000 feet, but offshore exploratory wells have recently been successful at depths of about 15,000 feet. Much seismic work is being conducted onshore, using improved technology developed in recent years. Recent revisions of the income tax law have resulted in a substantial increase in development work in onshore fields and this appears to have stemmed the decline in production from existing fields.

11. The Government's last round of leasing was in 1974. It is expected to invite bids in 1978 for areas offshore the north-east, south-east and west coasts of Trinidad which have been relinquished by companies under the terms of the existing licenses. Particular interest is expected to be shown in the surrendered half of the reverse L-shaped block. Trinidad and Tobago and Venezuela are also reported to be moving toward settlement of their long-standing dispute in the area facing the Orinoco delta of Venezuela. This is considered to be the first step towards exploration drilling there.

Crude Oil Production

12. Oil production comes from three main sources: onshore Trinidad, the offshore Soldado field in the Gulf of Paria to the west of Trinidad, and the Amoco offshore fields to the east of Trinidad. Oil was first discovered in 1903 onshore Trinidad, following earlier interest shown in the pitch lake at La Brea. The Soldado field was discovered in 1956. National oil production peaked in 1968 at 180,000 b/d but fell thereafter to 129,000 b/d by 1971, the year before the Amoco fields were brought into production. Their product brought the nation's output to 215,000 b/d in 1975. It turned down in 1976 to 212,000 b/d, due to a fire at the Amoco terminal. In 1977 it was up again to 229,000 b/d, and it is expected to average about 245,000 b/d in 1978, an increase of 7%.

13. The onshore fields are small and require intensive drilling in conditions of difficult and complex geology. The oil is heavy (about 26°API) and has a high fuel oil content. The wells are of very low productivity, less than 20 b/d per well, and production costs are high relative to those elsewhere in Trinidad or abroad. Onshore production rose gradually to 80,000 b/d in 1956 but declined thereafter to 42,800 b/d in 1975. Since

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then, it has increased to 47,300 b/d in 1977 as a result of fiscal incentives granted in 1976 for exploration and development of onshore fields. Production onshore is essentially by three companies: TRINTOC, Trinidad-Tesoro and Texaco Trinidad.

14. The Soldado field produces heavy oil (24°API) of high sulphur content (2.4%). The productivity per well (200 b/d) is higher than onshore and approaches the average for Venezuela (300 b/d). Production from the Soldado field reached 150,000 b/d in 1964 but has declined since that time to 46,300 b/d in 1977. The field is operated by Trinidad Northern Areas Ltd. (TNA), owned one-third each by TRINTOC, Trinidad-Tesoro and Texaco Trinidad.

15. The Amoco fields (Teak, Samaan and Poui) produce light oil (32°API) of very low sulphur content (0.3%). Production is delivered by submarine pipeline to the Galeota Point terminal at the south-east corner of Trinidad. It rose rapidly since inception to 125,000 b/d in 1975. It fell to 118,000 b/d in 1976, reflecting the temporary shut-down of production after an explosion and fire at the terminal's separation facilities. It was back at 134,000 b/d in 1977 and is presently at about 150,000 b/d.

16. Present evidence suggests that production from the Amoco fields is at its peak. Production can be expected to level off and then start declining in the next few years. The decline rate could be in the region of 10% annually if further development efforts are not successful. However, Amoco is continuing development work with a view to further delineation of the fields and is building a new production platform. It started a water injection program in 1977 into the Teak field, which is believed to add about 40 million barrels to recoverable reserves but will not prevent production from declining. It has a pilot flood operation in the Samaan field. The projections adopted in this report assume some success from these efforts, which would lead to a slower decline in the earlier years of 3/4% annually to 130,000 b/d by 1982 and 5% thereafter to 85,000 b/d in 1990.

17. Development work is still taking place in the Soldado field and no further decline is foreseen during the next five years. A 24-well platform was recently installed, and two additional platforms are to be completed during 1978. Production is believed capable of rising to over 50,000 b/d if shortages of senior technical staff can be overcome. The projection adopted in this report is 45,000 b/d for the next five years, after which time a decline might again set in to a hypothetical 30,000 b/d by 1990.

18. Production from onshore fields during the next five years is likely to increase in response to fiscal incentives recently introduced. Output from the TRINTOC and from the Trinidad-Tesoro fields is expected to continue at about 10,000 and 19,000 b/d, respectively, for the foreseeable future. Production in the Texaco fields is projected to rise by about 5-7,000 b/d in 1979 and reach 25,000 b/d as a result of its new steam-flooding program.

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19. The picture presented for national oil output is therefore a gradual decline from 245,000 b/d in 1978 to about 230,000 b/d in 1982, and a somewhat greater decline thereafter to 150,000 b/d in 1990. This projection is premised on the basis of the relative lack of success in discovering new oil during the last three years and the continuation of strong investment efforts to staunch the natural decline in oil output. Proven reserves in Trinidad and Tobago are believed to be about 700 million barrels, while probable reserves could be a similar amount. Cumulative production during 1978-90 is projected to be about 970 million barrels. This is supportable by the present estimate of proven and probable reserves. However, it indicates the necessity for continued strenuous effort in oil exploration and development, if the nation is still to depend on oil in the 1990s as a resource for economic development.

Supply and Disposal of Oil

20. Oil produced by Amoco-Trinidad is all exported as crude oil, about 70% to the Amoco group for refining in the United States and 30% to third parties. Amoco-Trinidad also buys for export the small amount of oil (2,000 b/d), produced by Trinidad-Tesoro from its Galeota field. Oil produced by Trinidad-Tesoro (35,000 b/d) from its other fields is almost all sold to TRINTOC for refining in its Point Fortin refinery. This includes its one-third share of oil from the Soldado field. Trinidad-Tesoro does sell an occasional cargo of Soldado oil for export.

21. Oil produced by TRINTOC (24,000 b/d), including its one-third share of Soldado oil, is all processed in its Point Fortin refinery in Trinidad. It also purchases crude oil for its refinery from Trinidad-Tesoro (29,000 b/d in 1977) and a small amount from imported sources (about 2,000 b/d). In earlier years the refinery had run a larger proportion of imported oil, basically Nigerian. The product sales are mostly for export, though a small amount is to the domestic market.

22. Oil produced by Texaco-Trinidad (35,000 b/d including its share of Soldado oil) is all processed at its Point-a-Pierre refinery in Trinidad. It also processes imported crude oil (179,000 b/d in 1977) on behalf of Texaco Inc. and receives a processing fee; the products refined under the processing agreement (UPA) are all exported, principally to the United States. The refinery's throughput in 1977 was 214,000 b/d, and product sales were 200,000 b/d. These were mostly for export, under the processing agreement (175,000 b/d) or direct sales (18,000 b/d). Small amounts were for the domestic market (4,000 b/d) and for international bunkers (3,000 b/d). Texaco-Trinidad also conducts a trans-shipment operation (120,000 b/d) under which crude oil is imported from the Middle East in very large crude carriers (VLCC's, e.g. 250,000 d.w.t.) and is exported to the United States in medium-sized vessels (up to 80,000 d.w.t.).

Refining

23. There are two refineries in Trinidad & Tobago: TRINTOC's at Point Fortin and Texaco's at Point-a-Pierre. Their combined throughput has fallen

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sharply from the peak of 400,000 b/d in 1971. It initially declined slowly to 358,000 b/d by 1974. It fell in 1975 to 235,000 b/d, following a strike in the Texaco refinery. It climbed back to 321,000 b/d in 1976 but fell again to 272,000 b/d in 1977. The principal reason for this decline is that exports of products from these refineries to the U.S., Trinidad and Tobago's basic market, have been adversely affected by the protection accorded to US domestic and Virgin Islands refineries by the US crude oil entitlement program and by the license fees and import duties imposed on refined product imports. 1/ In February 1976 the US modified this program to the advantage of offshore refineries in order to improve the competitive position of wholesalers of residual fuel oil on the US East Coast who receive their suppliers from imports rather than from US refineries. 2/ Despite this, US refiners still appear to have the competitive edge and since 1976 US refinery production has continued to increase more rapidly than consumption in the US. US refineries are now operating close to capacity, in contrast to the under-utilized Caribbean and W. European refineries.

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- 1/ The US entitlements program was set up as a mechanism to preserve the competitive viability of refineries having access to a lower share than the national average of domestic crude oil production; domestic production is subject to controlled prices at different levels, while crude oil import prices are uncontrolled. The entitlements program requires US refiners which process relatively higher proportion of lower-priced domestic crude oil to acquire entitlements from those which process a relatively lower proportion. In November 1977 the average benefit which US refiners received from the entitlements program was US\$2.09 per barrel of throughput.
- 2/ Importers of residual fuel oil into this market were allowed to receive partial entitlement benefits amounting to 30% of their imports. This is therefore now worth about US\$0.65 per barrel to them. In contrast, US refiners' entitlements were reduced by 50% (in excess of the first 5,000 b/d) of such sales; thus their average benefit is now about US\$1.05 per barrel of these sales. Residual fuel oil sales met from US refineries are therefore still protected by about US\$0.40 under the entitlements program. If they are refined from imported oil, their protection is reduced by the import duty, US\$10.5 on crude oil of 25° API of 25° API and above. They are also protected by import duties and license fees on imported residual fuel oil, except for a proportion exempt from the fees; the exemption is to be phased out by 1980. The fees are 63 cents but are reduced by the amount of the duties (5.25 cents on oil below 25° API). However, the protection on residual fuel oil from US refineries is reduced if they are processed from imported crude oil, as these imports are also subject to similar provisions for import duties and fees; the fees are US\$21 on crude oil.

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24. The US Administration is currently proposing changes in its entitlements and oil import program, including a proposed crude oil equalization tax which would increase US oil prices to international levels and could result in the elimination of the entitlements program. The proposals are under review by Congress. Whatever the outcome, some measure of protection for US refineries is expected to continue. However, US demand for refined during the next few years is expected to increase at about 4% annually. This appears to be at a faster rate than planned expansion of US refining capacity. This would operate to the advantage of foreign refineries. The proposed expansion of refining capacity in North Africa and the Middle East could pose competition to Trinidad and Tobago's facilities for crude oil imports into Louisiana if and when it comes about. But the Trinidad and Tobago refineries are well placed geographically to take advantage of growth in US imports.

25. The projections adopted in this report assume an increase in refinery runs through the 1980s which would reach 372,000 b/d in 1982 and 410,000 b/d in 1990. These projections therefore assume that throughput will gradually come back to 90% of designed capacity by 1990, thereby reaching its effective limit.

26. The TRINTOC refinery at Point Fortin has a designed capacity of 100,000 barrels per calendar day. This is based on a proportion of the input being Nigerian light oil. Its effective capacity of indigenous crude oil (as at present) is 85,000 b/d. It is a simple refinery, and about 65% of the product yield is high-sulphur (2%) residual fuel oil. The refinery throughput in 1977 was only 55,000 b/d, though it is expected to be somewhat higher this year. A decision is about to be taken as to whether to implement plans to upgrade the refinery by the installation of catalytic cracking. The yield of lower-valued residual fuel oil would be much reduced, and the yield of higher-valued light ends would be correspondingly increased, including high-octane motor gasolines for export and perhaps feedstock for domestic petrochemical manufacture. The crude oil distillation capacity would also be improved so that the refinery could reach a capacity of 100,000 b/d with indigenous crude. If the decision is taken to go ahead with this project, there would be the need to procure some crude oil from sources other than those currently being used, since the indigenous crude oil supplies from TRINTOC and Trinidad-Tesoro are expected to be insufficient to feed the refinery, as they begin to decline and the effective capacity is increased. The project would begin in 1979 and would be completed in 1982, at an estimated cost of US\$290 million.

27. The Texaco refinery at Point-a-Pierre has a crude oil distillation capacity of 355,000 barrels per calendar day. It makes both the usual main-line products but also a range of lubricants, greases, bitumens, cyclohexane and aromatics. It runs on domestic crude oil (35,000 b/d) and imported oil for the balance (182,000 b/d in 1977). The imported oil comes mostly from Saudi Arabia and Iran in VLCC's and the remainder from Indonesia. During the early 1970s, its refinery throughput had been as high as 330,000 b/d, but it is now suffering the fate of other refineries in the Caribbean and elsewhere outside the United States and is currently processing about 220,000 b/d of crude oil.

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28. The refinery is an integral part of the Texaco group's international supply system, particularly for the United States where it holds about 7% of the refined product market. It meets this demand mostly from its US refineries (1.0 million b/d), and the balance which it imports comes primarily from Trinidad (about 200,000 b/d). It is operating its US refineries at about their limit and it is not known to be expanding its US distillation capacity, though it is modifying two of its US refineries to enable them to process high-sulphur crude oil. Assuming that US oil consumption grows by about 4% annually from 1977 to 1980, and that Texaco maintains its market-share, its product sales could be some 150,000 b/d higher in 1980 than in 1977. Most of this increment would seem likely to be supplied from its Trinidad refinery.

Oil Export Volumes

29. Crude oil exports from Trinidad & Tobago consist of the crude oil produced at the Amoco-Trinidad fields plus the occasional cargo of Soldado oil sold by Trinidad-Tesoro. They grew rapidly to 132,000 b/d in 1975, fell in 1976 to 118,000 b/d because of the fire at the Amoco terminal, and rose again to 135,000 b/d in 1977. They are expected to be about 150,000 b/d in 1978. Thereafter they are projected, parallel with Amoco-Trinidad's production, to decline to 130,000 b/d in 1982 and to 85,000 b/d in 1990, with all the caveats which accompany the production projections discussed above.

30. Refined product exports under the processing agreement (UPA) averaged 175,000 b/d in 1977, a decline from 217,000 b/d in 1976. As discussed above, they are seen to increase as refined product imports into the United States increase further, on the assumption that expansion of US refining capacity lags behind the increase in consumption. Exports of UPA refined products are projected at 252,000 b/d in 1982 and 274,000 b/d in 1990. Other (non-UPA) refined product exports are similarly projected to rise, from 63,000 b/d in 1977 to 89,000 b/d in 1982 and 100,000 b/d in 1990.

International Oil Prices

31. The weighted average price for crude oil f.o.b. Trinidad in 1977 was about US\$14.60 per barrel. This indicates a quality premium in the region of US\$1.00 per barrel, primarily for low-sulphur content, in relation to the price of \$12.70 f.o.b. Ras Tanura since July 1977 for the marker oil Arabian Light. It assumes freight of US\$0.90 from Saudi Arabia to Trinidad and Tobago at an average freight rate of Worldscale 47 for VLCC's. 1/ The price of

1/ Freight rates are typically expressed as a percentage of the Worldscale reference tariff book. Rates differ according to the size of ship and length of charter. A widely used index of the weighted average of spot and term-charters plus oil company-owned tonnage is the Average Freight Rate Assessment (AFRA), calculated monthly by the London Tanker Bookers Panel for different sizes of tankers. The AFRA rate for VLCC's (160,000 d.w.t. and above) during 1977 averaged about W 47, i.e. 47% of Worldscale.

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Trinidad and Tobago crude is comparable to African crude oils of similar gravity and low-sulphur content, taking into account Trinidad's freight advantage to the United States (about US\$40 per barrel).

32. The market price was left unchanged for 1978 at the OPEC conference in December 1977 in Caracas. As a generalization, OPEC countries did not wish to hamper economic growth or exacerbate inflation or balance of payments disequilibria in oil-importing countries. Moreover, they have considerable financial investments in some of these countries, as well as trade and arms arrangements. Therefore, some favored a price freeze during 1978, and a consensus was not reached with others who had sought a price increase to offset general inflation and the weakness of the US dollar, in terms of which their oil prices are expressed. The market is at present weak for some internationally traded oils, particularly (a) light oils of low-sulphur content now facing competition from Northsea and Alaskan fields and (b) heavy oils whose demand is on the low side with a continued low level of industrial activity in developed countries. However, the market is likely to tighten within three to four years as the present excess of OPEC capacity disappears.

33. The Trinidad and Tobago oil prices in this report are based on the Bank projections for marker oil Persian Gulf, which assume that it will stay constant in real US dollars to 1985. Thereafter two alternatives are presented: (i) with recovery to a moderate rate of economic growth in developed countries, constraints on world energy supplies might emerge which could induce increases in international oil prices of 2-3% annually to 1990 in real terms, or (ii) with low economic growth, the real price might remain constant to 1990. The export price of crude oil f.o.b. Trinidad and Tobago is therefore projected in this report to rise from US\$14.60 per barrel in 1978 to \$18.50 in 1982 and a range of \$28.00-\$32.50 by 1990, expressed in current dollars of those years. The export price of refined products is projected to rise similarly. The projections also take into account that the composition of the average barrel of products from the TRINTOC refinery would become lighter and more valuable, assuming the plans to upgrade the refinery go ahead.

34. The c.i.f. price of crude oil imported in 1977 is estimated to have averaged just under US\$14 per barrel. It also would rise in line with the general assumptions for the marker oil. These imports are at present almost all under the processing agreement and hence are only reflected in the balance of payments through the processing fee (approximately US\$1.00 per barrel). However, crude oil imports could grow for the TRINTOC refinery conceivably to 12,000 b/d by 1982 and 42,000 b/d by 1990. They are valued in these projections at the export price for low-sulphur Trinidad and Tobago oils. These imports would be lower if domestic crude oils were substituted, but that in turn would reduce the gross volume of crude oil exports. Either way, the net volume of crude oil exports would be the same.

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Oil Export Proceeds

35. Export proceeds from crude oil in 1977 amounted to US\$722.0 million, an increase of 21% from 1976. ^{1/} They are projected to reach US\$879 million by 1982, an average increase of 4.0% annually. Depending on price, they might be in a range of US\$870-1,000 million by 1990. Export proceeds of non-UPA refined products in 1977 amounted to US\$317 million, an increase of under 3% from 1976 (US\$308 million) but a striking increase from 1975 (US\$200 million). They are projected at US\$453 million in 1982, an average increase of 14% annually from 1977. Again depending on price, they might be in a range of US\$1100-1240 million by 1990. Crude oil imports for refining into non-UPA products are assumed to rise from only US\$9 million in 1977 to US\$83 million in 1982 and conceivably US\$430-500 million by 1990.

36. Proceeds from processing fees were US\$66 million in 1977. They are projected at US\$124 million by 1982, an increase of 13.5% annually and at US\$200 million by 1990. These projections assume: (a) the gradual increase in refinery throughput which appears above, and (b) a continuation of the processing fee at the present level in real terms.

Natural Gas Production and Disposal

37. Natural gas in Trinidad and Tobago is produced principally in association with crude oil production. The gas has in the past come from the onshore fields, the offshore Soldado field and, since 1973, from the offshore Amoco fields.

38. In 1976 gas production averaged 380 million cfd. Of this amount, 177 million cfd or 47% was flared as surplus, and another 31 million cfd (10%) was lost or otherwise not collected. However, the proportion flared has subsequently been substantially reduced to below 30% by the end of 1977, and it could decline further in future years, as gas from the Amoco fields is increasingly delivered to the new domestic energy-intensive industrial projects. Gas used as fuel, both by the oil companies and in sales to non-oil companies, averaged 145 million cfd in 1976. Gas also went to petrochemical use and as casinghouse gasoline, averaging 20 million cfd. Finally, gas was reinjected into reservoirs in the amount of 5 million cfd.

39. Most gas is now produced from the Amoco offshore fields. It is distributed within Trinidad and Tobago by a submarine and land gas pipeline system which is held and operated by the National Gas Company, a wholly-owned Government corporation established in 1975. A 26-mile 24" submarine pipeline was completed in August 1977 (TT\$80 million) which takes gas from the Teak A production platform through Poui A to the Galeota Point facilities. This

^{1/} This is their customs valuation, based on market prices. The Central Statistical Office revalues the proceeds at tax-reference price; this results in a revaluation to US\$1011 million in 1977.

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permitted an increase in peak gas deliveries to shore from 60 million cfd to 150 million cfd. With the connection of Teak B at end-1977, the system is seen capable of handling peak deliveries of 205 million cfd to shore in 1978. It connects with a new onshore line, completed in April 1977 (Beachhead-Picton for TT\$30 million) which goes across Trinidad to the Point Lisas industrial estate on the west coast. The system is capable of delivering 155 million cfd there since December 1977. The pipeline will be looped in future years, to enable delivery of additional supplies (e.g. Picton-Point Lisas by 1979 for TT\$15 million and Galeota Point-Beachhead for TT\$6 million by 1980). Such a system would be able to handle peak deliveries of 400 million cfd to shore in 1980 (360 million cfd on average), of which 350 million cfd could be for Point Lisas.

Domestic Market for Natural Gas

40. Gas sales in Trinidad and Tobago are presently limited to a small number of customers. Total sales in 1977 amounted to 183 million cfd, 17% higher than in 1976. Of this amount, sales to non-oil companies came to 116 million cfd; and two customers accounted for 83%, Trinidad and Tobago Electricity Commission for power generation (41 million cfd net) and Federation Chemicals Limited for manufacture ammonia (55 mm cfd). 1/ Sales to oil companies came to 67 million cfd; they were to Texaco (44 million cfd), TRINTOC and Trinidad-Tesoro.

41. The Government is seeking to put the recent large gas discoveries to the economic benefit of the nation, and to this end has drawn up a list of potential projects based upon natural gas for power and raw materials. The new projects are for the most part to be located at the Point Lisas industrial estate. Projects currently in operation at the Point Lisas estate are the Tringen ammonia plant 1/, the cement plant and the power station, all of which purchased 96 million cfd of gas in 1977. A furfural plant is due to be constructed in 1978. The ISCOTT iron and steel project 2/ and the Fertrin ammonia plant 3/ are scheduled for completion in 1980, when the TRINTOC refinery is also expected to increase its gas purchases. That would bring the need for gas at Point Lisas to about 250 million cfd.

1/ The Trinidad Nitrogen Company (Tringen) is held 51% by Government and 49% by W.R. Grace and owns the new 400,000 ton capacity ammonia plant located close to the smaller 350,000 ton ammonia complex of Federated Chemicals, which is wholly owned by W.R. Grace. Tringen began operations in October 1977.

2/ The Iron and Steel Company of Trinidad and Tobago (ISCOTT) is 100% Government-owned and has started site preparation.

3/ The Fertilizer Company of Trinidad and Tobago (FERTRIN) is owned 51% by Government and 49% by Amoco and will put up a 730,000 ton per annum facility. It will use about 75 million cfd of natural gas.

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42. Other projects currently under consideration for possible inclusion in the industrial estate are an aluminum smelter, for which a US consultant (Kaiser Engineering) has recently completed a feasibility study; methanol; and LNG (discussed below). A petrochemical complex which could produce olefins and aromatics is also under consideration. Such a complex would probably be located at Point Fortin. Gas requirements for the industrial estate (excluding LNG) are envisaged by the Coordinating Task Force as rising to 337 million cfd by 1983, provided these projects are implemented. Gas reserves to support these levels of offtake are more than ample. The Amoco fields alone have reserves in the order of 9 TCF, of which 5 TCF have been allocated to the National Gas Company and could support deliveries of more than 500 million cfd over 25 years of the proposed energy-based industries which the Government proposes to set up in Trinidad and Tobago.

LNG Project

43. An original LNG scheme based on the Teak, Samaan and Poui field (Amoco) was shelved in 1974 owing to the highly uncertain outlook for LNG pricing in the United States. Attention was shifted to creation of domestic industries based on natural gas. The recent discovery of large new gas reserves in Trinidad and Tobago, and the new strong interest by US pipeline companies in LNG import projects, have revived the prospects in Trinidad and Tobago for an LNG export project. The Government's Coordinating Task Force concluded in 1977 that natural gas reserves were sufficient to justify an LNG scheme as well as domestic energy-intensive projects. The Government decided that the future development of LNG projects should be actively pursued. Allocation of gas reserves for LNG projects, however, would be secondary to that made for domestic energy-intensive industries.

44. The Government is currently awaiting the results of an independent study by two US consulting firms (De Golyer and McNaughton and Ryder Scott), which evaluate the size of natural gas reserves recoverable from all fields in Trinidad and Tobago. The size of a possible LNG project can then be determined, after setting aside gas reserved for domestic industries. Other requisite studies are under preparation, including in-depth feasibility studies, site selection, shipping and environmental studies.

45. In August 1977 the Government discussed the development of LNG in Trinidad and Tobago with six companies. 1/ In October 1977 it invited two US companies, Tenneco and People's Gas of Chicago, to be its principal partners in the development of an LNG project. It also agreed that Texas Gas Transmission should be given a preferred position as a third partner, depending on the project's size. It signed heads of agreement with Tenneco and People's Gas to construct LNG facilities by end-1983 for export to the United States over a period of 20 years. The volumes for allocation to each of the two companies would be determined when the consultants' study of gas reserves is completed.

1/ Tenneco, People's Gas of Chicago, Texas Gas Transmission, Amoco, Texaco and Trinidad-Tesoro.

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46. The present official estimate of recoverable gas reserves is 17 TCF. This comprises 100% of proven reserves (7.8 TCF), 60% of probable reserves (11.3 TCF), and 20% of possible reserves (12.0 TCF). This is thought to be an understatement of ultimately recoverable reserves which some experts believe could range anywhere between 30-70 TCF. Reserves which might need to be set aside for energy-intensive and other domestic uses could be in the range of 8-11 TCF of gas. This would indicate a balance of 6-9 TCF, sufficient to provide a 25-year input of 0.7-1.0 billion cfd of natural gas to an liquefaction plant. If further gas reserves became available, the plant's size could easily be increased by installing additional liquefaction units.

47. The project presently envisages purchase of natural gas from the several companies which have found offshore gas fields. Development of these fields would proceed once Government policy is determined. The purchase price has still to be negotiated. The gas would then be delivered by the National Gas Company to the liquefaction plant. The plant's site has yet to be determined; Point Lisas is a possible location, though not the only one. The plant's input capacity would be in the range of 500-1000 mm cfd, but this is still under study. The Government would probably take a 51% interest in the plant. LNG would be shipped to the United States in tankers which might be jointly owned by Government and the two US companies. 1/ Selection of import terminal and revaporization sites is also under study.

48. The project is subject to detailed contract negotiations and to regulatory approvals, including those of the Government of Trinidad and Tobago and the US Federal Energy Regulatory Commission. The project's scheduling envisages the signing of a definitive agreement in July 1978 and a final decision in mid-1979. Approvals from both Governments would be sought by December 1979. First delivery is hoped for December 1983.

49. The capital cost for a 500 mm cfd project is estimated at US\$1.60 billion in current dollars, of which \$450 million would be for collection (100% Government), \$650 million for liquefaction (51% Government), and \$500 million for two tankers (51% Government). If the size were 1 billion cfd, the costs could be roughly double those indicated above.

50. This report has attempted to make some indicative projections in order to suggest an order of magnitude of government revenues and balance-of-payments impact which might ensue from such a project. The projections are derived from studies published in 1977 on the economics of representative LNG projects. 2/

1/ The Government held discussions in 1977 with Seatrain Lines on the creation of a tanker fleet both for LNG and refined products, and has formed a joint international shipping company, Shipping Company of Trinidad and Tobago (SCOTT), held 51% by Government and 49% by Seatrain.

2/ "LNG Review 1977" by Edward Faridany, published in September 1977 by Energy Economic Research Limited, England. "Economic considerations and Operating History of Base-load LNG Projects" by P. J. Anderson and E. J. Daniels of Institute of Gas Technology, a paper presented to Westcoast LNG Symposium, Australia in December, 1977.

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51. Large-scale base-load LNG projects are highly capital intensive, and their capital costs have increased greatly with inflation in recent years. The capital cost of the liquefaction plant depends very much on site and country. This report has adopted an estimate of US\$740 mm in 1977-\$, or US\$1,100 mm in current-\$ for the capital cost of a plant which might start in 1985 to export the liquified equivalent of 575 mm cfd of gas. This would include all direct and indirect costs except interest during construction and start-up costs. 1/

52. Capital costs of LNG carriers have also risen substantially in recent years. They are in the range of US\$125 mm in 1977-\$, or US\$180 mm after cost escalation for a 125,000 m³ carrier (net cargo capacity) delivered in 1985, based on recent quotations from W. European and Japanese yards for delivery in the early 1980's. Prices of US yards are higher, and the US Administration offers a subsidized program, in order to maintain economic competitiveness. This is the standard size for carriers now entering service. For the voyage Trinidad-Houston three such ships would be needed to support exports of 575 mm cfd ex-liquefaction plant. 2/ Thus the capital cost would be some US\$420 mm in 1977-\$, or about US\$480 mm after cost escalation during construction. This is the assumption made for the report's projections. However, an increase in tanker size would result in marked reduction in capital cost per cubic meter of capacity. The next generation of carriers could rise towards 165,000 m³ in size, costing in the order of US\$150 mm each in 1977-\$, or US\$175 mm in current-\$. The number of such tankers needed to support a slightly smaller project (535 mm cfd of exports) would be only two. 3/ Hence, their total cost could be about US\$300 mm in 1977-\$, or US\$350 mm after cost escalation.

1/ The study by E. K. Faridany estimated the capital cost of a plant with an output of 575 mm cfd at US\$740 mm in 1977-\$. This comprises utilities, storage, loading facilities, jetty and all indirect costs, but it excludes interest during construction, start-up costs, and cost escalation during construction. Assuming completion by 1982, the report estimated the capital cost at US\$895 mm, including cost escalation. The study by Anderson and Daniels estimated the capital cost of a new plant with output of 1 billion cfd at US\$780 mm in 1977-\$, including indirect costs but not those of land, management or interest during construction.

2/ The voyage Trinidad-Houston (2250 nautical miles) would take 9.5 days round-trip at 20 knots, plus an estimated 3.5 days port time round-trip. One 125,000 m³ tanker could therefore make 26.7 voyages per year, assuming 20 days out of service. It could export 202 mm cubic feet per calendar days and unload 199 mm cfd; this assumes 1.4% boil-off of cargo (0.15% per day over 9.5 days), used as ship's bunkers.

3/ On assumptions similar to those for a 125,000 m³ tanker, one of 165,000 m³ could export 267 mm cfd and unload 263 mm cfd.

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53. The capital cost of the discharge terminal could be in the region of \$145 mm in 1977-\$, if its capacity were designed to receive LNG equivalent to 564 mm cfd of gas, i.e. the volume loaded less boil-off during voyage. The volume is equivalent to 218.6×10^{12} Btu's. The capital cost includes jetty, storage, discharge and regasification facilities. However, it would be borne by the importing companies and not by Trinidad and Tobago.

54. The liquefaction plant fee would be about US\$2.05 per mm Btu's delivered, in 1985-\$. It would be sufficient to cover operating costs (including some 16% of gas feed which is lost or used as fuel), depreciation and income tax, all discounted to yield 15% on total capital employed. The tax rate is assumed at 50% of gross revenue ex-plant less operating cost and depreciation. However, the tax liability would be dependent on the level of sales price of revaporised gas delivered to the US inter-state pipeline system.

(US\$ per million Btu's)
in 1985-\$

Operating cost	0.55
Depreciation	0.41
Tax	0.54
Return on investment after tax	<u>0.55</u>
Liquefaction fee	2.05

55. The freight would be about 60 US cents per mm Btu's delivered by a 125,000 m³ ship to the United States. The charge would cover operating costs and depreciation to yield 15% on equity. The ships are assumed to operate under flags of convenience, and hence there would be no income tax liability. LNG boil-off would be used as ship's bunkers, valued at bunker fuel oil prices. The ships are assumed to be financed in a 70:30 debt-to-equity ratio. Freight would be somewhat lower if larger tankers were used.

56. Negotiations for the purchase for gas at production platform and the marine and land pipeline fees to the liquefaction plant have yet to be determined. Without prejudging the outcome, the report assumes a hypothetical purchase price of US\$1.00 and a pipeline cost of 55 US cents per million Btu's (in 1985-\$) for the purpose of government revenue and balance-of-payments projections. The liquefaction plant would need to receive about 687 mm cfd, in order to support exports equivalent to 575 mm cfd, but the volume lost and used as fuel during liquefaction is already included in the liquefaction cost of \$2.05.

57. The above projections suggest that the cost of LNG delivered to US terminal could be in the order of US\$4.20 per mm Btu's, expressed in 1985-\$. This would be equivalent to US\$2.60 in 1977-\$. This includes an element of return to the Government from its investments in gas production, pipeline, liquefaction plant and tankers, and from income tax imposed on production and liquefaction activities. This raises the fundamental question whether the return to the Government is sufficiently worthwhile to justify going ahead with the investment, and this is dependent on the price obtainable in the US market.

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Projected Cost of Trinidad LNG Delivered to US Import Terminal

	(US\$ per million Btu's)	
	<u>in 1985-\$</u>	<u>in 1977-\$</u>
Purchase price at production platform	1.00	0.62
Pipeline to shore and plant	0.55	0.34
Liquefaction fee	2.05	1.27
Freight	<u>0.60</u>	<u>0.37</u>
Cost at US import terminal	4.20	2.60
Revaporisation	<u>0.30</u>	<u>0.20</u>
Cost of Gas Delivered to Inter- State Pipelines	4.50	2.80

58. The cost of Trinidad gas delivered to the US inter-state pipeline system, indicated at \$2.80 per mm Btu's in 1977-\$ is considerably higher than that of the first large-scale base-load project, El Paso I, which started up in March 1978. 1/ The prices in this contract are somewhat comparable to those of US intra-state supplies and of overland imports from Canada and Mexico. 2/ But they are much higher than US inter-state gas prices, which have been federally regulated on a cost-of-service basis at levels well below those of competing fuels.

59. Prices in subsequent LNG projects, which have received or are seeking US federal approval, are considerably higher than those of El Paso I.

1/ Basic prices prior to escalation in the El Pasa I contract are \$1.24 per Btu's cif Cove Point, Maryland and \$1.31 cif Savannah, Georgia. The f.o.b. component (\$0.70) escalates with US labor indices, and freight with LNG carrier capital and operating costs. Costs of revaporised gas delivered to the pipeline system are about \$1.66-1.81 and \$1.71 respectively before price escalation.

2/ Intra-state prices within Texas in September 1977 averaged \$1.67 per Mcf in new contracts and \$2.12 in renegotiated or amended contracts. The border price for Canadian and Mexican sources averaged \$1.95 per Mcf; that for Canadian gas was increased on January 1, 1978 from US\$1.94 to US\$2.15 per Mcf. Prices for dry gas are virtually the same, whether expressed in thousand cubic feet (Mcf) or million Btu's, as there are about 1020 Btu's per cubic foot of dry gas. The major inter-state pipeline companies bought gas in September 1977 from domestic producers at 72 cents per Mcf (double their 1975 level) and sold it to industrial users at \$1.32 per Mcf and to distribution utilities at \$1.36.

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The cost of their gas delivered to inter-state pipeline is in the same range as that indicated above for Trinidad and Tobago gas. 1/ The border price in the recent proposal for future large-scale deliveries of Mexican gas to the US was also similar. 2/

60. These prices are approximately in line with those of their main competing fuel in the residential heating market, distillate fuel oil, when they are compared at import terminals. 3/ Prices of gas supplies from these LNG projects still look substantially higher than prices of distillate fuel oil or domestic gas supplies, when they are compared at the burner tip. However, they could approach distillate fuel oil prices, if US energy policy is shaped so as to bring domestic oil prices up to international levels by the early 1980's. 4/

61. The pricing policy for new domestic supplies of US gas is still being negotiated within US Congress (May 1978). The latest proposals under negotiation indicate that the prices for new domestic gas might rise substantially in real terms by 1985, approximating \$2.52 per mm Btu's, compared

1/ There are four long-term US LNG import projects and one expansion which are seeking DOE approval. They are imports from Indonesia and S. Alaska to California, and from Algeria to Texas (El Paso II), to Maine (Distrigas II) and to New Brunswick, Canada thence by pipeline to the US (Tenneco). The estimated cost of gas delivered from these projects to the pipeline ranges from \$3.37 per mm Btu's in 1980-\$ (Trunkline) to \$4.57 in 1984-\$ (Tenneco); the years are those of initial delivery. These prices are equivalent to \$4.50-4.85 in 1984-\$ or \$2.80-3.00 in 1977-\$, taking the Bank's index of international inflation. There are several other US LNG import projects in the planning stage.

2/ In 1977 the US Administration vetoed the proposal to import 2 billion cfd, on grounds that the border price (\$2.60 in 1977-\$) would exceed that from Canada; however, there are indications that negotiations could resume, once US natural gas policy is clarified.

3/ The price range in these LNG projects is equivalent to \$2.80-3.00 per mm Btu's in 1977-\$ delivered to inter-state pipeline, or about \$2.50-2.60 landed at import terminal. The latter equivalent to about \$14.50-15.00 per barrel of distillate fuel oil, which is approximately the value of this oil in spot cargoes in New York.

4/ The price range for gas supplies from these LNG projects is estimated at about \$4.40 per mm Btu's in 1977-\$, delivered to residential customers for heating use. It would be equivalent to about \$25 per barrel of distillate fuel oil, which is above the 1977 residential price of \$20 for this fuel. It would approximate this price if US energy policy continues to bring domestic oil prices up to international levels by the early 1980's, as is now being debated by US Congress.

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compared with present prices for domestic supplies to inter-state pipelines (\$0.72 per Mcf). 1/ If such an increase took place, the new price level would be appreciably closer but still below the prices proposed in the new LNG projects for delivery to inter-state pipelines (say \$2.80-3.00 in 1977-\$). Hence, a critical issue in US federal approval of these LNG projects is the price at which inter-state pipeline companies and the distribution utilities are allowed to sell the high-cost gas from those projects, whether at a "rolled-in" average price to all customers or at an incremental price to the incremental customer. The argument for rolled-in pricing is that without it the incremental gas might not be marketable and the project not viable, while the argument for incremental pricing is that the incremental customer should pay the true cost of supplies. Regulatory approvals, for LNG projects into the US east coast (El Paso I and Trunkline) have so far ruled in favor of rolled-in pricing, but the policy still looks far from certain. LNG pricing policy is presently under review by an LNG imports review group recently set-up by the US Administration. It will also focus on US dependency on foreign sources of LNG and on siting criteria, including distance from residential areas.

1/ The natural gas pricing provisions within the proposed energy bill were still being negotiated by House-Senate conferees of US Congress when this report was prepared (May 1978). President Carter's National Energy Plan of 1977 had proposed a new commodity value approach, which would reflect the costs and risk in finding replacement supplies of domestic gas and would provide incentives for development of such supplies having substantially higher development costs than is the past. It proposed a price on the first sale of all new domestic gas equivalent to the average refiner's acquisition price of crude oil. This would apply to all new gas, whether inter-state or (now uncontrolled) intra-state, and was estimated at \$1.75 per Mcf at beginning-1978. Upon expiry of existing contracts, gas from existing fields could be resold at prices not exceeding \$1.42 plus inflation. Subsequently, the price agreed in principle by Senate conferees in March 1978 envisaged price controls on new gas entering into US inter-state and intra-state trade at \$1.75 per mm Btu's escalating with the consumer price index (CPI) plus an additional 3.5% p.a. from April 1977 to April 1981 and 4.0% p.a. from April 1981 to December 1984. The controls would then expire. Thus assuming the Bank's inflation index, the price for new gas could be \$3.43 by end 1984, equivalent to \$2.25 in 1977 dollars. All old gas would be priced at \$1.45 per Mcf, escalating with the CPI. Alaskan North Slope gas would be priced as old gas. A special incentive price of \$1.75 per Mcf plus escalation with CPI would apply to gas produced from extension wells. High-cost gas would be deregulated immediately. Eighteen months after the gas-pricing laws were amended, FERC would have to submit to Congress two rules for incremental pricing, in particular that major fuel-burning installations pay the deregulated high-cost gas prices, including LNG and imported gas, until the cost equalled through substitute fuels. This Senate conferees' compromise has yet to be agreed by the House conferees (April 1978). However, a closed meeting of a dozen Senate House conferees is reported to have reached agreement on a price for new domestic gas which would escalate slightly faster than above to reach \$2.52 in 1977 dollars by 1985.

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62. Fundamentally, the prospects for US LNG import projects including that of Trinidad and Tobago depend on how they are regarded as a supplemental source to US domestic gas supplies. The US Administration's general guidelines are set forth in the National Energy Plan, 1977. This policy has removed the previous overall limits on LNG import volumes. Instead, the Federal Government will review each LNG import application ad hoc, to see whether the project would make gas available at reasonable price without undue dependence on foreign source. The assessment will take into account the reliability of the proposed supply, the degree of US dependence which it would create, costs and safety conditions.

Government Revenues from Petroleum

63. Under the Petroleum Taxes Act of 1974, production, refining and marketing of petroleum are treated as three distinct businesses and are subject to different income tax treatment.

Production Activities

64. Government revenues from production are derived from royalties, income tax and the unemployment levy. Producing companies also pay a production levy to finance subsidization of domestic consumption of petroleum products.

65. Royalties are assessed on the field storage value of crude oil and are based on a simple valuation of their yield of refined products less the costs of refining and delivery from fields. The older licenses for land production provide for royalties at 10% of their field storage value, 1/ while the newer offshore licences provide for royalties at 12-1/2-15%. Royalties collected in 1977 amounted to TT\$262 million. They have increased steadily since 1974 (TT\$158 million), reflecting the increases both in production and in international oil prices and hence royalty reference prices. They are now ten-fold their 1972 level (TT\$27 million) for the same reason. They are projected in this report at TT\$330 million in 1982 and TT\$330-380 million in 1990, reflecting increases in international and royalty oil prices (in current dollars), and offset by a decline in oil production.

66. Income Tax is imposed on net taxable income, since 1975 at 50% on production activities. The rate is set by act of parliament 2/ and is therefore a somewhat inflexible tool for determining tax liability. Gross revenues from crude oil delivered for export and to domestic refineries are therefore valued for income tax computation on the basis of tax-reference prices and not

1/ The royalty rates in licenses granted prior to 1961 for land production were 10% on production up to 350,000 barrels, 11% on 350/450,000 barrels, 12% on 450/500,000 barrels and 12-1/2% over 500,000 barrels. Production from most onshore license areas is low, and their effective rate is about 10%.

2/ The petroleum profits tax on production activities was set at 50% effective from January 1, 1975 under the Petroleum Taxes (Amendment) Act, 1975. It had been at 47-1/2% from January 1, 1974 under the Petroleum Taxes Act, 1974.

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the actual sales of transfer prices (except for Trinidad-Tesoro). The tax-reference prices are determined by the Minister of Finance after consultation with the Minister of Petroleum and Mines. Since 1976, individual tax-reference prices have been set for each grade of locally produced crude oil. 1/

67. Expenses and costs which are deductible from tax-reference prices comprise royalties, production costs, depletion and depreciation, and production levy. 2/ Financial incentives have also been provided since October 1976 for onshore production, with a view to arresting the decline in land production and to expanding employment. 3/ This system makes for a more flexible tuning of income tax and net income after tax to meet current market conditions and sales prices, than would be possible from computing income tax from actual sales prices and the tax rate fixed by Parliament.

68. A potential problem could arise and affect the tax-reference price system. The US Internal Revenue Service (IRS) has allowed US oil companies to claim a tax credit against their US income tax obligations for taxes paid to foreign countries including Trinidad and Tobago. However, in January 1978 it ruled that amounts received by Libya and Saudi Arabia from US oil companies there are not foreign income taxes and may not be credited against US income taxes. This revokes earlier IRS rulings. The revocations are not retroactive but apply to taxes paid in fiscal years beginning after June 1978. The main reason given for the ruling is that posted prices - used in computing companies' tax payments to those two countries - are arbitrary prices and exceed market prices. The IRS states that this has raised oil companies' nominal income and foreign tax liabilities above the levels which would result from actual

1/ The enabling legislation for the tax-reference system was the Petroleum Taxes Act, 1974. In 1974 and 1975 a base reference price was set for a standard grade of crude oil (26° API, 1.7% sulphur content), and the price was applied with standard escalation for variations in gravity and sulphur content. Since 1976, individual tax-reference prices are set for each grade of locally produced oil.

2/ Net taxable income is computed in accordance with the principles of the Income Tax (In Aid of Industry) Ordinance. For petroleum production activities, all expenditures incurred in exploration and in intangible drilling and development costs must be capitalized, separately for onshore and offshore production. Intangible costs include costs of drilling or development work done under contract; payments for labor, fuel, repairs, hauling and supplies used in drilling, and preparing sites for well-drilling; construction of derricks, tanks, pipelines and the structures needed for well-drilling. All expenditure of a tangible nature must be capitalized. Development of dry holes are allowed as deductions in the financial year in which they are abandoned.

3/ The provision was made by an amendment to the Income Tax (In Aid of Industry) Ordinance.

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market prices. Under the new ruling, US companies can no longer treat payments to foreign countries as foreign tax credits against their US income taxes. But they will be allowed to deduct these payments from gross income in computing their net income subject to US tax. The reasoning for the change is that foreign taxes can be credited only if they are imposed on "realized" income. They are not income taxes according to US definition if they are intentionally structured so as to tax artificial or fictitious income, as is the case with tax systems which use mechanisms such as the posted price. The purpose of the foreign income tax is to reach "net gain".

69. This raises the possibility of changes in US tax treatment for two US companies with Trinidad and Tobago operations: Amoco and Texaco. The projections in this report assume that Trinidad and Tobago would collect similar amounts of Government revenue from oil, whether or not the present fiscal arrangements need modification. This assumption is in line with the steps which Saudi Arabia is reported to be taking; it would start using actual market prices instead of posted prices to compute tax obligations. But it would impose a new supplemental payment (ineligible for US foreign tax credit) to maintain its revenues. Royalties would continue to be based on posted prices, and the income tax rate would not change.

70. Income tax collected from production activities in 1977 amounted to TT\$1.3 billion excluding refinery throughput tax and the unemployment levy. It has risen substantially since its 1974 level of TT\$657 million and is 30 times greater than in 1972. It is projected to increase further to some TT\$1.56 billion in 1982 and to be in a range of TT\$1.6-2.0 billion in 1990, when export volumes are expected to be lower than today but international petroleum prices would be substantially higher, keeping pace with world inflation.

71. Since 1972, the Government has also collected an unemployment levy at the rate of 5% of net taxable income from production activities. It is computed - like income tax - on the basis of tax-reference prices. In 1977 it collected TT\$135 million from the producing companies. It is projected parallel with the income tax, to increase to about TT\$157 million in 1982 and to be in a range of TT\$160-200 million in 1990.

72. Signature bonuses are specific financial obligations which arise in competitive bidding for leases and are paid upon their signature. Other assessments on production activities include lease premia (or signature bonuses), dead rents and production bonuses. Since 1972, they were incurred only in 1974 (TT\$80 million) and 1975 (TT\$30 million). Dead rents have recently become insignificant. They are penalty payments for areas which are leased but not exploited. Production bonuses are one-time payments which are due when production reaches specified daily levels; until now, production has not yet reached such levels in contracts where these bonuses are provided for.

Production Levy

73. The Government's present policy is to subsidize the domestic price of petroleum products. The National Petroleum Marketing Company buys refined products from the two refineries at going international prices but sells them

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to the domestic market at controlled, lower prices. Under the Petroleum Production Levy and Subsidy Act of 1974 it is paid a subsidy each month as an advance against the difference between its wholesale or retail prices to customers and its purchase prices ex-refinery plus gross margin. The subsidy does not apply to international bunkers sales or to sales to petroleum products or refineries. The subsidy is paid from a fund, managed by the Ministry of Finance. The fund in turn is replenished by a petroleum production levy imposed monthly on oil (not gas) producing companies.

74. The production levy is imposed on each producing company pro-rata to total production in an aggregate amount sufficient to meet the total monthly subsidy. However, producing companies are allowed to deduct the levy in their computation of income tax liability. As the tax rate is 50%, the Government in effect has to find half the domestic marketing subsidy from other sources. The production levy collected in 1977 amounted to TT\$84 million, equivalent to about US\$0.43 per barrel produced. This was almost double its level in 1975 (TT\$44 million, or US\$0.26 per barrel), as the increase in international product prices was not matched by an increase in domestic prices.

75. In projecting the future size of the production levy, a starting premise could have been to assume that, for reasons of public policy, the level of domestic oil prices or of subsidy per barrel marketed must rise by no more than international inflation. However, the production levy per barrel could grow out of hand, as the volume of domestic sales will grow while crude oil production is projected to decline. For example, it could double to US\$0.80-90 (in current dollars) by 1982 and over US\$3.00 by 1990 per barrel of production. This would make for a corresponding reduction in the amount of income tax and unemployment levy per barrel, if the Government's overall "take" per barrel of production is to remain unaffected. An increasing amount of Government revenue would be directed into subsidy of oil consumption and away from other desired expenditures.

76. In this report an alternative approach has been chosen. The production levy is assumed to rise per barrel by no more than international inflation. It is accordingly projected to rise from US\$0.43 in 1977 to about US\$0.60 in 1982 and in the region of US\$0.90 by 1990. This would lead to an increase in the levy from TT\$84 million collected in 1977 to TT\$117 million in 1982. It is envisaged to stay thereafter at about the same level, in view of the expected gradual decline in oil production.

77. These funds would be insufficient to provide for any increase in current dollars in the years to 1982 in the subsidy per barrel of domestic sales. Indeed there could be a sharp decline in the subsidy per barrel in subsequent years to 1990.

78. Since the purchase prices of products ex-refinery are projected to continue rising in line with international inflation, there would be need for substantially larger increases in the domestic oil price level above the inflation rate, to bring them towards but still below the projected level of international oil prices. In this report domestic oil prices are projected to rise at 14% p.a. from 1977 to 1982 and at 11.5% p.a. thereafter to 1990, compared with inflation rates averaging 6.3% p.a. and 5.4% p.a. respectively.

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Refinery Throughput Tax

79. The Petroleum Taxes Act of 1974 imposes a refinery throughput tax on refining operations. This is in lieu of the regular income taxes including the unemployment levy. The tax is levied at US\$0.16 per barrel of crude oil throughput at the Texaco refinery, and at US\$0.10 at the TRINTOC refinery. TRINTOC is subject to a lower tax as its refinery is a simpler one and the weighted average value of its products refined from a barrel of crude oil is lower.

80. Texaco is seeking a reduction in its refinery throughput tax rate; it claims that its present refining economics are poor, with high crude oil costs, poor product demand, and unsatisfactory profit margin, and it contends that there have been increases in costs from which it has had no relief since its tax rate was set. In addition Amoco has been seeking a reduction in the tax-reference price imposed on its crude oil exports. In December 1977 the Government appointed a team to review the system of refinery throughput tax and tax-reference prices. Without prejudice to the outcome, this report projects that the throughput tax collected from the two refineries might rise from TT\$35 million in 1977 to TT\$60 million in 1982 and perhaps TT\$100 million by 1990. This is based upon (a) the projections for refinery throughput discussed above and (b) periodic increases in the refinery throughput tax rate, roughly in line with world inflation.

ANNEX II

PROJECT PLANNING AND BUDGETING

ANNEX II

PROJECT PLANNING AND BUDGETING IN
TRINIDAD AND TOBAGO

Background

1. In the past five years, public sector revenues of the Central Government have increased five fold. A conscious attempt has been made to channel these resources into public sector capital investment rather than into increased recurrent expenditures. Prior to 1973-74, the Recurrent Expenditures Budget constituted roughly 80 percent of total Government Expenditures, as compared to only 40 percent in the 1978 Budget. The organization and staffing of Government agencies were indicative of a Government in which carrying out the day-to-day routine was the dominant task. The agencies were staffed with skills adequate for carrying out normal recurrent operations but inadequate for handling large-scale increases in development expenditures. The organizational structure was not designed to handle a large volume of projects; the skills and the establishments did not exist within the agencies to plan and manage projects of the current magnitude and volume.

2. Government budgeting in Trinidad and Tobago is based on an annual budget cycle. In the past, operating agencies made their budget requests to the Ministry of Finance just before the beginning of the Fiscal Year (January to December). Previous to 1973, there was little change from year to year, so that the procedure largely involved continuation of existing programs. The Ministry of Finance was able to evaluate budget requests incrementally and quickly. The increase in the availability of financial resources after 1973-74 began to place stresses on the budgeting mechanism--both from the standpoint of the operating agencies and of the Ministry of Finance. The operating agencies experienced difficulties in effectively planning the large numbers of projects they were asked to undertake. The Ministry of Finance experienced difficulty in processing the increasing numbers of project budget requests in the time available, given the traditional timing and phasing of budget request submissions.

3. In the 1976 Budget Speech, the Prime Minister announced the establishment of a "Preinvestment Fund" to assist in project planning. Unfortunately, this Fund did not fully solve the problem of inadequate project planning, partly because the difficulty of locating and attracting sufficiently experienced personnel to the agencies remained a critical bottleneck. Accordingly, the following year the Prime Minister outlined a plan to establish "Planning Units" within the operating agencies to assist in project and program formulation. Though some agencies had already established such units on their own initiative (notably the Ministries of Education and Agriculture) there was a perceived need to strengthen the existing units and to create units in agencies which did not have them. At this writing, some of the projected planning units still do not exist, and the existing units are seriously understaffed.

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Efforts to Improve Project Planning

4. The Government of Trinidad and Tobago has initiated efforts to strengthen the project planning and implementation system. The assistance of the Organization of American States, the Inter-American Development Bank, and the Management Development Centre has been enlisted in this effort.

5. A task force composed of the Ministry of Finance and Management Development Centre staff has written a draft "manual" which seeks to establish a consistent pattern and time schedule for budget request submissions. The manual describes the "phases" and timing of budget preparation and submission. There are separate parts for the Recurrent Budget and the Programs and Projects Budget. In addition, the Ministry of Finance issued a "Circular" giving guidelines to agencies for the preparation of budget estimates.

6. Under an agreement with OAS, a series of three-month courses on project planning and appraisal are being carried out in an attempt to improve the project planning skills of agency staff. The first course was held in 1974. The second course ended in February 1978, and a third course is planned for Spring-Summer 1978. Currently, one OAS advisor is in residence, and a second is scheduled to arrive in late Spring 1978.

7. An agreement has been reached with IDB to provide technical assistance to the Programs and Projects Unit in the Planning and Development Division of the Ministry of Finance. The Unit is responsible for:

- (a) assistance to operating units in formulating development projects and programs;
- (b) project evaluation;
- (c) monitoring, supervision and control of the execution of projects as budgeted;
- (d) relations with international lending agencies. The IDB advisors will assist in developing administrative procedures and methods for improving project functions of the Unit, as well as running "Programs for Management Development" training for staff of operating agencies. The IDB project is scheduled to begin mid-1978.

Remaining Problems and Mission Recommendations

8. The efforts undertaken to date by the Government in trying to improve project planning and implementation are a step in the right direction. However, the problems faced by the Government will be affected only marginally by efforts of the scale now planned. A number of crucial issues need further examination.

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9. The use of an annual budget cycle, for example, impedes the kind of medium and long-range planning needed for project planning and implementation. Given the existence of the Special Funds which are statutorily capable of accumulating funds and dispensing funds over several years, a longer-range budgetary horizon can and should be established for the project and program budgeting process. Another difficulty arises from the separation of the capital and recurrent budgeting process both within the Ministry of Finance and within the operating agencies. Consistent budgetary planning requires the consolidation of these two budgets, at least in terms of the information available to the planning units in the MOF and in the operating agencies. The current budgetary surplus allows the Government to ignore the implications of capital expenditures on future recurrent expenditures. However, in a few years time the separation of these two budgets in the planning process quite likely will lead to serious budgetary problems, since the present ratio of capital/recurrent expenditures in the budget will likely have to shift radically as the currently planned projects start to come on stream in a few years. Medium to long-term forecasting of capital and recurrent expenditures as well as revenues of each agency, board and statutory body would enable the Government to rationalize its "sources and uses of funds" with its objectives. The project planning system should be structured so that capital and recurrent expenditures can be planned consistent with expected revenues, because current projects and programs cause most of the future changes in recurrent expenditures.

10. A second important issue is the adjustment of the civil service to the change in the magnitude, and capital/recurrent composition of expenditures. Government spending in the last few years has increased at an average rate of about 70 percent per year, while recurrent expenditures have increased at an average rate of 36 percent per year. Over that period the recurrent capital expenditure ratio changed from 80/20 in 1973 to 60/40 in 1978. The rate of growth in establishments over the period 1972-76 averaged only 3.8 percent per year (data not available for 1977-78); and the rate of growth in public service total wages and salaries grew at an average annual rate of 27 percent over the period 1973-78. The rapid shift in the magnitude and composition of capital and recurrent spending appears to have led to a shortage of trained, competent professionals to fill middle and higher level posts in the agencies. The successful planning and management of projects will require the establishment of sufficient posts and the mobilization of adequate numbers of well-trained personnel to fill them. In the medium and longer term, the planning, implementation and operation of projects will require larger recurrent expenditures in certain categories of the Recurrent Budget, particularly relating to "operating and maintenance" functions of the projects currently being planned.

11. The project appraisal and programs management training activities to be carried out in conjunction with OAS and IDB, respectively, should lead to some improvement in the project system. However, training on a larger scale will be needed to deal with the requirements being imposed upon operating agencies. Also, some re-orientation of the project training activities should be considered, both to lead to more direct improvements in project

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formulation and to induce operating agencies to more readily release staff for training. The training might be oriented more towards project identification and formulation rather than appraisal and the practical content could be enhanced. The real problem in the agencies is the lack of skills in project formulation (and management, which the IDB program is directed at). Operating agencies tend to more readily release staff for training directed towards an immediate need. Teaching project formulation is better accommodated in sector-specific projects courses rather than general courses. Consideration should be given to developing sector-specific projects training, perhaps as components within the existing course. In addition, agency feedback and support for training can be better achieved when the training is more specific and when the curriculum development and teaching is done in cooperation with mid and high level staff in the agencies.

12. Improvement in communication and coordination among the individual agencies and with the MOF might also expedite public administration. At present, the periodic meetings of Permanent Secretaries formerly held no longer take place. The heads of agency planning units as yet do not meet on a regular basis to discuss and rationalize project and programs plans. The operating agencies themselves feel a need for these meetings. Periodic meetings between policy and planning officials representing all ministries should be established. This is particularly important because of the absence of a formal medium or long term plan.

13. Many Ministry of Finance and operating agencies staff felt that the current organizational structure is not conducive to effective project and program planning and management. The Mission was not able to adequately explore that complaint. The Government might well consider hiring suitable consultants to advise on whether and what forms of reorganization would be advisable. Reorganization is difficult to achieve even in the best of circumstances. The other problems outlined above will exist with or without reorganization. Thus, the Government should proceed with its program to improve project planning and management independently of the issue of reorganization.

Table II. 1

TRINIDAD AND TOBAGO

NUMBER OF POSTS IN THE PUBLIC SERVICE
INCLUDING STATUTORY BOARDS AND THE COST

1968 - 1976

<u>Year</u>	<u>Establishment</u>	<u>Percent Change</u>	<u>Expenditure</u> (<u>\$m</u>)
1968	29,003		102.9
1969	30,185		108.6
1970	31,528		118.9
1971	33,323		161.9
1972	34,904		190.9
1973	36,108	3.4	207.7
1974	37,225	3.1	296.1
1975	38,209	2.6	345.3
1976	40,573	6.2	397.5

Table II. 2

TRINIDAD AND TOBAGO

NUMBER OF POSTS IN THE PUBLIC SERVICE

1968 - 1976

<u>Year</u>	<u>Establishment</u>	<u>Expenditure</u> (<u>\$m</u>)
1968	27,550	95.3
1969	28,248	100.6
1970	29,586	110.4
1971	30,387	150.5
1972	32,007	173.6
1973	33,038	188.5
1974	34,074	275.9
1975	35,026	317.7
1976	37,284	366.1

Table II. 3

TRINIDAD AND TOBAGO

NUMBER OF POSTS IN THE STATUTORY BOARDS

1968 - 1976

<u>Year</u>	<u>Establishment</u>	<u>Expenditure</u> (<u>\$m</u>)
1968	1,453	7.6
1969	1,937	8.0
1970	1,942	8.5
1971	2,936	11.4
1972	2,897	17.3
1973	3,070	19.2
1974	3,151	20.2
1975	3,183	27.6
1976	3,289	31.4

ANNEX III

FINANCIAL PROJECTIONS OF ENERGY-BASED INDUSTRIAL PROJECTS

ASSUMPTIONS

1. Debt/Equity in Financing Plan is 70-30
2. Terms and Conditions for loans are 8 years including 3 to 4-year grace period at the interest rate of 8.5% p.a.
3. Amortization is made by equal principal repayment; first payment starts 6 months after the last disbursement.
4. Project life is 12 years and a straight line depreciation over this period is applied.
5. Taxes are assumed 50% + 5% unemployment levy of pre-tax operating profit (except Tringen).
6. Project specific assumptions are shown below:

Project	Capital Cost	Production Cost (1978 Price)	Sale Price (1978 price)	% of operating profit that goes to Gov't
Tringen	\$130M	\$96/ton	\$170/ton	51%
Ammonia/Urea	\$350M	Ammonia \$96/ton Urea \$105/ton	Ammonia \$170/ton Urea \$180-205/ton	51%
Steel	\$320M	\$140/ton	\$235/ton	100%
Cement	\$52.5M	\$25/ton	\$50/ton	100%
Methanol	\$150M	Gas cost \$1.50/10 ³ F ³ (\$11.46/ton)	\$110/ton	51%

7. Inflaters used: except LNG
1979 6.5%
1980-1985 6%
1986-1991 5%

Inflaters used for LNG projects:

1986-1991 7%

Table 1: FINANCIAL PROJECTIONS FOR KORT-MDREX STEEL PROJECT

(U.S. Millions)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Cap. Util. (%)	-	-	-	8	53	73	90	90	90	90	90	90	90	90
Sale Vol. ('000 ton)	-	-	-	29	187	257	315	315	315	315	315	315	315	315
Sale Price (\$/ton)	-	-	-	281	298	316	335	355	376	395	415	436	457	480
Revenues	-	-	-	8,149	55,726	81,212	105,525	111,825	118,440	124,425	130,725	137,340	143,955	151,200
Production Cost/ton	-	-	-	168	178	188	199	212	224	235	247	259	273	286
Production Cost	-	-	-	4,872	33,286	48,316	62,685	66,780	70,560	74,025	77,805	81,585	85,995	90,090
Depreciation	-	-	-	4,480	26,666	26,667	26,666	26,667	26,666	26,667	26,666	26,667	26,666	22,187
Interest	-	-	-	19,040	17,850	15,470	13,090	10,710	8,330	5,950	3,570	1,190	-	-
Pre-tax Profit	-	-	-	(20,243)	(22,076)	(9,241)	3,084	7,668	12,884	17,783	22,684	27,898	31,294	38,923
Taxes (55%)	-	-	-	-	-	-	1,696	4,217	7,086	9,781	12,476	15,344	17,212	21,408
After tax profit	-	-	-	(20,243)	(22,076)	(9,241)	1,388	3,451	5,798	8,002	10,208	12,554	14,082	17,515
CASH FLOW														
Sources of funds														
Profit	-	-	-	(20,243)	(22,076)	(9,241)	1,388	3,451	5,798	8,002	10,208	12,554	14,082	17,515
Depreciation	-	-	-	4,480	26,666	26,667	26,666	26,667	26,666	26,667	26,666	26,667	26,666	22,187
Equity	19,200	48,000	28,800	-	-	-	-	-	-	-	-	-	-	-
Foreign loans	44,800	112,000	67,200	-	-	-	-	-	-	-	-	-	-	-
Total	64,000	160,000	96,000	(15,763)	4,590	17,426	28,054	30,118	32,464	34,669	36,874	39,221	40,748	39,702
Uses of Funds														
Investment	64,000	160,000	96,000	-	-	-	-	-	-	-	-	-	-	-
Principal Repayment	-	-	-	14,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	14,000	-	-
Total	64,000	160,000	96,000	14,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	14,000	-	-
Cash Surplus	-	-	-	(-29,763)	(32,590)	(10,574)	54	2,118	4,464	6,669	8,874	25,221	40,748	39,702
Funds to Gov't	-	-	-	-	-	-	3,084	7,668	12,884	17,783	22,684	27,898	31,294	38,923
Taxes	-	-	-	-	-	-	1,696	4,217	7,086	9,781	12,476	15,344	17,212	21,408
100% of operating profit	-	-	-	-	-	-	1,388	3,451	5,798	8,002	10,208	12,554	14,082	17,515

Source: Mission estimates.

Table 2: FINANCIAL PROJECTIONS FOR AMMONIA/UREA PROJECT

(US\$ Millions)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Capital Util. (%)	-	-	-	-	29	62	82	90	90	90	90	90	90	90
Am. - Sales vol ('000 ton)	-	-	-	-	100	215	284	346	346	346	346	346	346	346
Urea - Sales vol ('000 ton)	-	-	-	-	154	326	431	475	475	475	475	475	475	475
Am. - Sale Price/ton	-	-	-	-	216	229	242	257	270	283	297	312	328	344
Urea - Sale Price/ton	-	-	-	-	228	242	257	272	286	300	315	330	347	364
Am. - Revenue	-	-	-	-	21,600	49,235	68,728	88,922	93,420	97,918	102,762	107,952	113,488	119,024
Urea - Revenue	-	-	-	-	35,112	78,892	110,767	129,200	135,850	142,500	149,625	156,750	164,825	172,900
Total Revenue	-	-	-	-	56,712	128,127	179,495	218,122	229,270	240,418	252,387	264,702	278,313	291,924
Am. - Production cost/ton	-	-	-	-	122	129	137	145	152	160	168	176	185	194
Urea - Production cost/ton	-	-	-	-	133	141	150	159	166	175	184	193	202	213
Am. - Production cost	-	-	-	-	12,200	27,735	38,908	50,170	52,592	55,360	58,128	60,896	64,010	67,124
Urea - Production cost	-	-	-	-	20,482	45,966	64,650	75,525	78,850	83,125	87,400	91,675	95,950	101,175
Total Production Cost	-	-	-	-	32,682	73,701	103,558	125,695	131,442	138,485	145,528	152,571	159,960	168,299
Depreciation	-	-	-	-	16,800	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
Interest	-	-	-	-	20,825	19,523	16,920	14,317	11,714	9,111	6,508	3,905	1,302	-
Pre-tax Profit	-	-	-	-	(13,595)	6,903	31,017	50,110	58,114	64,822	72,351	80,226	89,051	95,625
Taxes (55%)	-	-	-	-	-	3,797	17,059	27,561	31,963	35,652	39,793	44,124	48,978	52,594
After tax profit	-	-	-	-	(13,595)	3,106	13,958	22,549	26,151	29,170	32,558	36,102	40,073	43,031
CASH FLOW														
Sources of Funds														
Profit	-	-	-	-	(13,595)	3,106	13,958	22,549	26,151	29,170	32,558	36,102	40,073	43,031
Depreciation	-	-	-	-	16,800	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
Gov't Contribution	21,000	42,000	31,500	10,500	-	-	-	-	-	-	-	-	-	-
Foreign Loan	49,000	98,000	73,500	24,500	-	-	-	-	-	-	-	-	-	-
Total sources	70,000	140,000	105,000	35,000	3,205	31,106	41,958	50,549	54,151	57,170	60,558	64,102	68,073	71,031
Uses of Funds														
Investment	70,000	140,000	105,000	35,000	-	-	-	-	-	-	-	-	-	-
Principal repayments	-	-	-	-	15,312	30,625	30,625	30,625	30,625	30,625	30,625	30,625	30,625	15,313
Total Uses	70,000	140,000	105,000	35,000	15,312	30,625	30,625	30,625	30,625	30,625	30,625	30,625	30,625	15,313
Cash Surplus	-	-	-	-	(12,107)	481	11,333	19,924	23,526	26,545	29,933	33,477	36,447	37,000
Funds to Gov't	-	-	-	-	-	5,381	24,178	39,061	45,300	50,539	56,398	62,536	69,415	74,540
Tax	-	-	-	-	-	3,797	17,059	27,561	31,963	35,652	39,793	44,124	48,978	52,594
51% of operating profit	-	-	-	-	-	1,584	7,119	11,500	13,337	14,877	16,605	18,412	20,437	21,946

Source: Mission estimates.

Table 3: FINANCIAL PROJECTIONS FOR CEMENT PLANT

(US\$ Millions)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Capital Util. (%)	-	-	-	-	29	61	82	90	90	90	90	90	90	90
Sales Vol. ('000 ton)	-	-	-	-	88	184	245	270	270	270	270	270	270	270
Sale price (\$/ton)	-	-	-	-	63	67	71	75	79	83	87	92	96	101
Revenues	-	-	-	-	5,544	12,328	17,395	20,250	21,330	22,410	23,490	24,840	25,920	27,270
Production Cost/ton	-	-	-	-	32	34	35	38	40	41	44	46	48	51
Total Production Cost	-	-	-	-	2,816	6,256	8,575	10,260	10,800	11,070	11,880	12,420	12,960	13,770
Depreciation	-	-	-	-	2,037	3,465	3,465	3,465	3,465	3,465	3,465	3,465	3,465	3,465
Interests	-	-	-	-	3,124	2,929	2,538	2,148	1,757	1,367	976	586	195	-
Pre-tax Profit	-	-	-	-	(2,433)	(322)	2,817	4,377	5,308	6,508	7,169	8,369	9,300	10,035
Taxes (55%)	-	-	-	-	-	-	1,549	2,407	2,919	3,579	3,943	4,603	5,115	5,519
After Tax Profit	-	-	-	-	(2,433)	(322)	1,268	1,970	2,389	2,929	3,226	3,766	4,185	4,516
<u>CASH FLOW</u>														
Sources of Funds														
Profit	-	-	-	-	(2,433)	(322)	1,268	1,970	2,389	2,929	3,226	3,766	4,185	4,516
Depreciation	-	-	-	-	2,037	3,465	3,465	3,465	3,465	3,465	3,465	3,465	3,465	3,465
Equity	3,150	6,300	4,725	1,575	-	-	-	-	-	-	-	-	-	-
Foreign Loans	7,350	14,700	11,025	3,675	-	-	-	-	-	-	-	-	-	-
Total Sources	10,500	21,000	15,750	5,250	(396)	3,143	4,733	5,435	5,854	6,394	6,691	7,231	7,650	7,981
Uses of Funds														
Investment	10,500	21,000	15,750	5,250	-	-	-	-	-	-	-	-	-	-
Principal Repayment	-	-	-	-	2,296	4,594	4,594	4,594	4,594	4,594	4,594	4,594	4,594	2,296
Total Uses	10,500	21,000	15,750	5,250	2,296	4,594	4,594	4,594	4,594	4,594	4,594	4,594	2,296	-
Cash Surplus	-	-	-	-	(2,692)	(1,451)	139	844	1,260	1,800	2,097	2,637	5,354	7,981
Funds to Gov't	-	-	-	-	-	-	2,817	4,377	5,308	6,508	7,169	8,369	9,300	10,035
Taxes	-	-	-	-	-	-	1,549	2,407	2,919	3,579	3,943	4,603	5,115	5,519
100% of Operating Profit	-	-	-	-	-	-	1,268	1,970	2,389	2,929	3,226	3,766	4,185	4,516

Source: Mission estimates.

Table 4: FINANCIAL PROJECTIONS FOR METHANOL PROJECT

(US\$ Millions)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Capital Util. (%)	-	-	-	-	29	62	82	90	90	90	90	90	90	90
Sales Vol. ('000 ton)	-	-	-	-	96	204	270	300	300	300	300	300	300	300
Sale Price	-	-	-	-	140	148	157	166	174	183	192	202	212	223
Revenues	-	-	-	-	13,440	30,192	42,390	49,800	52,200	54,900	57,600	60,600	63,600	66,900
Fixed Operating Cost	-	-	-	-	2,917	4,617	4,894	5,188	5,447	5,719	6,005	6,306	6,621	6,952
Natural gas/ton	-	-	-	-	14.53	15.40	16.32	17.30	18.17	19.08	20.03	21.03	22.08	23.18
Cost of natural gas	-	-	-	-	1,395	3,142	4,406	5,190	5,451	5,724	6,009	6,309	6,624	6,954
Total Operating Cost	-	-	-	-	4,312	7,759	9,300	10,378	10,898	11,443	12,014	12,615	13,245	13,906
Depreciation	-	-	-	-	7,270	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540
Interests	-	-	-	-	8,925	8,367	7,252	6,136	5,020	3,905	2,789	1,673	558	-
Pre-tax Profit	-	-	-	-	(7,067)	2,526	14,298	21,746	24,742	28,012	31,257	34,772	38,257	41,454
Taxes (55%)	-	-	-	-	-	1,389	7,864	11,960	13,608	15,407	17,191	19,125	21,041	22,800
After tax Profit	-	-	-	-	(7,067)	1,137	6,434	9,786	11,134	12,605	14,066	15,647	17,216	18,654
Sources of funds					CASH FLOW									
Profit	-	-	-	-	(7,067)	1,137	6,434	9,786	11,134	12,605	14,066	15,647	17,216	18,654
Depreciation	-	-	-	-	7,270	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540	11,540
Equity	9,000	18,000	13,500	4,500	-	-	-	-	-	-	-	-	-	-
Foreign Loan	21,000	42,000	31,500	10,500	-	-	-	-	-	-	-	-	-	-
Total Sources	30,000	60,000	45,000	15,000	203	12,677	17,974	21,326	22,674	24,145	25,606	27,187	28,756	30,194
Uses of Funds														
Investment	30,000	60,000	45,000	15,000	-	-	-	-	-	-	-	-	-	-
Principal repayment	-	-	-	-	6,562	13,125	13,125	13,125	13,125	13,125	13,125	13,125	13,125	6,563
Total uses	30,000	60,000	45,000	15,000	6,562	13,125	13,125	13,125	13,125	13,125	13,125	13,125	13,125	6,563
Cash Surplus	-	-	-	-	(6,359)	(448)	4,849	8,201	9,549	11,020	12,481	14,062	22,193	30,194
Funds to Gov't	----	-	-	-	-	1,969	11,145	16,951	19,286	21,836	24,365	27,105	29,821	32,314
Taxes	-	-	-	-	-	1,389	7,864	11,960	13,608	15,407	17,191	19,125	21,041	22,800
51% of Operating Profit	-	-	-	-	-	580	3,281	4,991	5,678	6,429	7,174	7,980	8,780	9,514

Source: Mission estimates.

Table 5 : TRINGEN, FINANCIAL PROJECTIONS

(US\$ mn)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Capacity Utilization	62	82	90	90	90	90	90	90	90	90	90	90	90
Production Volume ('000 tpy)	203	271	300	300	300	300	300	300	300	300	300	300	300
Sale Price	170	181	192	203	216	229	242	257	270	283	297	312	328
Revenue	34510	49051	57600	60900	64800	68700	72600	77100	81000	84900	89100	93600	98400
Production Cost/ton	96	102	108	115	122	129	137	145	152	160	168	176	185
Total Production Cost	19488	27642	32400	34500	36600	38700	41100	43500	45600	48000	50400	52800	55500
Depreciation	10833	10833	10833	10833	10833	10833	10833	10833	10833	10833	10833	10833	9027
Interest Payments	-	1700	1594	1381	1169	956	744	531	319	106	-	-	-
Pre-Tax Profit	8655	15109	19973	22286	24598	26911	29523	32136	34448	37061	39567	43773	55500
Income Taxes (50%)	4328	7554	9986	11143	12299	13456	14762	16068	17224	18530	19784	21886	27750
After-Tax Profit	4327	7555	9987	11143	12299	13458	14761	16068	17224	18531	19783	21887	27750
Sources of Funds	39488	25942	30806	33119	35431	37744	40356	42969	45281	47894	50400	52800	55500
Profit (Pre-Tax)	8655	15109	19973	22286	24598	26911	29523	32136	34448	37061	39567	43773	55500
Depreciation	10833	10833	10833	10833	10833	10833	10833	10833	10833	10833	10833	10833	9027
Government Equity	-	-	-	-	-	-	-	-	-	-	-	-	-
Partner Equity	-	-	-	-	-	-	-	-	-	-	-	-	-
Foreign Loan (8 yrs., 8-1/2%)	20000	-	-	-	-	-	-	-	-	-	-	-	-
Uses of Funds	28655	16359	22473	24786	27098	29412	32023	34636	36948	38310	39567	43772	55500
Investment	20000	-	-	-	-	-	-	-	-	-	-	-	-
Principal Repayment	-	1250	2500	2500	2500	2500	2500	2500	2500	1250	-	-	-
Funds to Government	6535	11407	15079	16826	18571	20319	22290	24263	26008	27980	29873	33048	41902
Tax	(4328)	(7554)	(9986)	(11143)	(12299)	(13456)	(14762)	(16068)	(17224)	(18530)	(19784)	(21886)	(27750)
51% Profit	(2207)	(3853)	(5093)	(5683)	(6272)	(6863)	(7528)	(8195)	(8784)	(9450)	(10089)	(11162)	(14152)
Funds to Partner	2120	3702	4894	5460	6027	6593	7233	7873	8440	9080	9694	10724	13598
Cash Surplus	10833	9583	8333	8333	8333	8333	8333	8333	8333	9584	10833	9028	-

Source: Mission estimates.