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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

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INDUSTRIAL DEVELOPMENT REVIEW SERIES

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

Enhancing industrial productive capacity

Prepared by the
Regional and Country Studies Branch

V.89-57064

PREFACE

This Industrial Development Review is one of a series of country studies prepared by the Regional and Country Studies Branch of the United Nations Industrial Development Organization (UNIDO).

The Reviews present brief factual and analytical surveys of industrial development in developing countries. Such industry-specific Reviews are in demand for a variety of purposes: to provide an information service to relevant sections within UNIDO and other international organizations and aid agencies concerned with technical assistance to industry; to be used as a reference source for financial organizations, public and private industrial enterprises and economic research institutes in developed and developing countries; and to serve as a handy, useful information source for policy-makers in developing countries. The Reviews do not represent in-depth industrial surveys. With an exclusive focus on industry they present information and analyses on the broad spectrum of the industrial development process in the countries concerned in a condensed form.

The Reviews draw primarily on information and material available at UNIDO headquarters from national and international sources as well as data contained in the UNIDO data base. A field survey was undertaken in February/March 1989 in which industry-specific data was collected with the assistance of the Ministry of Industry, Trade and Domestic Supply. The presentation of up-to-date information on sub-sectoral manufacturing trends is usually constrained by incomplete national data on the industrial sector. To supplement efforts under way in UNIDO, to improve the data base and to monitor industrial progress and changes on a regular basis, it is hoped that the relevant national authorities and institutions and other readers will provide comments and further information. Such response will greatly assist in updating the Reviews.

The present Review was prepared with the assistance of Dr. Adrian Fozzard as UNIDO consultant. It is divided into two rather distinct parts. Chapter 1 and 2 are analytical in character, giving first a brief overview of the country's economy and its manufacturing sector and then a more detailed review of the structure and development of its manufacturing industries, with a focus on the problems and prospects of selected sub-sectors of manufacturing. Chapter 3 analyzes the problems and prospects of selected industrial enterprises. Chapter 4 reviews strategy and policy measures relevant to industrial development and presents information on the more important governmental and other institutions involved in industrial development. Chapter 5 examines the resource endowment for industrialization and identifies crucial areas requiring multilateral technical assistance.

It should be noted that the Reviews are not official statements of intention or policy by governments nor do the views and comments contained therein necessarily reflect those of the respective governments.

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EXPLANATORY NOTE

Regional classifications, trade classifications, and symbols used in the statistical tables of this report, unless otherwise indicated, follow those adopted in the United Nations Statistical Yearbook.

Dated divided by a slash (1987/88) indicate a fiscal year or a crop year. Dates divided by a hyphen (1987-1988) indicates the full period, including the beginning and the end years.

References to dollars ($) are to United States dollars unless otherwise stated.

Percentage may not add to 100.0 precisely due to rounding.

In Tables:

Three dots (...) indicate that data are not available or not separately reported;

A hyphen (-) indicates that the item is not applicable or the amount is negligible.

The following abbreviations are used in this document:

API	American Petroleum Institute
AFESD	Arab Fund for Economic and Social Development
DWT	Dead Weight Tonnage
EEC	European Economic Community
FFYP	First Five-Year Plan (1974-78)
FTYP	First Three-Year Plan (1971-74)
GDEA	General Department of Expatriate Affairs
GDP	Gross domestic product
GNP	Gross national product
HACEA	High Advisory Committee for Expatriate Affairs
IPF	Indicative Planning Figure [of UNDP]
KWH	Kilowatt Hours
MW	Megawatt
NICs	Newly Industrializing Countries
PCIP	Permanent Committee for Investment Promotion
PCEP	Public Corporation for Electric Power
PDR YEMEN	People's Democratic Republic of Yemen
REVOMETAL	Al-Thourah Spare Parts Factory [Revolution Spare Parts]
SFYP	Second Five-Year Plan (1981-1985)
TFYP	Third Five-Year Plan (1986-1990)
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organization
YD	Yemeni Dinar

BASIC INDICATORS I
The Economy

GDP (1987)	: YD361.724 million ($1,049.0 million)
Population (August 1988)	: 2,234,266
Citizens abroad	: 238,150
Growth rate (1986)	: 3.2 per cent
Labour force (1988)	: 434,776
Workforce	: 384,094
Unemployed	: 50,682
GNP *per capita* (1987)[a]	: YD158.78 ($460.46)

Annual growth rate of GDP[b] (Per cent, at constant 1980 prices):

1975-80	1981	1982	1983	1984	1985	1986
15.4	7.9	15.5	4.2	5.9	-3.0	-9.0

Structure of Production (per cent):

	1973	1980	1987
Agriculture & fisheries	21.7	13.7	15.5
Industry	11.8	11.9	9.5
Construction	5.7	13.9	10.4
Services	60.8	60.3	64.6

Annual rate of inflation (rise in consumer prices in per cent):

1981	1982	1983	1984	1985	1986	1987
3.8	9.5	11.0	1.2	5.0	0.5[c]	2.0[c]

Exchange rate[d] : Fixed at YD1:$2.895 since February 1973.

a/ Estimate based on 1973 census extrapolations.
b/ UNIDO data base.
c/ General price index.
d/ One Yemeni Dinar [YD] signifies 1,000 fils

BASIC INDICATORS 2
Raw materials resources

Crops, leading products (in tons, 1987)	:	Sorghum and millet (30,061), dates (15,350), tomatoes (13,974), sweet and water melons (11,845), bananas (11,050), wheat (10,622)
Cash crops (in tons, 1987)	:	Cotton (2,422), tobacco (540), sesame (1,378), qat (1,036), fodder (261,221)
Livestock ('000, 1987)[a]	:	Cattle (114), sheep and goats (2,314), camels (102), poultry ('000 tons of meat: 1.3, '000 eggs: 56.8)
Fish landings ('000 tons, 1987)	:	Surface water fish (43.3), deep water fish (42.4), cuttle fish (2.2), lobster (1.25), shrimps (0.3)
Mineral resources (1989)	:	Occurrences of gold, gypsum, lead, lime, marble, sea salt, sandstone, rutiles and ilmenite
Energy production (1987)	:	Electricity (610 million KWh), oil (25,000 b/d)

a/ Estimate.

BASIC INDICATORS 3
Foreign trade and balance of payments

Exports and Re-exports

Total value (1987)	:	YD24.285 million ($70.2 million)
- exports	:	YD22.938 million ($66.3 million)
Principal exports (1987) (YD million)	:	Mineral fuels and lubricants (11.8), fish (4.8), honey (3.1), tobacco (0.46), cigarettes (0.2)
Main destinations (1987) (per cent)	:	France (16.6), Japan (14.2), Saudi Arabia (11.1), Ethiopia (8.5), United Arab Emirates (7.5), Yemen Arab Republic (6.0)

Imports

Total value (1987)	:	YD169.7 million ($491.3 million)
Principal imports (1987) (YD million)	:	Food and live animals (42.6), machinery and equipment (41.1), mineral fuels and lubricants (33.6), manufactured goods (29.0)
Main origins (1987) (per cent)	:	USSR (20.7), United Kingdom (10.1), Kuwait (6.5), United Arab Emirates (5.8), China (5.7), Denmark (5.0), Japan (4.7)

		1982	1983	1984	1985	1986	1987
Balance on current account ($ million) a/	:	-100.5	-183.8	-253.0	-222.4	-175.7	-122.9

Public debt (1986)	:	$1,927 million
Debt service ratio (1986) (as per cent of export earnings)	:	44.5 per cent

a/ Excludes imports of crude oil and exports of oil products.

BASIC INDICATORS 4
The Manufacturing Sector

MVA (1987)[a/]	:	YD27.4 million ($79.186 million)			
MVA per capita (1987)[a/]	:	YD12 ($34.7)			
Production value (1987)	:	YD55.9 million ($161.551 million)			
Composition of production value (percentage share)				1980	1987
	:	Food, beverages & tobacco		33.7	32.5
		Textiles & clothing		11.9	9.1
		Wood & wood products		0.9	4.2
		Paper & printing		4.6	3.5
		Chemicals		14.6	21.4
		Construction materials, metalworking & extraction		11.3	14.3
		Oil refinery		22.9	15.0
Annual growth of production value		1980-85	1986	1987	
	:	10.5	-22.6	14.9	
Employment in manufacturing industry (1987)	:	10,264			
As percentage of estimated labour force	:	2.5 per cent			
Share of manufactured exports in production				1980	1987
	:	Including oil products		11.6	23.6
		Excluding oil products		12.0	2.8
Share of manufactured exports in total exports (per cent)		1980	1987		
	:	32.2	57.6		
Share of manufactured imports in total imports (per cent)		1980	1987		
	:	41.1	46.9		

a/ Estimate: includes mining, quarrying, electricity and water.

BASIC INDICATORS 5

Inter-country comparison of selected indicators

	Unit	Yemen PDR	Djibouti	Ethiopia	Oman	Somalia	Yemen AR
I. Demographic indicators							
Population (mid-1986)	million	2.2	0.4	43.5	1.5	5.5	8.2
Population growth (1980-1986)	per cent per annum	3.1	5.2	2.4	4.7	2.9	2.5
Primary school enrollment as percentage of age groups (1985)	per cent male/female	96/35a/	...	44/28	97/80	32/18a/	112/22
Area	thousand sq km	333	22	1,222	300	638	195
Density (1986)	persons per sq km	7	16	36	4	9	42
II. Economic indicators							
GDP (1986)	US$ million	930	340	4,960	7,320	2,320	4,760
GNP per capita (1986)	US$	470	783	12-	4,980	2E0	550
GDP growth rate (1980-1986)	per cent per annum	1.7	1.7	0.8	5.7	4.9	4.3
Agriculture (1986)	per cent of GDP	15.1	4.4	48	3a/	58	34a/
Industry (1986)	per cent of GDP	20.9	18.8	15	59a/	9	16a/
Manufacturing (1986)	per cent of GDP	...	8.2	10	3a/	6	7a/
Services (1986)	per cent of GDP	64.0	76.8	36	38a/	34	50a/
Exports of goods (1986)	per cent of GDP		4.0	13	50a/	7	5a/
Gross domestic investment (1986)	per cent of GDP	...	...	9	30a/	15	21a/
External long-term debt (disbursed and outstanding) (1986)	per cent of GNP	189.7	35.0	35.7	38.3	54.4	41.1
III. Industrial indicators							
MVA (1985)	$ million	...	26.2	492	267	138	259
MVA growth (1980-1986)	per cent/annual	...	0.9	3.9	...	-3.4	16.5
Share of manufactured exports in total exports (1986)	per cent	...	...	1	1	1	...
Share of manufactured imports in total imports (1986)	per cent	32	...	60	81	79	71

Note: Based on the World Bank data presented in the World Development Report 1988, excluding the data for Djibouti. should be noted that the UNIDO data base, United Nations statistics, national statistics and World Bank data base not always tally precisely and, therefore, discrepancies may be found between Basic Indicators 5, and the te Tables.

a/ For years other than those specified

SUMMARY

After a decade of steady economic growth, the economy of PDR Yemen entered a period of relative stagnation in 1985. Real GDP grew by 15.5 per cent in 1982, 4.2 per cent in 1983 and 5.9 per cent in 1984 but fell by -3 per cent in 1985 and -9 per cent in 1986. A recovery was recorded in 1987, estimated at 3.5 per cent but the value of GDP remained below its 1985 level.

This drastic change in economic fortunes can largely be ascribed to the successive reduction of foreign flows and the volume of migrant remittances which, combined, fell by 34 per cent from 1984 to 1986, bringing about a balance of payments crisis. Over the same period, a prolonged drought compromised agricultural production, severe flooding in 1982 forced the governemnt to divert funds from its development programme and the January events of 1986 temporarily dislocated the economy and reconstruction placed a heavy burden on the budget. In response to the decline in external sources of funding, the government prepared a modest Third Five-Year Plan for the period 1986 to 1990. New projects, the hallmark of earlier plans, were pared to a minimum and emphasis was placed on consolidation and the enhancement of existing poductive capacities.

The discovery of oil and the first oil exports in 1988 have not signalled a significant change in the country's economic prospects. Oil exports, expected to reach $12.6 million in 1989, will cover only a fraction of the balance of payments deficit and any gain in this sector will be more than compensated for by the continued reduction in migrants' remittances. Admittedly, the oil discovery has stimulated an increase in aid flows, but much of the increase in oil-related and development budgets for the non-oil commodity sectors will continue to be tight in the near future.

During the 1970s, output nearly doubled in real terms as the government laid the foundations of the industrial sector. In the ten years up to 1982, over thirty new large-scale industrial plants were built or extensively modernized. Most of these plants were large- or medium-scale enterprises under public or mixed sector ownership producing a range of basic consumer or intermediate goods. Since 1982, however, only three large scale industrial plants have been built and the rate of output growth slowed to 10 per cent from 1980 to 1985. With the introduction of tight foreign exchange controls in 1985, all enterprises faced cuts in their foreign exchange budget, some by as much as 40 per cent. Inevitably output was affected by reduced supplies of raw materials and spare parts from abroad. At the same time, the recession affected sales. Gross output fell by some 16.7 per cent and production value by 22.5 per cent from 1985 to 1986. The manufacturing sector recovered slightly in 1987, with gross output rising above the 1985 level though production value remained 15 per cent lower.

The prospects for the immediate future are bleak. The tight controls on enterprises' foreign exchange budgets remain in place and there is an effective moratorium on new public sector industrial projects. Under the Third Five-Year Plan, rehabilitation has become the priority and most of the new projects will be funded by private or mixed sector capital. In the long-term, the development of the industrial sector is constrained by the

paucity of resources, the narrow market, shortages of skilled technicians, managers and professionals and the structural problems of PDR Yemen's twin budget and balance of payment deficits.

At Independence, the industrial sector was dominated by the oil refinery which accounted for 80-90 per cent of total output by value. Diversification of the industrial base was the central theme of industrial policy during the 1970s and in 1987 the oil refinery's share of total output by value was 15 per cent. Food processing, beverages and tobacco is now the most important industrial sector accounting for 32.5 per cent of total output, the chemical and plastics industry 21.4 per cent and construction materials 13.2 per cent. The ultimate goal of the industrial development strategy was and remains a balanced self-sustaining industrial sector.

Most of these industries have developed through import substitution. Manufactured exports are negligible and are expected to remain so in the near future. Industry depends heavily on imported intermediate goods and, with the notable exception of construction materials branch, raw materials. Very few linkages have developed between enterprises. This explains the dramatic impact of foreign exchange restrictions on industrial output. The industrial sector has, in effect, developed on a plant by plant basis as and when suitable import substitution projects have been identified. Little thought has been given to the integration of the industrial sector internally or with other commodity sectors. The government is, however, advancing in this direction. It is now paying particular attention to the resources available in the construction materials and food processing sectors. Equally, the success of a metalworking and engineering project, REVOMETAL, provides an opportunity for the government to strengthen this sector through the production of basic materials and provision of engineering support services to other enterprises.

Public enterprises form the backbone of the industrial sector, accounting for 57 per cent of total industrial output by value in 1987. They are generally larger than the mixed or private sector companies and produce a range of basic and social goods. Across the industrial sector as a whole, rates or capital utilization and productivity are low, though productivity levels tend to be lower in the public sector than mixed or private sectors. This reflects the low prices of many public sector products - a problem that also afflicts the co-operatives - as much as lower capacity utilization rates or overstaffing.

Since 1982, however, the government has, with UNIDO's assistance, introduced new management, production and accounting techniques that have had an efffect on productivity in the public and mixed sector. Efforts have also been made to bring spare capacity into use. Performance deteriorated slightly in 1986, reflecting the shortages of raw materials and intermediate goods that forced enterprises to work below capacity. Once these restrictions are removed there is every prospect that the trend of rising productivity will continue.

While the government's industrial development strategy has and will continue to give priority to the collective ownership of production and central planning, efforts have been made to promote private sector investment since 1969, when the first investment law was promulgated. This law has since been revised in 1975 and 1981 and offers generous tax concessions to approved industrial projects. Private sector investment has been directed, for the most part, towards small-scale projects producing consumer goods. There are now 22 private sector industial sector projects under the supervision of the Ministry of Industry, though the total number of small-scale industrial enterprises is considerably larger. According to the Central Planning Organization, they account for some 25 per cent of the total industrial output.

Migrant workers are the most important source of private capital: they are directly involved in 16 of the private sector enterprises under Ministry of Industry supervision and have contributed capital to most of the mixed sector enterprises. Migrants and expatriate Yemeni's have been encouraged to invest in the industrial sector through the Investment Law and by advertising industrial projects open to the private sector. In 1989, 13 medium-scale projects will be available to private sector investors and the Ministry of Industry hopes that these will attract $40 million in foreign exchange. The government has also contacted wealthy expatriate Yemeni's and proposed industrial development projects for them to finance. At the same time, small-scale projects, which are more attractive to the majority of the migrant workers, are to be facilitated through the liberalization of the licensing procedures. Despite these efforts, the level of investment is insignificant when compared with the total value of migrants' remittances.

Rehabilitation and consolidation are, however, the priorities of the current Five-Year Plan and, in view of the current financial constraints, are likely to remain the priority in the near future. The government hopes to achieve industrial growth through the expansion of existing productive capacities and improved productivity. Both technical and capital assistance is needed for the rehabilitation of existing plant, the formulation of enterprise and sectoral development strategies, upgrading training facilities and the introduction of new products and production methods. Nevertheless, there are opportunities for new projects both along the lines of import substitution and through the exploitation of local resources, particularly in the construction materials sector. The ultimate target remains balanced growth and the development of an industrial sector that can play a central, perhaps even leading, role in an integrated national economy.

1. THE ECONOMY OF THE PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

1.1 Recent economic trends

In the decade after Independence in 1967 the economy of the PDR Yemen was transformed: new industries and infrastructure were built, a central planning and public ownership structure was established, economic growth rates in real terms averaged about 2.5 per cent per year during the 1970-80 period.[1] As Fred Halliday wrote in 1978 "a national economy has been built - something 129 years of British occupation failed to do"[2]. The development of this national economy was, however, largely funded from external sources. Burgeoning imports of consumer goods and materials for the development programme were financed not from exports, which were negligible, but from the flow of migrant remittances from the Gulf states and foreign aid from supportive Socialist and Arab countries.

When these sources of external funding began to dry up in 1983-84 - in the case of migrant remittances as a spill over effect of the recession in neighbouring Arab states - the economy lacked the means to sustain growth. Between 1984 and 1986 the value of remittances and foreign aid fell by 34 per cent. For the first time in a decade an overall balance of payments deficit of $70 million emerged in 1984 which the government had to cover with a run on reserves. In response the government introduced stringent controls to curb the growth in imports. These covered not only consumer goods but the foreign exchange budgets of enterprises, which were cut by up to 40 per cent in the following three years. Inevitably in a country that imports the vast majority of its intermediate and capital goods and raw materials such austerity measures affected output.

At the same time the reduction of foreign payments forced the government to fund a larger share of development expenditure from its own resources than planned. These resources were meagre at the best of times and the increased burden of capital expenditure pushed the budget deficit up from 16 per cent of GNP in 1980 to 30 per cent in 1984. A 10 per cent cut in recurrent expenditures was imposed in order to combat the budget deficit and, to compensate for the monetary expansion induced by government borrowing from the central bank, the supply of credit was tightened.

Although the government's austerity measures effectively combated the twin balance of payments and budget deficits they had a detrimental effect on the rate of economic growth which fell by -3 per cent in 1985 and -9 per cent in 1986. Then in 1986, the January events dislocated the economy, even though the government miraculously repaired most of the damage within a matter of months, and the expenditure of YD39.6 million on repair and rebuilding work rather than development was a further blow to the government's economic programme. In that year the economy registered a net fall in national income of -9.0 per cent.

1/ Official GDP statistics are given in current prices. Estimates of real growth rates by UNIDO based on estimated constant prices are used throughout this review unless otherwise stated.

2/ Fred Halliday, "Yemen's Unfinished Revolution: Socialism in the South", Merip Reports, No. 81, 1978, p. 6.

In response to the structural change in the current account position with a long-term decline in the level of migrants' remittances anticipated and the evident volatility of foreign aid payments the government prepared a conservative development programme for the Third Five-Year Plan (1986-90). Planned investment was reduced to YD582 million, 15 per cent lower than actual investment under the Second Five-Year Plan (1981-85). Few new projects were proposed and these only went ahead where external finance was made available. Rather investment was to be concentrated on the completion of ongoing projects and the upgrading and rehabilitation of existing productive capacity.

The value of migrants remittances has actually fallen faster than anyone predicted. Although a slight increase was recorded in 1987, the estimates for 1988 show a 15 per cent fall and further 22.6 per cent fall to YD65 million, the lowest level for over a decade, is anticipated for 1989. Aid payments did increase in 1987 and rose by a spectacular 87 per cent in 1988 but much of this growth is associated with the development of oil resources and the allocations of investment funds to other commodity sectors were lower than planned in 1987. As a result the balance of payments situation remains tight and the government has kept controls on imports in place, both for consumer goods and the materials needed for industry.

Despite these constraints economic growth resumed in 1987, with a 3.5 per cent increase in real GDP over 1986 levels recorded, though the recovery was incomplete: the value of GDP remained 5 per cent lower than the level in 1985. A full recovery is likely to be a slow process. Although oil was discovered in April 1987 and the concession holder, Technoexport of the Soviet Union, has worked at a breakneck pace to bring the oil on stream, production was limited to 25,000 barrels per day in mid-1988 due to the lack of transport facilities to the coast. With the completion of the oil pipeline in late 1989 production should increase to 100,000 tons a year, most of which will be exported. This will undoubtedly provide an important boost to the economy but at current market prices the production value will amount to only $12.6 million, [YD4.35 million], equivalent to 10 per cent of the 1987 current account deficit and will cover only a quarter of the anticipated fall in migrants remittances.

In these circumstances the growth of the economy during the coming years will depend on the inflow of foreign aid. Development of the oil resources has stimulated an inflow of capital, largely from the Soviet Union, but funds are also needed to support the development programme. In the long-term, the investment of funds in other commodity sectors, industry in particular, will help to build a balanced self-sustaining economy such that oil revenues alone cannot achieve.

1.2 Economic structure

At Independence the economy of PDR Yemen was largely dependent on the port of Aden and the services it provided to international shipping. Little attempt had been made to develop the resources of the hinterland or establish a national economy: Aden, looked to the outside world whilst the interior was, but for the extensive migration to the capital and abroad, introspective and autarkic. Transformation of PDR Yemen from a service-oriented to a production-oriented economy through the development of the country's agricultural, fisheries and mineral resources and the expansion of industry on the basis of import substitution has been the persistent objective of successive governments. This has been an uphill struggle in the face of the country's poor resource endowment, the limited technical expertise available and the constraints of limited budgetary resources and dependence on external financing for development projects.

Table 1.1: Distribution of GDP by economic sectors, 1973, 1980 and 1983-1987 (in YD million at current prices)

Sector	1973	1980	1984	1985[a]	1986[a]	1987[a]
Agriculture and fisheries	16.4	28.1	34.4	39.5	40.5	44.0
Industry[b]	8.9	24.2	27.0	29.0	27.6	27.0
Construction	4.3	28.2	44.5	40.5	28.4	29.6
Trade, hotels and restaurants	15.1	34.8	46.5	45.8	36.1	37.0
Finance, insurance and real estate	1.3	9.2	12.0	18.3	15.1	14.5
Business and personnel services	2.6	1.8	2.7	2.7	2.8	2.8
Government services	21.0	52.3	81.5	91.0	90.9	98.6
GDP at factor cost	75.6	202.6	282.8	298.5	268.2	284.0
Net indirect taxes	8.5	36.8	63.1	61.7	51.4	53.6
GDP at market prices	84.1	239.4	345.9	382.0	343.0	361.7

Source: Central Statistical Office, Statistical Year-book, 1984 and 1988.

a/ Estimates.
b/ Includes mining, quarrying, manufacturing, electricity and water.

During the late 1970s, huge investments amounting to almost one-third of GNP, most of which were directed towards the productive sectors, brought about a rapid growth in the economy with real GDP increasing by 15.4 per cent annually between 1975 and 1980. Although economic growth continued in the 1980 to 1984 period, with real growth rates averaging almost 10 per cent, a marked economic downturn began in 1985. The economy registered negative real growth of -3.0 per cent in 1985.

Table 1.2: Share of commodity sector and service sector in GDP, selected years
(Per cent of GDP at factor cost in current prices)

Sector	1973	1980	1984	1985	1986	1987
Commodity sector	39.2	39.7	37.4	36.5	36.0	35.4
- Agriculture & fisheries	21.7	13.7	12.2	13.2	15.1	15.5
- Industry	11.8	11.9	9.5	9.7	10.3	9.5
- Construction	5.7	13.9	15.7	13.6	10.6	10.4
Service sector	60.8	60.3	62.6	63.5	64.0	64.6
- Government	27.8	25.8	28.8	30.5	33.9	34.7
- Trade, hotels & restaurants	20.0	17.1	16.4	15.3	13.5	13.0

Source: Data presented in Table 1.1.

This recession can be ascribed to factors beyond the government's control for investment during the SFYP (1981-1986) continued to represent about one-third of GDP. In particular, the slowdown in economic activity in neighbouring countries had a spillover effect in the reduction in workers remittances, which led to lower aggregate demand within the country's economy. The flow of aid also began to dry up, while a prolonged drought had detrimental effects on agricultural production and the floods of 1982, which left a quarter of a million people homeless, caused damage estimated at $1 billion and diverted precious development resources.

The slow downturn to a 9.0 per cent decline in real GDP in 1986, when YD 39.6 million had to be reallocated for reconstruction work following the January events and both migrant remittances and foreign aid flows fell dramatically, further constraining the funds available for new investment and the purchase of raw materials and intermediate goods from abroad. Growth resumed in 1987, estimated at 3.5 per cent increase in real GDP, but national income remained below 1985 levels.

Oil production, expected to reach 100,000 tons per year by the end of 1989 and 1 million tons per year by 1991, should provide a stimulus for renewed economic growth. It is unclear, as yet, what multiplier effects the oil industry will have on the economy. At present, the oil drilling company uses imported technology and manpower. Furthermore, the income generated, $12.6 million in 1989 at current (early 1989) world oil prices, will not make a dramatic impact on the GDP or the balance of payments. In the longer term, the oil industry could provide important linkages into the industrial sector but no firm plans for the development of new refining facilities have been made - the oil refinery is in the process of being upgraded in order to increase refining capacities for imported oil.

Rapid economic growth during the 1970s and early 1980s resulted in a dramatic improvement in the standard of living: GDP per capita at current prices increased from YD38.8 [$112] in 1973 to YD129.8 [$376] in 1980 and peaked at YD176.5 [$511] in 1985. At the same time, social programmes and investment in the social infrastructure have done much to eliminate proverty and bring about an equitable distribution of wealth. Nevertheless, the PDR Yemen remains among the group of least developed nations. Moreover, the economic recession beginning in 1986 has brought about a fall in GDP per capita to YD158.8 [$460] in 1987 and there can be no doubt that standards of living have deteriorated in recent years.

Even though the development of the productive sectors has been the main objective of the government's development strategy, the economy is still dominated by the service sector which contributed 64.6 per cent of GDP in 1987. While the port has declined in relative and absolute importance - due to a 21 per cent fall in the number of ships visiting and a parallel drop in the use of bunkering facilities between 1980 and 1985 - the contribution of government services has increased steadily during the 1980s and accounted for 34.7 per cent GDP in 1987.

The rapid growth of government services accounts, in part, for the relatively stable share of the commodity producing sectors in GDP but it is also true that commodity producing sectors have consistently failed to meet the targets set by the five year plans. By the end of SFYP, for instance, the commodity producing sectors were expected to account for 58.3 per cent of national output. in fact their share fell from 39.7 to 36.5 per cent even though output increased by over one third.

The performance of the agriculture and fisheries sector has been particularly disappointing. After a period of sustained growth in the 1970s, growth rates slowed in the early 1980's due to the impact of a prolonged drought and the damage to irrigation schemes during the floods of 1982. However, agriculture was less affected than other commodity sectors by the recession in 1986 and its share of GDP stood at 15.5 per cent in 1987. When compared with the estimated 52 per cent share of employment this is extremely small and suggests that levels of labour productivity are extremely low. Moreover, production has not kept pace with the growing demand for food and PDR Yemen has to import approximately 90 per cent of its cereals requirements.

Industry also registered rapid growth rates in the 1970's with the extension of the electricity and water supply networks (included in industry for the purposes of national accounts) and the establishment and refurbishment of over thirty manufacturing enterprises. But growth rates slowed in the early 1980's as the number of new projects tailed off and industry's relative contribution to GDP has declined after 1980. Since 1985 it has actually fallen in absolute terms, largely as a result of the recession and dramatic cuts in foreign exchange budgets at enterprise level. Far from taking a leading role in economic development, as successive governments have planned, the industrial sector has lagged far behind the growth in the service sector and is still far from the point where it might "take off" through self-sustained growth.

In terms of employment generation too the industrial sector's performance has been decidedly lackluster. According to Central Statistical Office estimates 14.4 per cent of the labour force were employed in the industrial sector in 1987 (as opposed to 10.3 per cent in 1980 and 9.7 per cent in 1973) but this includes both the electricity and water industry and numerous small enterprises operating at essentially an artisanal level. In fact manufacturing industry proper, including the oil refinery, employed only 10,264 workers in 1987, 2.5 per cent of the estimated total work-force, and its contribution to total employment has fallen from 2.7 per cent in 1980.

Of the three commodity sectors, the construction industry was by far the most dynamic in the 1970s and early 1980s. Its contribution to GDP rose from 5.7 per cent in 1973 to 15.7 per cent in 1984 as the implementation of infrastructure, industrial and housing projects brought about a construction boom. A thirty per cent cut in government expenditure on construction and installation between 1985 and 1987 has, however, led to a significant fall in output and construction's share in GDP fell to 10.4 per cent in 1987. This was, however, nearly one percentage point higher than industry's share.

During the 1970's rates of economic growth at current prices exceed the rates of population increase by more than a factor of three. Although employment in agriculture increased by a quarter between 1973 and 1980 there was also a significant re-deployment of labour to other commodity and service sectors, with the percentage of the total work-force engaged in agriculture falling from 63 per cent in 1973 to 56 per cent in 1980. Pressure on the labour market was also relieved by emigration to the neighbouring Arab states in search of higher paid jobs. The preliminary results of the 1988 census revealed that 238,1[illegible]0 Yemenis were living aboard, 10.2 per cent of the total population, and 164,000 of these were males, 13.9 per cent of the male population. Other estimates put the number of immigrants at over 300,000 and emigration is thought to have deprived the country of one third of the able-bodied men in the age group of 15-34 years (see Section 5.1). This was regarded as particularly detrimental to PDR Yemen's economic development since one quarter of the emigrants were estimated to be skilled workers and their loss aggravated the shortage of skilled personnel in the modern sector, construction and industry in particular. As a result of domestic economic growth and emigration the number of unemployed fell from 48,000 in 1973 to 11,700 in 1980.

Since 1980, however, the rate of economic growth has slowed and rate of job creation has fallen. In the planning period 1973-80 an average of 15,125 jobs were created per year, this fell to 11,000 per year between 1981 and 1985 and is planned to fall still further to 8,800 during the Third Five-Year Plan TFYP (1986-1990). At the same time the recession in the oil producing states and new contracting procedures have reduced the number of employment opportunities abroad and generated a significant, but unquantified, return flow of migrants. While some degree of overstaffing, evidenced by a trend towards falling productivity in the commodity sectors, has allowed the government to absorb part of the excess labour, levels of unemployment have increased, particularly among the young. According to the 1988 census 11.7 per cent of the labour force registered as unemployed, the highest level since the early 1970's (Table 1.0). What is more the level of unemployment is likely to increase dramatically in the coming years: less than half the growth in the labour force during the TFYP period will be absorbed by the anticipated growth in employment opportunities. In these circumstances employment generation, through the creation of productive job opportunities, must become a development priority.

Table 1.3: Estimated distribution of employment by sectors, 1973-1987
('000 persons)

Sectors	1973 a/	1980	1985	1986	1987
Industry	21	46	55	57	58
Fish wealth	8	9	10	11	11
Agriculture	156	195	203	205	209
Construction	17	30	46	49	50
Transportation	17	27	33	34	36
Trade and supply	29	39	48	52	40
Total	248	345	395	408	403

Source: Central Statistical Office, Statistical Year-book, 1988, p. 69.

a/ Census year.

Development has been financed, for the most part, from external sources. Foreign aid, which the government devotes to development investment, covered nearly 65 per cent of total investment under the First Three-Year Plan FTYP (1971-74), 72 per cent under the FFYP (1974-78) and was originally expected to cover 70 per cent of investment under the SFYP (1981-85). Aid flows increased steadily, but for a slight fall in the lacuna between development plans, from YD30.7 million in 1976 to YD70 million in 1982 and by 1982 PDR Yemen had received aid worth YD532 million. Of this 66.6 per cent was provided socialist countries, 20.8 per cent from Arab countries and funds and 11.8 per cent from international organisations.

In 1983, however, aid receipts began a downward trend, falling to a low of YD57.7 million in 1986 (Table 1.5). Ultimately only 50 per cent of the investments under the SFYP were covered by foreign sources of finance and the government was forced to increase its contribution to meet its commitments. Less ambitious investment targets were set for TFYP (1986-90) and the foreign financing was expected to cover only 59 per cent of planned investment.

Substantial foreign aid flows resumed in 1987 when they reached YD69.5 million and then increased to an estimated YD130.3 in 1988 to cover investment in the newly discovered oil fields. The forecasts for 1989 are even more promising, with planned foreign aid receipts reaching a record level of D170.2 million, 73 per cent of which will be provided by Socialist countries. Almost 95 per cent of these funds have been allocated to specific projects and a large proportion of them to the development of oil resources.

Table 1.4: Labour force, employment and unemployment, 1988

Employment status	Number	Per Cent
Employed	384,094	88.34
Unemployed	50,682	11.66
- Previously employed	19,238	4.44
- Seeking work for the first time	31,444	7.23
Total labour force	434,776	100.00

Source: Central Statistical Office. Second General Census for Population, Households and Enterprises, August 1988: Preliminary Results, 1989, p. 50.

Table 1.5: Sources of investment finance, 1981-85 and 1986 to 1989 (Million YD)

Source	1981-85[a/] YD	1981-85[a/] per cent	1986 YD	1986 per cent	1987 YD	1987 per cent	1988[b/] YD	1988[b/] per cent	1989[c/] YD	1989[c/] per cent
Government	49.8	37	38.3	37	38.4	33	54.1	28	56.2	24
Bank	12.4	9	3.2	3	2.7	2	2.3	1	4.5	2
Self financing	7.6	5	3.7	4	4.3	4	6.0	3	5.9	2
External	66.8	49	57.7	56	69.5	61	130.3	68	170.3	72
Total	136.5	100	102.9	100	114.9	100	192.7	100	236.9	100

Source: Central Statistical Office, Statistical Year-book, 1985 and 1988 and Ministry of Planning, Fourth Annual Review of the TFYP, 1989.

a/ Annual average investment.
b/ Estimate.
c/ Planned.

Dependence on foreign capital has led to a steady growth in PDR Yemen's external debt from $499 million in 1980 to $1,927 million in 1986. About 75 per cent of this debt was owed to bilateral creditors and the remainder to multilateral sources. The U.S.S.R. and China are the principal creditors with 59 per cent and 16 per cent of the total bilateral credit outstanding in 1985.

Most of these credits have been granted on soft terms and the level of debt servicing is correspondingly low. But, due to the rising scale of the borrowing during the early 1980s, servicing charges have increased from $22.3 million in 1982 to $55.3 million in 1985 and an estimated $134.8 million in 1988. Debt servicing charges are expected to reach $142 million in 1989 and $174 million in 1989. This represents a heavy burden on the balance of payments: the debt servicing ratio has risen from 7.7 per cent in 1980 to 44.5 per cent in 1986.

Domestic financial resources are limited by the government's long-term fiscal deficit and the low levels of income and saving in the private sector. Before 1982 domestic financing covered less than 35 per cent of total investment and under the SFYP 30 per cent of the development expenditure was to be domestically financed; 21 per cent from the profits of public enterprises and 9 per cent from domestic bank loans. However, this proportion rose to 41 per cent in 1984 as foreign aid receipts declined, and reached 54 per cent in 1985. With the centralisation of the public sector enterprises' budgets in 1984 the share of government financing increased to 41 per cent. This increase, coupled with an increase in current expenditure, pushed the budget deficit up from 16 per cent of GNP in 1980 to 30 per cent in 1984, reaching a peak of 36 per cent in 1982.

In order to combat the budget deficit the government introduced a policy of fiscal restraint with a directive to all Ministries to reduce current expenditure by 10 per cent. The government also reduced its contributions to the development budget to 36 per cent and increased the component of bank finance to 12.9 per cent in 1985. Even so the budget remained tight in 1986, due to a 15 per cent fall in revenues - public enterprises and indirect taxes, which, together, accounted for 84 per cent of total revenue in 1985, were particularly affected by the recession - and the expenses incurred by reconstruction work following the January events. Although revenues recovered in 1987 the government still recorded YD20 million deficit on current budget expenditures. Fortunately the resumption of substantial foreign flows has enabled the government to reduce its contributions to the development budget to a planned 24 per cent in 1989, though capital expenditure has continued to rise.

Private sources of capital have contributed little to development despite the government's efforts to encourage investment. Levels of domestic savings are extremely high despite the generally low level of personal income and profits, the centralisation of public sector budgets and the high levels of corporation tax, and have increased dramatically in recent years. The value of total local currency deposits at the National Bank of Yemen has tripled, and personal bank deposits quadrupled, between 1980 and 1987. What is more the value of these deposits as a proportion of GDP has increased from 55.4 per cent to 103.1 per cent over the same period.

The introduction of credit controls in order to contain the monetary expansion induced by government borrowing from the central bank has, however, curtailed the banking system's role as a financial intermediary. From 1980 to 1987 the ratio of loans to local currency deposits at the National Bank fell from 0.74 to 0.14: much of surplus winds up as excess reserves in the central bank, which have increased from YD8.2 million in 1980 to YD286.4 million in 1987, with the reserve deposit ratio increasing from 0.3 to 1.3 over the same period, and is used to finance the persistent budget deficit through purchases of Treasury Bills.

A shortage of credit facilities inevitably discourages private investment, but so too do the restrictions imposed on foreign exchange allocations, the government's preference for public sector projects and, to a lesser extent, controls on pricing. During the period 1974-80 only 7.3 per cent of total investment in the industry was provided by the private sector and 20.4 per cent by the mixed sector, in which the private sector contribution varied from 49 to 15 per cent. This proportion fell to 4.4 per cent and 13.3 per cent respectively during the SFYP. Private sector participation in the trade sector, construction and agriculture is probably more important but it has proved difficult to attract these funds into industry.

Migrants probably provide about 75 per cent of private sector investment funds. In terms of of the total value of migrant remittances, however, their contribution to investment is insignificant. Virtually all the remitted earnings of migrant workers are used to finance current household consumption, and a large part of this expenditure has been on imported consumer goods. Where migrants have invested their earnings this has generally been in the construction of a house, adding fuel to the construction boom of the late 1970's and early 1980s. In this way PDR Yemen's most important source of external finance, at least twice as valuable as foreign aid and equivalent to an average of 45 per cent of GDP in the period 1980 to 1985 (Table 1.6), has been squandered

The government has tried to mobilise these substantial funds by offering high interest foreign exchange accounts. The value of these accounts has increased steadily from YD1.1 million in 1980 to YD3.6 million in 1985 but the value of other emigrants accounts has increased at a faster rate rising from YD4.5 million to YD16.9 million over the same period. Clearly the government's efforts have only been a qualified success: the total value of emigrants' savings in separate accounts in 1985 represented only 2.5 per cent of the total migrant's remittances from 1980 to 1985 while the total value of personal deposits represented only 8.3 per cent. The proportion of emigrants' remittances invested in the industrial sector is even lower.

While the government is currently stepping up its efforts to promote investment by migrants there is a clear downward trend in the value of remittances. As stated above, employment opportunities in the Gulf states, the source of 86 per cent of the emigrant's deposits in the National Bank in 1985, have declined in recent years and many of the emigrants have returned home. From 1984 to 1987 the value of migrants remittances fell by 48.9 per cent and a further 22.6 per cent fall to YD65 million is anticipated in 1989. Under these circumstances the opportunity to mobilise substantial financial resources from migrants' remittances appears to have been missed.

The reduction in migrants' remittances also has important implications for PDR Yemen's balance of payments (Table 1.7). Exports make a marginal contribution to total foreign exchange earnings and covered only 7.5 per cent of total expenditure on imports during the period 1980 to 1987. This substantial deficit on the balance of trade reflects the low level of industrial development. Virtually all capital and intermediate goods have to be imported, accounting for 47.7 per cent of all imports in 1987. The country's dependence on food and fuel imports represents 25.1 and 19.8 per cent of imports respectively (see Table A-2). Nevertheless, substantial inflows from remittances and foreign aid enabled the overall balance of payments to register a surplus from 1980 to 1985.

Table 1.6: Migrants remittances and their importance to the national economy, 1976-1988 (selected years) ('000 YD)

	1976	1980	1983	1984	1985	1986	1987	1988[a]
Remittances[b]	42.0	111.9	152.1	166.2	140.3	96.2	100.4	85.0
Foreign aid	30.7	39.0	69.5	66.6	61.3	57.7	69.5	130.3
Annual change in remittances (per cent)	100.0	9.7	2.2	9.3	-15.6	-31.4	4.4	-15.3
Remittances as per cent of imports	32.0	43.4	57.3	58.4	58.2	55.8	57.7	...
Remittances as per cent of GDP[c]	21.0	50.1	44.1	48.0	36.7	28.0	27.8	...

Source: Central Statistical Office.

a/ Estimate.
b/ Remittances are assumed to equal total private transfers.
c/ GDP at current market prices.

In 1984, however, the balance of trade deteriorated markedly, with a 23 per cent increase in non-oil imports raising the overall import bill to a record of YD284.4 million, and, coupled with a significant reduction in the inflows from remittances and foreign aid, the balance of payments registered a YD24.6 million deficit which had to be financed by drawing on reserves. Strict import controls were introduced in 1985 to counter the loss of reserves and accommodate the reduced current account inflows. These brought about a 35 per cent reduction in the total import bill by 1986 with marked reductions in development expenditures leading to substantial cuts in the imports of raw materials, machinery and equipment. Even so the downward trend in remittances and foreign aid flows prevented any improvement in the overall balance of payments.

The balance of payments situation will remain tight over the next few years. Although inflows of foreign aid have increased dramatically in 1987 and 1988, the value of remittances has fallen and a net reduction in inflows may occur. This will, however, reduce private sector liquidity and, if the government maintains its modest investment programme, may result in an appreciable improvement in the balance of trade.

Oil self-sufficiency, anticipated in 1989, will also have a major impact on the balance of trade since oil accounted for nearly 20 per cent of imports in 1987. In the long-term the revenues generated by oil exports will be an important factor in determining the balance of payments situation. As yet the volume of oil exports, expected to begin in mid-1989, is unknown, but if production reaches the target of 1 million tons in 1991 dollar earnings of $126 million can be expected at current (early 1989) market prices. This represents one third of the 1987 trade deficit.

Table 1.7: Balance of payments, 1982-87[a/]
(selected years)
(US$ million)

	1982	1983	1984	1985	1986	1987
Exports	37.9	40.2	30.7	42.6	30.4	70.9
Imports	-690.8	-683.6	-734.2	-623.6	-447.9	-451.5
Other goods & services						
- credit	157.5	141.6	134.0	124.8	104.8	115.5
- debit	-201.5	-211.6	-214.2	-224.1	-187.0	-216.0
Private transfers	469.9	486.4	499.4	425.6	292.4	302.6
Official transfers	126.5	43.1	31.3	32.4	31.6	55.6
Balance on current account	-110.5	-183.8	-253.0	-222.4	-175.7	-122.9
Long-term capital	146.2	239.7	133.3	73.5	127.5	146.1
Short-term capital	24.0	2.9	63.4	26.6	19.8	-76.4
Balance on capital account	170.2	242.6	196.7	100.1	147.3	69.7
Errors & omissions	-36.0	-44.5	47.9	27.8	-36.1	-2.2
Counterpart to valuation change	-15.2	-17.1	-23.6	32.6	21.1	20.2
Exceptional financing	0.2	0.1	0.2	-	2.5	0.9
Balance of payments	8.7	-2.7	-31.8	-61.9	-40.9	-34.3

Source: Bank of Yemen (July 1988).

a/ Excludes exports of oil products and imports of crude oil.

Traditionally agricultural products have provided the lion's share of export revenues, accounting for over half of total exports from 1980 to 1985. Within food exports, fish and fish products are of overriding importance, generating 37.3 per cent of total export earnings in 1985. Exports of manufactured goods are negligible but the oil refinery has long had an important role. Following a period of relative stagnation in the early 1980s exports of oil products - refined from imported crude - rose rapidly in 1987 when the refinery secured a number of important refining contracts and it accounted for nearly half of total exports. It is not known yet whether domestic oil will be refined in Aden, nevertheless exports of oil and oil products are likely to become a significant source of foreign exchange when exports begin in mid-1989.

As for the geographical distribution of trade, PDR Yemen's principal trading partners are industrialised nations: the European Economic Community, centrally planned economies and East Asian NICs supply over half total imports (Table A-4). The distribution of exports has changed considerably in recent years. Exports to Japan, which accounted for 41.2 per cent of total exports in 1980 (almost entirely fish caught by Japanese industrial fishing fleets) have fallen to 14.2 per cent of exports in 1987 and Arab countries became the most important export market, with Saudi Arabia and the Yemen Arab Republic assuming particular importance. Ranked second is the EEC while the share of centrally planned economies in total exports has fallen by half since 1980 and now ranks fifth behind Africa (mostly Ethiopia).

1.3 Overview of the manufacturing sector

Industrialization is a recent phenomenon in PDR Yemen dating from the early 1970s. At this point the government conceived its first integrated economic plan which emphasised the crucial role of industrialization in the country's overall economic development. In the following decade the industrial sector went from strength to strength, with substantial investments in a range of import substitution industries and a smaller number of projects based on local resources. By far the largest part of these investments was in medium- and large-scale public sector enterprises producing basic consumer or intermediate goods.

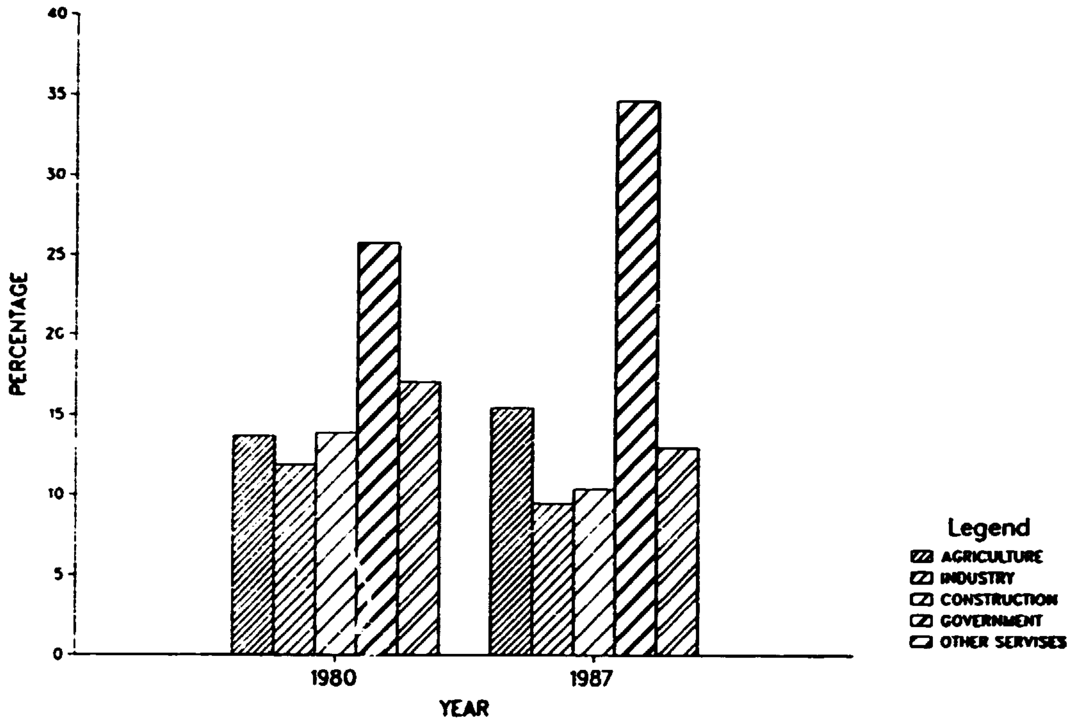
Since 1983 the industrial sector has been adversely affected by the country's macro-economic situation. Reductions in the flow of migrant's remittances and foreign aid payments have cut investment and the government has been forced to retrench in its development programme. Consolidation - the rehabilitation of existing productive capacities - rather than expansion has become the hallmark of the governments industrial development policy for the late 1980s. Training, improved management and production techniques, diversification of production lines, maintenance and repair facilities are now the government's priorities and increased productivity rather than increased capacity is seen as the means of achieving industrial growth.

Shortages of foreign exchange have, however, made it very difficult for industrial enterprises to increase production. Growth in the volume of manufactured exports and the substitution of local for imported raw materials and intermediate goods could allow them to circumvent this problem but the structure of the industrial sector sets a limit to the relief afforded by these strategies. Foreign exchange for the purchase of raw materials and intermediate goods has to be made available if existing plants are to expand.

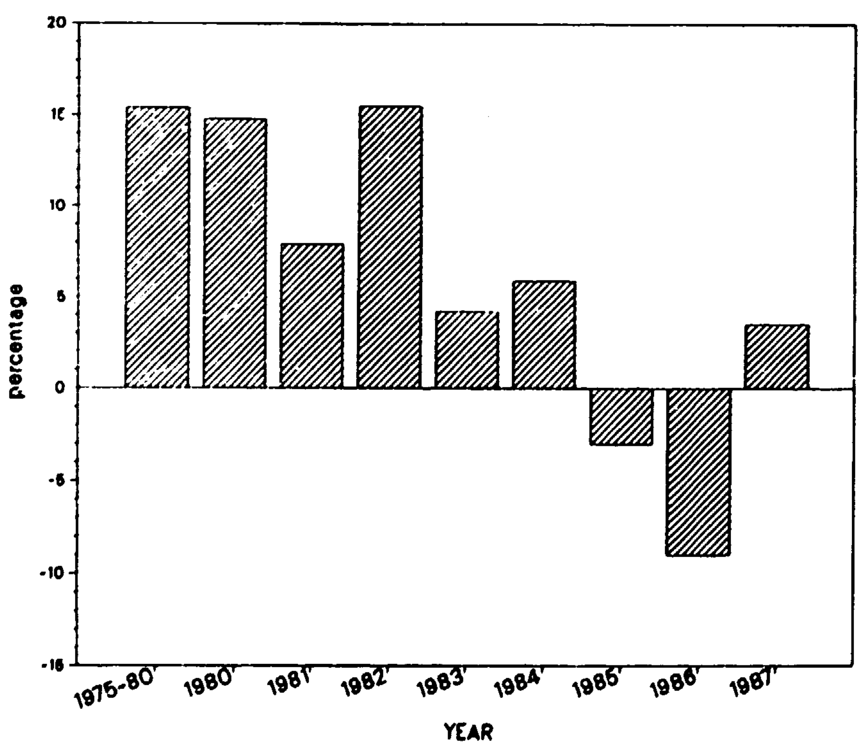
Increased private sector participation could provide an important source of investment funds. But, although private sector investment, in particular investment by migrant workers, has been encouraged from the earliest stages of development planning, the response has been disappointing. Private sector ventures are few in number and have generally been small-scale and consumer oriented. Projects are selected so that they complement the public sector initiatives which are either beyond the means of private entrepreneurs, since they are costly, large-scale ventures, or unattractive on the grounds of the social nature and low price of the goods produced. Little attempt has been made to attract direct foreign investment by multinational corporations since the government's strategy has been, and will remain, one of national development.

There is little prospect that the industrial sector will "take off" in the near future though steady growth will continue if the immediate problem of foreign exchange shortages can be resolved. Industrial development has been a hard struggle against the constraints of a weak resource base, poor infrastructure, shortages of internal surpluses as a source of investment finance, the generally low level of disposable income combined with a small population and a desperate shortage of skilled and trained personnel. None of these structural weaknesses can be overcome overnight and the government's strategy of integrated industrial development has created a foundation stone for future development.

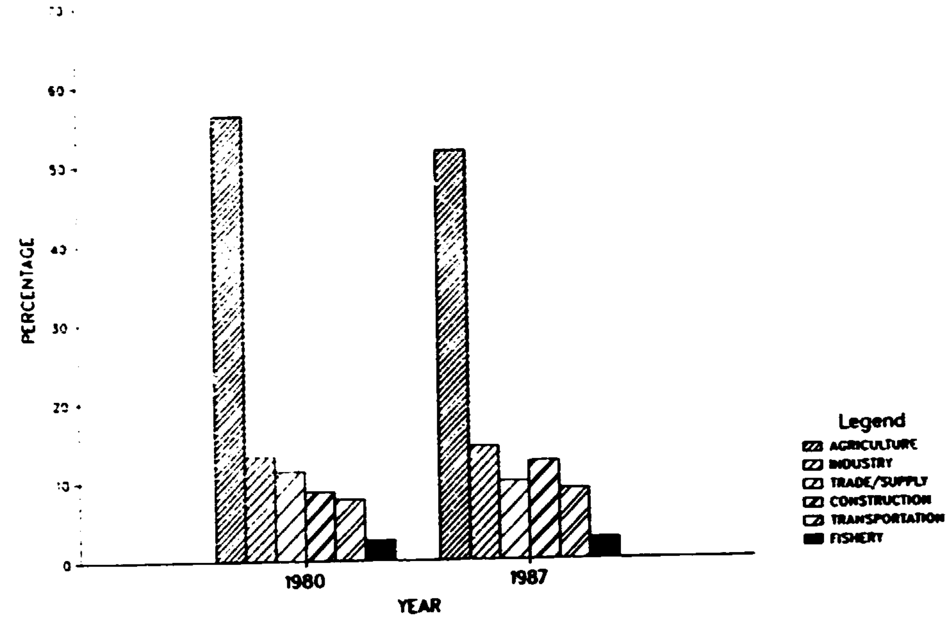
DISTRIBUTION OF GDP BY ECONOMIC SECTORS, 1980 AND 1987



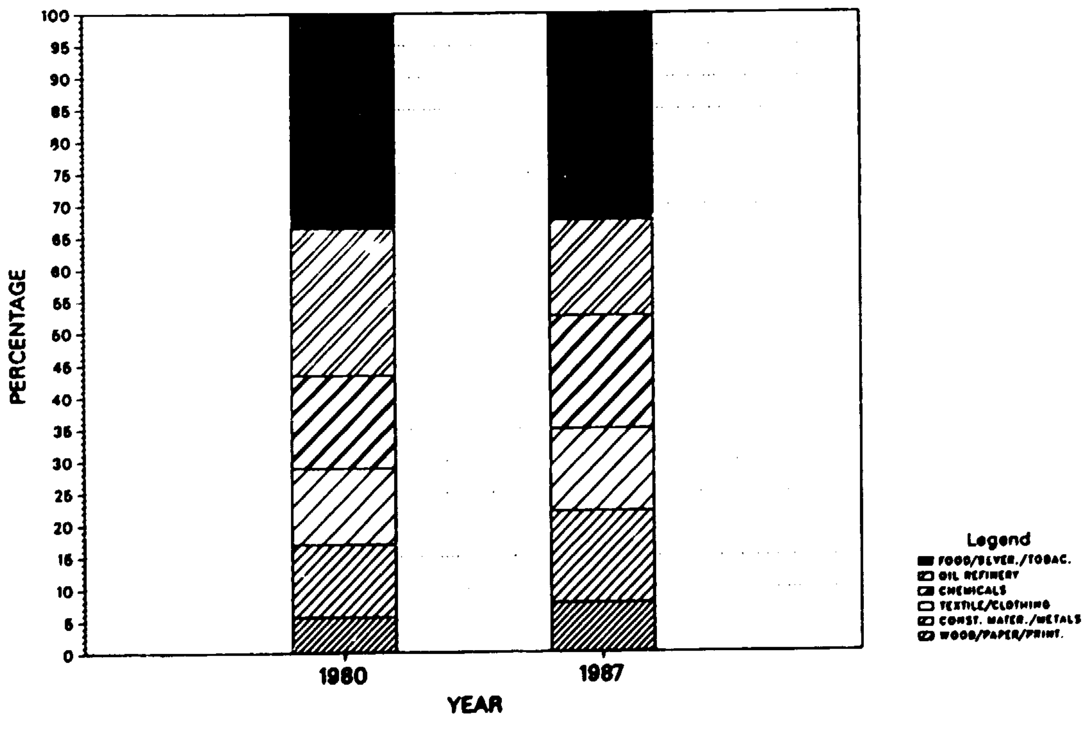
REAL GROWTH RATE OF GDP, 1975-1987
(at constant 1980 prices)



COMPOSITION OF EMPLOYMENT BY SECTOR OF ORIGIN, 1980 AND 1987

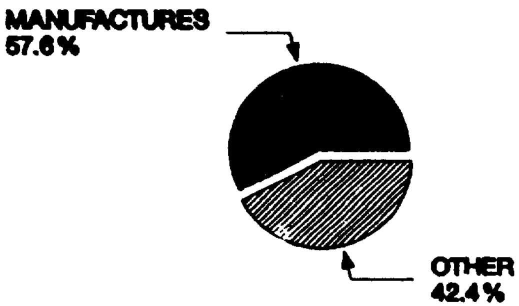


COMPOSITION OF INDUSTRIAL PRODUCTION, 1980 AND 1987
(per cent at current prices)

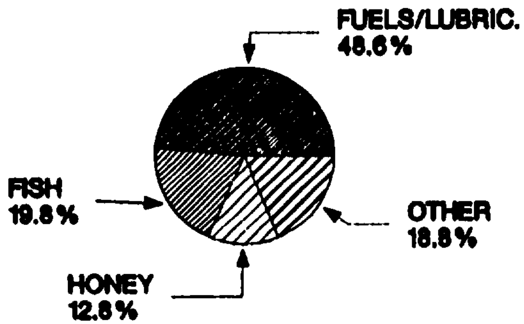


EXPORTS AND IMPORTS, 1987

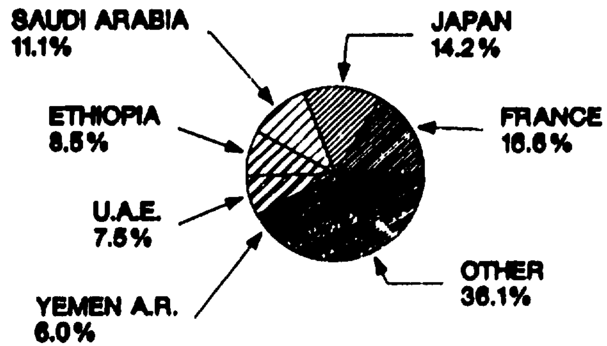
SHARE OF MANUFACTURES
IN TOTAL EXPORTS



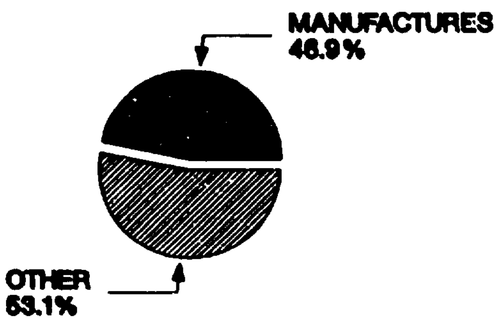
COMPOSITION OF EXPORTS



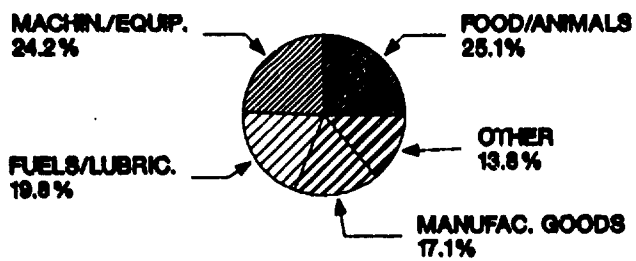
DESTINATION OF EXPORTS



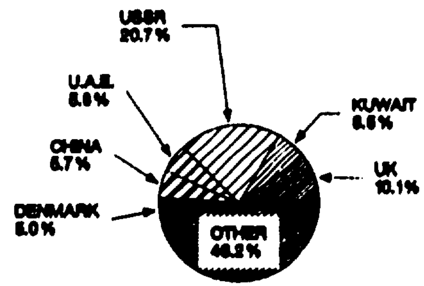
SHARE OF MANUFACTURES
IN TOTAL IMPORTS



COMPOSITION OF IMPORTS



ORIGIN OF IMPORTS



2. GROWTH AND PERFORMANCE OF THE MANUFACTURING SECTOR

2.1 Growth and structural change

Prior to Independence in 1967 PDR Yemen was predominately a service economy with a small industrial sector comprising the Aden oil refinery, the salt plant, a soft drinks plant, a dairy and two cotton ginneries. Foreign interests controlled the most important enterprises and local initiatives were restricted to traditional activities such as the building and repair of wooden vessels, manufacture of furniture and a number of seed crushing plants.

In 1969 the government introduced measures that gave the public sector the leading role in industrial development and in the course of the following decade all the large-scale industrial enterprises were brought under public or mixed ownership. It was not until 1971, however, that the government formulated an industrial development strategy. This reinforced the dominant position of the public sector and directed investment towards a range of basic industries and import substitution projects. Between 1973 and 1980 31 enterprises were established or extensively modernised.

By the beginning of the 1980's the basic industrial structure was in place. Only two large industrial plants were established during the Second Five-Year Plan (SFYP), a brewery and a gypsum and chalk factory, while a third plant, the biscuits and sweets factory, under construction at the end of the SFYP (1981-1985) began operations in 1988. Four new private sector enterprises and a mixed sector company began production during the SFYP but these are small-scale enterprises and their contribution to total output is insignificant. Consequently, the annual growth rate of total production value slowed to 10.5 per cent over the period 1980 to 1985 or 13.7 per cent in the case of the industries under Ministry of Industry supervision (that is excluding the oil refinery, fish processing and small-scale industry). On the other hand significant increases in manufacturing value added were recorded with an annual growth rate of MVA of 23 per cent in those enterprises supervised by the Ministry of Industry.

After 1985, however, the situation deteriorated sharply. Several industrial plants sustained material damage during the January events of 1986, but the reallocation of scarce financial resources for reconstruction in other sectors had a greater impact. More damaging still have been the drastic cuts in foreign exchange allocations imposed to curb the balance of payments deficit and accommodate the fall in emigrants' remittances and foreign aid flows. Every industrial enterprise has been affected and some have had to cope with reductions in foreign exchange budgets of up to 40 per cent which have severely curtailed supplies of imported raw materials, spare parts and forced them to shelve plans for expansion.

Furthermore, the Third Five-Year Plan (TFYP) (1986-90) announced an effective moratorium on new projects and, other than the biscuit factory, no new large-scale industrial factory has been built since 1986. Rather, scarce financial resources have been allocated to consolidating the industrial sector and upgrading existing plants. The eight new projects that have begun operation since 1985 are small-scale and have been financed entirely or in large part by private capital.

Cut backs in foreign exchange allocations and investment have, moreover, induced an economic recession with purchasing power severely reduced within the industrial sector and the sales profiles of those companies producing consumer goods showing a similar, though less marked, downturn. Production declined in 1986 but recovered in 1987 with the output index rising above the 1985 level though the value of total output remained 15.8 per cent lower (Table 2.1).

The output of enterprises under Ministry of Industry supervision has been affected less than the industrial sector as a whole, recording a 5.5 per cent fall in real terms between 1985 and 1987 (Table 2.2), but the value added generated by these enteprises fell by 15.6 per cent over the same period (Table 2.3). Estimates for 1988 suggest that the industrial sector has largely recovered with production value 6.6 per cent higher than in 1985 in real terms, though value added is still 8.1 per cent lower than in 1985. Ambitious production targets have been set for 1989 but the future is still uncertain since further reductions in the foreign exchange budget are anticipated.

The rapid growth of the industrial sector during the 1970s was achieved through diversification of production into a range of import substitution projects and a smaller number of projects utilising agricultural and fisheries resources. Dependence on the oil refinery, which accounted for 80-90 per cent of total industrial output by value in the pre-Independence period, has fallen steadily. Nevertheless, this one industrial plant still accounted for 15 per cent of total production value in 1987.

Food processing has emerged as the most important industrial branch and accounted for nearly one third of total production value in 1987. Its pre-eminence is even more apparent among the enterprises supervised by the Ministry of Industry, where it produced nearly half the total output by value in the same year. Even so its share of total output has fallen slightly since 1980 as the PDR Yemen's industrial base has broadened. The share of the chemical products branch, for instance, in total output has increased from 14.6 per cent in 1980 to 21.4 per cent in 1987 and is now second in importance to the food processing sector. Data provided by the Ministry of Industry indicates that these two branches, which produce consumer goods for the most part, were among the worst affected by the 1985-87 recession registering 9 per cent falls in output in real terms. Nevertheless, expansion has resumed in 1988

While the extraction industry has witnessed the fastest rate of growth since 1980 this may be accounted for by the construction of a single new plant. Otherwise it is the wood working and metalworking branches that have registered the fastest output growth rates since 1980. Only the textile industry has seen an absolute as well as relative decline in its position since 1980, largely due to the poor performance of one plant, the textile mill.

Up to 1985 the value added generated by industrial enterprises grew at a faster rate than production value indicating a rising degree of industrial processing (Table 2.5). All industrial sectors contributed to this trend except the extraction and leather products branches and the share of value added in total industrial production had reached a YDO.37 per dinar of output, a relatively high level by international standards. Since 1985, however, this proportion has fallen overall, with the most notable decline in the food processing branch. As mignt be expected, the labour-intensive wood and paper, textiles and clothing branches and the chemical products branch, which undertakes a high degree of processing, have the highest MVA/gross output ratios.

Table 2.1: Total value of industrial production by branch, 1980, 1985 and 1987
('000 YD at current prices)

Branch	1980 YD	1980 per cent	1985 YD	1985 per cent	1987 YD	1987 per cent
Food & tobacco	12,680	33.7	19,506	31.0	18,152	32.5
Textiles & clothing	4,488	11.9	4,637	7.4	5,066	9.1
Wood and wood products	332	0.9	1,998	3.2	2,362	4.2
Paper and printing	1,719	4.6	2,077	3.3	1,954	3.5
Chemicals	5,516	14.6	11,098	17.7	11,990	21.4
Extraction	116	0.3	680	1.1	625	1.1
Construction materials	4,142	11.0	7,781	12.4	7,402	13.2
Oil refinery	8,600	22.9	15,100	24.0	8,372	15.0
Total	37,594	100.0	62,877	100.0	55,924	100.0

Source: Central Statistical Office, Statistical Year-Book, 1988, p.167

Table 2.2: Production value by industrial branch, 1980, 1985, 1987 and 1988
(selected years)
(Enterprises under Ministry of Industry supervision)
('000 YD)

	1980[a] YD	1980[a] per cent	1985 YD	1985 per cent	1987 YD	1987 per cent	1988[b] YD	1988[b] per cent
Food & tobacco	10,175	52.4	17,109	48.2	15,493	46.2	17,435	46.1
Textiles & clothing	1,805	9.3	2,552	7.2	2,708	8.1	3,032	8.0
Leather	958	4.9	1,293	3.6	1,629	4.9	1,686	4.5
Wood & paper	600	3.1	2,358	6.6	2,540	7.6	2,640	7.0
Chemicals	3,425	17.6	6,347	17.9	5,773	17.2	7,315	19.4
Extraction	116	0.6	817	2.3	667	2.0	744	2.0
Metalworking	2,355	12.1	4,990	14.1	4,692	14.0	4,948	13.1
Total	9,434	100.0	35,466	100.0	33,502	100.0	37,800	100.0

Source: Based on data provided by the Ministry of Industry, Trade and Domestic Supply.

a/ Prices of 1980 all other prices are constant prices of 1985.
b/ Estimate.

Table 2.3: Value added by industrial branch, 1980, 1985, 1987 and 1988 (selected years)
(Enterprises under Ministry of Industry supervision)
('000 YD in current prices)

	1980		1985		1987		1988	
	YD	per cent	YD	per cent	YD	per cent	YD	per cent
Food & tobacco	2,276	41.5	6,041	46.3	4,175	37.9	4,385	36.6
Textiles & clothing	570	10.4	975	7.5	1,019	9.3	1,173	9.8
Leather	346	6.3	411	3.2	574	5.2	477	4.0
Wood & paper	232	4.2	1,048	8.0	1,135	10.3	1,121	9.3
Chemicals	1,167	21.3	2,544	19.5	2,271	20.6	2,984	24.9
Extraction	590	1.1	203	1.6	99	0.9	173	1.4
Metalworking	832	15.2	1,828	14.0	1,738	15.8	1,683	14.0
Total	5,482	100.0	13,050	100.0	11,011	100.0	11,996	100.0

Source: Based on data provided by the Ministry of Industry, Trade and Domestic Supply.

Table 2.4: Index of industrial production (selected products), 1980 and 1985-87
(1975 = 100)

Product	1980	1985	1986	1987
Salt	218	973	586	807
Rubber sandals	279	737	747	618
Perfumes	87	382	74	167
Matches	177	268	236	220
Paint	329	555	383	381
Foam rubber	382	492	413	632
Nails	268	338	346	354
Cement blocks	152	212	242	242
Cotton cloth	68	98	94	98
Leather shoes	201	252	366	510
Milk	193	162	122	149
Tomato paste	107	125	170	152
Flour	91	93	98	88
Aerated water	21	67	61	64
Cigarettes	256	301	236	245
General index	236	418	348	507

Source: Based on data in Central Statistical Office, Statistical Year-book, 1988, pp. 158-60 and Ministry of Industry, Sectoral Paper: Draft, July 1980.

2.2 Ownership and investment patterns

Government policy is to extend the collective ownership of the means of production through public enterprises. Public enterprises dominate the industrial sector, accounting for 59.2 per cent of total industrial production by value (Table 2.6: including the fish processing enterprises, the oil refinery and small-scale industries under municipal control) and 54.2 per cent of the output of the enterprises under Ministry of Industry supervision (Table 2.7). The relative importance of the public sector has, moreover, increased steadily between 1980 and 1987, with the total output of the public sector by value increasing almost twice as fast as the mixed sector and three times as fast as the private sector. By the end of the TFYP (1985-90) the public sector is expected to contribute 65 per cent of total industrial output. Most of the public sector enterprises are basic industries producing intermediate, social goods or basic food products and are characterised by their large-scale and capital-intensive mode of production.

Collective ownership has also been expanded through the association of craftsmen and women in the carpentry, weaving and tailoring trades into cooperatives. Although there are now eight cooperatives in the industrial sector, as opposed to four in 1978, they remain the least important ownership sector in terms of production value: accounting for only 1.3 per cent of total production value in 1987 and 7.5 per cent of the output value of enterprises under Ministry supervision. While the output of Ministry of Industry supervised cooperatives increased nearly six-fold between 1980 and 1987 much of this increase can be accounted for by the transfer of the Coastal Carpentry Co-operative to the Ministry of Industry from the Ministry of Agriculture.

Despite the emphasis on the collective ownership of the means of production the government has encouraged private investment in the industrial sector (see Section 4.2). Private sector enterprises are generally small-scale and most of them fall under the supervision of municipalities rather than the Ministry of Industry: accounting for 25 per cent of total production value in 1987 but 7.2 per cent of the output of enterprises under Ministry supervision. Total output increased by 15 per cent between 1980 and 1985 but has subsequently declined, largely due to the constraints imposed by lower foreign exchange budgets since most of these enterprises are heavily dependent on imported raw materials and intermediate goods. As Tables 2.6 and 2.7 demonstrate, the private sector's share of production value, in the case of enterprises under Ministry supervision, has consistently been lower than its share of added value.

Private capital has contributed to large-scale industrial projects through equity participation in mixed sector enterprises in which the state usually holds a majority share. In 1987 the mixed sector accounted for nearly 15 per cent of total production value and 31 per cent of the production value of Ministry supervised enterprises. The relative importance of the mixed sector in total production has declined since 1980, largely due to the rapid growth of the public sector but also due to a significant fall in output between 1985 and 1987. In terms of value added per unit of output, however, the performance of the mixed sector is still above average, though the differential between the mixed and other ownership sectors has narrowed slightly since 1985.

Table 2.5: Value added per dinar of production, 1980, 1985, 1987 and 1988 (selected years)
(Enterprises under Ministry of Industry supervision)
(YD in current prices)

Branch	1980	1985	1987	1988[a]
Food & tobacco	0.22	0.35	0.27	0.26
Textiles & clothing	0.32	0.39	0.38	0.39
Leather	0.36	0.32	0.37	0.29
Wood & paper	0.39	0.40	0.45	0.42
Chemicals	0.35	0.40	0.40	0.42
Extraction	0.51	0.29	0.15	0.23
Metalworking	0.33	0.33	0.38	0.34
Total	0.28	0.37	0.33	0.33

Source: Based on data provided by the Ministry of Industry, Trade and Domestic Supply.

a/ Estimate.

Table 2.6: Total production value by ownership, 1980, 1985 and 1987
(in current prices)
('000 YD)

	1980		1985		1987[a]	
	YC	%	YD	%	YD	%
Public	27,614	53.4	38,100	54.1	42,179	59.2
Mixed	8,014	15.5	12,126	17.2	10,338	14.5
Co-operative	449	0.9	2.175	3.1	925	1.3
Private	15,617	30.2	17,976	25.5	17,790	25.0
Total	51,694	100.0	70,377	100.0	71,232	100.0

Source: Based on Central Statistical Organisation, Statistical Year-book, 1988, pp. 162 and 167.

a/ Three cooperatives were transferred to public ownership in 1986 for the purposes of Central Statistical Office accounts.

Table 2.7: Production value by ownership, 1980-1988, selected years
(Enterprises under Ministry of Industry supervision)
('000 YD)

	1980[a]		1985[b]		1987[b]		1988[c]	
	YD	Per cent	YD	Per cent	YD	Per cent	YD	Per cent
Public	9,397	48.4	18,362	51.8	18,144	54.2	20,315	53.7
Mixed	8,126	41.8	12,013	33.9	10,430	31.1	12.169	32.2
Co-operative	392	2.0	2,175	6.1	2,511	7.5	2,623	6.9
Private	1,517	7.8	2,916	8.2	2,417	7.2	2,693	7.1
Total	19,432	100.0	35,466	100.0	33,502	100.0	37,800	100.0

Source: Based on data supplied by the Ministry of Industry, Trade and Domestic Supply.

a/ Current 1980 prices.
b/ 1985 prices.
c/ Estimate at constant 1985 prices.

Table 2.8: Value added by ownership, 1980-1988 selected years
(enterprises under Ministry of Industry supervision)
('000 YD in current prices)

	1980		1985		1987		1988[a]	
	YD	Per cent	YD	Per cent	YD	Per cent	YD	Per cent
Public	2,159	39.4	6,252	47.8	5,957	54.1	5,979	49.8
Mixed	2,709	49.4	5,204	40.0	3,442	31.3	4,176	34.8
Cooperative	190	3.5	964	7.4	1,060	9.6	1,093	9.1
Private	424	7.7	630	4.8	552	5.0	748	6.2
Total	5,482	100.0	13,080	100.0	11,011	100.0	11,996	100.0

Source: Based on data provided by the Ministry of Industry, Trade and Domestic Supply.

a/ Estimate.

Returning migrant workers and expatriates are the most important source of private capital. In 1985 they held majority interests in 13 of the 19 private sector enterprises and these enterprises accounted for approximately 60 per cent of the private sector's output by value. They have been prominent sponsors of almost all subsequent private sector projects. Migrant workers have also contributed to all but one of the eleven mixed sector enterprises with equity participations ranging from 15 per cent of the private sector equity in the aluminium factory to 75 per cent in the automatic bakeries and averaging 40 per cent. More recently, in 1987, migrant workers accounted for nearly 80 per cent of the equity capital raised by the private sector to finance a mixed sector soap and detergent factory.

Investment in industry has fallen as the development strategy has evolved from one of project implementation to project consolidation. Between 1974 and 1980 a total of YD79.2 million was invested in industry, an average of YD7.9 million per year. Under the SFYP (1981-85) total investment in the industrial sector amounted to YD29 million, an average of YD5.8 million per year, while under the TFYP (1986-90) industry's allocation was only YD11.25 million, a yearly average of just YD2.25 million.

The public sector has consistently provided the bulk of investment funds and the private sector's share has remained extremely low despite government efforts to encourage investment. During the 1974-1980 planning period private capital accounted for only 7.3 per cent of total investment in the industrial projects under Ministry of Industry supervision and mixed capital, in which the private sector participation varied from 15 to 49 per cent. This proportion fell to 4.4 per cent and 13 per cent respectively during the SFYP while the public sector contributed 81.1 per cent of investment funds. The remaining 1.5 per cent of investment was undertaken by cooperatives.

2.3 Employment and productivity

Manufacturing and processing industry have made little contribution to employment generation. In 1987, the industrial sector employed 10,264 people of whom 5,705 were employed by enterprises under the supervision of the Ministry of Industry, Trade and Domestic Supply. This represents only 2.5 and 1.4 per cent respectively of the estimated labour force. What is more, the rate of growth of employment has been slow, averaging 1.2 per cent annually between 1980 and 1987 for the industrial sector as a whole and 2.5 per cent for the enterprises under Ministry of Industry supervision.

Food processing, textiles and the oil refinery account for over 60 per cent of total employment in the industrial sector. Since 1980, however, there have been major changes in the structure of employment. The construction materials industry has tripled its work-force - though admittedly from a low base - and the wood products, chemicals and food processing branches have also seen rapid growth. Employment in both the textile and extraction industry has, on the other hand, fallen significantly.

From the perspective of ownership sectors, the public enterprises are by far the most important employers, accounting for 80.3 per cent of total employment and 55 per cent of employment in those employed in enterprises under Ministry of Industry supervision. This share has fallen since 1980 due to the growth of employment in mixed sector and cooperative enterprises. The private sector, which comprises small-scale industrial enterprises, remains relatively unimportant as an employer.

Table 2.9: Growth and structure of manufacturing employment by sub-sectors, 1980, 1985 and 1987

Branch	1980 Number	1980 Per cent	1985 Number	1985 Per cent	1987 Number	1987 Per cent	Per cent change 1980-87
Extraction industry	241	2.5	179	1.8	162	1.6	-32.8
Food	1,533	16.4	1,916	19.2	1,979	19.3	29.1
Textiles, clothing and leather	3,368	36.0	1,907	19.2	1,899	18.5	-43.6
Wood and wood products	292	3.1	784	7.9	777	7.6	166.1
Paper and paper printing	719	7.7	671	6.7	620	6.0	-13.8
Chemicals	523	5.6	688	6.9	777	7.6	48.6
Building materials	128	1.4	532	5.3	620	6.0	384.4
Aluminium products	900	9.6	1,056	10.6	1,116	10.9	24.0
Oil refinery	1,643	17.6	2,225	22.3	2,314	22.5	40.8
Total	9,347	100.0	9,958	100.0	10,264	100.0	9.8

Source: Central Statistical Office, Statistical Year-book, 1988, p. 172.

Table 2.10: Growth and structure of manufacturing employment by ownership, 1980, 1985 and 1987

Sector	1980 Number	1980 Per cent	1985 Number	1985 Per cent	1987 Number	1987 Per cent	Per cent change 1980-87
Public	7,955	85.1	7,551	75.8	8,240	80.3	3.6
Cooperative	129	1.4	848	8.5	442	4.3	242.6
Mixed	931	10.0	1,183	11.9	1,217	11.9	30.7
Private	332	3.6	376	3.8	365	3.6	9.9
Total	9,347	100.0	9,958	100.0	10,264	100.0	9.8

Source: Central Statistical Office, Statistical Year-book, 1988, p. 168.

Levels of labour productivity, measured as production value (column I in Table 2.11) and value added per employee (column II), are generally low, though there has been a gradual increase in the production value per employee since 1980, and differ markedly between the ownership sectors. Productivity is highest in the mixed sector companies and lowest in the cooperatives. The poor performance of the cooperatives may be explained by the labour-intensive production methods employed, which accounts for the high value added/output ratio, and the low value of the products, most of which are social goods such as uniforms with low or negative profit margins. The private sector, by contrast, produces high value goods and, although the production is small-scale, the production methods are generally more capital-intensive. Consequently productivity levels are relatively high.

Differences in productivity levels between the mixed and public sectors may also reflect the product mix. Several of the public sector companies produce social goods with low prices, such as the dairy and the grain mill while a number of others are strategic and basic industries. Nevertheless, there has also been a tendency towards overstaffing in the public sector enterprises particularly in the administrative grades. Efforts to rehabilitate and reduce production costs in the public sector companies during the mid-1980s have, however, brought about a steady rise in productivity and the gap between mixed and public sector enterprises has narrowed from a ratio of 2.9 in 1980 to 1.4 in 1987. Moreover, reductions in foreign exchange allocations and raw materials supplies since 1985 have led to a fall in the productivity levels of mixed and private sector companies.

Table 2.11: Labour productivity, by ownership 1980, 1985, 1987 and 1988
(Enterprises under Ministry of Industry supervision)
(YD)

	1980		1985		1987		1988 c/	
	I a/	II b/	I	II	I	II	I	II
Public	3,025	695	4,952	1,793	5,976	1,962	5,681	1,672
Mixed	8,766	2,922	9,733	4,410	8,500	2,805	9,268	3,181
Cooperative	1,080	523	2,600	1,137	2,605	1,099	2,668	1,112
Private	4,475	1,250	7,155	1,745	6,344	1,449	7,201	2,000
Total	4,099	1,157	5,758	2,358	5,974	1,963	6,054	1,921

Source: Based on data provided by the Ministry of Trade, Industry and Domestic Supply.

a/ Production value in YD per employee (1980 and 1985 in prices of 1980; 1987 and 1988 in prices of 1985).
b/ Value added per employee (current prices).
c/ Estimate.

At branch level, productivity is highest in the food processing, chemical products and metalworking sub-sectors due to the capital-intensive production methods used (Table 2.12). Productivity is particularly low in the textiles and clothing, wood products and leather products industries where highly labour-intensive production methods are still the norm, while the low productivity of the extraction industry reflects the poor performance of the salt plant and its high staffing levels.

Table 2.12: Labour productivity, by industrial branch 1987 and 1988
(Enterprises under Ministry of Industry supervision)
(YD)

Branch	1987 I[a]	1987 II[b]	1988[c] I	1988[c] II
Food processing	10,454	2,817	9,162	2,304
Textiles and clothing	2,083	784	2,221	859
Leather products	4,615	1,626	4,670	1,321
Wood, paper and printing	3,083	1,377	3,120	1,320
Chemical products	8,540	3,359	9,966	4,065
Extraction	3,438	510	3,665	852
Metal products	6,023	2,231	5,954	2,025
Total	5,974	1,963	6,054	1,921

Source: Based on data provided by the Ministry of Trade, Industry and Supply.

a/ Production value per employee in prices of 1985.
b/ Value added per employee in current prices.
c/ Estimate.

2.4 Performance and efficiency

Low capacity utilisation rates, combined with the inflexibility of the work-force in the face of changing economic circumstances at a plant level, are one of the principal causes of low labour productivity. No systematic survey of capacity utilisation rates has been undertaken in recent years, although, in view of the government's emphasis on rehabilitation during the current plan, this could provide an important indicator of plants in need of assistance. However, a 1981 survey revealed that only 46 per cent of production capacity in the public sector was utilised and 62 per cent in the mixed sector. At a branch level, rates of capacity utilisation varied from 28 per cent in the chemicals sub-sector to 76 per cent in the leather products industry, 62 per cent in engineering, 42 per cent in textiles and 45 per cent in food processing. Plant level studies (see Section 3) indicate that the problem persists despite government efforts to bring spare capacity into use.

In some cases low capacity utilisation rates are due to genuine over-capacities where the scale of production of the minimum viable industrial plant exceeds the needs of the limited local market. In such industries, small-scale labour-intensive industries may be a realistic alternative. More often low capacity utilisation rates result from the selection of inappropriate equipment, the closure of production lines, poor maintenance and the lack of skilled repair staff. A number of plants have had to reduce production, even forced to close, due to shortages of raw materials; a problem that has become acute since 1985 with the tightening of foreign exchange budgets.

Poor performance, together with the rising cost of raw materials, has inevitably compromised the financial viability of a number of enterprises. Seven of the 17 operational public sector enterprises under Ministry of Industry supervision recorded losses in 1987. In contrast, only one mixed sector plant, the match factory, recorded losses, and these were absorbed at enterprise level by the profits of the cigarette factory. Moreover, profit rates are significantly higher overall in the mixed sector: a situation that may be explained, to a large degree, by the fact that many of the products of public sector enterprises are sold at or near cost price while the prices of the mixed sector products are higher and more flexible (Table 2.13). The poor financial performance of the cooperative sector also reflects the concentration of production on social goods with a low return, though poor management and low productivity also play an important part.

Table 2.13: Financial performance of enterprises by ownership, 1987 and 1988
(Enterprises under Ministry of Industry supervision)
('000 YD in current prices)

Sector	1987 Production value	1987 Profit	1987 Profit[a] rate	1988[b] Production Value	1988[b] Profit	1988[b] Profit[a] rate
Public	18,107	5,056	0.28	19,580	2,976	0.15
Mixed	10,240	3,632	0.35	11,971	2,588	0.22
Cooperative	2,487	215	0.09	2,594	255	0.10
Private	2,423	86	0.04	2,663	272	0.10
Total	33,257	8,989	0.27	36,808	6,091	0.17

Source: Based on data provided by the Ministry of Industry, Trade and Supply.

a/ Dinar of profit per dinar of output.
b/ Estimate.

Although the returns of private sector companies must be treated with caution, the profit levels appear to be uniformly low despite the flexible pricing of the products. This reflects the high cost of raw materials, utilities and labour and the constraints imposed by tightening of foreign exchange budgets since 1985. Such low levels of return are a disincentive to investment and may account for the popularity of the mixed sector ventures among investors.

The Ministry of Industry does not compile statistics on the foreign exchange savings generated by enterprises although forecasts of foreign exchange requirements are used in the selection of new investment projects. Given the constraints on the foreign exchange budget such data would be an important planning tool, particularly for the allocation of foreign exchange resources between enterprises. An appropriate accounting method has to be identified before such statistics can be compiled on a regular basis.

2.5 Exports and imports of manufactures

PDR Yemen has, traditionally, exported very few manufactured or processed goods. Industrial development has followed the path of import substitution and the country's manufacturing and processing industries are oriented towards meeting the needs of the domestic market. Only two industries - the salt works and the oil refinery, which refines oil under contract from foreign crude oil producers - have developed strong links with export markets. Other industries have exported excess production as and when contracts have been secured but have made little or no attempt to identify and penetrate potential markets abroad on a systematic basis. As a result their contribution to exports has been both limited and variable.

Table 2.14: Exports and re-exports by degree of processing, 1980, 1985-87
('000 YD)

Degree of processing		1980	1985	1986	1987	Per cent change 1980-87
Processed	(Value)	1,766	5,025	842	6,506	268.4
	(Per cent)	12.1	36.3	8.4	26.8	
Semi-Processed	(Value)	3,584	1,034	1,459	7,209	101.1
	(Per cent)	24.6	7.5	14.6	29.7	
Raw materials	(Value)	9,197	7,793	7,720	10,570	14.9
	(Per cent)	63.2	56.3	77.0	43.5	
Total		14,547	13,852	10,021	24,285	66.9
of which re-exports		1,025	1,084	1,193	1,347	31.4

Source: Central Statistical Office, Statistical Year-book, 1988, pp. 248.

According to the Central Statistical Office's classification of exports and re-exports by degree of processing, processed goods accounted for only 12.1 per cent of total exports and re-exports in 1980 and 26.8 per cent in 1987, reaching a peak of 36.3 per cent in 1985 (Table 2.14). Exports of semi-processed goods, principally dried and cured agricultural products, have generally been slightly higher, but the bulk of exports have been un-processed raw materials. If the exports of the manufacturing and processing industries are identified on a product by product basis, their share in total exports has risen from 33.5 per cent in 1980 to 57.6 per cent in 1987, but amounted to only 22 per cent in 1986.

The oil refinery is by far the most important foreign exchange earner in the manufacturing sector accounting for 20 per cent of manufactured exports in 1980, 66 per cent in 1985 and 90 per cent in 1987. Other manufactured and processed exports include cotton, salt, fish products, leather, aluminium utensils, paints and emulsions, carpets and cigarettes. Of these only the cigarette and carpet factories have shown consistently strong export performance, though export sales of both companies have fallen since 1985, largely due to the management's efforts to build links with regional markets. When exports of manufactures are seen as a percentage of total production value the minor role of export markets - and the importance of the oil refinery in manufactured exports - is immediately apparent.

Table 2.15: Exports of manufactured goods as percentage of total production value, 1980-1987 (selected years)

	1980	1985	1986	1987
Including oil	11.6	8.1	4.2	23.6
Excluding oil	12.0	3.6	1.4	2.8

Source: Tables 2.1 and A-5.

Despite the rapid growth of processing and manufacturing industries since Independence PDR Yemen remains heavily dependent on imports of consumer goods and raw materials and imports virtually all the intermediate and capital goods used in industry. By and large imports are restricted to those goods not manufactured in PDR Yemen. All new enterprises receive protection through controls on import licences and high tariffs under Article 14 of the Investment Law of 1981 (No.25). The level of import tax is highest for luxury goods such as cigarettes (200 per cent) and carpets (50-75 per cent), while taxes on imported raw materials are generally low (10-15 per cent) with exemptions for certain essential commodities such as fertilisers. This ensures that industrial enterprises suffer little competition from imports.

These protective measures have not encouraged industry to become competitive in the world market and comparative advantage has little place in the selection of industrial projects. As discussed above the main strategy of industrial development has been import substitution and, in this context, foreign exchange savings are increasingly important as a criteria of project selection. There is considerable potential for developments along these lines. Consumer goods accounted for 47.6 per cent of imports in 1985 and 50.2 per cent in 1987. Processed food, beverages and cigarettes account for the largest share of these imports but imports of manufactured goods have been growing importance.

A major problem in recent years has been the reduction in the foreign exchange budget (see Section 1.1). Tighter import licensing controls and reductions in foreign exchange budgets at a Ministry level have been imposed since 1985 which led to 30 per cent fall in the value of imports by 1987. These cuts have had a dramatic impact on the composition of imports and the performance of the industrial sector. Imports of consumer goods were reduced by 25.8 per cent between 1985 and 1987 but the proportion of consumer goods in total imports has increased from 47.6 per cent to 50.2 per cent over the same period (Table 2.16). Imports of capital and intermediate goods, on the other hand, have been cut by 15 per cent and 37.7 per cent respectively while the imports of raw materials have fallen by 78.7 per cent.

Table 2.16: Imports by end use, 1980, 1985-87
('000 YD)

End use		1980	1985	1986	1987	Per cent change 1980-87
Capital goods	(Value)	42,706	43,257	40,186	36,645	-14.2
	(Per cent)	18.1	17.9	24.1	21.6	
Intermediate goods	(Value)	58,161	73,746	40,585	45,946	-21.0
	(Per cent)	24.6	30.6	24.3	27.1	
Raw materials	(Value)	47,724	9,329	7,113	1,981	-95.8
	(Per cent)	20.2	3.9	4.3	1.2	
Consumer goods	(Value)	87,668	114,823	78,924	85,128	-2.9
	(Per cent)	37.1	47.6	47.3	50.2	
Total Imports		236,259	241,155	166,808	169,700	-28.2

Source: Central Statistical Office, Statistical Year-book, 1988, pp. 249.

At plant level foreign exchange allocations have been cut by up to 40 per cent of the pre-1985 level. Inevitably this has compromised productivity, particularly among those enterprises dependent on imported raw materials. According to projections by the Ministry of Industry, Trade and Domestic Supply, further cutbacks will lead to a 24 per cent fall in industrial output from 1988 to 1989. The Ministry of Industry has tried to mitigate the effects by allocating foreign exchange to priority industries in the food processing sector but there have still been cuts across the board. The foreign exchange shortage translated into reductions of raw materials supplies and constraints on investment is likely to become more acute in the near future. Income from oil exports will give a temporary respite, but, in the long-term, the solution must be the promotion of exports from industry and agriculture and the further development of industry along the lines of import substitution.

2.6 Size and regional distribution of manufacturing enterprises

Manufacturing enterprises in PDR Yemen tend to be rather small in employment size. The average number of employees per enterprise is 105.9 and in 1988 nearly 90 per cent of all enterprises employed less than 201 workers and nearly 50 per cent employed less than 50 workers. Marked differences can be seen between the ownership sectors. Public sector companies are generally larger, with an average work-force of nearly 200 employees, while the private sector enterprises are predominately small, with an average work-force of only

17 employees. These distinctions override those between the industrial branches, though enterprises in the wood products (average work-force of 141) and the food processing branches (average work-force of 119) are generally larger than in other branches.

Table 2.17: Distribution of manufacturing enterprises by size, 1988
(Enterprises under Ministry of Industry supervision)

Sector	Average no. employees per enterprise	Number of enterprises by work-force 20	21-50	51-100	101-200	>200	Total
Public	198.7	-	2	1	10	5	18
Mixed	129.4	-	4	1	5	1	11
Cooperative	122.9	-	3	1	3	1	8
Private	17.0	16	4	2	-	-	22
Total	105.9	16	13	5	18	7	59

Source: Based on data provided by the Ministry of Industry, Trade and Domestic Supply.

Industrial activity is distributed extremely unevenly between the governorates. As Table 2.18 shows, the governorate of Aden accounted for 94.7 per cent of the country's production value in 1980, the adjoining Governorate of Lahej for another 2.6 per leaving less than 4 per cent for the remaining four Governorates, with no industrial activity at all in the Governorate of Al-Mahra. By 1987 the situation had improved slightly with Aden's share of industrial output dropping to 92.1 per cent, largely due to the expansion of production in Hadramawt to 3.9 per cent of the total.

This regional imbalance is undesirable for socio-economic reasons. The growth of Aden has placed a severe strain on the Governorate's resources, water in particular (see Section 5.5), while the housing stock has been unable to keep pace with the rapid rate of urbanisation: by 1985 some 15,000 families were living in temporary accommodation. Infrastructure too has lagged behind industrial growth and industrial plants are often found in close proximity to residential areas. From a development perspective the regional economies are effectively truncated and dependent on the capital for most of their needs in manufactured goods. The range of employment opportunities too is narrowed.

The concentration of industry in Aden has also increased the cost of distributing raw materials and finished goods. In a large country such as PDR Yemen with a poorly developed infrastructure the cost of transport between the major urban centres are high: YD26.8 per ton between Aden and Mukalla and YD26.4 per ton between Aden and Sayun. Furthermore, since many of the industrial enterprises undertake their own distribution lorries often return empty after delivering to the distant Governorates.

Table 2.18: Production value by Governorate, 1980, 1985 and 1988
(Percentage)

Governorate	1980	1985	1987
Aden	94.7	92.7	92.1
Lahej	2.6	2.1	1.9
Abyan	1.8	1.6	1.8
Shabwa	0.1	0.2	0.3
Hadramawt	1.3	3.3	3.9
Al-Mahra	-	-	-

Source: Ministry of Industry, Statistical Year-book, 1988, Table 11.

While the concentration of industrial activity may promote linkages and permit the centralisation of services, such as repair and maintenance, a more equitable distribution of industrial activity would clearly bring significant economic and social benefits. Considerable potential exists for the development of regional industrial centres with resource-based industries and manufacturing enterprises producing bulky, low value goods for discrete regional markets. Decentralisation of industrial production is, however, contingent on the development of adequate infrastructure and would be greatly assisted by the formulation of a regional development strategy (see Section 4.2).

2.7 The role of small-scale industries

Small-scale private sector industry is generally referred to as the "unorganised sector" by the Ministry of Industry, Trade and Domestic Supply, a term that reflects the degree of government intervention. Little information is available about the scale or scope of these enterprises since licences are awarded by municipal authorities.

The 1988 census will provide the first detailed study of small-scale enterprise sector but at the time of writing only the preliminary results were available. These enumerate the number of establishments - a broad term covering productive and service enterprises such as shops, schools, mosques and cooperatives but excluding private and state sector farms and economic activities that take place without a permanent address - but give no details of their activities (Table 2.19). Nevertheless, the total number of employers (27,930) and private establishments (26,037) suggests that there are a substantial number of small enterprises. The average number of employees per establishment is 4.4, significantly fewer than in the surveyed industrial enterprises. Most of the private sector establishments (80.8 per cent) and employers (80.5 per cent) are located outside the capital, though employment is concentrated in Aden reflecting the concentration of the larger establishments there, suggesting that the distribution of small-scale economic activity is more even than that of the large-scale enterprises.

Table 2.19: The distribution of establishments and employment in establishments, 1988

	Aden Governorate	Outside Aden	Total
Number of establishments			
Governmental	1,330	5,985	7,315
Cooperatives	54	910	964
Joint ventures	159	155	314
Private	4,999	21,037	26,036
Total number of establishments	6,616	28,146	34,762
Number of employees			
Employers	5,437	22,493	27,930
Employees	60,576	55,585	116,161
Unpaid workers	2,675	6,767	9,442
Total number of employees	68,691	84,842	153,533

Source: Central Statistical Organisation, Second General Census of Population, Households and Enterprises: Preliminary Results, 1989.

Handicrafts such as bakeries, confectionery shops silver work, blacksmiths, weaving, carpentry, brickmaking, stone cutting and dressing are likely to form a major part of the small-scale industry sector. These activities are integrated into village life throughout the country and generally adhere to traditional techniques and materials. They provide an important source of income and a substitute for imported products. In addition there are numerous repair and assembly workshops on the margin of the modern sector, many of them repairing vehicles and electrical appliances. Altogether these enterprises are thought to account for about one quarter of the total output of manufactured and processed goods.

At present little is done to enhance and expand the productive capacities of these workshops though there is little doubt that the co-ordination of marketing and purchases of raw materials and the provision of credit facilities and extension services would raise productivity and encourage new initiatives in small-scale industry. Cooperatives could provide the institutional structure for development. A coherent policy is urgently needed but its preparation is handicapped by the dispersal of responsibility between the municipalities. Recently the Ministry of Industry, Trade and Supply established a department to oversee developments in this field but its functions and authority have yet to be clearly defined.

3. POTENTIALS AND CONSTRAINTS OF INDUSTRIAL SUB-SECTORS

3.1 Food Processing, Beverages and Tobacco[1/]

Attempts to develop resource-based processing industries in the food and beverages sub-sector have been constrained by the shortage, unreliability and poor quality of local agricultural production. Industrial output is heavily dependent on imported raw materials. Nevertheless, food processing is by far the country's most important manufacturing branch accounting for 46.2 per cent of total output of enterprises under Ministry of Industry supervision and 37.9 per cent of manufacturing value added in 1987.

Industrial production of grain flour and vegetable oils has proved unsuccessful due to the high cost and inadequate supplies of local raw materials. Flour produced by the grain mill, which began production in 1975, has been undercut by imports in recent years. In 1987 output, 30,700 tons valued at YD3.2 million, was slightly lower than in 1980 and the final results for 1988 are expected to show a further 12 per cent fall in production value and an operating loss of YD65,600. Approximately half the local consumption of flour is met by imports, which totalled 34,900 tons in 1987. Whilst prices for imported flour are lower than prices for imported and locally produced grain the economic justification for running the mill will be weak.

Nevertheless, the mill employs 118 people and the milling facility is regarded as important for reasons of economic security. The sale of grain milling by-products such as husks for use in animal feeds could provide an important source of supplementary income to the mill and reduce losses. The government is currently reviewing the feasibility of an animal feed supplements plant that could use these materials.

An edible oil mill and refinery was established at Al-Khod in 1976 as a gift from the Peoples Democratic Republic of Korea. The rated capacity of the mill is 30 tons of cottonseed and 10 tons of sesame seed per day. A second mill at Al-Mansoura with capacity of 40 tons of cottonseed and 20 tons of sesame began operations in 1979. Both mills have operated well below capacity due to shortages of cottonseed and sesame seed. Low prices for these commodities have encouraged farmers to reallocate land to more remunerative horticultural and fodder crops. Moreover, the Al-Khod factory has faced technical difficulties. Although the plant was rehabilitated and new plant commissioned in 1987 it continued to have mechanical problems and was shutdown in the same year. The Al-Mansoura factory has also been closed because it was operating below break even point and consistently sustaining losses. No production of vegetable oils has been reported since 1985 though small-scale artisanal mills have continued to operate using the limited local production of oil seed.

1/ Statistics on the output of manufactured and processed products are provided in Annex A, Table A-5. Details of the performance of enterprises under the supervision of the Ministry of Industry, Supply and Trade for the years 1980, 1985, 1987 and 1988 are summarised in Annex B: Table B-1, Production Value; Table B-[illegible] Value added; Table B-3, Employment; Table B-4, Productivity (Valu[illegible] production and value added per employee for 1987 and 1988); and Ta[illegible]-5, Financial Performance (Production value in current prices in profi[illegible] .987 and 1988).

A feasibility study presented in 1985 recommended that rehabilitation of the factories should be postponed until regular supplies of cottonseed could be guaranteed. However, in view of the high cost of vegetable oil imports - YD7.1 million in 1986 and YD4.2 million in 1987, of which sesame oil accounted for 20 and 29 per cent respectively - the feasibility of rehabilitating existing production capacity merits immediate review. Total imports of edible vegetable oils and fats were 31,000 tons in 1986 and, despite a fall in imports to 21,000 tons in 1987, is expected increase in the near future. These levels of consumption could sustain a vegetable oil mill. Production would, at present, depend on imported seed. However, the use of supply contracts between a mill and farmers could stimulate local production of suitable oil seeds. Furthermore, the economic viability of such a plant has been strengthened by the recent growth in demand for oil cake as an animal feed supplement.

Two industrial bakeries were established by the government in the late 1970s in response to the inability of small artisanal bakeries to meet growing demand for wheat bread. Three mixed sector bakeries have followed in Mukalla, Shahar and, most recently, in Sayun. A UNIDO survey in 1986 concluded that further industrial bakeries were not required because existing capacities were sufficient to meet the demand for wheat bread. Indeed, while the regional bakeries rapidly increased their output, capacities in Aden were significantly underutilised. This reflected the locational inflexibility and poor marketing methods of the industrial bakeries which were unable to distribute their products fresh or compete in quality with the small local bakeries.

Product diversification, into such items as sponge cake and wheat fancy biscuits, was recommended by the UNIDO mission as a means of enhancing capacity utilisation rates at the Mansoura bakery, estimated at below 40 per cent in 1985. While some of the recommendations have been carried out the capacity utilisation rates have deteriorated and levels of productivity are still less than half those recorded at the Mukalla bakery and only a third of the bakery at Shahar. Furthermore, the public sector bakery has registered operating losses of YD158,000 in 1987 and an estimated YD145,000 in 1988. The company is clearly in need of further technical assistance in order to develop the production and management skills, identify and initiate production of a range of alternative bakery products for the local market.

Competition in this field has been introduced by the establishment of a biscuits and sweets factory in 1988. The project was conceived on the basis of import substitution with the imports estimated at about 3,000-3,400 tons of biscuits per year during the mid-1980s, at a cost of YD3 million, and approximately the same for sweets. The level of *per capita* consumption of biscuits was considered low in relation to other countries in the region. By adopting a medium projection, based on an increase in *per capita* consumption from 1.7 kg *per capita* per year to 2.5 kg, the feasibility study projected a rise in demand to 6,650 tons in 1993. Demand for sweets is expected to increase at a similar rate. On the basis of a market study five varieties of biscuits and three varieties of sweets were selected. Production capacity - 4,000 tons of biscuits and 3,000 tons of sweets - covers current demand.

Preliminary results for the first year of operation indicate respectable production and productivity levels, despite initial technical problems with the oven firing. In addition the factory is thought to generate foreign exchange savings of 50 per cent even though all the equipment and raw materials are imported. Installed on a turnkey basis, the plant is dependent on the continued technical support of the installation company due to the highly sophisticated nature of the machinery installed and at the end of the first year will need technical assistance in fields of baking and production management.

PDR Yemen's limited agricultural resources and an inefficient distribution system for agricultural products are major constraints on the development of processing industries. Only two plants have been established in the fruit and vegetable processing sector: a tomato paste factory in Lahej which began production in 1976 and a date packaging plant in Sayun which began production in 1979. Output from the tomato paste plant increased from 1,200 tons in 1980 to 1,700 tons in 1987 and the company is currently operating above its installed capacity of 1,600 tons of concentrate per year. However, the company has faced difficulties securing supplies of raw materials since domestic tomato production is less than a quarter of the annual processing capacity of 56,000 tons of tomatoes. Moreover, many of PDR Yemen's horticultural crops are cultivated in Hadramawt, 650 km away, and, due to the highly perishable nature of the fruit and the limitations of local packaging materials, cannot be transported to the factory. In 1987 only 4,374 tons of a total tomato crop of nearly 14,000 tons was processed. The seasonality of production also presents problems. Local products are only used during the tomato season, 100 days a year. For the rest of the year the plant dilutes imported triple concentrate into the double concentrate suitable for the local market. As a result, the factory generates little value added.

In order to increase the volume of domestically produced tomatoes processed the government is considering building a second paste factory in Hadramawt and shipping the concentrate to the Lahej factory for canning. This would reduce the import requirements of the existing facility. Attention should also be given to the opportunities for introducing new processing facilities, in particular the development of multipurpose factories adaptable to seasonal fluctuations of agricultural production. New facilities would offer the government an opportunity to disperse industrial activity in the agricultural Governorates. Linkages with processing facilities might also stimulate the cultivation of vegetable and fruit crops and, where supply contracts are established, could provide a regular source of income for cooperatives, state farms and private farms. The establishment of simple packaging facilities in the major agricultural areas could, moreover, bring about a significant reduction in the wastage of perishable produce - currently estimated at 50 per cent - and make a major contribution to the country's food balance.

Facilities are also poorly developed in the dairy products and meat processing branches. The dairy facility, established in 1959 and refurbished in 1979, uses mostly reconstituted imported milk powder in the preparation of pasteurised and UHT milk, yoghurt and fresh cottage cheese. Consequently the value added generated by the factory is among the lowest in the industrial sector. Moreover, the company has consistently recorded operating losses due to the high cost of imported milk powder and packaging materials. Production value has increased steadily since 1980 largely due to the increase in sales of higher value milk products and there is room for further product diversification. Milk production, on the other hand, has decreased from 5.7 million litres in 1980 to 4.4 million litres in 1987, less than 15 per cent of the installed capacity (32.8 million litres per year). Sales are thought to cover only 20 per cent of milk consumption nation-wide.

In view of the health hazards posed by the consumption of unpasteurised milk and the reconstitution of powdered milk in unhygenic conditions it is desirable to increase the dairy's sales. An increase in consumption might be achieved by a reduction in costs and prices. Distribution costs could be reduced by changing the brand of packaging materials from Tetrapak, which is extremely expensive and imported, as opposed to cheaper polyethylene bags. The dairy currently imports all its packaging materials at an annual cost of $320,000 and so the use of cheaper packaging materials would also have an impact on the plant's profitability and foreign exchange savings. Milk was, initially, packaged in such containers but the management adopted the more sophisticated and durable Tetrapak packaging materials in order to cater for consumers' preferences. However, detailed analysis of the price elasticity of demand should be undertaken to assess the impact of a price reduction of 10-30 per cent, as might be effected by a change in packaging materials, on sales to lower income groups. The higher wastage caused by the breakage of less robust containers will be a major constraint but the dairy could use two packaging materials for different markets.

There are currently no meat processing facilities in PDR Yemen. Meat is distributed from local slaughterhouses fresh, but the bulk of the local market demand is met by meat imports which totalled 10,300 tons in 1987. This meat is simply repackaged in 1lb and 2lb bags, and then distributed by the Public Meat Corporation. The recent growth of poultry farming has led the government to propose a 1,000 ton capacity poultry meat processing and packaging unit at Bir Ahmed, near the capital, for investment under the Third Five-Year Plan. This plant will be under the supervision of the Ministry of Agriculture and Land Reform.

Two industrial firms operate in the beverages sector. The largest of these is the National Organisation for Bottling Aerated Water, established in 1972 and moved to the present site in 1980, which produces soft drinks under licence from Canada Dry. All the bottles, concentrates and sugar used are imported. Carbon dioxide is produced in the factory and a reverse osmosis plant is used to reduce the dissolved solids content of mains water to acceptable levels. Production has increased threefold from 4 million litres in 1980 to 12.5 million litres in 1987 and is expected to increase to 15.8 million litres in 1990. At present the plant covers the national market but, in view of the high costs involved in distributing bottled products to the eastern Governorates, the Ministry of Industry has proposed the establishment of a second plant at Mukalla or in Hadramawt Governorate. Construction of this plant has been postponed in order to allocate investment to higher priority products. Nevertheless, the project deserves detailed study to assess the savings that could be generated by decentralisation of production. Alternatively the introduction of cans as packaging materials could reduce distribution costs and possibly allow some exports. Development could also move in the direction of new product lines, in particular the introduction of local brands made from domestically produced concentrates.

A National Brewery Corporation was established in 1981 and, due to strong demand, the plant was expanded twice after completion. Sales reached 7 million litres in 1985 though this has subsequently tailed off to 5 million litres in 1987. The enterprise has high capacity utilisation and productivity levels but depends entirely on imported raw materials and bottles. There is little opportunity to substitute local products although the use of cans instead of bottles is under review.

A cigarette factory, owned by the National Cigarettes and Matches Industries Ltd., established in 1973, produces two brands of cigarettes Radfan, which accounts for two thirds of the sales, and Pall Mall, which is manufactured under licence from a British company. Production of a third brand, Perim, has stopped. Output stagnated in the mid-1980s and was slightly lower in 1987, 1,193 million boxes, than in 1980, 1,248 million boxes, largely due to declining domestic sales. A UNIDO mission[1/] identified overstaffing, wastage of raw materials, lack of quality control and poor production management as the principal problems facing the factory. The mission recommended that the company introduce targets for productivity and suitable incentive scheme, improve maintenance and production procedures, tighten quality control and the usage of raw materials and make an effort to break into international markets based on the products' reasonable price in order to overcome the problems faced in the domestic market.

The management has implemented most of these recommendations. Export promotion has been particularly successful with export sales increasing from YD1,000 to YD808,000 in 1985, though this subsequently fell to YD224,000 in 1987. However, an increase in the size of the work-force from 350 in 1980 to 462 in 1988 appears to have overcome the company's efforts to increase productivity. In 1988 levels of productivity (production value per employee) were 8 per cent lower than in 1983 and 17 per cent lower than 1980. This has been reflected in a decline of pre-tax profits from YD1.057 million in 1982 to only YD292,800 in 1988.

3.2 Fish Processing

PDR Yemen has plentiful fish resources (see Section 5.2) which merit the development of processing industries aimed at both the domestic and export markets. Traditionally most of the fish catch has been consumed fresh. Artisanal fishermen in the remote eastern Governorates dried and salted part of their catch for sale in the interior but until the mid-1970s there were no industrial processing facilities. Fish exports were processed - gutted and frozen - at sea by foreign vessels. In 1973 the government initiated a major fisheries development programme aimed at increasing both the volume, the value added and the national share of the fish catch. As part of this programme facilities for the processing of high value export species, fish canning and the production of fish meal from low value species were established.

High value species such as lobsters, shrimps and cuttlefish are virtually all exported, accounting for 97 per cent of fish exports by value in 1986. These species are simply quick frozen: they undergo no other processing in PDR Yemen. Most of the catch passes through facilities managed by the Yemeni-Soviet Joint Venture which maintains sophisticated technology. The high cost of processing these species can be recovered due to the high value of the products.

1/ UNIDO, H. S. Dwarakanath, Report on the Industrial Engineering Study and Productivity Survey at the National Cigarette and match Industries Co., Aden, September 1984, (DP/PDY/81/006).

The economics of processing lower value species has proved more problematic. Fish canning plants were established at Shuqrah in 1974, production beginning in 1976, and Al Mukalla in 1979, financed by loans from the Japanese and Soviet governments. They have a combined capacity of 13.6 million cans. Output climbed slowly, reaching two thirds of capacity in 1985, and has now levelled out (Table 3.1). This represents scarcely 2 per cent of the total fish catch. The products are low value tuna, mackerel and sardines all of which are sold on the domestic market. Costs are high because most of the materials are imported and, despite the good quality of the product, the factories have little export potential.

Table 3.1: Production of canned fish, 1980, 1984-1988 and 1990

Canning factory	1980	1984	1985	1986	1987	1988	1990[a/]
Production ('000 tins)							
Shuqrah	1,401	3,089	4,008	3,273	4,324	4,369	5,000
Al Mukalla	1,917	4,495	4,568	4,315	4,440	3,637	4,725
Total	3,318	7,584	8,576	7,588	8,764	8,006	9,725
Production Value ('000 YD)	1,296	...	2,285	1,966	2,386	...	...

Source: Ministry of Fish Wealth and Central Statistical Office, Statistical Year-book, 1988, p. 164.

a/ Planned.

Modernisation of the factory at Al-Mukalla is currently under discussion. However, freezing is a less expensive alternative to canning and the reduced costs might provide opportunities for export. Arab investors have shown interest in such a project but further analysis of market trends and the cost structures is required before the development of such facilities can be seriously considered. Within the domestic market at least, frozen fish are unlikely to replace canned fish in the near future due to the lack of suitable storage facilities.

The development of a fishmeal industry has also been constrained by economic conditions. In the mid-1970s the government established a small fishmeal plant with a capacity of 150 tons/day, a floating factory with a capacity of 500 tons/day and began construction of a third factory with the same capacity. Output reached 1,350 tons in 1977 with a value of YD0.5 million, most of which was targeted for export. However, high production costs coupled with stagnant world prices and high levels of spoilage and wastage, due to the concentration of processing facilities and the dispersal of the fishing fleet, undermined the industry's profitability. Production fell to

YD162,000 in 1980 at which point the government cut back on the development programme and the existing plants were then closed in 1982.

The government is currently considering re-establishing the fishmeal industry on the basis of small-scale plants - 1,000 tons/year capacity - which would have lower unit production costs and the additional benefit of locational flexibility. Although fishmeal output is generally only 15 per cent of raw material inputs such plants would provide a means of utilising PDR Yemen's plentiful resources of low value fish species. Low world prices for fishmeal and fish oil are thought to rule out exports and production would be oriented towards the domestic market which, with the development of poultry farming, has expanded rapidly during the 1980s. Such projects would, however, have to be integrated with the development of a animal feed plant since only 10-15 per cent animal and fish proteins can be used in feed supplements. Nevertheless, in view of the efforts being made to increase the catch of fisheries cooperatives, who provide the bulk of the low value species, the feasibility of small-scale fishmeal plants merits detailed study. These cooperatives currently face difficulties disposing of sardines, which represent between 50 and 70 per cent of the catch, due to the lack of a local market.

Attempts are also being made to introduce new processing methods. Work began on the Aden Fisheries Project in October 1986, with assistance from the Soviet Union, which, besides storage and maintenance facilities, includes a fish fillet production unit with a capacity of 5 tons/day and a smoked fish production unit (1 ton/day). Further diversification of processing methods and the upgrading of traditional drying and salting facilities may provide the industry with new markets.

Given PDR Yemen's substantial fisheries resources the expansion and diversification of processing has considerable potential. Development will, however, depend on the careful selection and assessment of alternative processing methods based on the local and world markets for fish products.

3.3 Textiles and Clothing

Cotton has been cultivated in the PDR Yemen since the 1940s and a ginnery was built at Zinjibar in 1947. But it was only in 1975 that a spinning and weaving plant for the manufacture of textiles was established at Al-Mansoura. The plant, built with assistance from China, was originally planned to operate on domestically produced cotton inputs. However, the machinery installed required short staple inputs whereas the local cotton production at that time was geared to the export of medium and long staple cottons. Consequently the domestic production had to be re-oriented to meet the needs of industrial processing.

Since the 1970s, production of cotton has declined markedly, as farmers have substituted the higher value fodder and vegetable crops on irrigated land, leading to difficulties in securing supplies of raw materials. At the same time unit production costs for yarn were high and fed through into the textile weaving[1/]. Output was less than half - 42 per cent in 1982 - the

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1/ UNIDO, A. Aziz, A study of Yarn Production at the Yemen Textile Industry Al-Mansoura, July 1981.

nominal installed capacity of 7.2 million metres of cloth per year. The company also faced competition from imports as consumers preferred blends of cotton and manmade fibres. In 1980 the value of imported textiles was YD1.7 million compared with the factory's output of YD2.8 million. As a result of these difficulties the company recorded losses of YD0.4 million in 1981 and YD0.25 million in 1982.

A review of the textile factory's managerial, production and marketing difficulties was undertaken in 1983[1/]. This identified the principal problems facing the factory as:

- outdated, underutilised and overstaffed production facilities;
- spinning facilities unsuitable for the production of coarse and medium yarns;
- an urgent need for the replacement of the air-conditioning system;
- looms that were at the end of their economic life span and needed to be replaced by a smaller number of modern looms;
- low quality printing necessitating the introduction of modern screen printing equipment;
- low levels of training of personnel at all levels.

On the basis of an analysis of the textile market in PDR Yemen and the availability of raw materials the report ruled out the establishment of a new spinning and weaving mill. Instead the Ministry of Industry proposed the rehabilitation of existing spinning lines, the introduction of new weaving, printing, knitting and sewing machinery and cotton-polyester blending equipment at the existing factory. These proposals have yet to be implemented though, in late 1988, the French government agreed a loan protocol of $32 million covering the rehabilitation work and the tender is currently under review.

In the meantime the factory has engaged in a major cost-cutting exercise, reducing the work force from 1,118 in 1980 - 1,500 when originally established - to 800 in 1988. Productivity has improved due to better machine utilisation, unit costs were reduced by 30 per cent between 1982 and 1984 while output increased by 40 per cent over the same period and a further 15 per cent from 1986 to 1987. This has led to a reduction and the company's losses to YD13,000 in 1988. A UNIDO project[2/] has provided assistance in the field of marketing and the identification of new designs. Further technical assistance along these lines is needed. However, the long-term future of the plant depends on the implementation of the rehabilitation and modernisation programme. There is certainly room for growth: at present 90 per cent of the textiles used in the clothing industry are imported.

1/ Ministry of Industry, Feasibility Study for Cotton-Based Industry, March 1984 (prepared by Atkins Planning).

2/ UNIDO Project XP/DPY/002.

The ready-made clothing industry has developed rapidly since Independence with investments in this field by all ownership sectors. At present 11 enterprises produce a range of uniforms, traditional lungis and veils, mens', womens' and childrens' clothes. The largest plant in this branch is the Martyrs' Garment Factory, established as a public enterprise in 1975, which employs 187 persons. Although the plant operates with a healthy profit, production is handicapped by cramped and poorly laid out production facilities, the machinery - domestic sewing machines - is old and unsuited to industrial production. In the past production was largely limited to uniforms which are sold at a low margin of return. Furthermore, the enterprise lacks skilled production staff. As a result production times, around 35 minutes for shirts for instance, are relatively long by international standards.

Production methods have been improved by technical assistance from Syria. The company has recently introduced a production line for shirts and contract for the supply of 200,000 shirts to the Public Corporation for Electric Power was signed in early 1988. The immediate impact has been a 12 per cent fall in productivity (output per employee) from 1987 to 1988 as an increase in personnel was not matched by a corresponding increase in output. Further technical assistance in the fields of product design, assembly methods and maintenance would help raise productivity levels.

The problems faced by the Martyrs' Garment Factory are also seen in the four cooperatives manufacturing clothing and the three private sector enterprises. The cooperatives in particular face low productivity levels reflecting the inadequacy of the production facilities, shortages of raw materials and the low training levels of the employees. Moreover, the output of cooperatives is geared to the provision of social goods - workers' and school uniforms - which are mostly sold at cost price. Although the cooperatives should cover these losses by a product mix including goods sold at market prices two of them registered losses in 1987. The three private sector enterprises produce most of high value adult clothing and their productivity levels are correspondingly high. Recent private sector initiatives include a plant producing clothing from synthetic materials, a sock factory and an embroidery workshop. Further initiatives in the production of quality clothes for the consumer market are needed. Imports of clothing amounted to YD4.2 million in 1985, 2.5 per cent of total imports. They fell to YD1.9 million in 1987 but only as a result of reduced foreign exchange allocations for clothing importers; demand continues to outstrip supply.

Two other successful enterprises are the Shabwa Weaving Cooperative and the National Carpet Factory. The cooperative members produce popular traditional products for which they are paid a piece rate. Marketing, the purchase of raw materials and training are centralised through the cooperative. The carpet factory, on the other hand, is a private sector enterprise which registers high labour productivity due to the capital intensive nature of the production methods. Although most of the raw materials - synthetic fibres - are imported the enterprise makes an important contribution to foreign exchange savings. Output has increased steadily in recent years and the company has secured an export market in Yemen Arab Republic. The total value of carpet exports has increased from YD35,000, 31 per cent of output, in 1980 to YD49,000, 34 per cent of total output, in 1987. Further expansion into the regional market is anticipated.

3.4 Leather

A National Tannery was established in 1973 as the basis for a leather products industry to increase the value of exported skins and hides. At that time leather curing was an artisanal operation characterised by low and erratic output of poor quality skins and hides. The output of the new tannery peaked at 52,000 tanned skins in 1975.

In 1981, the tannery was refurbished with assistance from UNIDO and new machinery was installed in 1983. However, frequent breakdowns, a consequence of the use of reconditioned machinery and the poor maintenance of complex equipment, have led to low levels of capacity utilisation. Some of the machinery installed still lies idle. The tannery has also suffered from inadequate supplies of hides, as herds have been sold for higher prices and convertible currency in the Yemen Arab Republic, and the low quality of domestic sources raw materials resulting from inappropriate slaughtering and skinning techniques in local abattoirs. During the early 1980s the leather industry imported most of its raw materials and sales stagnated in the early 1980s.

More recently improvements in quality have led to a rise in demand. In 1985-86, for instance, the tannery supplied 95 per cent of the leather used by the shoe factory. However, the cost of raw materials has increased without commensurate increases in product prices and the tannery recorded losses in 1987 and 1988. Technical assistance is needed in the fields of production management, maintenance and production skills.

The Leather Shoes Factory, initially a leather training centre established with UNIDO assistance, began operations in 1976. Production has increased steadily in recent years reaching 240,000 pairs of sandals, shoes and boots in 1987 compared with only 94,000 pairs in 1980. A successful product mix of boots for the military and children's footwear sold at a low margin and adult footwear, including sports shoes, has enabled the company to register a profit. The company has also taken over its marketing from the National Company for Home Trade, which had allowed large stocks of shoes to build up despite the strong market demand, and improved its sales performance. A shortage of space and the lack of funds to purchase new equipment together with a shortage of skilled personnel have been cited as constraints to increased production and productivity. Nevertheless, the management has identified new product lines and has sought to improve labour productivity through the implementation of an incentive scheme. Further technical assistance is needed to upgrade production methods and ensure product quality.

Two other enterprises operate within the leather products branch: a private sector company producing school bags, ladies handbags, briefcases and travelling cases from leather and leather substitutes, established in 1972, and a leather workers cooperative producing women's and children' sandals and leather upholstery for furniture and cars. Production stagnated in both enterprises during the mid-1980s but has since recovered.

Within the leather products industry there is a need to diversify production lines through the introduction of fashion and quality products. At present the demand for fashion and quality footwear is met entirely by imports which have increased from 165,000 pairs in 1980 to 365,000 pairs in 1987. Development in these fields will, however, depend on technical assistance in production methods and product design.

3.5 Wood products

There are three industrial enterprises producing wood products in addition to a large number of small-scale artisanal carpentry workshops. Each of these enterprises produces a broadly similar range of products but is supposed to serve discrete markets: the Coastal Carpentry Cooperative at Mukalla, the Saywun Cooperative in Hadramawt and the Public Corporation for Carpentry in the capital. The largest of these enterprises, the Coastal Carpentry Cooperative, employing 395 persons, was established by 150 carpenters pooling their resources in 1973. The enterprise comprises six units in Mukalla and neighbouring towns producing bedroom, school, home and office furniture and materials for construction - window and door frames. Manufacture of small boats was stopped in 1981. The Saywun Co-operative, comprising four workshops and a central office for marketing and the bulk purchase of raw materials, produces a range of furniture and construction materials. Similarly the Public Corporation for Carpentry produces furniture, musical instruments (lutes) and carved historical replicas. A unit producing boats at Higeif has been closed down.

Output of wood products increased steadily during the 1970s but stagnated in the early 1980s. At this point a UNIDO mission[1/] undertook a review of the wood work sector and identified the following problems:

- all the enterprises worked at the artisanal level with the manufacturing activities based on the ability of carpenters to revise and assemble machine tooled parts;

- there was no quality control and product quality was generally low. In addition the product design was unsuited to the taste of neighbouring markets;

- output and product costs were higher than in plants in other developing countries due to low productivity;

- the product lines of each workshop were diversified preventing economies of scale;

- poor machine maintenance led to frequent interruptions in production, the production programme did not make full use of the machineries' productive capacity and the methods of production led to wastage of 15-20 per cent of the raw material input;

- apart from some nails and paint all raw materials are imported. Wood was purchased from the National Company for Home Trade because the requirements of individual plants were too small to arrange for bulk imports. In view of the country's foreign exchange conservation policies, the National Company imported wood on the basis of price in qualities suitable for the construction industry - the main consumer. Consequently, the quality of raw materials was poor and often unsuited to the requirements of furniture manufacture.

1/ UNIDO, H. P. Brion, Terminal Report: the Consolidation and Expansion of the Manufacturing and Marketing Operations of the Coastal Carpentry Co-operative in Mukalla, April 1983, RP/PDY/82/003.

Following the UNIDO mission, the Coastal Carpentry Co-operative introduced an incentive system based on piece rate and quality control, improvements to materials handling and plant layout, secured suitable raw materials and established a design section. Improvements have also been introduced in the Public Corporation for Carpentry, including the construction of two new buildings, installation of machinery and introduction of new product designs as recommended by an earlier UNIDO mission. As a result output of both factories has increased during the mid-1980s, though productivity remains relatively low.

Technical assistance in the fields of production methods, product design and management are needed. In addition alternative strategies for product rationalisation, allowing the production units to achieve economies of scale through serial production and improved worker productivity, should be reviewed. Lower production costs and improved design and product quality could allow the enterprises to export some of their products. In the near future, however, production will continue to be oriented towards the domestic market. This provides considerable potential for expansion and the introduction of new product lines. The value of imported furniture reached YD1.3 million in 1985 in contrast to the combined output of the three plants of YD747,000. Imports decreased to YD211,000 in 1987 due to import restrictions but domestic output has not yet been able to meet the unfulfilled demand. Local demand for school, office and domestic furniture is thought to be increasing rapidly though detailed market studies are needed to identify products and production development strategies.

One small workshop produces small wooden boats - 7.5, 9 and 10 metres in length - for the artisanal fishermen. These vessels are of poor quality and, on the basis of an AIDO pre-feasibility study, the Ministry of Fish Wealth has recently established a workshop producing more robust sambuk type fishing vessels from fibre glass. One hundred and fifty boats will be produced in 1990. In the long-term moulded fibre glass boats are expected to supersede wooden vessels.

3.6 Paper products and packaging

PDR Yemen lacks the basic raw materials - cellulose and water - necessary for the production of paper. At present all the country's requirements for school and office stationary are met by imports: in 1985 imports of stationary amounted to YD1.2 million, though this has been reduced to YD606,000 in 1987 by stricter import controls and 25 per cent cuts in the Ministries' budgets. In view of the high cost of imported products UNIDO-ESCWA have put forward a project idea for a paper plant using local and imported waste paper as a joint venture between PDR Yemen and the Yemen Arab Republic. This project idea has yet to undergo a detailed cost and market analysis.

Virtually all the packaging materials used in PDR Yemen are imported ready made or as components ready for assembly at an estimated cost of YD5 million. Notable exceptions are cans for emulsions, paints factory and the plastic crates used by the bottling plant. These companies, and the two specialist packaging enterprises manufacturing paper bags operating within the private sector, are dependent on imported raw materials. Both the tomato paste factory and the fish canning factory at Mukalla have can production lines which use imported tin plate. The cans used at Shuqra are imported ready made.

The shortage of foreign exchange has encouraged manufacturers to cut back on expenditure on packaging. This has led to high levels of wastage and spoilage during transport and storage, particularly in the distribution of horticultural products, low sales and export potential due to unattractive packaging, and a tendency to minimise the processing of perishable products and so a loss of value added. A UNIDO study[1/] has advised that investments be made to upgrade and diversify the packaging materials used by the manufacturing and processing sector. Where possible the production of packaging should be centralised. A centralised can manufacturing plant has, for instance, been proposed. While the cost advantage of alternative packaging materials and production strategies needs to be evaluated at a plant and sectoral level, improvements to and increased usage of packaging materials would clearly provide considerable savings in terms of reduced wastage and ease of transport.

3.7 Construction Materials

The construction industry in PDR Yemen is heavily dependent on imported cement. Imports have increased from 45,000 tons in 1980 to 102,000 tons in 1987, 1 per cent of total imports by value, and reached a peak of 135,000 tons in 1986. The growth in demand has slowed from 28 per cent per year in the 1970s to 12 per cent in the early 1980s but will remain strong during the Third Five-Year Plan, when YD319.4 million will be allocated to construction projects.

While cement will continue to be the principal building material for civil engineering projects considerable potential exists for the substitution of local materials in the construction of residential buildings. The government's efforts are currently directed towards the identification and development of these resources. Technical assistance in this field has been provided by the Soviet Union and UNIDO[1/]. Assistance is also needed in the development of appropriate construction techniques that will allow the substitution of local building materials, some of them commonly used outside PDR Yemen, others of traditional origin.

This development strategy will demand close co-ordination between the construction materials sector and the construction industry. The present institutional structure brings all but one of the enterprises producing building materials - the chalk and gypsum factory under the Ministry of Industry, Supply and Trade - under the supervision of the Ministry of Construction and Housing and so serves this purpose.

Plans for a cement industry were put forward in the 1970s. As originally conceived the cement factory, situated near Mukalla, 600 km from Aden, would have a capacity of 350,000 tons per year. Even at current levels of consumption the factory would have to export half its annual production to work at full capacity. This is clearly impracticable. Furthermore, the costs of energy and transport from the proposed location would be high by world standards. On these grounds the government has shelved the project pending review. Less ambitious projects, such as a mini plant, the grinding of imported clinker or the bagging of cement, are worthy of examination but should indicate considerable foreign exchange savings to warrant investment.

1/ UNIDO, A. Soltan, Technical Report: Survey on Packaging, September 1986, (DP/RAB/83/020).

Besides concrete cement is also used in the manufacture of a range of building materials. Concrete blocks are widely used in construction. The largest producer is the Public Construction Corporation Installation (PCCI), with an annual output of between 0.5 and 0.8 million blocks most of which are used on government construction projects. There are also 10 to 15 small privately owned plants operating for commercially owned construction sites and a number of on site block production facilities. The quality is generally poor due to the use of aggregate which contains salt, the wrong mix ratios and rapid open air drying. Cement is also used in the production of concrete panels for re-fabricated houses in government housing schemes with equipment imported from Hungary. The plant has capacity to produce 500 blocks of six flats (each 100 sq m) per year. These materials are used exclusively in government housing projects. Production has averaged 50 per cent of capacity, falling to 20 per cent in 1986, but output increased significantly in 1987. A plant manufacturing coloured terrazzo floor tiles also uses cement as a basic raw material. Demand for these products has generally outstripped supply and a new plant is under consideration.

Substitutes for these cement products are available. Traditionally, stone blocks were used widely used in construction but the high cost of quarrying and finishing led to a fall in demand from 3,300 cu m in 1974 to 2,000 cu m in 1983. These costs could be reduced by the provision of mechanised stone finishing equipment: at present stone finishing is a small-scale operation carried out by the private sector. Construction costs with stone are also slightly higher than with concrete blocks. This may handicap the use of stone blocks as a standard building material but the higher cost of laying marble and limestone blocks could be recovered through the higher value of the product.

Clay bricks were also widely used in traditional buildings. An attempt was made to establish an industrial brick plant but the factory closed in the mid-1970s due to the high cost of firing and the growing competition from concrete blocks which are cheaper to use. Sun dried clay bricks, reinforced with straw, are still produced in the Hadramawt and Abyan Governoratse. These materials could be used in urban areas as well, but further research is needed on their mechanical properties, their economic viability in competition with concrete blocks and methods of improving the quality of the products within the context of small-scale labour-intensive industry. The Ministry of Construction is currently studying the possibility of re-establishing a brick factory with a capacity of 30 million bricks per year. It should be noted, however, that the production of bricks is particularly suited to small-scale plants. In making, firing and drying bricks economies of scale tend to be insignificant even in developed countries. Unit production costs may even be higher for large-scale plants than small-scale labour-intensive enterprises in developing countries.

A gypsum plant at Ghayl Wa Bazir, built with assistance from Hungary, began production in 1985. The plant has capacity to produce 750 tons of gypsum, 600 tons of building plaster and 150 tons of blackboard chalk. Production has, however, been well below installed capacity due to a lack of demand and the poor maintenance of machinery. In 1987 the company recorded a loss and only a small profit was expected in 1988. Better marketing is needed if the plant is to fulfil its potential. Construction companies have to be shown the advantages of using plaster boards for interior walling before they will adopt the new product. There may also be scope for the diversification of production into a range of products, gypsum roofing panels for instance, that could easily be incorporated into traditional construction practices.

Lime is produced at an artisanal scale throughout the country. The largest plant is at Shemosa near Mukalla where nine shaft kilns produce about 2,500 tons of quicklime a year. Although lime may serve as a substitute for cement it is currently used only for limewash because of the higher cost and unreliable quality. Production techniques could be improved by the selection of better limestone, the use of sites closer to the principal markets and adding temperature controls to the burning systems of traditional kilns. Alternatively the government could establish a modern industrial lime-making plant. Developments along these lines will require considerable investment but they offer an opportunity to reduce the country's requirements for imported cement which will generate important foreign exchange savings.

Aside from the financial constraints, the principal obstacle to the development of a resource-based construction industry are the building practices of the public construction companies, contractors and small-scale private builders. New materials will gain acceptance slowly in the face of established practices and the Ministry of Construction will have to make a concerted effort to inform enterprises of the benefits of new materials and train personnel in the use of new techniques. Its control of public sector construction companies, whose share of total construction ouptut is planned to increase from 53 per cent in 1985 to 62.5 per cent in 1990, provides the Ministry with considerable leverage in the selection of materials and building practices.

3.8 Metalworking and Engineering

The metalworking and engineering industry developed rapidly between 1980 and 1985 with total production value doubling over the period. Growth rates slowed from 1985 to 1987 but, in 1988, the total output of the metalworking plants ranked third in the branches of industry supervised by the Ministry of Industry, Trade and Domestic Supply.

This rapid growth may be accounted for, in part, by the high priority given to human resource development by the government. The government justifiably regards the development of metalworking skills and engineering products as essential for industrialisation and anticipates that this will have a positive impact on other industrial sectors. In this context the performance of the public sector enterprises in the metalworking sector, the Al-Thourah Spare Parts Factory (otherwise known as Revolution Spare Parts or REVOMETAL) and the Agricultural Implements Factory, should not be judged simply on plant level economic criteria. Within the mixed and private sector, on the other hand, the driving forces for development have been import substitution and the demands of the construction industry. Working with relatively simple technology their contribution to skills development has been limited.

The Agricultural Implements Factory was established in 1976 through bilateral co-operation with the People's Republic of China. Two units were installed: a forge, press and heat treatment unit with capacity to produce 300,000 hand hoes, 100,000 sickles, 200,000 pairs of scissors and 300,000 knives; and a wire mesh drawing, galvanising and knitting unit with a capacity of 860 tons. Production capacity in the agricultural implements unit exceeded the requirements of the domestic market and capacity utilisation rates reached only 27 per cent in 1978. In 1979 the unit was closed. The wire mesh production unit has continued to operate and currently produces about 500 tons of drawn wire per year, part of which is sold to the nail factory and the remainder made into galvanised wire mesh. In addition the management began to produce aluminium door and window frames in 1981. Despite the closure of the forge unit production value more than doubled between 1980 and 1985 and, though output subsequently stagnated in 1987 and 1988, the enterprise generated profits in 1987 and 1988.

Although the forge unit was closed down on the basis of its poor economic performance and has been out of operation for nearly a decade the possibility of rehabilitating the plant merits review. The forge unit could provide an important training ground for metalworking skills. Furthermore, a UNIDO study[1/] has indicated that production could be diversified to include a range of metal products currently imported, including spare parts, tools for industry and construction work, hinges, bolts and nuts, leave springs for automobiles and scaffolding, which would utilise idle capacity in the production line. In these circumstances the plant might generate an economic return. Existing plant will, however, require a complete overhaul and the factory is also in need of new machinery for galvanising wire and the repair of the wire drawing plant. These investments, estimated to cost $3.5 million, should be complemented by the provision of technical assistance in production and maintenance procedures.

REVOMETAL began operations in 1972 as workshop for the maintenance and production of spare parts for the government and public sector enterprise. The facilities consisted of a small foundry unit, a machine shop and a fabrication unit. Initially the workshop operated at only 20 per cent of capacity and was not economically viable. Following the recommendations of a UNIDO mission in 1976 the factory's production lines were diversified to include agricultural implements and, in 1982, the company embarked on the manufacture of metal furniture with UNIDO assistance. Over 180 products are now produced from eleven product groups, including office, school, hospital and household furniture, storage systems, bank security products such as safes, domestic appliances and eight types of LP Gas cookers, agricultural handling equipment, vehicle body building and spare parts. As the Government has imposed a ban on the importing of competing metal products REVOMETAL has been able to benefit from economies of scale and enlarge its product mix. Sheet metal furniture is the main product, accounting for 70 per cent of total output, approximately 1,400 tons per year. Sales cover about 40 per cent of the market but as production increases the company's market share is expected to increase to 70 per cent and there are good prospects for exporting to neighbouring countries. Further product diversification is planned.

Financially REVOMETAL has been a major success. Production value has increased fivefold in real terms since 1980, the levels of productivity are high and the company has recorded a profit in 1987 and 1988. Furthermore, the substitution of local products for imports is expected to save $4.5 million in foreign exchange during the Third Five-Year Plan period. REVOMETAL has, moreover, ambitious plans for development in three new areas.

1/ UNIDO, A. A. Swamy Rao, Assistance to the Agricultural Implements Factory, Aden: Mission Report, April 1983.

The management hopes to separate some of the fast moving product lines into mass production units as small-scale enterprises. These units include a paint shop, upholstery unit, LP Gas cookers assembly plant and a wood workshop. A rural assembly unit employing 60 people has already been set up at Mukalla and a number of other rural assembly and manufacturing units are envisaged in products as diverse as automobile exhausts and LP gas cylinders.

In 1981 REVOMETAL began to install new foundry equipment. Phase I of the project, a 800kg capacity electric induction furnace supplied by UNIDO, was completed in 1988 with assistance from the government of India, after lengthy delays in installation. The foundry currently operates as a training unit but there are plans to extend and balance output by the installation of a additional 850 kg capacity crucible for ferrous castings and three cent axis oil fired furnaces for the production of cast ion (240 kg capaci aluminium (95 kg) and brass (300 kg) castings. Production of ferrous cas is expected to reach 600 tons in the first two years of operation, risir 1,000 tons at full capacity in the third year. This is a fraction of estimated market of 4,000 tons per year. The products identified include pipes and pipe fittings for domestic use and the Public Water Supply Corporation (who have already signed a contract for the supply of 5,000 tons of castings), manhole frames and covers and spare parts - all of which are currently imported. A National Metal Scrap corporation has been attached to REVOMETAL and, since 1986, 110,000 tons of mostly good quality scrap has been collected by contractors and 10,000 tons of scrap has been identified as available at various locations. Raw materials for the iron foundry can, thus, be met locally for the immediate future. Materials for the aluminium and brass foundries will, on the other hand, have to be imported.

In addition REVOMETAL has initiated a central tool room facility for the industrial sector. At present REVOMETAL's tool shop operates at only 40 per cent capacity but capacity utilisation is expected to increase to 60 per cent after the foundry comes on line. Spare capacity will be used to cover job orders from other industries. The services provided will include design and production of dies, toolings and precision spare parts. This will generate considerable foreign exchange savings - spare parts represented 4.4 per cent of the total import bill in 1987 - make an important contribution to the productivity of the industrial sector, where lack of repair facilities and supplies of spare parts have been a major constraint on efficient production, and provide training in essential skills. This essential and innovative project will require assistance in the form of technical co-operation and training.

Six of the enterprises in the metalworking sector have developed to service the needs of the construction industry and the production of intermediate goods. The largest of these is the National Nail Factory, established with private capital in 1970, which produces a range of nails for the domestic market. Drawn wires are bought from the Agricultural Implements factory and shaped in the foundry. Due to the limited degree of processing the value added generated is the lowest in the metalworking sector but productivity levels are high. Furthermore, the steady increase in output from 297,000 tons in 198[illegible] to 393,000 tons in 1987 has allowed a high capacity utilisation rate of [illegible] per cent. Nevertheless, rising costs and a fall in real product prices has eroded the company's profit margin to only 2.5 per cent of production value.

A recent development in the metalworking sector has been the proliferation of aluminium joinery workshops. These now number four enterprises, including the Agricultural Implements Factory, two of which are located in Greater Aden, one in Mukalla and another in Shabwa. They are all small-scale workshops, three of them private ventures with an average of 26 employees. Raw materials, pre-cast frames and panels, glass and PVC, are imported and the techniques are essentially the same as those in the carpentry workshops, characterised by craftsmanship and labour-intensive production. Two other recent projects, also private sector initiatives, are the Welding Electrodes Factory and the Yemeni Plant for Electrical Fittings. Both projects are aimed at the substitution of imported goods and are closely linked to construction sector. The electrodes factory, which uses drawn wire produced by the Agricultural Implements Factory as the principal raw material, has suffered losses in the first two years of production due to the low level of sales. Sales tripled from 1987 to 1988, helped by restrictions on imports, and by 1990 the company is expected to operate at a profit. The electrical fittings factory has also benefited from import controls which have allowed the enterprise to gain a dominant market position. After registering substantial losses in 1987 the company earned a profit in 1988.

One of the oldest industrial enterprises in Aden is the National Aluminium Industry Company established in 1946 and reinstated on the present site as a mixed sector company in 1973. The company manufactures 26 types of pressed aluminium kitchenware with an annual capacity of 500 tons. Sales have stagnated in recent years, with production averaging 400 tons per year from 1980 to 1987, almost all of which is sold on the domestic market, but output could be increased by product diversification and, in view of the high quality of the products, development of export markets.

The National Foam and Steel Furniture Company, established in 1974, manufactures beds and a limited number of other domestic furniture items. Production is oriented towards the domestic market. Sponge is manufactured on site from imported raw materials and the furniture assembled from imported components. Sales have levelled out after reaching a peak of YD1.2 million in 1985 and further expansion will depend on the development of new product lines. There is also room for an improvement in product design and quality, which would help increase sales at the higher value end of the furniture market.

To date the metalworking and engineering branch, like the industrial sector as a whole, has developed haphazardly through the implementation of individual projects selected on the basis of import substitution. REVOMETAL's recent and planned expansion, however, provides an opportunity for integration through the development of metalworking and engineering skills, the production of basic metals which could provide raw materials for new and existing enterprises and the provision of a centralised engineering workshop. At the same time there is considerable potential for further import substitution through the diversification of production at a plant level. This would bring spare capacity into use with little additional capital investment. While diversification must be set against the economies of scale generated by specialisation, single product plants are unlikely to be competitive given the size of the domestic market and the limited potential for exports.

At this juncture a sectoral masterplan would greatly assist in the identification of investment priorities and areas where technical assistance is needed. The government is currently discussing a project along these lines with UNIDO.

3.9 Oil refinery

The Aden oil refinery - built in 1954 by the British Petroleum Company and transferred to Government ownership in 1977 - is the single largest industrial enterprise in the country with a total work force of 2,314 in 1987. The refinery has an installed capacity of 8.5 million tons and uses a hydro-skimming process which produces a mix of 50 per cent lower distillates and 12 per cent gasoline.

Following the closure of the Suez canal in 1967 and the decline in bunkering activity at the Port of Aden, the refinery's output fell to less than one tenth of capacity by the time the government took over in 1977. Production recovered slightly thereafter - as the government actively sought contracts to refine oil for foreign crude producers - reaching 3.6 million tons in 1984 and 1985 of which 2.5 million tons was refined under contract with the Iran National Oil Company, 0.5 million tons for the Kuwait National Oil Company, 0.4 million tons for Soviet Naphta and 0.1 million tons for local consumption. However, output remained well below the break even point of 5.5 million tons and the refinery recorded an operational deficit of YD2.2 million in both years.

In 1986, the situation deteriorated. A wage increase pushed up the break even output to 6 million tons while production decreased. The Islamic Republic of Iran suspended deliveries because no small tankers that could be accommodated at Aden Port were available. Furthermore, domestic oil consumption fell and, due to the structure of world oil prices, it was cheaper to meet local demand through imports of petroleum products than refine imported crude. Production subsequently recovered with the signing of a new refining contract covering 1.5 million tons with Kuwait in 1987. In addition Iraq began deliveries to cover a 0.5 million tons contract in April 1988 and the refinery was processing approximately 0.75 million tons of local crude by mid-1988.

Table 3.2: Aden Refinery production of refined petroleum products, 1980 and 1985-87
('000 tons)

Product	1980	1985	1986	1987
Gas oil	425.0	160.8	120.1	235.0
Jet fuel	548.0	56.2	41.9	347.5
Mazout	1,136.0	1,248.8	1,112.6	572.1
Liquefied gas	13.0	28.1	31.0	123.4
Diesel	1,045.0	773.0	800.6	29.4
Asphalt	-	-	-	57.5

Source: Central Statistical Office, Statistical Year-book, 1988, p. 158.

The long-term prospects for the refinery have certainly been improved by the discovery of oil, though it is not yet known how much of the local crude will be refined in PDR Yemen. In the medium-term the refinery will continue to depend on refining contracts with crude exporters for much of its output. With a view to attracting foreign crude exporters and raise output above the break even point the government embarked on a major refurbishment and modernisation programme in 1983, well before the oil discovery. These developments include the construction of a 80,000 dead weight tonnage (dwt) dock and another with a capacity of 120,000 dwt which should be completed in 1989: the existing 45,000 dwt capacity has been a major constraint on a range of refinery contracts. Eight new storage tanks for asphalt, gasoil and mogas with a combined capacity of 50,000 tons are currently under construction and a further 200,000 tons of storage capacity are planned. The existing storage capacity of 250,000 tons, which has major leakage and safety problems, is to be refurbished and there are also plans to rehabilitate the refinery's thirty year old power station.

An important step in restoring the refinery's profitability has been the diversification of production and use of by-products. A new butane gas plant was completed in 1986. It already meets most of needs of the local market and generates some exports. In 1987 a 110,000 tons per year capacity vacuum distillation unit for the production of asphalt was completed. The plant covers domestic requirements, estimated between 10,000 and 30,000 tons, and exports to North Yemen. Other export markets have been identified in Djibouti, Ethiopia, Somalia and Oman. The development of a fertiliser plant utilising gas by-products from the refining process has also been considered. However, the amount of gas produced varies considerably depending on the source of the crude - high for Iranian oil, low for Iraqi and Kuwaiti - and so sufficient supplies of gas could not be guaranteed for a large, economically viable, fertiliser plant.

3.10 Chemicals

In terms of production value the chemical branch is the second most important in the industrial sector. It is dominated by five mixed sector enterprises, which accounted for 80 per cent of production by value in 1987, producing paints, perfumes and cosmetics, matches, liquid batteries and rubber slippers. The sector has developed haphazardly with projects identified on a plant by plant basis taking into account the potential for import substitution rather than through integrated planning. Linkages between the enterprises are limited, all the plants produce consumer goods and only one plant, the perfume and cosmetics factory, utilises local raw materials. Current government policy is to consolidate and enhance the productive capacity of existing plants through selective rehabilitation and the introduction of new product lines rather than to initiate new projects.

The largest plant is the Aden Emulsion and Paint Company, established in 1966, which produces marine paints, emulsions and alkyd paints from imported base materials. Output rose steadily from 1.5 million litres in 1980 to 2.6 million litres in 1985 and by 1985 the capacity utilisation rate was approximately 72 per cent. In 1986, however, production fell by 30 per cent, partly due to a shortage of raw materials, and remains at this lower level. Nevertheless, productivity levels (production value per employee) remain among the highest in the industrial sector at YD14,200 per employee in 1987.

The pattern of increasing production from 1980 to 1985, when production reached 39,000 litres and capacity utilisation rates 95 cent, and a subsequent decline has also been followed by the perfume and cosmetics plant. Production has subsequently increased following the signing of a three year barter arrangement with the Soviet Union in 1987 covering at total of 3.25 million packages of two brands of perfume.

Output at the second largest plant, the Yemen Rubber Manufacturing Plant, which produces a range of rubber sandals, women's shoes from composite rubber, PVC, textiles, and car mats, has been more consistent. The plant was originally built in 1976 but in 1978 much of the original machinery was replaced with machines from Japan which required fewer raw materials and could re-use waste. Production rose from 634,000 pairs of rubber sandals in 1980 to nearly 1.7 million pairs in 1986, sales income increased by 28 per cent from 1986 to 1987. Furthermore, in 1988 the factory began to export sandals to the Soviet Union under a contract worth $1.2 million. A UNIDO mission1/ has identified a range of products which could be produced with existing plant, or minor capital investments, in order to diversify the production and increase capacity utilisation levels. These include soles for the shoe industry, rubber tiles, neoprene glues, and medical gloves.

The Yemen Auto Battery Company (YABCO) has been less successful. Initially established in 1974 as an importer of chloride batteries under licence from the Swedish company NOACK the company began to assemble twelve types of accumulator batteries from components imported from NOACK in 1977. Production increased steadily to 25,000 batteries in 1984 but subsequently fell to 14,000 in 1985, only 30 per cent of the installed capacity of 45,000 units. Demand is limited to replacement and has averaged 18,000 units per year during the 1980s. It is not expected to increase above 20,000 in the next five years. Although the company registers high labour productivity and is profitable, the dependence on imported components and their high cost would indicate that the plant generates limited - possibly negative - foreign exchange savings. At present the government is considering two options for the development of the plant, importing components from alternative sources and/or the local manufacture of selected components, both of which are likely to entail the relocation of the plant on environmental grounds. A detailed review of the cost structures of the alternative development projects, including their foreign exchange savings, is needed.

A study of the economic viability of the match factory, managed by the National Cigarettes and Matches Industries, is also urgently needed in view of the factory's consistently poor performance. The factory made losses throughout the early 1980s, in spite of output rising from 340,000 gross in 1980 to 515,000 in 1985. A 24 per cent fall in production value from 1985 to 1988 has aggravated the situation with losses amounting to YD101,000 estimated for 1988. New managerial and production procedures were introduced following the recommendations of a UNIDO mission2/ but labour productivity in terms

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1/ UNIDO, J. de Jesus, Rubber Products Manufacturing: Mid-Term Report, (SI/PDY/85/801).

2/ UNIDO, H. S. Dwarakanath, Report on the Industrial Engineering study and Productivity Survey at the national Cigarette and Match Industries Co. Aden, September 1984 (DP/PDY/81/006).

of production value and value added remains the lowest in the chemicals branch. The plant currently faces fundamental operating problems, dependence on imported raw materials and competition from imported lighters, which cannot be resolved through technical assistance.

Two plants produce a range of plastic goods for the domestic market: Al-Gundi Plastics Factory (public sector) and the Middle East Plastics (private sector). The larger of the two enterprises, Al-Gundi Plastics, was established in 1972. It manufactures a range of plastic products from waste buckets, the most popular sales item, to soft drink crates, bins, plastic carriers and waste bags. The company has faced numerous problems including a shortage of skilled staff, inadequate maintenance facilities, lack of spare parts and quality control services for both inputs and products. As a result the overall operating efficiency has been low. In 1985 capacity utilisation rates were estimated at 16 per cent for bags production and 14 per cent for plastics products.

UNIDO has provided technical assistance to overcome technical problems in the film extrusion and bag making unit in 1975-76 and in 1984 further assistance was given in the field of quality control. The 1984 mission also recommended that the management establish repair and maintenance facilities and diversify into new product lines. These recommendations have been carried out and the factory now produces a range of 31 plastic items. Three machines for the production of new lines of household utensils have been purchased and will commence production in 1989. The company will also begin to produce shampoo containers for the Cosmetics and Perfume factory and the plastic bottles for the Public Health Department.

Despite the doubling output of plastic products from YD509,000 in 1980 to YD1.09 million in 1987 domestic production is thought to cover only 12 - 15 per cent of the demand. The remainder is met by imports. There is clearly potential for further diversification of production. A study along these line was carried out by WMW-Export-Import of the the German Democratic Republic in 1982. The study proposed two options for the expansion of the Al-Gundi factory: production of plastic sacks, plastic films and bags, floor tiles, and duraplast pressing; alternatively addition of a pipe extrusion and blow moulding unit. Both options required capital investment, $11.3 million and $3.9 million respectively. A second study, undertaken in 1983, reviewed the possibility of establishing a PVC pipes factory. In view of the limited size of the local market the study recommended a 15,000 tons annual capacity extrusion line with an estimated cost of $1.2 million. This plant could be built at the Al-Gundi factory and the project is currently under review. Detailed studies of the domestic market and cost structures are needed to assess the viability of these proposals. At the same time both plastics factories would benefit from further technical assistance in the fields of production management, product design and quality control.

There are plans for only one new industrial plant in the chemicals branch during the Third Five-Year Plan period, a soap and detergent factory. Imports of soaps and detergents in 1987 amounted to 7,400 tons of washing powder and 375,000 tons of toilet soap at a total cost of YD2.1 million. Construction of a small soap and detergent plant could, therefore, generate considerable savings in foreign exchange. Implementation of the project has, however, been delayed. The administrative structure for the mixed sector company has been established and capital raised by a share issue but reassessment of the original feasibility study, undertaken in 1983, revealed that cost of a turnkey project had increased from YD2.64 million to YD5.5 million in 1987. The Ministry of Industry is currently reassessing the financial viability of the project.

A number of other projects in the chemicals branch are under review. Particular interest has been shown in the prospects of a glass manufacturing plant producing sheet glass and bottles for local industry. A pre-feasibility study, financed by the Islamic Bank, has already been prepared. Plants for the production of fertilisers and insecticides, currently imported at a cost of YD0.775 million in 1986 and YD0.613 million in 1987, are also under study.

The potential for development of the chemicals sector has been greatly enhanced by the discovery and production of oil. Basic petrochemicals could provide a stimulus to downstream chemicals industry ·t, given the large capital investments required and the economies of scale in such industries, these developments should only be considered when there is adequate knowledge of the long-term oil production profile and markets of basic petrochemicals. In the meantime, investments are better directed towards the expansion and diversification of production in existing plants and the selection of new projects on the basis of the potential for import substitution where foreign exchange savings can be demonstrated.

4. STRATEGIES, POLICIES AND INSTITUTIONS FOR INDUSTRIAL DEVELOPMENT

4.1 Development strategies

The planning framework

Since 1971 PDR Yemen's social and economic development goals and strategies have been embodi^d in integrated development plans. The first plan, covering the three year period from 1971 to 1974, was, in reality, little more than an investment programme. The first and subsequent Five Year Plans[1/] have, however, combined an investment programme with a unified investment budget covering public, private and foreign sources of finance and production targets for each of the sectors. The approach is flexible. Investment and production targets are subject to revision after an annual review of economic performance and the projected availability of resources. Furthermore, investment priorities have changed during the four planning periods in response to changing economic circumstances. Nevertheless, the broad objectives of the plans have remained unchanged. These may be summarised as:

(a) Satisfaction of the population's basic needs for food, shelter, consumer goods, employment, health care and other social services.

(b) Transformation of the service oriented economy into a productive economy through the development of agriculture, industry and fisheries.

(c) Strengthening of the physical infrastructure.

(d) Exploration and utilisation of the country's mineral resources.

(e) Raising the educational standard of the population and the technical skills of the labour force.

(f) Improving the balance oi payments situation by increasing exports of domestic products, by import substitution and by mobilising greater amounts of migrants' remittances.

(g) Increasing labour productivity and encouraging women to participate in the economy.

(h) Promotion of balanced regional and sectoral growth and equitable distribution of income.

Within the framework of these broad objectives the sectoral allocation of development expenditures (Table 4.1) has favoured the productive sectors. However, allocations among the productive sectors have changed since the First

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1/ The First Five-Year Plan (FFYP) covered the period 1974 to 1978, the Second Five Year Plan (SFYP) 1981 to 1985 and the Third Five Year Plan (TFYP) 1986 to 1990. The implementation of SFYP was postponed whilst projects initiated in the FFYP were completed in order to synchronise the development plans of Arab countries as recommended by the Council of Arab Unity.

Five-Year Plan (FFYP) (1974-78). Agriculture and fisheries' share of the investment budget fell by half during the SFYP (1981-85) while industry's allocation has increased steadily to a planned 46 per cent in the Third Five-Year Plan (TFYP) 1986-1990. Investment in infrastructure has fallen as the essential communications projects are completed while expenditure on social services has increased to a quarter of the development budget.

Most of the investments during the First and Second Five Year Plans were directed at new projects and the plans were characterised by substantial increases in the development budget. Faced with declining financial resource requirements the government has prepared a more modest development budget for the TFYP. Planned development expenditure is 14.6 per cent lower than the funds allocated during the SFYP and, in response to external and internal financing constraints, the actual allocations were 38.6 per cent lower than planned in 1986 and 23.2 per cent lower in 1987.

Table 4.1: Actual and planned sectoral allocation of investment, 1971-1990
(percentage shares)

Sector	First Three Year Plan 1971-74 (Actual)	First Five Year Plan 1974-78 (Actual)	Second Five Year Plan 1981-85 (Actual)	Third Five Year Plan 1986-90 (Planned)
Agriculture and fisheries	30.7	35.1	17.6	17.1
Industry	16.7	19.5	25.9	46.6
- Manufacturing	...	6.5	6.2	3.1 a/
- Electricity	...	3.8	...	17.3
- Oil and minerals	...	6.2	7.3	
- Construction	...	3.0	...	...
Transport and communications	37.0	26.8	23.9 b/	18.0
Social services c/	10.0	14.2	25.3	24.0
Other services	4.7	4.4	...	
Total investment in million YD	25.0	...	682.82	582.93

Source: UNIDO, PDR Yemen: a Framework for Technical assistance Programming in the Industrial Sector, 1987, p. 3; and Ministry of Planning, The Third Five-Year Plan (1986-1990): Summary, (in Arabic).

a/ Only industrial products under the supervision of the Ministry of Industry.

b/ Includes construction.

c/ Education, health, housing and water.

Under the TFYP the government has concentrated on the consolidation of the achievements of previous plans and only new projects supported by external finance have gone ahead. Emphasis has been placed on the rehabilitation and reconstruction of existing productive capacities. Consequently, only 44,000 new jobs are anticipated during the TFYP, less than one fifth of the number created during the SFYP.

Industrial development strategies

The rising share of industry in development expenditure during the SFYP and TFYP is largely due to the high allocation to electricity generation and distribution. Industry proper, i.e. manufacturing and processing industry, received only 6 per cent of total investment in the FFYP and SFYP. Under the TFYP this share is likely to decline still further: projects under the supervision of the Ministry of Industry are allocated less than 4 per cent of the total development budget and actual allocations in 1986 and 1987 were 36 per cent lower than planned.

Despite the limited resources available to the industrial sector, the government regards industrialization as the key to accelerated economic growth and development. Priority has been given to the collective ownership of the means of production through the development of the public sector. Private investment has been directed towards mixed sector enterprises and the private sector restricted to small- and medium-scale projects.

Investment has been concentrated in industries which satisfy the essential requirements of the population and use local raw materials. However, there has been no clear development strategy. The Ministry of Industry has allocated investment funds on a project by project basis assessing each on the basis of its individual merits. As a result few linkages have developed between industrial plants, requirements for intermediate and capital goods are still met entirely by imports and the foreign exchange savings generated by the industrial sector are generally low.

Furthermore, the Ministry of Industry has directed investment towards industrial projects in a wide range of consumer products and sought to avoid the duplication of investment. Preference has been given to large-scale industry which can meet the needs of the entire population. This has led to the concentration of investment in the capital, high transport and distribution costs, lessened the exchange of experience between enterprises and prevented a strong, competitive and integrated industrial sub-sector with export potential emerging.

There is clearly a need for the preparation of an industrial development strategy which takes into account the resource base, potential for import-substitution and which encourages further integration within the industrial sector through internal linkages and, where possible, export potential based on comparative advantage. A possible long term strategy would be the identification of key investments for the public sector in essential intermediate industries and opportunities for mixed and private sector investment in higher value consumer products.

Under the TFYP the emphasis has turned from the expansion of the industrial sector to consolidation and rehabilitation. Only one new large scale industrial plant, a biscuit factory, has been established within the public sector. Another mixed sector project, the soap and detergent factory, has been shelved pending a detailed survey of its financial viability. The biscuit factory accounts for 46 per cent of the Ministry of Industry's planned investment budget. The remainder has been allocated to existing enterprises for the purchase of new machinery and expansion.

New industrial projects, the government plans, will be financed by the private sector, for the most part by expatriate Yemenis. These will be small and medium scale plants and will operate within the private sector. Nevertheless, the relative importance of the public sector in industrial output is expected to increase during the TFYP as a result of improvements in productivity.

4.2 Recent policy issues and initiatives

Mobilising private sector capital

The collective ownership of the means of production and a centralised planning system have been and will continue to be the guiding principles of economic development in PDR Yemen. Within the industrial sector this entails the concentration of productive activity in the public sector enterprises. However, the government has become increasingly aware of the benefits to be reaped by strengthening the private and mixed sectors' contribution to industrial development. In the context of an acute shortage of development funds and the government's wide range of commitments to social and productive development projects, the private sector can provide an important source of investment.

Legislation to promote private sector investment was first introduced in 1971 (Law No. 23) limiting investment opportunities to the industrial sector. It was superseded by a new Investment Law in 1981 (Law No. 25), applicable to projects with a minimum investment of YD5,000, which is currently under review. The new law extended the scope of private investment to all sectors but the structure of the law remained primarily aimed at the industrial sector. It offers a range of incentives, the most important of which are:

(a) Exemption from taxes and duties on imported equipment and materials not produced locally as well as spare parts up to two years after production has begun.

(b) Exemption or reduction of taxes and duties on raw materials up to three years after production has begun.

(c) Income tax exemption for a period of up to five years.

(d) The right to carry over losses to the second year.

(e) Repatriation of profits up to the value of exports.

(f) Transfer abroad of up to 75 per cent of the income of foreign employees after tax.

(g) Repatriation of capital after 5 years at a rate of 25 per cent annually.

In addition, Article 14 of the Law guarantees the investor protection against competitive imports and grants protection against sequestration or control, except through the local courts. However, the new law omits two benefits which had been available under Law No. 23: access to public utilities at reduced rates and access to state land at nominal rents or reduced prices.

The government continues to direct the private sector investment in line with its development priorities. Private investment is only permitted in projects authorised by the Permanent Committee for Investment Promotion (PCIP), which is chaired by the Minister of Planning, and approved by the Council of Ministers. Most of these projects are based on opportunity studies prepared by the Ministry of Industry rather than those proposed by promoters. In 1986 the Ministry of Industry approved a list of 20 projects for private investment, two of which - a soap and detergent and cotton wool factories - were to be mixed sector enterprises in view of the large capital investment required and the remainder private sector enterprises.

The impact of the Investment Laws has been disappointing. During the period 1973-80 the private sector accounted for only 7.3 per cent of total investment in the industrial sector and the mixed sector 20.4 per cent. This proportion fell to 4.4 per cent and 13.3 per cent respectively during the SFYP (1981-1985). To date only sixteen enterprises have been established under the code[1/], most of which entail the production of simple consumer goods.

This poor performance may be explained in part by the limited understanding of the law among potential investors which, according to an unpublished Ministry of Industry review of 1985, led to many applicants dropping out in the early 1980s. There are, moreover, lengthy and discouraging bureaucratic delays in the procedure of application. A preliminary decision on the suitability of a project should take three months. In practice delays of over a year are not uncommon. Furthermore, the Ministry of Industry has tended to select ambitious and costly projects which are beyond the means of most promoters. Where mixed projects have been put forward by the Ministry of Industry the cost of each share is also beyond the means of potential investors. In the case of the proposed soap and detergent factory the price of shares had to be reduced from YD500 to YD100 to raise the allocated 49 per cent private share capital.

A review of the Investment Law presented to the Council of Ministers by the Ministry of Industry has advocated a number of reforms which would facilitate private sector investment. These included simplification of the application procedure so that the Ministry of Industry could present projects to the Council of Ministers directly and the Investment Promotion Committee could grant a minimum of incentives automatically. However, the proposals also included an increase in the investment threshold for applications to YD50,000

1/ The sixteen projects approved under the Investment Law are: an ice plant at Al-Mahra, welding electrodes, electric fittings, socks, aluminium doors and windows at Mukalla, Shabwa, Sayun and Mansoura, detergent factory (under study), bakeries at Mukalla, Sayun and al-Sheher, tiles and building blocks at Shabwa and Hadramawt (under supervision of Ministry of Construction), and household cleaning sponges made from iron wool (currently under review by the Ministry of Health).

in view of the high cost of the projects selected by the Ministry of Industry. The impact of an increase in the threshold on investment should be examined closely before implementation. Given the limited sums available to most promoters such an increase is likely to exclude a large number of potential investors.

In January 1989, the Council of Ministers approved a list of project proposals for private sector promoters in order to attract investment. A list of five medium scale projects[1/] was proposed by the Ministry of Industry on the basis of opportunity studies. Another eight projects, selected from a list of 58 projects proposed by private sector entrepreneurs, are currently under review and the government has asked promoters who put forward applications in previous years to renew them. These projects will be assessed on the basis of their contribution to the country's development needs and, more importantly, their potential to save foreign exchange. In addition, the government has proposed a list of 11 major projects[2/] to a Saudi financier of Yemeni origins.

The medium-scale projects available to private sector promoters are heavily over-subscribed: the number of applicants is variously estimated between 35 and 200. Promoters will be selected for their experience and the amount they propose to investment, in particular the amount of foreign exchange they can provide. Those that can meet the project's full foreign exchange requirement will be preferred. The initial five projects are expected to mobilise $40 million in foreign exchange. If these expectations are met the government may be encouraged to allocate further projects to the private sector.

These initiatives are intended to attract domestic and expatriate capital rather than foreign investment. Both the structure of the Investment Law, which ensures that foreign exchange losses through repatriated profits are covered by exports, and the general investment climate discourages foreign participation in projects. At present, however, the government is considering an Industrial Free Zone that would hope to attract offshore investment through particular incentives and privileges.

Utilisation of worker remittances

Migrant workers are the largest source of private sector investment funds in PDR Yemen (see Sections 1.2 and 2.2). The potential is still greater. Expatriate Yemeni communities in Saudi Arabia, Indonesia and Europe include many wealthy businessmen and financiers who would be prepared to invest in projects that would ensure employment and profits for family members still resident in PDR Yemen.

1/ The five projects proposed in Council of Minister Order No.11, 1989, are: sanitary wear, woven poly-proplyene bags, paper cartons, toothpaste and shaving cream and electric wires and cables.

2/ The eleven projects proposed are: cement, edible oil, animal fodder, flour mills and silos in Hadramawt, agricultural and industrial complex in Hadramawt, milk and meat raising, gypsum and marbles for export, garment factory, fruit processing and packaging, woven poly-propylene bags and a feasibility study for an industrial Free Zone.

The importance of migrant remittances as a source of investment funds has long been recognised by the government which formulated both Investment Laws following consultation with Yemeni Expatriate Conferences held in Aden. Migrant workers were the principal target and beneficiaries of the investment promotion legislation. In addition the government has sought to attract migrants' remittances into official channels and promote savings by allowing them to open foreign exchange deposit and saving accounts in the National Bank. Interest rates are significantly higher than in local currency accounts and savings may be transferred abroad or used to import goods. This has encouraged a rapid increase in migrant savings (see Section 1.1).

A major difficulty faced by the government in the implementation of its investment promotion policies has been the inadequate information received by the expatriate community. According to a survey of 160 migrants in Kuwait in 1986, 58 per cent did not know of the investment policy and 64 per cent did not know of the investment opportunities available[1/]. In order to redress this problem the government established the General Department of Expatriate Affairs (GDEA) in 1986. The GDEA seeks to maintain the links between migrants and their homeland, publicise the investment opportunities and follow through migrants' projects to facilitate their implementation. The government has also sought to eliminate the major obstacles to migrant investment by forming the High Advisory Committee for Expatriate Affairs (HACEA) which proposes new policy initiatives aimed at strengthening the role of the expatriate community in the national economy.

Promotion of small-scale industries

Small-scale industry is thought to account for approximately one quarter of total industrial production by value and probably provides a considerably larger share of total employment in industry. These industries could provide an important training ground for entrepreneurs and technicians, the nucleus of an industrial sector based on local resources and meeting local needs besides raising the national income and bringing about a more even distribution of industrial activity throughout the country. Yet few attempts have been made to promote or enhance productivity in what is generally referred to as the "unorganised sector" (see Section 2.7).

Recently, however, the government has begun to examine the potential for development of small-scale industries as a means of attracting the resources of migrant workers into productive sectors and producing a range of simple goods for the domestic market and thereby substituting for imports. Council of Ministers Order No.12 of 1989 permits selected small-scale industries[2/] to bypass the procedures outlined in the Investment Code and receive their licences directly from the municipality thereby greatly facilitating project implementation. The Ministry of Industry has also established a section to prepare and implement a small-scale industries development programme but the appropriate strategy is, as yet, undecided.

1/ Suleiman Yaslam, Remittances and returning migrants: a case study of their role in industry in PDR Yemen, Unpublished Ph.D. Exeter University, 1988.

2/ The small-scale enterprises covered by Council of Ministers Order No.12, 19819, include: ice making, bakeries, confectioneries, stone cutting, tailoring, lime plants, ice cream and various repair workshops.

Besides increasing the range of opportunities for small-scale investment there is an urgent need for the development of support services to upgrade production and business methods and direct investment towards appropriate projects. In the past these services have been provided, with some success, through the formation of cooperatives often on the initiative of the cooperative's members. Eight cooperatives operate in the industrial sector, four of them being women' tailoring cooperatives. These organisations have organised joint purchasing of raw materials, marketing and have trained new recruits besides providing a range of social services. A notable success in this field is the Coastal Carpentry Cooperative.

Investment in the cooperatives has, however, been minimal and most of them operate at a craftsmen level with outdated equipment. Moreover, the cooperative movement, strong in the 1970's, has stagnated, with no new creations since 1983. The extension of similar organisations with varying degrees of flexibility - allowing members to operate from home and to retain part of their output, for instance - to cover a wider range of small-scale industries in traditional activities and on the fringe of the modern sector could provide the framework for an increase in inputs into the small-scale industry sector such as technical training and credit facilities for new enterprises.

Production and management support facilities

The relatively low levels of productivity in public sector enterprises have been a matter of concern since the late 1970s (see Section 2.3). In an effort to raise productivity levels the government, with technical assistance from UNIDO[1], introduced new production and management methods, including a unified accounting procedure and management information systems, and provided training in these fields in 35 enterprises. Productivity bonuses, currently operating in eight of the public enterprises, have been particularly successful with productivity increases of 10-20 per cent recorded. Work rates have increased and, equally important, the responsibilities of individual workers have been clearly defined. Efforts are being made to extend the bonus system to the remaining public and mixed sector enterprises. The Ministry of Industry, Trade and Domestic Supply has also established a Performance Efficiency Unit to carry out studies and supervise improvements in the enterprise management and production procedures.

Despite these developments, a survey of enterprises undertaken in 1988 points to shortcomings in marketing and sales control, production planning and costing within many of the existing enterprises[2]. In particular, further work is needed in the area of maintenance and quality control. Maintenance should be given a high priority given the scarcity of financial resources. In the long run, enterprises will gain from fewer breakdowns, reduced repair requirements and a longer economic lifespan of their machinery even if recurrent expenditures increase in the short term. Given the concentration of industry in Aden and the shortage of skill technical personnel maintenance and

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1/ UNIDO, Training in management and perfor[illegible]ement industries, (DP/PDY/81/006).

2/ Patrick O'Brien, Training in management and performance improvement of industries. Terminal Report October 1988, (DP/PDY/81/006).

repair facilities for some machinery could be centralised. This would require an overall maintenance programme including an inventory of present equipment, the preparation of manuals, the establishment of a common workshop facility and training to develop awareness of the importance of maintenance and technical skills within the plants. Such a project would demand technical assistance.

Many of the problems in existing plants stem from the low levels of managerial training at startup. At present there are few training and support facilities for the private sector and virtually none for promoters of small-scale enterprises. If the government is to proceed with the expansion of investment opportunities for the private and small-scale enterprise sector such facilities would improve the feasibility of project ideas and the long term viability of the investments. The facilities of Chamber of Commerce, which all enterprises must join, could be developed to provide suitable short courses and consultancy services.

Export promotion

The Ministry of Industry is dismissive of the opportunities for exporting manufactured goods from PDR Yemen on the grounds the high cost of production and the country's limited resource base. Even so, the government is eager to promote exports in order to reduce the balance of trade deficit and utilise spare capacity in existing industrial plant.

A proposal currently under consideration is to allow companies with export earnings to establish foreign exchange accounts. These accounts could be used to supplement the foreign exchange allocations of the Ministry of Industry and finance the purchase of raw materials and equipment from abroad thereby providing an incentive for companies to find export markets. Under the present system all export proceeds must be surrendered to the government six months after the shipment of the goods and the currency sold to an authorised bank. Exports to neighbouring countries are the sole exception; these payments may be surrendered in the national currencies of these countries.

Reforms to the tariff structure could also encourage exports. Exporters currently have the import tax paid on raw materials refunded after the products have been exported but other tax items on production, such as taxes on utilities, are not refunded. Inevitably this raises the net-cost of exported products. The tax system could also be modified to encourage exporters, with tax relief on the proceeds of export sales.

The identification of appropriate export markets has proved difficult in the past since neither the enterprises, the Ministry of Industry, Trade and Domestic Supply or the Chamber of Commerce have the trained personnel needed to promote export sales. This problem could be overcome by the creation of a specialist export promotion agency which would undertake a systematic study of products to identify areas where PDR Yemen holds a comparative advantage and potential export markets. In addition such an agency could provide feedback to help with the adaptation of local products to suit the requirements of export markets. A recently signed barter deal with the Soviet Union covering exports of perfumes and cosmetics suggests one method of developing export markets. Barter arrangements could generate foreign exchange savings.

An alternative strategy, also under consideration, is the promotion of new export oriented industries by the establishment of an industrial free zone for offshore foreign manufacturing enterprises. In view of the tax concessions required to attract such industries and the level of linkage with the local economy usually achieved such a policy should undergo a detailed cost benefit analyses before implementation.

Regional dispersal of industries

As discussed in Section 2.6, manufacturing activities in PDR°Yemen are concentrated in the capital which accounts for 92 per cent of total production value. In view of the social and economic implications of this concentration the Ministry of Industry is currently considering means of promoting the regional dispersal of industrial activity.

There are, however, both institutional and economic constraints to such a policy. The government has avoided the duplication of investment, usually extending this policy to the national market. On these grounds a project for a soft drinks factory in Mukalla, a market currently supplied from Aden, was turned down. Consistent with this policy, the government enforces equal pricing of commodities nation-wide, so that consumers in Aden effectively subsidise those in the more distant Governorates, thereby removing the economic incentive for possible developments in the distant Governorates.

Furthermore, the Governorates, with the possible exception of Hadramawt, lack the necessary infrastructure for industrial development. To overcome this problem the Ministry of Industry proposes to establish regional industrial estates. Industrial estates should, however, be considered as a tool operating within the framework of a regional industrial development strategy, which, in turn, should be part of a national industrial development plan. Such a strategy would demand the identification of industries that are potentially viable outside the capital, taking transportation costs into account, and appropriate locations for their establishment. One option may be to develop processing facilities for agricultural products in Hadramawt. Other possible projects include the establishment of regional centres for the production of low value, heavy and perishabie consumer goods and industries based on local building materials.

4.3 The institutional framework for industrial development

In PDR Yemen's centrally planned economy government institutions play a crucial role in every aspect of the productive process from the identification of development objectives and policies through the selection and assessment of project alternatives and their implementation to the day to day management of industrial plants in production. Although the administrative structure is extremely efficient at a Ministry level two major problems may be identified.

First, responsibility for the industrial structure is fragmented - only half the industrial output is supervised by the Ministry of Industry, Trade and Domestic Supply, small industries are under the supervision of the municipalities and a large number of enterprises are attached to various other Ministries (such as Fish Wealth Agriculture and Construction) - and hence often poorly co-ordinated. Secondly, the close control exercised by the Ministry of Industry, Trade and Domestic Supply over the industrial enterprises in the public, cooperative and mixed sectors, reduces the management's control over the organisation and development of their enterprises and stifles initiatives, both in the modification of productive process and the choice of new product lines and areas for expansion. While there is less government intervention in the management of private sector enterprises the central government still exercises directs development and expansion through the licensing system and its control of foreign exchange and investment budgets.

The PDR Yemen's Five Year Development Plan is co-ordinated by the Ministry of Planning which allocates investment between the sectors. Major new investments have to be approved by the Ministry. Development priorities, projects and production targets at a sectoral level are determined by the relevant Ministries and then revised in conjunction with the Ministry of Planning in line with the available resources. The allocation of resources remains flexible since annual progress reports prepared by the Ministry of Planning often lead to a reconsideration of priorities at the project level reflecting changing resource availability, emerging budget constraints or in planning parameters beyond the Government's control.

Centralisation of planning has, to some extent, taken the place of inter-ministerial co-ordination and, together with the dispersal of responsibility for industrial enterprises, this has reduced the effectiveness of industrial planning. The rehabilitation of the Gypsum Factory has, for instance, been postponed by the failure of the Ministry of Construction and Ministry of Industry, Trade and Domestic Supply to come to an agreement on the substitution of the local product for imported cement. There is clearly a need for the establishment of Inter-Ministerial Co-ordination Committees, perhaps at the level of Deputy or Assistant Deputy Ministers, which, at an early stage in the planning procedure, would ensure industrial processing demands are met by the availability of suitable raw materials and that industrial products are suitable for the intended market. Co-ordination between Ministries at the implementation stage might also be improved by the joint participation of Ministries in projects that cross sectoral boundaries.

The industry section of Ministry of Industry, Trade and Domestic Supply, headed by a Deputy Minister, formulates the industrial development strategy, identifies and implements industrial projects and supervises production in the enterprises under its control. The Research, Studies and Contracting Department undertakes investment opportunity studies and supervises implementation of public sector projects up to hand-over. At present the department undertakes ten opportunity studies a year, half of which are carried out by consultants. There is no systematic approach to the selection of potential projects. They are identified by a review of imports, the results of research into raw materials availability and observation of shortages of consumer and intermediate goods. Feasibility studies for private sector projects, with investment of under $3 million, are undertaken by the entrepreneur and then reviewed by the department. Once completed these studies are submitted to the Ministry of Planning for final approval.

Unfortunately the Department lacks the data and the skilled technical and economic staff to undertake detailed studies. As a result projects have been implemented with inappropriate technology and the absorptive capacity of the market for some projects has been overestimated. Furthermore, the investment criteria are poorly defined and not closely related to the development objectives. There is, in particular, an urgent need for each project's foreign exchange savings to be tested rigorously. UNIDO has proposed a technical assistance project[1/] to assist in the strengthening the department's ability to undertake and implement feasibility studies.

At startup projects are transferred to the Department of Production and Management which supervises the 58 operational enterprises under the control of the Ministry. Monthly, quarterly and annual reports advise the Ministry on each enterprise's output, stocks of raw materials and spares, handling of raw materials and management activities. The Department advises and, where necessary, assists the management of the factory and, in following consultation with the management, sets production targets.

One of the department's most important functions is the allocation of the foreign exchange budget for the purchase of raw materials and spare parts. These allocations are based on the recorded use of imported products. However, the severe shortage of foreign exchange in recent years has forced the department to cut back on the allocations by up to 40 per cent. There appears to be no clear criteria on which these cut-backs have been implemented, although the Ministry officially gives priority to food industries, and the productivity of most industrial enterprises has been affected.

The department, in conjunction with the Central Pricing Organisation, also determines the prices of most industrial products. These are usually assessed on the basis of real cost with a profit margin that varies between 5 and 30 per cent. However, a number of social products, such as school clothing, are sold at below cost price. The factories producing these goods are encouraged to subsidise them by selecting a brand mix which includes high value and high profit luxury products. In recent years the rising price of domestic raw materials and delays in the revision of product prices have eroded the profit margin of several enterprises, the National Tanning Factory for instance. More frequent reviews of the pricing structure are essential if the enterprises are to avoid the erosion of their working capital and, ultimately, losses.

The level of control exercised by the Ministry depends on the ownership structure. A member of the Ministry sits on the board of all public and mixed sector enterprises, usually as Chairman, and, in the case of the public sector corporations, the members of the board and senior managerial staff are also appointed by the Ministry. The reporting system ensures close supervision of the management and performance of the plant. Furthermore, the government centralised the budgets of the public enterprises in 1984. Previously, enterprises paid income tax and earmarked 50 per cent of their net profits to finance capital outlays. From 1984, however, enterprises have surrendered 85 per cent of their net income to the Ministry which now finances capital outlays from a single budget. Consequently, the public sector enterprises can longer guarantee access to funds to cover depreciation let alone finance development and the profits of efficient enterprises worthy of expansion are used to subsidise the loss making plants.

1/ UNIDO, Strengthening the Research, Studies and Contracting Department of the Ministry of Trade, Industry and Supply, (DP/PDY/87/001).

Industrial cooperatives, first established in 1971, enjoy greater autonomy. They are under the supervision of the Ministry but the management is selected by the members. The private sector also appoints its own managerial staff. Although both cooperatives and private sector enterprises submit regular reports on performance the Ministry rarely intervenes the day to day management of these plants. All industrial enterprises must, however, make their applications for foreign exchange and new investment through the Ministry. As a result innovations, such as new product lines, and expansion have to be agreed with the Ministry. Employment and wage policies, such as the introduction of an incentive system, also have to be approved by the Ministry of Industry and the Ministry of Labour.

In contrast small-scale industrial enterprises[1/], generally referred to as the "unorganised sector", escape central government supervision. These enterprises are licensed by the municipal authorities and the Ministry of Industry has no information on their number, products or output. In the interests of integrated planning there is a case for the centralisation of responsibility for such enterprises at Ministry level or the formation of a guidance committee comprising the Governorates and the Ministry of Industry.

The Chamber of Commerce, established under Resolution No.16 in 1968 and subsequently given financial and administrative autonomy under Law No.14 of 1981, could fulfil an important role as a link between entrepreneurs, particularly those in the private sector, and the government, promoting local products abroad and investment within PDR Yemen. At present, however, the Chamber, which is financed by its 7,137 members in branches in each of the five Governorates, plays a minor role in promotion and extension activities.

The Chamber provides information through its Trade Directory and, within the constraints of its limited number of trained personnel, consultancy services but it receives few requests for such services from the local business community. It also assists members in their difficulties with the government over taxes, licensing and, through membership of the Investment Encouragement Committee helps the government promote investment under Investment Law No. 25 of 1981. Nevertheless, the Chamber has not taken an active role in the formulation of policy, in particular the assessment and proposition of amendments to the Investment Law. Nor has the Chamber of Commerce sought to develop producer-consumer relations within PDR Yemen and, while it has formed close ties with regional Chambers, the promotional activities abroad are not pursued systematically with little feedback on the export market's evaluation of local products' quality, packaging and prices.

A recent UNIDO mission[2/] has advised that the consultancy services provided by the Chamber should be strengthened, with the provision of an up to date economic and marketing data base. The mission also proposed that the Chamber should, in co-ordination with other government bodies, institute

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1/ There is no clear definition of a small scale industrial enterprise in terms of employment or capital. The criteria used is that the plant operate in a sector that serves a local market such as bakeries, lime kilns or stone cutting.

2/ UNIDO Assistance to the National Chamber of Commerce and Industry of PDR Yemen, Terminal Report, 1988 (XP/PDY/88/002).

technical seminars and workshops on management, maintenance and marketing. The Chamber could also identify potential investment opportunities and promote them among expatriate Yemeni communities abroad. In addition, the Chamber should promote discussion on marketing and product design for both the domestic market and potential exports. These services should be widely promoted among the business community. To improve the Chamber's capabilities the mission proposed that the Chamber receive technical assistance and its staff undergo specialist training in the field of data collection.

Credit and banking facilities are provided through the National Bank of Yemen which has 32 branches throughout the country. The bank provides loans for projects identified in the government's development plan, most of the funds being directed to the public sector enterprises. Industry's share of the loan portfolio has generally been very low, approximately 10 per cent, with the largest shares going to trade and the service sector (Table 4.2). Credit has become tighter since 1985, largely due to the Central Bank's lending to the government and the restriction of loans to the non-government sector in an effort to curtail monetary expansion (see Section 1.2).

From 1985 to 1986 the National Bank of Yemen's loan portfolio shrank by more than half. The public sector was most severely affected, with a 67 per cent drop in the value of loans. Over the same period loans to the private sector fell slightly and those to the mixed sector increased significantly, but from a low base level. The continuing credit squeeze remains an important constraint on the industrial sector.

At present the bank usually grants loans for up to 50 per cent of the total investment on the submission of suitable guarantees, though the requirements for foreign exchange generally have to be met by the promoter. Few private sector initiatives, and virtually none of the small-scale enterprise sector, are financed through the banking system. Most use personal funds or capital provided by family members, often migrants living abroad, and business associates. Inevitably this restricts both scale of the investment and the opportunities for less privileged members of the community. It is unclear to what extent a relaxation of the rules on guarantees and a simplification of procedures for application would stimulate investment. Nevertheless, in view of the government's initiatives in the sphere of small-scale enterprises, a more flexible credit system, supported by detailed study of individual project credit-worthiness, providing loans to higher risk categories of investment is worth examining. Implementation of such a system will, however, be constrained by the government's policy of credit control.

The interest structure which has been fixed since 1978, favours the public and cooperative sectors - interest rates on loans for private industrial projects are double those for projects in the public sector - but, in the case of private and mixed sector, does not distinguish between investment in productive activities and commercial loans. Introduction of a lower interest rate for selected productive projects in the private and mixed sectors may be considered as a means of diverting investment funds from commerce to industry.

Besides funds for investment the Bank also provides short term advances for working capital. These loans are negotiated with the bank on a yearly basis, after having been approved by the Ministry of Industry.

Table 4.2: National Bank of Yemen; loans and advances by ownership and activity, 1980-1987 (selected years) ('000 YD)

	1980	1985	1986	1987	Per cent distribution in 1987
Ownership sector					
Government	2,913	8,609	8,137	7,412	13.7
Public	84,150	99,900	57,727	32,597	60.3
Mixed	43	94	232	257	0.5
Private	4,622	11,672	11,333	11,266	20.8
Total	97,614	122,912	79,400	54,081	100.0
Economic activity					
Personal	4,061	10,889	10,644	10,448	19.1
Trade	71,927	61,100	28,620	7,828	14.5
Services	15,920	27,220	24,324	20,102	37.2
Industry	2,199	14,840	6,002	5,858	10.8
Agriculture	3,507	8,863	9,810	9,845	18.2

Source: National Bank of Yemen.

This system plays an important role in the financing of loss-making enterprises for, while the Bank may refuse to extend further credit to enterprises that are heavily overdrawn, the National Tanning Factory, for instance, the Ministry of Industry, Trade and Domestic Supply may intervene to support the enterprise's request. In such cases further credits are usually provided. However, in line with the policy of credit restraint the bank is increasingly reluctant to finance loss making operations.

5. RESOURCES FOR INDUSTRIAL DEVELOPMENT

5.1 Human resources

Labour force

The population of working age in the PDR Yemen was 971,000 according to the 1988 census. A further 62,000 juveniles and persons of retirement age are thought to participate in the work force giving a labour force of 1.03 million (Table 5.1). At the current growth rate, estimated at 2.5 per cent per year on the basis of the 1973 census, there are approximately 24,000 new entrants to the labour force each year. This is over double the rate of job creation aniticipated in the Third Five-Year Plan (TFYP) (1986-90).

During the 1970s and early 1980s the growth in the labour force could not keep up with the rapid pace of economic expanison. The number of workers registered as unemployed dropped from 48,000 in 1973 to 11,700 in 1980. Emigration aggravated the shortages of agricultural workers, particularly in the Governorates of Shabwa and Hadramawt, and skilled workers for construction and industry. The 1988 census revealed that 238,150 Yemenis, 10.2 per cent of the population, 164,000 of them males, 13.9 per cent of the male population, were living abroad. Other estimates[1/] put the number of Yemenis living abroad at over 300,000 at the peak of emigration in the mid-1980s and suggest that as many as one third of PDR Yemen's able-bodied men in the age group 15-34 years left the country, the vast majority of them to find work in the Gulf states.

A sample of 500 migrants surveyed by the General Department of Expatriate Affairs suggests that the emigrants educational and training levels are generally higher than those of the total population and so emigration effectively drained PDR Yemen of the skilled workers it needed most for its development. In 1973 the government considered the level of emigration sufficiently damaging to PDR Yemen's economy to ban emigration but illegal emigration continued. This ban was only lifted in 1980.

In order to fill vacancies women were drawn into the labour force. Female participation rates increased from 13 per cent in 1973 to 20 per cent in 1984. Most of them found work in the agricultural sector but the number of women working in the service sector, clerical and administrative work, also increased and by 1982 one third of the work-force in Ministry of Industry supervised manufacturing enterprises were women. This trend was actively encouraged by the government through its equal opportunities legislation, the establishment of kindergartens and the provision of training facilities for women.

As economic growth rates slowed towards the end of the Second Five-Year Plan (SFYP) the economy could no longer generate sufficient employment opportunities to employ all new entrants to the labour force. This coincided with a reduction in the number of employment opportunities in the Gulf states due to a recession and the adoption of new recruitment procedures that made it increasingly difficult for individuals to find work. Furthermore the

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1/ Suleiman Yaslam, Remittances and returning migrants: a case study of their role in industry in PDR Yemen, unpublished Ph.D., Exeter University, p. 292.

net-earnings differential between PDR Yemen and the Gulf states gradually narrowed. As a result the rate of emigration has dropped and there has been a steady - but unquantified - growth in the return flow of migrants. The number of returning migrants is likely to increase in the near future.

Table 5.1: Population, work force and labour force, 1973, 1980 and 1985-88[a/]
('000 persons)

	1973	1980	1985	1986	1987	1988
Total work force	318	439	500	515	517	435
Population of working age (16-59)	716	799	907	931	955	971
Juvenile and older workers	48	57	60	60	60	62[b/]
Total labour force	716	856	967	991	1,015	1,033
Total population	1,590	1,903	2,164	2,220	2,278	2,107

Source: Central Statistical Organisation, Statistical Year-book, 1988 and General Census for Population, Households and Enterprises: Preliminary Results, August 1988, 1989.

a/ 1973: Census; 1980, 1985-87: Estimates based on 1973 census; 1988: Census.
b/ Estimate.

Unemployment, particularly of young college and school graduates, is already a major problem. Between 1975 and 1986 the proportion of those registering as job seekers appointed fell from 83 per cent to 70 per cent (Table 5.2). The 1988 census revealed that 11.7 per cent of the labour force, 50,582 persons, were unemployed. More than 60 per cent of these were first time job seekers. The problem is particularly acute among the unskilled production workers and low grade clerical staff, less than half of whom registering for employment are actually appointed (Table 5.3). The government has in seeking to absorb excess labour, allowed some overstaffing in both the administration and the public sector enterprises, particularly in the adminsitrtive grades. In the long-term, however, an active job creation programme is the only solution to the growing problem of unemployment.

Training

Ironically the growth of unemployment among the young has been paralleled by chronic shortages of experienced technical and professional personnel. A World Bank review of the educational sector estimated that the shortfall of skilled personnel for the SFYP (1981-1985) amounted to 12,000 persons. As Table 5.3 indicates, more people are appointed in the skilled, professional, managerial, service and sales occupations than actually registered as unemployed in these categories.

Table 5.2: Registration of unemployment and appointments, 1975, 1980 and 1984-86

	1975	1980	1984	1985	1986
Unemployed	6,890	11,503	12,547	12,264	9,644
Appointments	5,693	9,336	9,579	9,343	6,745
Per cent seeking work appointed	82.6	81.2	76.3	76.2	69.9

Source: Based on Central Statistical Office, Statistical Year-book, 1988, pp. 70-83.

Table 5.3: Registration of appointments and unemployment by occupational category, 1986

Occupation	Unemployed	Appointed	Ratio
Professional, technical and related	1,921	2,203	0.87
Administrative and managerial	125	175	0.71
Clerical	2,370	1,097	2.16
Sales	60	93	0.64
Services	609	937	0.65
Agriculture and hunting	165	152	1.09
Production, transport and related	4,226	1,913	2.21
Not classified	168	175	1.04
Total	9,644	6,745	1.43

Source: Central Statistical Office, Statistical Year-book, 1988, pp. 81-2.

The skills shortage is particularly severe at senior grades since little was done to develop the country's human resources during the colonial period. At Independence illiteracy rates were 90 per cent among adults and less than 10 per cent of children of school age were enrolled, of these only 4.6 per cent were at secondary school and only 1 per cent received vocational training. In order to overcome the low levels of basic education the government's priorities have been to eradicate illiteracy and increase school enrolment. In these objectives it has been successful. Nation-wide literacy campaigns reduced the illiteracy rate to 62 per cent by 1983. Unity (primary) school enrolment has increased by 24.3 per cent from 1980 to nearly 300,000 students in 1987.

Secondary education in general, and vocational education in particular, have taken second place. During the SFYP 53 per cent of unity school graduates were admitted to secondary and vocational courses. The remainder joined the labour market with only rudimentary academic skills and no vocational training. Of the students enrolled in secondary and vocational courses in 1987, 85 per cent were at general (academic) secondary schools and only 15 per cent in vocational education. While facilities for technical education have expanded, with the establishment of 5 new Industrial Training Centres between 1985 and 1987, the enrolment of students has actually fallen by 11.7 per cent from 1982 to 1987. Over the same period enrolment in secondary general education increased by 19 per cent.

Table 5.4: Students enrolment by educational institution, 1981-82 and 1986-87

Institution	1981-82		1986-87	
	Students	Per cent	Students	Per cent
Kindergarten	6,076	2.3	8,402	2.4
Unity School	223,093	83.9	293,623	87.7
Secondary general	27,401	10.3	32,602	9.4
Secondary commercial, agricultural and technical	1,199	0.5	930	0.3
Technical and Vocational[a]	3,144	1.2	2,902	0.8
Teachers' Training	1,173	0.4	1,867	0.5
University level	3,645	1.4	4,805	1.4
Total	265,731	100.0	345,131	100.0

Source: Central Statistical Organisation, Statistical Year-book, 1983 p. 46 and 1988, p. 94.

a/ Includes: Abyan Vocational Centre for Youth, Mansoura Vocational Centre, Aden Refinery Vocational Centre, Ministry of Construction Vocational Centre and Khalf (Hadramawt) Vocational Centre.

Similarly, the vocational institutes have lagged behind the growth in demand for skilled labour. Shortages have developed in key occupations such as general mechanics, welding, construction and carpentry while many of the clerical and low grade administrative staff trained are surplus to requirements. The shortage of technical staff is compounded by the emigration of skilled labour to the Gulf states and poor correspondence between the allocation of resources within the vocational training sector and the needs of the labour market. In particular, the levels of skill acquisition and the versatility of vocational training graduates are limited. This reflects the shortage of facilities, textbooks and equipment, the low general academic standard of the students enrolled and the narrow scope of the training provided.

In-service training and apprenticeships are currently organised at the plant level. However, most enterprises pay little attention to training, preferring to appoint their staff from the graduates of training centres. Although most vocational courses include a two month placement, often with a prospective employer, the new recruits receive little training in the use and maintenance of specialised machinery. Training courses to upgrade the skills of staff could profitably be extended on a systematic basis.

If PDR Yemen is to meet the demand for skilled labour in the coming decade both an increase in number of vocational training facilities and the development of a training strategy are essential. At present enterprises provide the Ministry of Planning with details of the staffing requirements on an annual basis and these are incorporated into the planning documents. However, the dispersal of administrative responsibility for vocational training between the Ministries of Education, Labour, Industry, Agriculture, Health and the Governorates prevents integrated planning. A new organisation could be established with sole responsibility for vocational training. This organisation would assess the requirements for trained personnel during the plan period and direct resources and students to these fields. The institutions could also assist graduates in finding appropriate employment in order to ensure the efficient use of manpower resources. At present the allocation of trained personnel, other than those sponsored by enterprises, to jobs is haphazard.

The skills shortage is particularly acute at higher professional and managerial grades where there is considerable dependence on expatriate personnel, with the inevitable increase in costs it entails. Although the number of students enrolled in the University of Aden, has more than tripled since it was founded in 1975, the 800-900 students graduated per year, supplemented by approximately 700 graduates from universities abroad are still insufficient to meet demand. Moreover, while the distribution of students between courses reflects the government's development priorities - in 1987 31 per cent of the 4,605 students enrolled at the University were studying economics, 11 per cent technology and 9 per cent law - the content of the courses is academic and not specifically directed at the needs of the public or private sector management.

A <u>Centre for Management Sciences</u> provides vocational training in management skills but the number of students enrolled - between 40 and 60, some of whom are attending brief courses on secondment - is inadequate for the needs of the administration, where most of the graduates aspire to employment or are already employed, in the economic sectors. The expansion and improvement of such courses are a prerequisite of improved management methods in the long term and so increasing productivity.

5.2 <u>Agricultural resources</u>

Although PDR Yemen has traditionally been an agricultural economy and more than 50 per cent of the work-force was engaged in agriculture in 1987, the country is poorly endowed with agricultural resources as evidenced by the sector's limited contribution to GDP, an estimated 14.3 per cent in 1987. Less than one per cent of the total land area, 320,000 hectares, is cultivable, of which only about 60,000 hectares are cultivated due to the lack of irrigation facilities. Approximately 80 per cent of the irrigated area is under traditional spate irrigation, the capacity of which varies considerably with rainfall.

Despite these unfavourable conditions the government's stated objectives under the Second Five Year Plan (1981-1985) were to attain self-sufficiency in vegetables and domestic production of 60-70 per cent of the country's grain requirements. This was to be achieved by an increase in the area under irrigation, in particular under more dependable well irrigation, and almost two thirds of the total investment in agriculture under the Second Five-Year Plan (1981-1985) was allocated to irrigation schemes. In addition, the government sought to reallocate land resources to the production of food crops from luxury crops such as qat[1/]. The Ministry of Agriculture directed the state farms and cooperatives, which, combined, cover approximately 85 per cent of the cultivable area, to increase the area under cereals and under wheat in particular. As an incentive a high producer price of YD175/ton for wheat was set in 1985, when the import price was only YD75/ton. At the same time, the government banned the expansion of the area under qat, restricted qat consumption and sales of inputs to qat farmers.

Table 5.5: Estimated Production of Cereal and Vegetable Crops, 1980-1987
(Selected years)
(Tons)

Crop	1980	1985	1986	1987	Per Cent Change 1980-1987
Food Cereals					
Wheat	7,833	10,036	10,483	10,622	35.6
Sorghum and Millet	16,577	14,317	20,062	30,061	81.3
Maize	3,147	3,087	3,239	5,846	85.6
Fruit and Vegetables					
Tomatoes edible	7,960	11,332	8,708	9,600	20.6
Tomatoes for canning	7,392	2,284	4,005	4,374	-40.8
Onions	3,273	13,999	13,216	10,970	235.2
Potatoes	5,034	7,484	2,826	8,987	78.6
Other Vegetables	9,040	10,623	11,046	11,003	21.7
Dates	7,942	17,978	17,444	15,530	95.5
Bananas	12,531	9,177	10,601	11,050	-11.8
Sweet and Water melons	8,566	9,695	6,503	11,845	38.3
Cash Crops					
Cotton	4,568	1,982	3,913	2,422	-47.0
Tobacco	616	749	666	540	-12.3
Sesame	1,454	1,858	981	1,378	- 5.2
Coffee	890	930	930	930	4.5
Qat	1,005	1,229	964	1,036	3.1
Fodder	134,720	215,180	257,620	261,221	93.4

Source: Central Statistical Organisation, Statistical Year-book, 1988, p. 128.

1/ Qat, *Catha edulis*, is cultivated for the leaf which is chewed in Yemen on social occasions. The effect is mildly narcotic.

These policies have been a success. Although agricultural production increased by only 2.4 per cent annually during the Second Five-Year Plan, the production of wheat increased by 28 per cent from 1980 to 1985 and self-sufficiency in sorghum and a range of fruit and vegetables has been achieved. To a large extent agriculture's disappointing performance overall may be ascribed to the prevailing drought conditions of the mid-1980s. Output, particularly in the cereals sector, increased at a faster rate in 1986 and 1987, years of higher rainfall.

Total agricultural production is expected to rise from YD50.9 million in 1985 to YD66.5 million in 1990, an annual rate of 6 per cent. Over this period YD74.5 million has been allocated for investment in agriculture. Once again irrigation schemes will be the main area of development.

While the state farms and cooperatives have favoured cereals and vegetables in their cropping strategies, private sector farmers have concentrated their resources in the cultivation of fodder and qat, the prices of which are not determined by central or local government. As a result fodder production almost doubled between 1980 and 1987 while the cultivation of qat has continued to expand, if at a slow rate. By 1985 these two commodities represented almost half total agricultural output by value at domestic prices.

The government subsequently encouraged farmers to reallocate resources to the cultivation of vegetables that were in short supply, such as lettuce and cabbage, by permitting market pricing in the 1986-87 season and raising the producer prices of other vegetable crops, notably onions and red peppers. These initiatives have prompted a marked increase in vegetable production in 1986 and 1987. Private farmers have also been encouraged to cultivate coffee and citrus fruit as a substitute for qat.

A major problem faced by the agricultural sector is declining international competitiveness. A survey of seven agricultural commodities based on cost data for 1982[1/] revealed that only two crops, onions and potatoes, were competitive at the current exchange rate. Since then agricultural production costs are thought to have increased while the international prices of agricultural commodities have declined. Inevitably this discourages the development of processing industries based on local agricultural resources.

The agricultural sector is, furthermore, handicapped by post-harvest losses amounting to 5-20 per cent for durables (grains) and as much 50 per cent for perishables (fruit and vegetables). As a result productivity is reduced and the quality of agricultural products available to potential processing industries is generally low. Efforts have been made to overcome this problem by the construction of storage facilities and the government has recently established a National Post-Harvest Centre to oversee post-harvesting activities.

1/ International Monetary Fund, People's Democratic Republic of Yemen: Recent Economic Trends, SM/84/107. The seven crops surveyed were onions, potatoes, cotton, sesame, wheat, maize and sorghum.

Production of non-food crops has stagnated in recent years. The area under cotton, the principal cash and export crop in the early 1970s with nearly 12,000 hectares under cultivation, has fallen from 6,300 hectares in 1980 to 3,800 hectares in 1987 with a corresponding fall in production. In part this decline was a result of the drought, since cotton is an irrigated crop, but it was also due to the substitution of more remunerative fodder crops. In order to maintain supplies for the local textile industry the Council of Ministers approved price rises for long and medium-staple cotton in December 1987. However, locally cultivated cotton is uncompetitive at world market prices and these costs are passed on to the processing industry. The government is considering the long term substitution of other cash crops on state farms and cooperatives.

In contrast, PDR Yemen is thought to have a comparative advantage in the cultivation of tobacco. It is cultivated for the local processing industry with the surplus, 48 per cent of the harvest in 1987, exported. Competition from similar varieties cultivated in India and Bahrain has, however, led to a decline in exports from 213,000 tons in 1980 to 58,000 tons in 1986, and, although exports recovered to 217,000 tons in 1987, farmers have substituted other crops. As a result the area under tobacco fell by 28 per cent and output by 12 per cent between 1980 and 1987. Restoration of former production levels is likely to depend on the expansion of the local tobacco industry.

Another important cash crop is sesame, used by small confectioneries in the production of halva and, potentially, a raw material for industrial plants producing sesame oil and the protein rich cake. Production expanded rapidly in 1985 but fell in 1986, due to reduced yields, and only recovered slightly in 1987. Nevertheless, the growth of local production has already permitted a reduction in imports from 8,500 tons in 1982 to 5,400 tons in 1986, though the total cost of sesame imports still amounted to YD1.42 million. Development of a processing industry in this field depends on the stabilisation of the agricultural output through favourable prices that will encourage producers, but retain the industries' competitiveness, and through improved production methods. If an industrial plant is built, long term supply contracts between the enterprise and farmers merit consideration as means of securing regular supplies of raw materials.

Livestock

Although there are no accurate statistics on herd strength the PDR Yemen's livestock resources are known to be substantial (Table 5.6). Livestock is an integral part of the traditional rural economy with meat and milk products providing an important dietary supplement - and a staple in bedouin communities - while camels and cattle are still widely used as draught animals. Most herds are owned by the private sector but commercial livestock farming is virtually unknown. Approximately 40 per cent of herd animals are kept by bedouins who follow an essentially subsistence mode of production, they generate little surplus and often dispose of that outside PDR Yemen. Where livestock is commercialised the quality is generally low, the method of slaughtering and skinning is usually primitive and the supplies irregular.

Table 5.6: Estimated herd strength, 1980-1987 (Selected years)
('000 head)

Animal	1980	1985	1986	1987	Per Cent Change 1980-1987
Cattle	90	103	112	114	26.7
Sheep and Goats	2,100	2,273	2,314	2,314	10.2
Camels	98	102	102	102	4.1

Source: Central Statistical Organisation, Statistical Yearbook, 1988, p. 137.

As a result the country has come to depend on imported livestock products. Imports of frozen meat, for instance, have increased from 4,200 tons in 1980 to 10,300 tons in 1987, butter imports increased from 362,000 tons to 442,000 tons over the same period while the imports of sheep on the hoof rose from 150,000 in 1980 to 267,000 in 1985, falling to 156,000 in 1987. Integration of traditional livestock herding into the commercial economy would, together with improvements in herd quality and development of livestock farming, help PDR Yemen to meet domestic demand, mobilise resources for local industry and generate a market for feed supplements, a potential industrial development project.

Developments along these lines have already taken place in poultry farming. Production of poultry meat has increased by a factor of ten since 1980 and by 1990 the government anticipates that production will meet 25 per cent of demand (Table 5.7). Similarly, production of eggs has more than tripled over the same period and by 1990 local production will cover 90 per cent of the local market. Poultry farmers are currently the only consumers of feed supplements.

Table 5.7: Production of livestock and poultry products, 1980-1987
('000 tons)

Product	1980	1985	1986	1987	Per Cent Change 1980-1987
Meat					
Mutton	3.9	4.6	4.7	4.7	20.5
Beef	2.2	4.0	4.5	4.8	118.2
Camel	1.0	2.0	2.0	2.0	100.0
Poultry	0.13	1.4	1.1	1.3	900.0
Milk and eggs					
Cows	13.0	14.9	16.1	17.3	33.1
Sheep and goats	6.0	9.7	10.0	10.0	66.7
Camels	4.0	5.4	5.4	5.4	35.0
Eggs a/	16.1	64.5	53.5	56.8	252.8

Source: Central Statistical Office, Statistical Yearbook, 1988, pp. 138-139.

a/ Thousands of eggs.

Fisheries

Fisheries are the PDR Yemen's most important renewable resource. The annual sustainable catch has been estimated by the FAO/World Bank[1/] at over 380,000 tons while UNDP[2/] has argued that it may be as high as 650,000 tons per year. These optimistic assessments encouraged the rapid exploitation of the country's fisheries resources through the development of an industrial fishing fleet with assistance from the Soviet Union and the granting of licences to foreign, primarily Soviet and Japanese, fleets. A total of YD38 million, 13 per cent of development expenditure, was invested in the development of fisheries sector between 1973 and 1980.

Initially these investments brought substantial returns with the fish catch rising from 83,600 tons in 1967 to 162,000 in 1977. In 1978, however, the catch dropped to 48,000 tons, largely due to operational difficulties in the overstretched modern sector and the exodus of fishermen from the cooperatives in search of better paid employment. By 1980 the catch had recovered to 89,000 tons and it stabilised between 80,000 and 92,000 tons in the mid-1980s (see Table 5.8.).

Table 5.8: Fish catch by species, 1980-1987
(Selected years)
('000 tons)

Species	1980	1985	1986	1987	Per Cent Change 1980-1987
Surface water fish	51.80	41.80	36.80	43.30	- 16.4
Deep water fish	20.30	37.30	48.20	42.40	108.9
Cuttlefish	9.60	4.70	5.00	2.21	- 77.0
Lobster	0.80	0.93	0.99	1.25	56.3
Shrimps	0.60	0.39	0.35	0.30	- 50.0
Others	0.30	0.03	0.03	0.09	- 70.0
Total	82.80	85.15	91.37	89.55	8.2

Source: Central Statistical Office, Statistical Year-book, 1988, p. 143.

1/ Report of the FAO/World Bank Cooperative Programme, Second Fisheries Development Project (Cr. 930-YDR): Project Completion Report, August 1987, p. 2.

2/ UNDP, Country Programme for the People's Democratic Republic of Yemen, January 1982-Decmeber 1986, June 1981, p. 3.

Low value pelagic and demersal species such as mackerel and sardines account for over 90 per cent of the catch by weight (Table 5.8), much of which is processed on board foreign vessels and exported and the remainder is consumed within PDR Yemen. The high value species - lobsters, shrimps and cuttle fish - which, in 1987, represented 4.2 per cent of the total catch by weight but 18.8 per cent of the catch by value, are virtually all exported. There is some concern that these species may be over-exploited. The catch of cuttlefish, for instance, which was valued at YD9.3 million in 1980, 53 per cent of the total fish catch by value, has fallen by 77 per cent from 1980 to 1987 and the shrimp catch has halved over the same period. This decline may indicate overfishing in earlier years. Further research on marine ecology is essential if the government is to optimise long term rates of exploitation and a Marine Sciences Research Centre has been established for this purpose.

In contrast to the early strategy of industrial fishing the government's fisheries development programme now focuses on the expansion and modernisation of the artisanal fishing fleet and a conservative production target of 95,800 tons has been set for 1990. There were about 5,000 artisanal fishermen in 1987, 80 per cent of whom are organised in 13 cooperatives. These cooperatives accounted for 30 per cent of the total catch in 1987 (Table 5.9), most of which was sold on the domestic market and is, consequently, an important resource for the fish processing industry. Since 1975 the fishing infrastructure - jetties, storage and processing facilities together with roads improvements - has been upgraded at Mukalla, Nishtun and five fishing villages west of Hadramawt Governorate with World Bank funding and a Fourth Phase, covering the eastern Governorate's, will be initiated in 1990. In addition the government has improved the extension services available to artisanal fishermen and the distribution and storage facilities of the National Corporation for Fish Marketing. This organisation purchases up to 60 per cent of the cooperatives' fish catch at official prices, which have remained unchanged since 1980, and ensures its distribution nation-wide.

Table 5.9: Fish catch by sector, 1980-1987
('000 tons)

Sector	1980	1985	1986	1987	Per Cent Change 1980-1987
National	60.9	51.8	47.9	53.6	- 12.0
Cooperative	28.1	24.3	19.8	27.0	- 3.9
Public	12.4	8.9	7.9	7.2	- 41.9
Mixed a/	5.4	3.6	5.2	4.4	- 18.5
Private	15.0	15.0	15.0	15.0	0.0
Foreign	21.9	33.3	43.5	35.9	63.9
Total	82.8	85.1	91.4	89.5	8.2

Source: Central Statistical Office, Statistical Year-book, 1988, p. 141.

a/ Yemeni-Soviet Joint Venture.

Both the National Fishing Fleet, which has been modernised with assistance from the Soviet Union, and the mixed sector, comprising a joint venture with the Soviet Union, the proceeds of which are split between the two countries, concentrate on the high value export species and deep sea fishing. At present they are a minor contributor to fish production but, under a joint venture agreement with the Soviet Union signed in March 1988, a further fourteen deep sea vessels will begin operations in 1989 and are expected to contribute a catch of an additional 10,000 tons, mostly of low value species.

Marketing and distribution remains the main constraint on the development of the public, mixed and cooperative sector and accounts in part for the stagnation in the mid-1980s. The TFYP anticipates that improved marketing will lead to increase in the domestic consumption from 48,900 tons in 1985 to 60,000 tons in 1990 and reduce currently highly levels of spoilage. Furthermore, the considerable resources of low value pelagic species such as sardines, mackerel and anchovies are barely exploited since they are unpopular locally. The government has proposed the construction of small scale fish meal plants in order to provide a market for these species (see Section 3.2).

5.3 Energy resources

Oil

The discovery of commercially viable oil reserves in April 1987 has transformed the long-term prospects for PDR Yemen's energy balance from that of a net energy importer to a net-exporter. In the past, the modern sector has depended entirely on imported oil as the primary energy source; use of fuel-wood, hitherto the only domestically available energy source, was restricted to the domestic and artisanal sectors in rural areas.

Table 5.10: Petroleum products sales of the Yemen National Oil Company, 1980 and 1985-87
('000 tons)

Petroleum product	1980	1985	1986	1987	Per Cent Change 1980-1987
Gasoline	42.6	87.0	83.0	91.0	113.6
Gas oil	108.0	165.0	149.0	148.0	37.0
Kerosene	29.0	20.0	19.6	17.0	41.4
Butane gas	6.4	22.0	23.0	28.0	337.5
Fuel oil	73.0	91.0	99.0	113.0	54.8
Avtur	46.0	55.0	32.0	35.0	-23.9
Total	318.0	440.0	407.6	432.0	35.8

Source: Monthly reports of the Yemen National Oil company in Central Statistical Office, Statistical Year-book, 1988, p. 342.

From 1980 to 1985 the sales of the Yemen National Oil company (Table 5.10) rose at 6 per cent per year. Falling world oil prices after 1983 offset the impact of the growth in oil imports by volume on the balance of payments, indeed the cost of oil imports fell by half in 1984. Nevertheless, the government introduced conservation measures in 1985 and 1986. Ministries' fuel allocations were cut by 25 per cent, electricity prices were increased by 10 per cent and high domestic prices for petroleum products were maintained in the face of a falling world crude oil price. These measures curtailed the growth in oil consumption temporarily in 1986 but the upward trend resumed in 1987. The National Oil Company[1/] anticipated that oil consumption would rise to 510,000 tons in 1988 and projected an increase to 617,000 tons in 1990 and 1.6 million tons by the year 2000.

At present, oil production is restricted to two fields in Shabwa Governorate where reserves of 0.02-2.9 per cent sulphur content, 41°-43° API crude are officially estimated at between 1 and 1.1 billion barrels. In mid-1988 oil production capacity was 25,000 barrels per day, though actual production was only half of this because there were insufficient lorries to transport the oil to the refinery at Aden. This covers local consumption but, Technoexport, the Soviet concession holders, plan to raise production to 70,000 barrels per day by mid-1989 and 100,000 barrels a day by the end of the year, most of which will be destined for export markets.

Technoexport is currently building a 230 km pipeline with an initial capacity of 100,000 barrels per day and scheduled for completion in 1990, from Shabwa to a terminal at Bir Ali on the coast, from where the oil will be shipped to Aden. The anticipated cost of the project is $473 million.

By 1991 oil production is expected to reach 1-1.2 million tons per year and net oil exports will amount to 400,000-600,000 tons. At this point it may become viable to extend the pipeline to Aden and increase its capacity to 500,000 b/d. An ambitious expansion project is already underway at Aden refinery in expectation of an increase in the production of refined oil products (see Section 3.10), though a large part of the oil production, as yet undetermined, will be exported as crude.

Meanwhile, the government has stepped up its oil exploration efforts, allocating YD90 million, 15 per cent of total investment, to this sector during the Third Five Year Plan (1986-1990). Technoexport will begin drilling in three promising structures at Al Mashaf, Ayad al Water and Megray in mid-1989. Work in the demilitarised border zone, which straddles the border between Marib (Yemen Arab Republic) and Shabwa, is also scheduled to begin in 1989. Geologists suspect that the Yemen Arab Republic's Marib field and that in Shabwa are part of the same basin.

1/ The sales of the Yemen National Oil Company indicate oil consumption trends in the PDR Yemen: they do not represent total consumption of petroleum products. The total consumption of petroleum products, and kerosene, the main lighting fuel in rural areas, in particular, is considerably higher. In 1985, according to one government source, total consumption of gasoline amounted to 94,000 tons, kerosene 127,200 tons, diesel oil 195,200 tons, residual fuel oil 182,700 tons, liquid petroleum gas 30,600 tons, other petroleum products 8,200 tons giving a total of 637,900 tons for the consumption of petroleum products.

Three long term production sharing agreements with foreign companies have already been signed with Total (France) covering a block in Abyan Governorate, Elf Aquitaine in eastern Shabwa region and the Independent Petroleum Group (IPG) of Kuwait at Balhaf north of Aden. Proven reserves of commercial quantity have yet to be found in any of these concessions. The government is also trying to attract prospectors to areas that have yet to be explored around Socotra Island, in Thamud, Sanawa, Khaleej al-Qamar, Habrut, and on the periphery of the Shabwa field. As exploration continues and the characteristics of the Shabwa field become better known there is every prospect that the official estimates of oil reserves will increase.

Electricity

Electricity generating capacity, provided by oil fired thermal generators, has increased from 70 MW in 1978 to an estimated 250 MW in 1985. This has enabled the government owned Public Corporation for Electric Power (PCEP) to keep pace with a rapid growth in demand, largely a result of the linkage of increasing numbers of domestic consumers to the public grid, and increase its share of the market from 62.2 per cent of total electricity output in 1980 to 88.4 per cent in 1987. Over this period total electricity output has almost doubled (Table 5.11) and is expected to rise by 30 per cent in the next three years, reaching 800 million MW in 1990, while the peak load in Aden has increased from 60 MW in 1984 to 80 MW in 1988.

Table 5.11: Electricity production, 1980 and 1985-87
(in million KWh)

	1980	1985	1986	1987	Per cent change 1980-87
Total electricity	318.0	466.2	558.8	610.0	91.8
of which:					
Public Corporation for Electric Power	198.0	423.0	445.8	514.9	160.0

Source: Central Statistical Office, Statistical Year-book, 1988, p. 158.

A total of YD100 million, 17.3 per cent of total investment, has been allocated to the development of the electricity network under the Third Five Year Plan (1986-1990). Over three quarters of these funds will go towards the completion of the Hiswah Power Station in Aden, which has been under construction since 1982. This project is expected to meet the capital's electricity needs up to the first decade of the next century. In 1985 two 25 MW heavy fuel generators were commissioned and a further 25 MW will come on line in April 1989. The planned final capacity is 125 MW.

Access to the main electricity supply is still largely restricted to urban areas. The 1988 census revealed that 48.6 per cent of households were lit by mains electricity nation-wide but this proportion fell from 82.3 per cent in Aden to only 23.9 per cent in Al Mahrah. A nation-wide grid is impracticable, given the dispersal of the population, but the government has sought to centralise power generation where possible. A distribution network linking the Abyan Governorate to Hiswah power station will be completed in 1989 while underground cables will link Hiswah to the 64 MW power station at Mansoura. Similarly, power generating facilities have been consolidated in a 20 MW station in Hadramawt Governorate. More ambitious is the proposal to build a 240 km 132 kV line from Hiswah to Taiz in the Yemen Arab Republic. This project, which would make PDR Yemen an electricity as well as an oil exporter, has already received the backing of a $63 million loan from the Arab Fund for Social and Economic Development. These developments are not, however, likely to lead to a reduction in electricity tariffs. In June 1985 tariffs were increased by an average of 10 per cent as a conservation measure and in an attempt to reduce the PCEP's deficit, estimated at YD2°million in 1984. The tariff structure (Table 5.12), which, as a social policy, favours domestic consumers, will be retained. At present industrial consumers are charged a flat rate whatever their consumption. Despite the relatively high cost of electricity, few industrial units have independent generators and those that do either retain them as standby sources of power or have special arrangements with the PCEP.

Table 5.12: Electricity tariffs, 31 December 1986
(in fils: 1,000 fils=YD1)

Consumer	Price per KWh
Households (Yemeni)	
0-100 kWh	16
101-200 KWh	27
greater than 200 KWh	50
Commercial companies and joint companies	60
Agricultural industry	
public sector	43
private sector	60
Bulk to military	57
Bulk to others	60
Temporary	
government	60
non-government	150

Source: Ministry of Industry, Supply and Trade, Industrial Guide, (in Arabic) 1987.

Considerable scope exists for the development of non-traditional sources of energy such as solar power. Although developments in this field are unlikely to be a government priority now that oil has been discovered there is an urgent need to find alternatives to fuel wood, which is still an important source of cooking-fuel in rural areas, in order to curtail deforestation. There is little prospect of isolated communities receiving mains electricity in the near future but great advances have been made in the substitution of butane gas, produced by the oil refinery, sales of which tripled between 1980 and 1987.

5.4 Water

Water shortages are a major constraint on development in PDR°Yemen. Reliable water sources are often distant from urban and agricultural areas, reserves are limited and the quality is generally poor. Furthermore, access to piped water is restricted to urban areas forcing both industry and households to depend on independent, uncontrolled supplies. The 1988 census revealed that only 42.8 per cent of households nation-wide had access to piped water and in the predominately rural Lahej Governorate the proportion falls to as low as 20.3 per cent. Improvements to the rural water supply have been a priority in the government's attempts to meet basic human needs.

In urban areas, particularly Aden and Mukalla, the problem has been to find new secure sources for a rapidly growing population and improve water quality. The constraints on the public water system are indicated by the relatively slow growth of water production by the Public Water Corporation between 1980 and 1987 (Table 5.13), only 4.3 per cent annually, the modest target of 3.4 per cent annual growth in production set under the TFYP and the high salt content of the existing supplies in Aden. Both the soft drinks factory and the brewery have to use expensive reverse osmosis plants to reduce salt contents to the WHO standard of 400-500 ppm.

Table 5.13: Water Production, 1980 and 1985-1987
(million cu m)

	1980	1985	1986	1987	Per cent change 1980-87
Total water	29.8	47.5	47.5	49.2	67.1
of which:					
Public Water Corporation	23.2	30.2	30.4	29.2	30.2

Source: Central Statistical Office, Statistical Year-book, 1988, p. 158.

The government has embarked on two large water schemes in order to overcome the problems faced by the major urban - and industrial - centres, Aden and Mukalla. The Aden water scheme, initiated in 1985, involves the drilling of a new well field at Wadi Banah, in Abyan Governorate 50 km away, which will provide 12.6 million cu m of water a year and the upgrading of facilities at the existing well fields at Bir Ahmed and Bir Nasir where output levels have fallen off in recent years. In addition, a sea water desalinisation plant at the Hiswah power station will begin production of 14,000 cu m of water per day in April 1989 - with a final capacity of 28,000 cu m when the power station is completed. This water will be added to the mains supply in order to reduce salinity to acceptable levels. At Mukalla too the provision of adequate water supplies depends on the development of new well fields 50 km from the city and the construction of a pipeline.

The government anticipates that these projects will accommodate the growth in urban demand for water till the end of the century. However, the shipment water from agricultural areas, such as Abyan, to meet urban demand underlines the need for an integrated water plan, conservation measures and the regional dispersal of economic activity. Industry is, at present, only a minor water consumer. Nevertheless, the pressing water shortages faced by the Aden region should be taken into account when selecting the location of future industrial establishments. At the same time, the existing conservation measure - a flat rate tariff of 120 fils per cu m beyond the nominal quantity supplied free to domestic consumers - could be made more selective to accommodate and protect industry using large quantities of water as a essential raw material and penalise wasteful consumers.

5.5 Hard mineral resources

Although there has been no comprehensive survey of the geology of PDR Yemen, the country is thought to be poorly endowed with mineral resources. The only hard minerals currently exploited are low value building materials and sea salt. In recent years, however, the government has stepped up its exploration efforts. Soviet geologists have begun detailed geological surveys of known gold reserves and aerial and field mapping is now co-ordinated with the neighbouring Yemen Arab Republic. There are plans to develop the gold deposits, should the geological and economic assessment prove favourable, but, in the near future, the greatest potential for development is in more intensive exploitation of low value building materials and their substitution for products that are currently imported at a considerable cost in foreign exchange.

PDR Yemen's known mineral resources may be summarised, in alphabetical order, as follows:

Asbestos - Reserves have been found but none have been identified as economically viable.

Clays - Clays suitable for the industrial manufacture of bricks are found at Jawala 15 km from Aden and at Mdara nearby. A brick factory on the latter site was closed in the mid-1970s due to the uncompetitive price of fired bricks but the artisanal production of unfired bricks continues. Bricks have, however, been largely superseded by concrete blocks as a building material in the capital. In the Hadramawt Governorate, on the other hand, traditionally made bricks are still widely used. The materials used for these bricks are, in fact, very silty clays or sandy silts with little clay content.

Gold - Promising reserves of gold were discovered in the Wadi Meddan during a survey by Soviet geologists in 1985. Detailed surveys of a 40 sq km area in Abyan Governorate began in 1988 in order to assess the economic viability of the deposit and will be completed by 1991.

Granite - Reserves amounting to an estimated 28 million cu m are available at As-Suweda in Abyan Governorate. They are not systematically exploited at present.

Gypsum - Two major deposits of gypsum have been discovered; one at Ghayal Ba Wazir in Hadramawt Governorate about 30 km from Mukalla with proven reserves of 7 million tons and the other at Mahfid in Abyan Governorate with reserves of 2 million tons. A factory was established at Ghayl Wa Bazir in 1986 with technical assistance from Hungary. The plant's capacity is 750 tons of gypsum, 600 tons of building plaster and 140 tons of black board chalk per year. However, inadequate maintenance and poor market development have virtually brought the factory to a stand still. Further technical assistance will be needed to restore production and encourage the use of gypsum, which is an active additive in cement, and plaster products in the building industry. Gypsum is also used as clarifying agent in the glass industry and will be of interest if the glass factory project is initiated.

Kaoline - The deposits available, most of which are found in coastal areas, have impurities and so are unsuitable for ceramics.

Lead - Traces of lead ores have been found but further research is needed to evaluate their importance.

Limestone - Reserves of limestone totalling 20 million tons are found in Wadi Barra, Abyan Governorate, and at Shemosa, near Mukalla. The latter deposits are already exploited at an artisanal scale for the production of lime in nine shaft kilns with an annual output of about 2,500 tons. A recent UNIDO study[1/] has pointed out that both deposits could be used to produce a substitute for Portland cement which is currently imported. At present lime is used mainly as white wash.

Marble - A deposit of marble estimated at 940,000 cu m, with no overburden and so suitable for open cast mining, has been discovered at Al-Kuyra in Abyan Governorate. It is predominately at small block deposit, with blocks over 0.3 m in depth representing only 19 per cent of the total deposit. Nevertheless, the deposit is suitable for the production of marble tiles for the construction industry.

Pozzolane - This volcanic slag can be used with lime in the production of a cement substitute. Deposits of volcanic slag, thought to be pozzolanic on the basis of a preliminary chemical analysis, are found at Shuqrah in Abayan governorate and are estimated at 7,000 million cu m. Another deposit exists near Bir Ali.

Salt - Sea salt has been produced at an artisanal scale for centuries in PDR Yemen. There used to be three industrial scale salt works producing salt from evaporation basins but only one of these, at Khormaksar, operated by the Public Organisation of Salt, is still operational. Covering an area of 600 ha the Khormaksar Salt Works has a nominal capacity of 150,000 tons per year. Production has, however, tailed off from over 80,000 tons in 1979 to only 40,000-50,000 tons at present, of which about 10,000 tons is consumed locally and the remainder is sold to West African markets. Falling production may be ascribed to poor maintenance, management and marketing and the company now faces rising production costs per unit of output. In early 1989 a UNIDO mission was studying means of restoring the plant's production.

1/ W. M. Buchanan, Building Materials: Production and Planning, Final Report, October 1988 (PDY/83/133/11-54).

Sand - Sand is currently extracted for building purposes from several locations in PDR Yemen. In the mid-1980s production was estimated at 150,000 tons and is expected to rise to 475,000 tons by 1995. The deposits are, however, more often selected for their convenience than their quality and often contain considerable quantities of silt and salt impurities. Contractors for a number of large construction projects have imported sand from more reliable sources.

Sandstone - A high purity deposit, suitable for the production of glass, has been found at Mahfid, Shabwa Governorate, with reserves estimated at over 3 million tons. Development of these deposits is currently under review in the context of a joint project with the Yemen Arab Republic: a glass manufacturing plant aimed solely at the domestic market could not attain sufficient output, 13,000 tons per year at current levels of glass consumption, to be economically viable.

Titanium - Traces of ilmenite, $FeTiO_3$, and rutile, TiO_2, have been found in the central coastal region but further research is needed to evaluate their economic importance.

5.6 Infrastructure

Communications within PDR Yemen are difficult. In 1987 there were only 2,073 km of asphalted roads, the remainder of the road network, 8,860 km, being track of variable quality. Road construction has been one of the government's main priorities in the development plans with the length of paved road increasing by 41 per cent and unpaved road by 60 per cent since 1980. An important road link to Taiz in the Yemen Arab Republic has been built with assistance from Arab Fund for Economic and Social Development (AFESD).

A major construction project at Aden port began in late 1988. Reinforced concrete berths are to be built so that the port will no longer have to use lighters for unloading cargo and a 60,000 ton grain silo is planned. The project, which will cost $60 million in the initial stage, is to be financed by Arab donors, including the AFESD. Two new berths are to be built at the oil refinery, one of 80,000 dwt and the other of 120,000 dwt. At a later date the port rehabilitation project will be extended to include the extension and upgrading of free zone facilities.

In 1970, Aden's historic role as a free port ended with the imposition of customs duties. A free zone was retained for goods in transhipment but the volume of goods passing through has generally been low. Since Aden occupies a strategic place on global shipping routes there is certainly potential for the development of a container transhipment port along the lines of Djibouti's free zone.

Port facilities have been upgraded in a number of small fishing ports and in 1985 a new 10,000 dwt was opened at Mukalla. The port now accounts for 26.6 per cent of the cargo unloaded as opposed to 17 per cent in 1980 and has greatly facilitated transport between the capital and the eastern region.

Industrial infrastructure is poorly developed. Other than the industrial area in Mansoura, which houses 12 enterprises, there are no industrial estates and new projects have considerable difficulty finding and acquiring suitable sites with the necessary services. These problems are particularly acute in the less developed Gove :orates whilst in the capital the lack of zoning often leads to industrial installations being built in close proximity to residential areas. The Ministry of Industry, Trade and Domestic Supply is currently assessing the merits of an industrial estate policy.

A related project is the development of an Industrial Free Zone in Aden port for offshore manufacturing by foreign investors. The government proposed the project to a Saudi financier of Yemeni origins in early 1989 who would act as promoter and it is currently at the pre-feasibility stage. PDR Yemen's strategic location and the port are seen as the main attractions. Preliminary inquiries in East Asia are said to have been encouraging. Nonetheless, in view of the rapidly expanding range of such facilities world-wide, the limited linkages available in the domestic economy and the shortage of skilled personnel the project should be examined closely. Furthermore, foreign capital is only likely to be attracted by significant legal concessions. Consequently, the pre-feasibility study should take into consideration not only the viability of the project but also the benefits and costs it will imply for the domestic economy.

5.7 The role of technical assistance in industrial development

PDR Yemen is heavily dependet on external financing to support its development programme. Foreign assistance or borrowing is expected to cover 52 per cent of total investment expenditure during the Third Five-Year Plan (1986-1990) and in 1986, the first year of the Plan, over 70 per cent of development expenditure was funded from these sources. Centrally planned economies provide the largest share of this development assistance, accounting for two-thirds of the assistance received in the period up to 1982, with Arab States and development organizations providing 20 per cent (see Chapter 1.2). Bilateral donors and the Arab development organizations have made a substantial contribution to the development of the country's infrastructure.

Multilateral donors, on the other hand, have been more concerned with technical assistance and training. The government too has given this a high priority, recognizing that the viability of future capital investments must depend on the human resources necessary to effecti··ly manage and maintain these resources. During the pre-Independence peri. , PDR Yemen's manpower resources were neglected and the country still suffers from an acute shortage of skilled technical, professional and administrative personnel in every sector and consequent dependence on foreign expertise in almost every sector. In accordance with PDR Yemen's socialist development philosophy, human resources are not only considered central to social and economic progress, but their development constitutes the ultimate objective.

The objectives of the Third Country Programme (1982-1986) were closely linked to those of the Second Five-Year Plan. Out of a UNDP Indicative Planning Figure (IPF) of $14.2°million, 57.3 per cent of actual expenditure was on projects in the commodity sectors, corresponding closely with the government's allocation of investment funds. Industry's share of the IPF was, however, only 10.4 per cent covering 2 out of 21 projects. The Country Progrmme sought to reduce the number of resident experts and encourage the use of short-term consultants, particularly in the case of well established institutions. This has, however, led to problems of co-ordination and made it particularly difficult to introduce long-term institutional changes such as in the fields of management practices. Almost all projects had an overseas training component intended to develop the skills of nationals and training accounted for 18 per cent of IPF expenditure, rising from 9.4 per cent in 1982 to 35.1 per cent in 1986.

This technical assistance strategy has been carried through into the Fourth Country Programme (1987-1991), in which an IPF allocation of $12,853*million has been made available. A central theme of the projects identified is their ability to enhance the government's human resources base in development planning and national resource management. A second objective is the maximization of the return of productive capacities, in line with the government's policy to consolidate past achievements rather than embark on new and costly development projects. However, only 3*per cent of the IPF has been allocated to the industrial sector.

Within the framework of the Country Programme, UNIDO projects fall into two broad categories: institution building projects and enterprise level support projects. UNIDO has provided the Ministry of Industry, Trade and Domestic Supply with technical assistance since 1976 through projects in the broad area of efficiency improvement and management practices which also dealt with the relationship between the Ministry and factory management. Over thirty enterprises participated in management training seminars and 77*diagnostic studies and surveys at an enterprise and sectoral level wre undertaken as part of the "Training in management and performance improvement of industries' project (PDY/81/006). With UNIDO assistance, a marked improvement in management practices has brought about a significant increase in plant productivity and capacity utilization rates within the public and mixed sector. In 1989, UNIDO will, for the first time, be involved with the process of policy formulation by upgrading and strengthening the Ministry's capacity to identify, evaluate and promote industrial projects (PDY/87/001).

UNIDO has provided technical assistance to resolve the financial, technical and managerial problems of individual plants rather than being involved in the establishment of new industrial projects. Assistance along these lines has been concentrated in 5 of the public and mixed sector companies, one of which lies outside the capital. A particular success has been the long-term commitments to each enterprise in order to resolve fundamental operating problems. The completion of the REVOMETAL prject will provide an opportunity for the formulation of a sectoral strategy for the metalworking and engineering sector.

Pipeline projects include the diagnostic studies and assistance to the gypsum plant, the tanning factory, the coastal carpentry co-operative and the textile and weaving factory. There are also a number of project ideas under consideration such as the development of the lime industry, brickmaking and a weaving unit for plastic bags. New developments are, however, likely to be constrained by the shortage of counterpart funds and technical assistance will continue along these lines in compliance with the government's strategy for the Third Five-Year Plan: the consolidation of past achievements through the enhancement of existing productive capacties.

ANNEX A

ECONOMIC STATISTICS

Table A-1: Balance of payments, 1982-1987
(million YD)

	1981	1982	1983	1984	1985	1986[a/]	1987[a/]
Exports (f.o.b.)	16.8	13.1	13.9	10.6	13.7	9.8	24.0
- Domestic exports	9.8	7.1	8.7	8.3	12.7	8.7	22.8
- Re-exports	7.0	6.0	5.2	2.3	1.0	1.1	1.2
Imports (c.i.f.)	-248.8	-268.1	-265.3	-284.8	-241.2	-172.5	-174.1
- Petroleum	-54.2	-53.5	-57.0	-28.5	-36.6	...	...
- Other	-194.5	-214.6	-208.3	-256.3	-205.4	...	...
Trade balance	-232.0	-255.0	-251.4	-274.2	-227.5	-162.7	-150.1
Services (net)	17.6	14.9	4.5	3.3	-7.7	10.2	16.0
Unrequited transfers (net)	173.0	192.2	166.7	175.8	150.6		
- Private transfers	131.9	148.8	152.1	166.2	140.3	96.2	100.4
- Official grants	41.1	43.4	14.6	9.6	10.3		
Current account balance	-41.4	-47.9	-80.2	-95.1	-84.6	...	...
Government loans (net)	60.7	60.5	67.0	48.0	48.6	43.8	...
Other capital	11.5	-	-2.0	23.8	-1.0	-12.2	...
Net errors and omissions	32.5	-5.2	-7.2	-6.6	23.5	...	...
Overall balance	18.8	14.1	3.4	4.0	-24.6	-40.2	

Source: Central Statistical Office, Statistical Year-book, 1984 and 1988.

a/ Estimate

Table A-2: Imports, exports and re-exports by SITC category, 1980 and 1985-87
('000 YD)

Category	1980 YD	1980 %	1985 YD	1985 %	1986 YD	1986 %	1987 YD	1987 %
IMPORTS								
Food & live animals	66,117	28.0	70,819	29.4	49,292	29.6	42,572	25.1
Beverages & tobacco	5,338	2.3	2,990	1.2	1,213	0.7	1,753	1.0
Crude materials	9,537	4.0	5,771	2.4	2,648	1.6	3,246	1.9
Mineral fuels & lubricants	51,920	22.0	36,551	15.2	23,451	14.1	33,576	19.8
Animal & vegetable oils and fats	5,497	2.3	9,222	3.8	6,374	3.8	3,808	2.2
Chemicals	8,103	3.4	10,938	4.5	9,520	5.7	8,886	5.2
Manufactured goods	30,098	12.7	39,574	16.4	29,221	17.5	28,974	17.1
Machinery & transport equipment	50,487	21.3	52,948	22.0	39,061	23.4	41,137	24.2
Misc. manufactured goods	8,802	3.7	12,341	5.1	5,388	3.2	5,745	0.4
Total	236,259		241,115		166,808		169,700	
EXPORTS AND RE-EXPORTS								
Food & live animals	7,645	52.6	7,256	52.4	7,033	70.2	9,089	37.4
- fish & products	6,387	43.9	5,167	37.3	4,665	46.6	4,840	19.9
Beverages & tobacco	958	6.6	1,265	9.1	618	6.2	754	3.1
Crude materials	4,321	29.7	1,332	9.6	853	8.5	2,085	8.6
Mineral fuels & lubricants	875	6.0	3,356	24.2	1,212	12.1	11,832	48.7
Animal & vegetable oils and fats	40	0.3	1	0.0	0	0.0	1	0.0
Chemicals & related products	33	0.2	523	3.8	9	0.1	31	0.1
Manufactured goods	422	2.9	78	0.6	117	1.2	180	0.7
Machinery & transport equipment	33	0.2	61	0.4	56	0.6	220	0.9
Misc. manufactured goods	220	1.5	248	1.8	123	1.2	98	0.4
Total	14,547		13,852		10,021		24,285	-
of which re-exports	1,025		1,084		1,193		1,347	

Source: Central Statistical Office, Statistical Yearbook, 1988, pp.243-4.

Table A-3: Exports of manufactured goods, 1980-1987
('000 YD)

Product	1980	1985	1986	1987
Linted cotton	3,083	404	5	872
Salt	191	385	380	166
Fish meal	8	-	-	-
Fish oils	25	-	-	-
Leathers	121	103	13	63
Aluminium utensils	15	-	-	-
Paints and emulsion	2	1	-	-
Carpets	35	14	61	49
Cigarettes	1	808	297	224
Petroleum Products	875	3,356	1,211	11,832
Total	4,356	5,071	1,967	13,206
Total Exports	13,522	12,769	8,825	22,938

Source: Central Statistical Organisation, Statistical Year-book, 1988 pp. 252-254.

Table A-4: Geographical distribution of trade, selected years
(Percentage shares)

Country	Imports 1980	Imports 1985	Imports 1987	Exports & Re-exports 1980	Exports & Re-exports 1985	Exports & Re-exports 1987
Arab Common Market	2.1	2.8	6.8	0.8	0.0	0.8
- Kuwait	2.0	0.2	6.5	0.0	0.0	0.3
Other Arab countries	21.7	8.4	13.2	18.9	26.6	27.5
- Saudi Arabia	2.5	1.5	4.3	5.1	5.3	11.1
- Yemen Arab Republic	2.3	1.6	1.6	12.0	18.8	6.0
- United Arab Emirates	0.1	0.6	5.8	0.4	1.0	7.5
- Djibouti	0.1	0.4	0.6	1.2	1.4	0.4
Centrally planned economies	13.2	23.2	31.7	10.7	7.0	4.1
- Bulgaria	1.0	0.9	1.0	1.3	2.9	3.5
- German D.R.	0.9	1.4	0.8	-	-	0.0
- Czechoslovakia	0.4	0.5	0.6	-	-	-
- Hungary	0.7	0.4	0.2	-	-	-
- U.S.S.R.	6.8	14.2	20.7	-	4.2	0.5
- P.R. China	3.0	4.7	5.7	9.3	-	-
European Community -	22.5	27.9	26.0	11.5	7.1	25.5
- France	5.0	4.8	1.1	0.1	3.7	16.6
- F.R. Germany	1.7	3.3	2.7	1.3	0.4	0.2
- Italy	2.5	3.1	2.6	9.3	3.0	8.7
- Netherlands	3.6	5.5	1.7	0.7	-	-
- United Kingdom	7.0	7.1	10.1	-	-	0.1
- Denmark	1.9	3.1	5.0	-	-	-
Other European countries	1.2	1.7	2.3	0.0	0.0	10.0
Asia -	18.2	20.9	13.3	51.6	35.7	19.4
- India	2.3	2.2	1.3	0.7	0.0	3.3
- Hong Kong	1.6	0.5	0.1	2.1	0.0	-
- Japan	9.0	6.5	4.7	41.2	28.4	14.2
- Singapore	1.2	0.4	3.4	7.6	7.2	1.6
- Sri Lanka	0.8	1.4	0.8	-	-	-
- Malaysia	1.9	0.8	0.3	-	-	-
- Thailand	1.0	2.4	1.1	-	-	-
Africa	1.3	3.3	1.6	2.4	3.0	10.0
- Ethiopia	0.8	2.3	0.5	1.8	0.7	8.5
- Kenya	0.4	0.8	0.7	0.5	0.8	0.1
North and South America	0.2	2.8	0.3	0.5	18.1	0.2
- United States	0.4	0.2	0.2	0.1	-	0.2

Source: Central Statistical Office, Statistical Yearbook, 1988, pp. 238-43.

Table A-5: Industrial output by product, 1980-1987
('000 units)

Products	Unit	1980	1985	1986	1987	Per cent change 1980-87
Aden refinery						
Gas oil	tons	425.0	160.8	120.1	235.0	-44.7
Jet oil	tons	548.0	56.2	41.9	347.5	-36.6
Mazout	tons	1,136.0	1,248.8	1,112.6	572.1	-49.6
Liquified gas	tons	13.0	28.1	31.0	123.4	849.2
Diesel	tons	1,045.0	773.0	800.6	29.4	-97.2
Chemical industry						
Salt	ton	15.0	66.9	40.3	55.5	270.0
Oxygen	cu m	32.0	53.6	54.0	93.3	191.6
Acetalyene	tons	13.0	27.0	17.1	26.8	106.2
Rubber sandals	pairs	634.0	1,677.7	1,699.7	1,405.1	121.6
Perfumes	litres	9.0	39.3	7.6	17.2	91.1
Matches	gross	340.0	515.8	454.4	422.4	24.2
Paint	litres	1,516.0	2,559.9	1,765.2	1,755.5	15.8
Foam rubber	tons	619.0	797.3	669.1	1,023.3	65.1
Liquid batteries	pieces	13.0	14.3	13.4	14.6	12.3
Aluminium products						
Household utensils	tons	0.4	0.4	0.3	0.4	0.0
Nails	tons	297.0	375.0	384.0	393.1	32.4
Wood and printing						
Paper bags	tons	0.5	0.8	0.8	0.5	0.0
Books	pieces	20.6	9.2	13.6	9.4	-54.4
Building materials						
Tiles	pieces	1.2	1.0	0.9	0.7	-41.7
Cement blocks	pieces	0.5	0.7	0.8	0.8	60.0
Ready made panels	metres	-	4.0	5.0	15.4	
Gravel	cu m	-	306.2	200.0	358.8	
Texiles and leather						
Cotton textiles	metres	1,800.0	2,600.0	2,500.0	2,600.0	44.4
Knitting	pieces	25,459.9	1,930.5	872.9	8,100.0	-68.2
Carpet	metres	42.6	40.8	55.1	45.8	7.5
Leather shoes	pairs	94.0	111.7	171.3	238.8	154.0
Food stuffs						
Milk	litres	5,700.0	4,800.0	3,600.0	4,400.0	-22.8
Tomato paste	tons	1.2	1.4	1.9	1.7	41.7
Flour	tons	31.7	32.4	34.3	30.7	-3.2
Aerated water	litres	4,000.0	13,000.0	11,900.0	12,500.0	212.5
Beer	litres	-	7,000.0	5,000.0	5,000.0	
Cigarettes	pieces	1,248.0	1,466.7	1,146.6	1,192.6	-4.4
Spices	tons	30.0	83.0	79.0	109.6	265.3
Canned fish	cans	3,300.0	8,600.0	7,600.0	8,800.0	166.7

Source: Central Statistical Office, Statistical Year-book, 1988, pp. 158-162.

ANNEX B

ENTERPRISE LEVEL PERFORMANCE BY OWNERSHIP

Table B-1: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Production Value by ownership (in '000 YD)

Industrial enterprises	Production value 1980[a]	1985	1987	1988[b]	1989[c]
A. Public Sector					
1. Al-Thourah Spare Parts Factory	209	909	1,245	1,282	1,585
2. Agricultural Implements and Metal Works Factory	373	1,181	925	950	1,000
3. Al-Gundi Plastics Factory	482	512	769	780	800
4. Gas Plant	83	313	327	340	375
5. Weaving and Spinning Factory	809	1,425	1,363	1,417	1,517
6. Mayrters' Clothing Factory	122	218	408	550	571
7. National Tanning Factory	209	123	136	165	180
8. Leather Shoes Factory	308	397	748	753	838
9. National Bottling Factory	625	2,846	2,695	2,895	3,000
10. Public Corp. for Dairy Products	621	867	957	1,319	1,523
11. Public Salt Corporation	116	780	625	694	771
12. Public Corp. for Grain Mill	3,728	3,328	3,206	2,802	3,000
13. Bakeries (Mukalla and Al-Mansura)	115	402	344	386	476
14. Tomato Paste Factory	875	1,780	1,726	1,755	2,300
15. National Brewery Corporation	-	2,792	2,006	2,035	2,300
16. Vegetable Oil Factory	397	-	-	-	-
17. Gypsum and Chalk Factory	-	37	42	50	53
18. Public Corporation for Carpentry	328	452	622	676	700
19. Biscuits and Sweet Factory	-	-	-	1,466	2,500
Sub-Total	9,397	18,362	18,144	20,315	23,489
B. Mixed Sector					
1. Aluminium Factory	638	780	757	770	844
2. Perfume & Cosmetics Factory	119	620	316	1,287	1,375
3. Emulsion and Paint Factory	1,389	2,539	1,775	2,019	2,200
4. Cigarettes Factory	3,663	4,678	3,817	3,859	4,000
5. Matches Factory	536	489	407	374	394
6. Liquid Batteries Factory	366	418	558	577	631
7. Sponge and Metal Furniture Factory	992	1,218	1,117	1,139	1,279
8. Rubber Slippers Factory	423	1,171	1,297	1,623	1,672
9. Bakery at Mukalla	-	100	125	141	154
10. Bakery at Shahar	-	-	261	274	288
11. Bakery at Sayun	-	-	-	106	110
Sub-total	8,126	12,013	10,430	12,169	12,947

Industrial enterprises	Production value 1980[a]	1985	1987	1988[b]	1989[c]
C. Cooperative Sector					
1. Leather Manufactures Coop.	191	307	405	408	479
2. Women's Tailoring Coop. Aden	38	32	45	65	75
3. Women's Tailoring Coop. Lahej	-	8	12	22	30
4. Women's Tailoring Coop. Abyan	31	24	20	35	37
5. Women Tailoring Coop. Hadramawt	73	63	63	65	75
6. Shabwah Weaving Coop.	58	196	286	321	329
7. Coastal Carpentry Coop.	-	1,074	1,132	1,155	1,182
8. Carpentry Coop. Sayun	-	471	548	552	566
Sub-total	392	2,175	2,511	2,623	2,773
D. Private Sector					
1. Middle East Plastic	27	285	324	315	324
2. Aidros Clothing Factory	197	208	180	180	-
3. Saba Clothing Factory	147	-	-	-	-
4. National Clothing Factory Van Zain	112	177	146	146	160
5. Bags and Belts	250	466	340	360	389
6. National Nail Factory	143	205	168	168	200
7. Al-Jazzira Paper Bags Factory	111	177	79	95	100
8. Arab Enterprise for Printing and Paper Bags	88	118	95	95	100
9. Al-Nile Spices Factory	43	176	228	234	248
10. Mirrors and Frames Plant	73	66	64	67	90
11. York Ice Cream Factory	26	45	40	61	71
12. Ice making Factory	24	55	61	67	71
13. National Carpet Factory	111	155	142	150	170
14. Woollen Clothing Factory	107	23	15	20	30
15. Macoroni Factory	58	40	27	35	70
16. National Synthetic Clothing Factory	-	23	19	26	32
17. Aluminium Doors and Windows Plant (Al-Mansoura)	-	470	168	180	197
18. Aluminium Doors and Windows Plant (Al-Mukalla)	-	227	268	285	300
19. Aluminium Doors and Windows Plant (Shabwa)	-	-	-	63	81
20. National Socks Factory	-	-	9	20	40
21. Welding Electrodes Factory	-	-	14	46	80
22. Yemeni Plant for Electrical Fittings Factory	-	-	30	65	100
23. Samadani Embroidery Factory	-	-	-	15	25
Sub-total	1,517	2,916	2,417	2,693	2,878
TOTAL	19,434	35,466	33,502	37,800	42,087

a/ 1980 prices. All other years constant 1985 prices.
b/ Estimate.
c/ Planned.

Table B-2: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Value added by ownership (in '000 YD)

Industrial enterprises	Value added (current prices)				
	1980	1985	1987	1988[a]	1989[b]
A. Public Sector					
1. Al-Thourah Spare Parts Factory	138	389	479	412	491
2. Agricultural Implements and Metal Works Factory	84	367	326	351	355
3. Al-Gundi Plastics Factory	208	101	270	222	182
4. Gas Plant	109	108	180	175	216
5. Weaving and Spinning Factory	149	608	558	601	652
6. Mayrters' Clothing Factory	69	87	121	172	182
7. National Tanning Factory	90	52	33	39	54
8. Leather Shoes Factory	93	126	326	202	233
9. National Bottling Factory	376	1,576	1,439	1,636	1,714
10. Public Corp. for Dairy Products	89	127	22	49	150
11. Public Salt Corporation	59	137	81	149	163
12. Public Corp. for Grain Mill	116	200	148	41	51
13. Bakeries (Mukalla and Al-Mansura)	10	-30	-46	-26	9
14. Tomato Paste Factory	260	690	542	164	2
15. National Brewery Corporation	-	1,379	1,118	1,087	1,344
16. Vegetable Oil Factory	122	-	-	-	-
17. Gypsum and Chalk Factory	-	16	18	24	26
18. Public Corporation for Carpentry	187	269	342	334	344
19. Biscuits and Sweet Factory	-	-	-	347	575
Sub-Total	2,159	6,252	5,957	5,979	6,743
B. Mixed Sector					
1. Aluminium Factory	208	326	307	321	353
2. Perfume & Cosmetics Factory	29	165	93	605	627
3. Emulsion and Paint Factory	243	1,156	616	988	734
4. Cigarettes Factory	1,279	1,959	787	769	810
5. Matches Factory	286	119	83	15	14
6. Liquid Batteries Factory	111	113	191	168	190
7. Sponge and Metal Furniture Factory	379	563	469	412	431
8. Rubber Slippers Factory	174	721	771	725	751
9. Bakery at Mukalla	-	40	51	60	70
10. Bakery at Shahar	-	42	74	83	93
11. Bakery at Sayun	-	-	-	30	37
Sub-total	2,709	5,204	3,442	4,176	4,110

Industrial enterprises	Value added (current prices) 1980	1985	1987	1988	1989
C. Cooperative Sector					
1. Leather Manufactures Coop.	81	130	118	123	161
2. Women's Tailoring Coop. Aden	17	11	16	30	36
3. Women's Tailoring Coop. Lahej	-	-	4	9	10
4. Women's Tailoring Coop. Abyan	20	18	8	18	20
5. Women's Tailoring Coop. Hadramawt	33	34	34	36	43
6. Shabwah Weaving Coop.	39	70	129	137	141
7. Coastal Carpentry Coop.	-	481	486	472	488
8. Carpentry Coop. Sayun	-	220	265	268	276
Sub-total	190	964	1,060	1,093	1,175
D. Private Sector					
1. Middle East Plastic	7	61	67	86	88
2. Aidros Clothing Factory	127	68	89	89	-
3. Saba Clothing Factory	38	-	-	-	-
4. National Clothing Factory Van Zain	18	36	28	28	39
5. Bags and Belts	82	103	97	113	133
6. National Nail Factory	23	28	20	20	32
7. Al-Jazzira Paper Bags Factory	9	45	12	14	17
8. Arab Enterprise for Printing and Paper Bags	18	19	16	16	19
9. Al-Nile Spices Factory	6	21	15	111	25
10. Mirrors and Frames Plant	18	14	14	17	26
11. York Ice Cream Factory	-	6	8	10	11
12. Ice making Factory	8	14	5	10	17
13. National Carpet Factory	23	26	22	27	38
14. Woollen Clothing Factory	37	10	8	10	32
15. Macoroni Factory	10	17	12	14	39
16. National Synthetic Clothing Factory	-	7	5	7	7
17. Aluminium Doors and Windows Plant (Al-Mansoura)	-	108	51	60	71
18. Aluminium Doors and Windows Plant (Al-Mukalla)	-	47	75	70	63
19. Aluminium Doors and Windows Plant (Shabwa)	-	-	-	15	19
20. National Socks Factory	-	-	-3	5	11
21. Welding Electrodes Factory	-	-	-25	7	25
22. Yemeni Plant for Electrical Fittings Factory	-	-	36	15	25
23. Samadani Embroidery Factory	-	-	-	4	8
Sub-total	424	630	552	748	745
TOTAL	5,482	13,050	11,011	11,996	12,773

a/ Estimate.

b/ Planned.

Table B-3: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Employment by ownership

Industrial enterprises	Employment 1980	1985	1987	1988	1989[a/]
A. Public Sector					
1. Al-Thourah Spare Parts Factory	96	220	300	328	360
2. Agricultural Implements and Metal Works Factory	90	120	118	123	125
3. Al-Gundi Plastics Factory	56	101	120	123	124
4. Gas Plant	37	42	42	49	50
5. Weaving and Spinning Factory	1,118	825	777	800	817
6. Mayrters' Clothing Factory	128	111	116	179	187
7. National Tanning Factory	67	62	65	69	71
8. Leather Shoes Factory	112	127	122	125	130
9. National Bottling Factory	250	360	252	362	365
10. Public Corp. for Dairy Products	142	135	139	153	157
11. Public Salt Corporation	241	179	162	170	175
12. Public Corp. for Grain Mill	130	134	118	123	125
13. Bakeries (Mukalla and Al-Mansura)	61	156	136	142	142
14. Tomato Paste Factory	153	115	128	131	140
15. National Brewery Corporation	-	160	158	160	168
16. Vegetable Oil Factory	130	-	-	-	-
17. Gypsum and Chalk Factory	-	25	32	33	34
18. Public Corporation for Carpentry	300	277	251	255	257
19. Biscuits and Sweet Factory	-	-	-	251	258
Sub-Total	3,111	3,149	3,036	3,576	3,685
B. Mixed Sector					
1. Aluminium Factory	183	156	158	163	168
2. Perfume & Cosmetics Factory	37	48	57	69	73
3. Emulsion and Paint Factory	67	112	125	133	136
4. Cigarettes Factory	350	430	459	462	464
5. Matches Factory	125	134	114	118	120
6. Liquid Batteries Factory	22	37	47	48	49
7. Sponge and Metal Furniture Factory	60	95	96	102	107
8. Rubber Slippers Factory	83	108	116	138	140
9. Bakery at Mukalla	-	30	24	25	26
10. Bakery at Shahar	-	30	31	32	33
11. Bakery at Sayun	-	-	-	23	25
Sub-total	927	1,180	1,227	1,313	1,341

Industrial enterprises	Employment 1980	1985	1987	1988	1989
C. Cooperative Sector					
1. Leather Manufactures Coop.	108	108	111	112	116
2. Women's Tailoring Coop. Aden	35	25	24	34	37
3. Women's Tailoring Coop. Lahej	-	29	25	22	25
4. Women's Tailoring Coop. Abyan	72	23	22	24	25
5. Women Tailoring Coop. Hadramawt	53	41	47	52	52
6. Shabwah Weaving Coop.	95	115	187	170	170
7. Coastal Carpentry Coop.	-	355	375	395	397
8. Carpentry Coop. Sayun	-	152	173	174	177
Sub-total	363	848	964	983	999
D. Private Sector					
1. Middle East Plastic	28	45	55	56	55
2. Aidros Clothing Factory	96	60	33	33	-
3. Saba Clothing Factory	38	-	-	-	-
4. National Clothing Factory Van Zain	29	21	30	22	22
5. Bags and Belts	48	56	55	55	56
6. National Nail Factory	12	12	12	12	12
7. Al-Jazzira Paper Bags Factory	5	13	7	7	7
8. Arab Enterprise for Printing and Paper Bags	6	7	7	7	7
9. Al-Nile Spices Factory	7	11	10	12	12
10. Mirrors and Frames Plant	8	10	11	11	11
11. York Ice Cream Factory	5	5	7	7	7
12. Ice making Factory	7	10	10	10	10
13. National Carpet Factory	24	12	12	12	12
14. Woollen Clothing Factory	16	7	7	7	7
15. Macoroni Factory	10	10	10	10	10
16. National Synthetic Clothing Factory	-	4	3	3	3
17. Aluminium Doors and Windows Plant (Al-Mansoura)	-	67	48	45	45
18. Aluminium Doors and Windows Plant (Al-Mukalla)	-	23	23	23	23
19. Aluminium Doors and Windows Plant (Shabwa)	-	-	-	11	11
20. National Socks Factory	-	-	4	4	4
21. Welding Electrodes Factory	-	-	11	11	11
22. Yemeni Plant for Electrical Fittings Factory	-	-	13	13	15
23. Samadani Embroidery Factory	-	-	-	3	3
Sub-total	339	373	381	374	343
TOTAL	4,740	5,550	5,608	6,246	6,368

a/ Planned.

Table B-4: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Labour Productivity by ownership
(Production value in constant 1985 prices and Value Added in current prices per Employee in YD)

Industrial enterprises	Production Value per employee 1987	Production Value per employee 1988 a/	Value Added per employee 1987	Value Added per employee 1988 a/
A. Public Sector				
1. Al-Thourah Spare Parts Factory	4,150	3,908	1,597	1,257
2. Agricultural Implements and Metal Works Factory	7,839	7,724	2,763	2,854
3. Al-Gundi Plastics Factory	6,408	6,341	2,250	1,805
4. Gas Plant	7,786	6,939	4,286	3,571
5. Weaving and Spinning Factory	1,754	1,771	718	752
6. Mayrters' Clothing Factory	3,517	3,073	1,043	961
7. National Tanning Factory	2,092	2,391	508	565
8. Leather Shoes Factory	6,132	6,024	2,672	1,616
9. National Bottling Factory	10,694	7,997	4,749	4,520
10. Public Corp. for Dairy Products	6,884	8,621	158	321
11. Public Salt Corporation	3,809	4,082	500	877
12. Public Corp. for Grain Mill	27,169	22,780	1,254	333
13. Bakeries (Mukalla and Al-Mansura)	2,529	2,718	-338	-183
14. Tomato Paste Factory	13,484	13,397	4,234	1,251
15. National Brewery Corporation	12,696	12,719	7,076	6,793
16. Vegetable Oil Factory	-	-	-	-
17. Gypsum and Chalk Factory	1,312	1,515	563	727
18. Public Corporation for Carpentry	2,478	2,650	1,362	1,310
19. Biscuits and Sweet Factory	-	5,841	-	1,382
Sub-Total	5,976	5,681	1,962	1,672
B. Mixed Sector				
1. Aluminium Factory	4,789	4,723	1,943	1,969
2. Perfume & Cosmetics Factory	5,641	18,652	1,632	8,768
3. Emulsion and Paint Factory	14,200	15,180	4,928	7,428
4. Cigarettes Factory	8,316	8,353	1,715	1,665
5. Matches Factory	3,570	3,169	728	128
6. Liquid Batteries Factory	11,872	12,021	4,004	3,500
7. Sponge and Metal Furniture Factory	11,636	11,167	4,885	4,039
8. Rubber Slippers Factory	11,181	11,761	6,646	5,254
9. Bakery at Mukalla	5,208	5,640	2,125	2,400
10. Bakery at Shahar	8,419	8,562	2,387	2,593
11. Bakery at Sayun	-	4,609	-	1,304
Sub-total	8,500	9,268	2,805	3,181

Industrial enterprises	Production Value per employee 1987	1988	Value Added per employee 1987	1988
C. Cooperative Sector				
1. Leather Manufactures Coop.	3,649	3,643	1,063	1,098
2. Women's Tailoring Coop. Aden	1,875	1,912	666	882
3. Women's Tailoring Coop. Lahej	480	1,000	168	409
4. Women's Tailoring Coop. Abyan	909	1,458	363	750
5. Women Tailoring Coop. Hadramawt	1,340	1,250	723	692
6. Shabwah Weaving Coop.	1,529	1,888	690	806
7. Coastal Carpentry Coop.	3,019	2,924	1,296	1,194
8. Carpentry Coop. Sayun	3,168	3,172	1,532	1,541
Sub-total	2,605	2,668	1,099	1,112
D. Private Sector				
1. Middle East Plastic	5,890	5,625	1,218	1,536
2. Aidros Clothing Factory	5,455	5,455	2,696	2,696
3. Saba Clothing Factory	-	—	-	
4. National Clothing Factory Van Zain	4,867	6,636	933	1,272
5. Bags and Belts	6,182	6,545	1,763	2,054
6. National Nail Factory	14,000	14,000	1,667	1,667
7. Al-Jazzira Paper Bags Factory	11,285	13,571	1,714	2,000
8. Arab Enterprise for Printing and Paper Bags	13,571	13,571	2,286	2,286
9. Al-Nile Spices Factory	22,800	19,500	1,500	9,250
10. Mirrors and Frames Plant	5,818	6,091	1,273	1,545
11. York Ice Cream Factory	5,714	8,714	1,143	1,458
12. Ice Making Factory	6,100	6,700	500	1,000
13. National Carpet Factory	11,833	12,500	1,833	2,250
14. Woollen Clothing Factory	2,143	2,857	1,142	1,142
15. Macoroni Factory	2,705	3,500	1,200	1,400
16. National Synthetic Clothing Factory	6,333	8,666	1,667	2,333
17. Aluminium Doors and Windows Plant (Al-Mansoura)	3,500	4,000	1,063	1,333
18. Aluminium Doors and Windows Plant (Al-Mukalla)	11,652	12,391	3,261	3,043
19. Aluminium Doors and Windows Plant (Shabwa)	-	5,727	-	1,364
20. National Socks Factory	2,250	5,000	-725	1,250
21. Welding Electrodes Factory	1,272	4,182	-2,272	636
22. Yemeni Plant for Electrical Fittings	2,308	5,000	2,769	1,154
23. Samadani Embroidery Factory	-	3,300	-	1,333
Sub-total	6,344	7,201	1,449	2,000
TOTAL	5,974	6,052	1,963	1,921

a/ Estimate.

Table B-5: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Production Value and Profit
(Current Prices in YD)

Industrial enterprises	1987 Production Value	1987 Profit	1988[a/] Production Value	1988[a/] Profit
A. Public Sector				
1. Al-Thourah Spare Parts Factory	1,246	203.6	1,282	109.3
2. Agricultural Implements and Metal Works Factory	924	220.3	950	240.0
3. Al-Gundi Plastics Factory	769	180.9	780	112.9
4. Gas Plant	327	139.8	340	127.7
5. Weaving and Spinning Factory	1,355	-33.5	1,444	-13.2
6. Mayrters' Clothing Factory	407	97.0	555	42.8
7. National Tanning Factory	137	-20.0	167	-17.0
8. Leather Shoes Factory	681	234.4	688	98.9
9. National Bottling Factory	2,733	951.2	2,895	1,201.8
10. Public Corp. for Dairy Products	957	-75.1	1,219	-72.7
11. Public Salt Corporation	625	-45.3	694	0.4
12. Public Grain Mill Corp.	3,206	47.0	2,802	-65.6
13. Bakeries (Mukalla and Al-Mansura)	344	-158.4	386	-145.0
14. Tomato Paste Factory	1,726	432.5	1,321	50.4
15. National Brewery Corporation	2,006	951.8	2,035	910.4
16. Vegetable Oil Factory	-	-	-	-
17. Gypsum and Chalk Factory	42	-4.9	50	0.9
18. Public Corporation for Carpentry	622	127.4	676	107.8
19. Biscuits and Sweet Factory	-	-	1,296	286.2
Sub-Total	18,107	5,056	19,580	2,976
B. Mixed Sector				
1. Aluminium Factory	657	142.3	775	151.5
2. Perfume & Cosmetics Factory	296	49.2	1,298	538.8
3. Emulsion and Paint Factory	1,775	489.0	2,019	596.5
4. Cigarettes Factory	3,818	351.1	3,859	292.8
5. Matches Factory	408	-28.6	374	-101.4
6. Liquid Batteries Factory	558	154.9	577	130.2
7. Sponge and Metal Furniture Factory	1,117	375.6	1,129	313.2
8. Rubber Slippers Factory	1,225	651.0	1,433	580.5
9. Bakery at Mukalla	125	21.2	141	28.8
10. Bakery at Shahar	261	40.9	274	48.4
11. Bakery at Sayun	-	-	92	9.0
Sub-total	10,240	3,632	11,971	2,588

Industrial enterprises	1987 Production Value	1987 Profit	1988[a/] Production Value	1988[a/] Profit
C. Cooperative Sector				
1. Leather Manufactures Coop.	406	32.5	408	33.0
2. Women's Tailoring Coop. Aden	45	0.3	65	8.3
3. Women's Tailoring Coop. Lahej	12	-9.6	22	-5.1
4. Women's Tailoring Coop. Abyan	20	-4.4	35	4.5
5. Women Tailoring Coop. Hadramawt	63	8.6	65	7.0
6. Shabwah Weaving Coop.	261	17.6	293	32.2
7. Coastal Carpentry Coop.	1,132	82.8	1,155	86.5
8. Carpentry Coop. Sayun	548	87.1	551	88.6
Sub-total	2,487	215	2,594	255
D. Private Sector				
1. Middle East Plastic	323	24.7	315	40.4
2. Aidros Clothing Factory	180	29.6	180	29.6
3. Saba Clothing Factory	-	—	-	
4. National Clothing Factory Van Zain	146	4.2	146	10.4
5. Bags and Belts	340	40.0	360	54.0
6. National Nail Factory	168	4.5	168	4.5
7. Al-Jazzira Paper Bags Factory	79	7.1	95	9.2
8. Arab Enterprise for Printing and Paper Bags	95	9.0	95	9.2
9. Al-Nile Spices Factory	240	5.5	246	11.9
10. Mirrors and Frames Plant	64	5.9	67	8.7
11. York Ice Cream Factory	40	5.1	61	7.2
12. Ice Making Factory	65	3.2	78	4.7
13. National Carpet Factory	142	5.3	150	10.9
14. Woollen Clothing Factory	15	2.0	20	3.7
15. Macoroni Factory	27	0.9	35	2.0
16. National Synthetic Clothing Factory	19	0.2	26	3.0
17. Aluminium Doors and Windows Plant (Al-Mansoura)	168	7.5	180	16.7
18. Aluminium Doors and Windows Plant (Al-Mukalla)	259	18.3	285	22.3
19. Aluminium Doors and Windows Plant (Shabwa)	-	-	23	5.0
20. National Socks Factory	9	-6.2	20	1.0
21. Welding Electrodes Factory	14	-31.6	23	-1.1
22. Yemeni Plant for Electrical Fittings	30	-49.2	75	1.9
23. Samadani Embroidery Factory	-	-	15	1.8
Sub-total	2,423	86	2,663	272
TOTAL	33,257	8,989	26,808	6,091

ANNEX C

ENTERPRISE LEVEL PERFORMANCE BY INDUSTRIAL BRANCH

Table C-1: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Production Value by branch
(in '000 YD)

Industrial enterprises	Production value 1980[a]	1985	1987	1988[b]	1989[c]
Food Processing Sub-Sector					
1. Public Corp. for Dairy Products	621	867	957	1,319	1,523
2. York Ice Cream Factory	26	45	40	61	71
3. Tomato Paste Factory	875	1,780	1,726	1,755	2,300
4. Vegetable Oil Factory	397	-	-	-	-
5. Public Corp. for Grain Mill	3,728	3,328	3,206	2,802	3,000
6. Bakeries (Mukalla and Al-Mansura)	115	402	344	386	476
7. Bakery at Mukalla	-	100	125	141	154
8. Bakery at Shahar	-	-	261	274	288
9. Bakery at Sayun	-	-	-	106	110
10. Biscuits and Sweet Factory	-	-	-	1,466	2,500
11. Macoroni Factory	58	40	27	35	70
12. Ice making Factory	24	55	61	67	71
13. Al-Nile Spices Factory	43	176	228	234	248
14. National Bottling Factory	625	2,846	2,695	2,895	3,000
15. National Brewery Corporation	-	2,792	2,006	2,035	2,300
16. Cigarettes Factory	3,663	4,678	3,817	3,859	4,000
Sub-Total	10,175	17,109	15,493	17,435	20,111
Textile and Clothing Sub-Sector					
1. Weaving and Spinning Factory	809	1,425	1,363	1,417	1,517
2. Shabwah Weaving Coop.	58	196	286	321	329
3. National Carpet Factory	111	155	142	150	170
4. National Socks Factory	-	-	9	20	40
5. Mayrters' Clothing Factory	122	218	408	550	571
6. Women's Tailoring Coop. Aden	38	32	45	65	75
7. Women's Tailoring Coop. Lahej	-	8	12	22	30
8. Women's Tailoring Coop. Abyan	31	24	20	35	37
9. Women Tailoring Coop. Hadramawt	73	63	63	65	75
10. Aidros Clothing Factory	197	208	180	180	-
11. Saba Clothing Factory	147	-	-	-	-
12. National Clothing Factory Van Zain	112	177	146	146	160
13. Woollen Clothing Factory	107	23	15	20	30
14. National Synthetic Clothing Factory	-	23	19	26	32
15. Samadani Embroidery Factory	-	-	-	15	25
Sub-Total	1,805	2,552	2,708	3,032	3,091

Industrial enterprises	Production value 1980[a/]	1985	1987	1988[b/]	1989[c/]
Leather Sub-Sector					
1. National Tanning Factory	209	123	136	165	180
2. Leather Manufactures Coop.	191	307	405	408	479
3. Leather Shoes Factory	308	397	748	753	838
4. Bags and Belts Factory	250	466	340	360	389
Sub-Total	958	1,293	1,629	1,686	1,886
Wood, Paper and Printing Sub-Sector					
1. Public Corporation for Carpentry	328	452	622	676	700
2. Coastal Carpentry Coop.	-	1,074	1,132	1,155	1,182
3. Carpentry Coop. Sayun	-	471	548	552	566
4. Mirrors and Frames Plant	73	66	64	67	90
5. Al-Jazzira Paper Bags Factory	111	177	79	95	100
6. Arab Enterprise for Printing and Paper Bags	88	118	95	95	100
Sub-Total	600	2,358	2,540	2,640	2,738
Chemical Sub-Sector					
1. Gas Plant	83	313	327	340	375
2. Emulsion and Paint Factory	1,389	2,539	1,775	2,019	2,200
3. Perfume & Cosmetics Factory	119	620	316	1,287	1,375
4. Matches Factory	536	489	407	374	394
5. Liquid Batteries Factory	366	418	558	577	631
6. Rubber Slippers Factory	423	1,171	1,297	1,623	1,672
7. Middle East Plastic	27	285	324	315	324
8. Al-Gundi Plastics Factory	482	512	769	780	800
Sub-Total	3,425	6,347	5,773	7,315	7,771
Extraction Industries					
1. Public Salt Corporation	116	780	625	694	771
1. Gypsum and Chalk Factory	-	37	42	50	53
Sub-Total	116	817	667	744	824
Metal & Equipment Sub-Sector					
1. National Nail Factory	143	205	168	168	200
2. Al-Thourah Spare Parts Factory	209	909	1,245	1,282	1,585
3. Agricultural Implements and Metal Works Factory	373	1,181	925	950	1,000
4. Sponge and Metal Furniture Factory	992	1,218	1,117	1,139	1,279
5. Aluminium Factory	638	780	757	770	844

Industrial enterprises	Production value 1980	1985	1987	1988	1989
6. Aluminium Doors and Windows Plant (Al-Mansoura)	-	470	168	180	197
7. Aluminium Doors and Windows Plant (Al-Mukalla)	-	227	268	285	300
8. Aluminium Doors and Windows Plant (Shabwa)	-	-	-	63	81
9. Welding Electrodes Factory	-	-	14	46	80
10. Yemeni Plant for Electrical Fittings Factory	-	-	30	65	100
Sub-total	2,355	4,990	4,692	4,948	5,666
TOTAL	19,434	35,466	33,502	37,800	42,087

a/ Prices of 1980. All other constant 1985 prices.
b/ Estimate.
c/ Planned.

Table C-2: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Value added by branch
('000 YD)

Industrial enterprises	Value added (current prices)				
	1980	1985	1987	1988[a]	1989[b]
Food Processing Sub-Sector					
1. Public Corp. for Dairy Products	89	127	22	49	150
2. York Ice Cream Factory	-	6	8	10	11
3. Tomato Paste Factory	260	690	542	164	2
4. Vegetable Oil Factory	122	-	-	-	-
5. Public Corp. for Grain Mill	116	200	148	41	51
6. Bakeries (Mukalla and Al-Mansura)	10	-30	-46	-26	9
7. Bakery at Mukalla	-	40	51	60	70
8. Bakery at Shahar	-	42	74	83	93
9. Bakery at Sayun	-	-	-	30	37
10. Biscuits and Sweet Factory	-	-	-	347	575
11. Macoroni Factory	10	17	12	14	39
12. Ice making Factory	8	14	5	10	17
13. Al-Nile Spices Factory	6	21	15	111	25
14. National Bottling Factory	376	1,576	1,439	1,636	1,714
15. National Brewery Corporation	-	1,379	1,118	1,087	1,344
16. Cigarettes Factory	1,279	1,959	787	769	810
Sub-Total	2,276	6,041	4,175	4,385	4,987
Textile and Clothing Sub-Sector					
1. Weaving and Spinning Factory	149	608	558	601	652
2. Shabwah Weaving Coop.	39	70	129	137	141
3. National Carpet Factory	23	26	22	27	38
4. National Socks Factory	-	-	-3	5	11
5. Mayrters' Clothing Factory	69	87	121	172	182
6. Women's Tailoring Coop. Aden	17	11	16	30	36
7. Women's Tailoring Coop. Lahej	-	-	4	9	10
8. Women's Tailoring Coop. Abyan	20	18	8	18	20
9. Women's Tailoring Coop. Hadramawt	33	34	34	36	43
10. Aidros Clothing Factory	127	68	89	89	-
11. Saba Clothing Factory	38	-	-	-	-
12. National Clothing Factory Van Zain	18	36	28	28	39
13. Woollen Clothing Factory	37	10	8	10	32
14. National Synthetic Clothing Factory	-	7	5	7	7
15. Samadani Embroidery Factory	-	-	-	4	8
Sub-Total	570	975	1,019	1,173	1,219

Industrial enterprises	Value added (current prices) 1980	1985	1987	1988	1989
Leather Sub-Sector					
1. National Tanning Factory	90	52	33	39	54
2. Leather Manufactures Coop.	81	130	118	123	161
3. Leather Shoes Factory	93	126	326	202	233
4. Bags and Belts	82	103	97	113	133
Sub-Total	346	411	574	477	581
Wood, Paper and Printing Sub-Sector					
1. Public Corporation for Carpentry	187	269	342	334	344
2. Coastal Carpentry Coop.	-	481	486	472	488
3. Carpentry Coop. Sayun	-	220	265	268	276
4. Mirrors and Frames Plant	18	14	14	17	26
5. Al-Jazzira Paper Bags Factory	9	45	12	14	17
6. Arab Enterprise for Printing and Paper Bags	18	19	16	16	19
Sub-Total	232	1,048	1,135	1,121	1,170
Chemical Sub-Sector					
1. Gas Plant	109	108	180	175	216
2. Emulsion and Paint Factory	243	1,156	616	988	734
3. Perfume & Cosmetics Factory	29	165	93	605	627
4. Matches Factory	286	119	83	15	14
5. Liquid Batteries Factory	111	113	191	168	190
6. Rubber Slippers Factory	174	721	771	725	751
7. Middle East Plastic	7	61	67	86	88
8. Al-Gundi Plastics Factory	208	101	270	222	182
Sub-Total	1,167	2,544	2,271	2,984	2,802
Extraction Industries					
1. Public Salt Corporation	59	187	81	149	163
2. Gypsum and Chalk Factory	-	16	18	24	26
Sub-Total	59	203	99	173	189
Metal & Equipment Sub-Sector					
1. National Nail Factory	23	28	20	20	32
2. Al-Thourah Spare Parts Factory	138	389	479	412	491
3. Agricultural Implements and Metal Works Factory	84	367	326	351	355
4. Sponge and Metal Furniture Factory	379	563	469	412	431
5. Aluminium Factory	208	326	307	321	353

Industrial enterprises	1980	Value added (current prices) 1985	1987	1988	1989
6. Aluminium Doors and Windows Plant (Al-Mansoura)	-	108	51	60	71
7. Aluminium Doors and Windows Plant (Al-Mukalla)	-	47	75	70	63
8. Aluminium Doors and Windows Plant (Shabwa)	-	-	-	15	19
9. Welding Electrodes Factory	-	-	-25	7	25
10. Yemeni Plant for Electrical Fittings Factory	-	-	36	15	25
Sub-Total	832	1,828	1,738	1,683	1,865
TOTAL	5,482	13,050	11,011	11,996	12,773

a/ Estimate.
b/ Planned.

Table C-3: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Employment by branch

Industrial enterprises	Employment 1980	1985	1987	1988[a]	1989[b]
Food Processing Sub-Sector					
1. Public Corp. for Dairy Products	142	135	139	153	157
2. York Ice Cream Factory	5	5	7	7	7
3. Tomato Paste Factory	153	115	128	131	140
4. Vegetable Oil Factory	130	-	-	-	-
5. Public Corp. for Grain Mill	130	134	118	123	125
6. Bakeries (Mukalla and Al-Mansura)	61	156	136	142	142
7. Bakery at Mukalla	-	30	24	25	26
8. Bakery at Shahar	-	30	31	32	33
9. Bakery at Sayun	-	-	-	23	25
10. Biscuits and Sweet Factory	-	-	-	251	258
11. Macoroni Factory	10	10	10	10	10
12. Ice making Factory	7	10	10	10	10
13. Al-Nile Spices Factory	7	11	10	12	12
14. National Bottling Factory	250	360	252	362	365
15. National Brewery Corporation	-	160	158	160	168
16. Cigarettes Factory	350	430	459	462	464
Sub-Total	1,245	1,585	1,482	1,903	1,942
Textile and Clothing Sub-Sector					
1. Weaving and Spinning Factory	1,118	825	777	800	817
2. Shabwah Weaving Coop.	95	115	187	170	170
3. National Carpet Factory	24	12	12	12	12
4. National Socks Factory	-	-	4	4	4
5. Mayrters' Clothing Factory	128	111	116	179	187
6. Women's Tailoring Coop. Aden	35	25	24	34	37
7. Women's Tailoring Coop. Lahej	-	29	25	22	25
8. Women's Tailoring Coop. Abyan	72	23	22	24	25
9. Women Tailoring Coop. Hadramawt	53	41	47	52	52
10. Aidros Clothing Factory	96	60	33	33	-
11. Saba Clothing Factory	38	-	-	-	-
12. National Clothing Factory Van Zain	29	21	30	22	22
13. Woollen Clothing Factory	16	7	7	7	7
14. National Synthetic Clothing Factory	-	4	3	3	3
15. Samadani Embroidery Factory	-	-	-	3	3
Sub-Total	1,704	1,273	1,300	1,365	1,364

Industrial enterprises	Employment 1980	1985	1987	1988	1989
Leather Sub-Sector					
1. National Tanning Factory	67	62	65	69	71
2. Leather Manufactures Coop.	108	108	111	112	116
3. Leather Shoes Factory	112	127	122	125	130
4. Bags and Belts Factory	48	56	55	55	56
Sub-Total	335	353	353	361	373
Wood, Paper and Printing Sub-Sector					
1. Public Corporation for Carpentry	300	277	251	255	257
2. Coastal Carpentry Coop.	-	355	375	395	397
3. Carpentry Coop. Sayun	-	152	173	174	177
4. Mirrors and Frames Plant	8	10	11	11	11
5. Al-Jazzira Paper Bags Factory	5	13	7	7	7
6. Arab Enterprise for Printing and Paper Bags	6	7	7	7	7
Sub-Total	319	814	824	849	856
Chemical Sub-Sector					
1. Gas Plant	37	42	42	49	50
2. Emulsion and Paint Factory	67	112	125	133	136
3. Perfume & Cosmetics Factory	37	48	57	69	73
4. Matches Factory	125	134	114	118	120
5. Liquid Batteries Factory	22	37	47	48	49
6. Rubber Slippers Factory	83	108	116	138	140
7. Middle East Plastic	28	45	55	56	55
8. Al-Gundi Plastics Factory	56	101	120	123	124
Sub-Total	455	627	676	734	747
Extraction Industries					
1. Public Salt Corporation	241	179	162	170	175
2. Gypsum and Chalk Factory	-	25	32	33	34
Sub-Total	241	204	194	203	209
Metal & Equipment Sub-Sector					
1. National Nail Factory	12	12	12	12	12
2. Al-Thourah Spare Parts Factory	96	220	300	328	360
3. Agricultural Implements and Metal Works Factory	90	120	118	123	125
4. Sponge and Metal Furniture Factory	60	95	96	102	107
5. Aluminium Factory	183	156	158	163	168

Industrial enterprises	1980	1985	Employment 1987	1988	1989
6. Aluminium Doors and Windows Plant (Al-Mansoura)	-	67	48	45	45
7. Aluminium Doors and Windows Plant (Al-Mukalla)	-	23	23	23	23
8. Aluminium Doors and Windows Plant (Shabwa)	-	-	-	11	11
9. Welding Electrodes Factory	-	-	11	11	11
10. Yemeni Plant for Electrical Fittings Factory	-	-	13	13	15
Sub-Total	441	693	779	831	877
TOTAL	4,740	5,550	5,608	6,246	6,368

a/ Estimate.
b/ Planned.

Table C-4: Industrial Enterprises under the Ministry of Industry, Trade and Domestic Supply: Labour productivity by branch
(production value in constant 1985 prices
and value added in current prices per employee in YD)

Industrial enterprises	Production Value per employee 1987	Production Value per employee 1988[a]	Value Added per employee 1987	Value Added per employee 1988[a]
Food Processing Sub-Sector				
1. Public Corp. for Dairy Products	6,884	8,621	158	321
2. York Ice Cream Factory	5,714	8,714	1,143	1,458
3. Tomato Paste Factory	13,484	13,397	4,234	1,251
4. Vegetable Oil Factory	-	-	-	-
5. Public Corp. for Grain Mill	27,169	22,78^	1,254	333
6. Bakeries (Mukalla and Al-Mansura)	2,529	2,718	-338	-183
7. Bakery at Mukalla	5,208	5,640	2,125	2,400
8. Bakery at Shahar	8,419	8,562	2,387	2,593
9. Bakery at Sayun	-	4,609	-	1,304
10. Biscuits and Sweet Factory	-	5,841	-	1,382
11. Macoroni Factory	2,705	3,500	1,240	1,400
12. Ice Making Factory	6,100	6,700	500	1,000
13. Al-Nile Spices Factory	22,800	19,500	1,500	9,250
14. National Bottling Factory	10,694	7,997	4,749	4,520
15. National Brewery Corporation	12,696	12,719	7,076	6,793
16. Cigarettes Factory	8,316	8,353	1,715	1,665
Sub-Total	10,454	9,162	2,817	2,304
Textile and Clothing Sub-Sector				
1. Weaving and Spinning Factory	1,754	1,771	718	752
2. Shabwah Weaving Coop.	1,529	1,888	690	806
3. National Carpet Factory	11,833	12,500	1,833	2,250
4. National Socks Factory	2,250	5,000	-725	1,250
5. Mayrters' Clothing Factory	3,517	3,073	1,043	961
6. Women's Tailoring Coop. Aden	1,875	1,912	666	882
7. Women's Tailoring Coop. Lahej	480	1,000	168	409
8. Women's Tailoring Coop. Abyan	909	1,458	363	750
9. Women Tailoring Coop. Hadramawt	1,340	1,250	723	692
10. Aidros Clothing Factory	5,455	5,455	2,696	2,696
11. Saba Clothing Factory	-	--	-	
12. National Clothing Factory Van Zain	4,867	6,636	933	1,272
13. Woollen Clothing Factory	2,143	2,857	1,142	1,142
14. National Synthetic Clothing Factory	6,333	8,666	1,667	2,333
15. Samadani Embroidery Factory	-	3,300	-	1,333
Sub-Total	2,083	2,221	784	859

Industrial enterprises	Production Value per employee 1987	1988	Value Added per employee 1987	1988
<u>Leather Sub-Sector</u>				
1. National Tanning Factory	2,092	2,391	508	565
2. Leather Manufactures Coop.	3,649	3,643	1,063	1,098
3. Leather Shoes Factory	6,132	6,024	2,672	1,616
4. Bags and Belts	6,182	6,545	1,763	2,054
Sub-Total	4,615	4,670	1,626	1,321
<u>Wood, Paper and Printing Sub-Sector</u>				
1. Public Corporation for Carpentry	2,478	2,650	1,362	1,310
2. Coastal Carpentry Coop.	3,019	2,924	1,296	1,194
3. Carpentry Coop. Sayun	3,168	3,172	1,532	1,541
4. Mirrors and Frames Plant	5,818	6,091	1,273	1,545
5. Al-Jazzira Paper Bags Factory	11,285	13,571	1,714	2,000
6. Arab Enterprise for Printing and Paper Bags	13,571	13,571	2,286	2,286
Sub-Total	3,083	3,120	1,377	1,320
<u>Chemical Sub-Sector</u>				
1. Gas Plant	7,786	6,939	4,286	3,571
2. Emulsion and Paint Factory	14,200	15,180	4,928	7,428
3. Perfume & Cosmetics Factory	5,641	18,652	1,632	8,768
4. Matches Factory	3,570	3,169	728	128
5. Liquid Batteries Factory	11,872	12,021	4,064	3,500
6. Rubber Slippers Factory	11,181	11,761	6,646	5,254
7. Middle East Plastic	5,890	5,625	1,218	1,536
8. Al-Gundi Plastics Factory	6,408	6,341	2,250	1,805
Sub-Total	8,540	9,966	3,359	4,065
<u>Extraction Industries</u>				
1. Public Salt Corporation	3,809	4,082	500	877
2. Gypsum and Chalk Factory	1,312	1,515	563	727
Sub-Total	3,438	3,665	510	852
<u>Metal & Equipment Sub-Sector</u>				
1. National Nail Factory	14,000	14,000	1,667	1,667
2. Al-Thourah Spare Parts Factory	4,150	3,908	1,597	1,257
3. Agricultural Implements and Metal Works Factory	7,839	7,724	2,763	2,854
4. Sponge and Metal Furniture Factory	11,636	11,167	4,885	4,039
5. Aluminium Factory	4,789	4,723	1,943	1,969

Industrial enterprises	Production Value per employee 1987	1988	Value Added per employee 1987	1988
6. Aluminium Doors and Windows Plant (Al-Mansoura)	3,500	4,000	1,063	1,333
7. Aluminium Doors and Windows Plant (Al-Mukalla)	11,652	12,391	3,261	3,043
8. Aluminium Doors and Windows Plant (Shabwa)	-	5,727	-	1,364
9. Welding Electrodes Factory	1,272	4,182	-2,272	636
10. Yemeni Plant for Electrical Fittings	2,308	5,000	2,769	1,154
Sub-Total	6,023	5,954	2,231	2,025
TOTAL	5,974	6,054	1,963	1,921

a/ Estimate.

ANNEX D

UNIDO'S APPROVED AND/OR OPERATIONAL TECHNICAL CO-OPERATION PROJECTS
(approved = PAD issued)

People's DEMOCRATIC REPUBLIC OF YEMEN

Backstopping Responsibility	All.Acc.Code	Project Number	Project Title
IO/IIS/INFR	J12104	XP/PDY/88/002	Assistance to the National Chamber of Commerce and Industry
IO/IIS/IMR	J12206	DP/PDY/81/006**	Training in management and performance improvement of industries
IO/T/MET	J13209	XP/PDY/89/038	Study and evaluation of selected areas of metalprocessing sector in PDR of Yemen
IO/T/CHEM	J13420	SI/PDY/88/801	Assistance to the Khormaksar salt works
IO/SD/FEAS	J14102	DU/PDY/86/018	Rehabilitation of textile and weaving factory (Executing Agency: UNDP/OPS)
IO/SD/FEAS	J14102	DP/PDY/87/001*	Strengthening the Research, Studies and Contracting Department of the Ministry of Industry, Trade and Supply
PPD/SPA/ECDC	E04100	XP/PDY/88/024	Solidarity ministerial meeting for co-operation in the industrial development of the People's Republic of Yemen - preparatory assistance

* Large-scale project (= total allotment $150,000 or above)

** Total allotment $1 million or above

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