

UNITED NATIONS  
ECONOMIC COMMISSION FOR WESTERN ASIA

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Joint ECWA/FAO Agriculture Division  
Baghdad, Iraq

Distr.: General  
E/ECWA/AGR/83/4  
March 1983

PROGRESS IN ALLEVIATION OF RURAL POVERTY  
IN  
THE PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

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## I INTRODUCTION

### STUDY SETTING

#### Purpose

Rural poverty, inequitable economic growth and a growing disparity between urban and rural life styles have become matters of great concern and, indeed, a challenge to the international community. The abortive efforts of past decades to cope with this challenge through conventional models of economic growth led to the adoption of the approach of the World Conference on Agrarian Reform and Rural Development (WCARRD) in July 1979 to achieve growth with equity in which the efforts of both governments and peoples are mobilized. WCARRD entrusted FAO with monitoring, evaluating, following up and biennially reporting on the progress of programmes adopted by various governments to alleviate rural poverty according to WCARRD guidelines. The study of the People's Democratic Republic of Yemen (PDRY) was undertaken in fulfilment of that responsibility.

#### Objectives

1. To probe the dynamics of rural poverty in PDRY and the progress made through the Government's efforts since WCARRD.
2. To help the Government of PDRY in the preparation of its Country Progress Report to the 1983 FAO Conference, as requested by the director-general in his letter of November 1982 (G/X/ESH-7).
3. To contribute to the development of a data series as well as indicators and policy information relating to poverty alleviation efforts.
4. To assess progress, constraints and future priorities in agrarian reform and rural development in PDRY.
5. To assist PDRY in monitoring and evaluating the role of agrarian reform and rural development efforts in the alleviation of rural poverty.
6. To help in formulating a standardized surveillance system on national and international levels whereby integrated rural development and poverty alleviation programmes may be monitored and evaluated.
7. To highlight trends by establishing meaningful benchmarks and by developing a set of socioeconomic indicators, disaggregated and refined to an effective, achievable level, for measuring progress in rural poverty alleviation.
8. To help in the conceptualization and development of a global report, "Progress in Agrarian Reform and Rural Development," for presentation to the FAO Conference.
9. To contribute to the cross-country analysis of the global report.

#### Methodology

##### Review of Documentation

- a. Official statements and documented initiatives on policy issues related to rural development.
- b. Official reports, published and unpublished.

- c. Texts of consequential socioeconomic development plans and their evaluative and follow-up reports.
- d. Studies and research material.

#### Interviews

The leaders and personnel of various administrations involved with agrarian reform, rural development and poverty alleviation activities were interviewed, including those of the ministries of Agriculture and Agrarian Reform, Planning, Local Government, Education, Fisheries, Supply and Trade, Labour and Manpower, and Health. Contacts also included the following popular organizations: the Democratic Yemeni Farmers' Union, the Democratic Yemeni Women's Union, the Democratic Yemeni Youth Union, and the National Defence Committees.

#### Visits

- a. Lahej Governorate: The Tuban Project and the Administration of Agriculture and Agrarian Reform.
- b. Abyan Governorate: El Kod Agricultural Research Centre, which deals with the improvement of irrigated farming systems and extension; the Agricultural Extension Centre in Gaar; and the Agriculture and Agrarian Reform Administration.
- c. Hadramaut Governorate: The Wadi Hadramaut Project; the agricultural research and extension substation and its field units; the Agriculture and Agrarian Reform Administration; and the literacy campaign office in Sayoun.

#### Limitations

The fact that PDRY is undergoing a complete socioeconomic, political and cultural transformation through a multisectoral approach, and the fact that all its development efforts can (without significant inaccuracy) be taken as rural poverty alleviation efforts, render the scope of inquiry of this study too wide and too complicated to be covered in the time and with the means available.

The multiplicity of purposes involved in examining the various aspects of rural development, and the absence of a single coordinating agency to liaise between these interests, hamper communications and the flow of information, not only within the national system but also between national and assisting international agencies. This situation has imposed a further limitation on this inquiry.

Other limitations consist of:

- The difficulty of obtaining definitive data as practically all the information available is based on estimates.
- The variations among the information of various sources on the same subject, rendering the information provided unreliable in many cases.
- The inefficient use of the time available for observation and case study owing to a cultural attitude of laxity toward time and appointments.
- The lack of reliable statistics and quantified measurements.



## PROBLEM SETTING: NATURE AND MAGNITUDE

After a hard-won independence, the new-born State of PDRY had to face from the start formidable problems of poverty and backwardness resulting from 129 years of foreign domination coupled with the ailments of the obsolete semifeudal system of sultanate rule. The Government's important task was to achieve national unity and to launch a new revolutionary assault to effect a speedy socioeconomic and political transformation. Specifically, the Government faced:

- The liabilities of the sudden collapse of a fictitious service economy, prompted by the immediate withdrawal of colonial budgetary support, leaving behind the relics of foreign monopolies collaborating closely with local commercial sources of capital.
- A predominance of traditional state structures and obsolete government organs in control of all matters related to the peasants and the land, and geared largely to the interests of landlords.
- The prevalence of backward production relations and primitive production means resulting in low productivity, low returns and an inequitable distribution of income.
- Backward production forces consisting chiefly of a poor, illiterate rural populace and limited numbers of an inadequately trained and inexperienced technical cadre.
- Meagre natural resources of mainly spate-irrigated lands committed to monocultural patterns of production at a low productive level.
- The limited physical and financial capabilities of the country.
- A physically closed rural domain with poor infrastructures of rudimentary highways, rugged roads and crippled means of transport and communication.
- The nearly nonexistent basic needs of education, health services, potable water, housing, etc. outside Aden.

The rural people of PDRY (over two-thirds of the population) were the victims of all these socioeconomic ailments. Chiefly engaged in subsistence agriculture at a low level of productivity, they tilled the land either as sharecroppers or farm workers living under miserable and insecure conditions. Moreover, the larger and better areas of land were concentrated in the hands of a few landlords.

Despite the meagreness of natural resources—specifically land and water—agriculture appeared as the only promising material base by which to bring about a socioeconomic upheaval in favour of the majority of the rural poor. This fact was without prejudice to the necessity of mitigating social injustice in other sectors. Yet agriculture is the largest single sector of the economy and accounts for a quarter of the GNP, providing the bulk of export goods and being an important source of capital formation.

Having realized that the miserable socioeconomic status of the rural domain (physical and human) constituted both a challenge and a hope for socioeconomic transformation, and that the agricultural sector offered the material base for that change, the PDRY Government began mobilizing these two and other resources in a multisectoral social development action.

Mobilization entailed legislative planning and the establishment of priorities in investment, the allocation of resources, seeking foreign assistance, popular organization and the initiation of social action among rural groups. Agrarian reform was regarded as a cornerstone in eliminating long-prevailing social injustice by giving security of tenure to the poor peasant and by offering a basis for the adoption of new methods and techniques.

In the quest for increased production and sustained growth, more advanced economic forms of production—that is, state farms and cooperatives—were created to broaden the base of participation in planning and execution, to promote collective action and to facilitate the introduction of new techniques, production inputs and services. To secure

inputs such as equipment and machinery, fertilizers, improved seeds, pesticides and credit, supportive administrative bodies were established, including a host of public corporations. Research aimed at creating a scientific core of basic and applied agricultural knowledge, and training to provide the necessary cadre for agricultural development, posed serious concern to the Government. Highways linking remote rural areas with the capital and the different parts of the country ranked high among Government priorities. Irrigation constructions and installation assumed top priority.

The three successive development plans (the three-year plan, 1971-74, the first five-year plan, 1974-78, and the current, second amended five-year plan) have reflected the PDRY Government's consistent pursuit of the described line of action in favour of the rural poor. Although food production and the realization of a sustained growth rate for the national economy, with agriculture as the material base, received top priority, these plans—the extension of other basic needs such as health, education and the accessibility of other services—were equally emphasized.

In achieving all this many constraints were encountered and, whereas spectacular success was achieved in certain areas, inevitable failures were also experienced.

#### PHYSICAL RESOURCES

Agriculture is one of the main elements of the PDRY economy. Over two-thirds of the population depends on agriculture and its related industries for its livelihood, despite the fact that arable land constitutes no more than 1 percent of the total area of the country. (See Table 1.)

Table 1

DISTRIBUTION OF ARABLE LAND  
( '000 acres )

GOVERNORATE	AREA OF ARABLE LAND
Aden	30
Lahej	82
Abyan	249
Shabwah	72
Hadramaut	133
al Mahrah	11
TOTAL	577

Source: Ministry of Agriculture and Agrarian Reform.

The remaining 99 percent of the country consists of barren mountains and deserts, inter-cepted here and there by seven main wadis, small deltas and plateaus.

The scarcity of water and the unsuitability of the soil for agricultural production impose considerable limitations on agricultural expansion. With the poor and unstable structure of the soils, their low water-retention capacity, low organic-matter content and increasing salinity, soils are exposed to deterioration and erosion both from floods during the rainy season and wind during the dry season.

Actually prepared cultivable land is about 50 percent of the total estimated arable land and the area actually cultivated is no more than half of that cultivable. The latter areas, however, fluctuate from year to year according to the magnitude and frequency of spates. (See Table 2.)

Table 2

AREA OF CULTIVABLE AND CULTIVATED LAND, 1977  
(<sup>'</sup>000 acres)

GOVERNORATE	AREA OF ARABLE LAND	AREA CULTIVATED		
		IRRIGATED (wells)	SPATE- AND SURFACE-IRRIGATED	TOTAL
Aden	30	2	—	2
Lahej	82	9	35	44
Abyan	249	7	46	53
Shabwah	72	8	17	25
Hadramaut	133	15	3	18
al Mahrah	11	1	—	1
TOTAL	577	42	101	143

Source: Statistical Yearbook 1980, Report of the Committee of Agricultural Sector for Preparing the Economic and Social Report.

Total cultivated land forms 24.7 percent of the total cultivable land. This percentage varies, of course, among governorates. In Lahej, the proportion of cultivated land to cultivable is about 53 percent, in Shabwah 35 percent, in Abyan 21 percent, in Hadramaut about 13.5 percent, in al Mahrah 9 percent, and in Aden about 7 percent.

On the basis of the estimated population for 1980 (1 903 million) and the total cultivable land thus far estimated (577 000 acres), the per caput share of total agricultural land is only 0.3 acres. The per caput share of cultivable land varies from 0.09 acres in the Aden governorate to 0.67 acres in Abyan, 0.37 acres in Shabwah, 0.25 acres in Lahej, 0.23 acres in Hadramaut and 0.15 in al Mahrah. The per caput share of the total rural population—according to 1973 census figures, and excluding nomads and bedouins—is about 0.63 acres. (See Table 3.)

Table 3

PER CAPUT CULTIVABLE LAND  
(1980 estimates)

GOVERNORATE	TOTAL POPULATION ( <sup>'</sup> 000)	TOTAL ARABLE LAND ( <sup>'</sup> 000)	PER CAPUT SHARE (acres)
Aden	348	30	0.09
Lahej	328	82	0.25
Abyan	372	249	0.67
Shabwah	194	72	0.37
Hadramaut	588	133	0.23
al Mahrah	73	11	0.15
TOTAL	1 903	577	0.30 (average)

About 80 percent of the cultivated area is irrigated by surface-water sources (rain, spates and springs). Rain alone, which ranges from 0 mm in the deserts and 50 mm in coastal regions to no more than 300 mm in the highlands, feeds only 5 percent of the total cultivated area, thus the rather low level of productivity. Spate and stream waters provide the main irrigation sources. Big spates have a ten-year cycle and floods a twenty-five-year cycle. The famous flood of March 1982, which was about four times greater than the highest flow ever recorded, is said to have a recurrence cycle of once every

3 000 years. This flood inflicted exceptionally serious losses on PDRY's agricultural infrastructures: irrigation installations, feeder roads, bridges and vast areas of cultivable land in the Lahej, Abyan and Shabwah governorates—in addition to the loss of hundreds of people and livestock. It was a catastrophe estimated to have cost US \$1 billion. Rehabilitation programmes now in progress are not likely to begin to retrieve even a small part of the losses sustained before three years' time.

The seven main agricultural wadis of PDRY are Tuban in the Lahej governorate, Bana and Ahwar in the Abyan governorate, Maifaa and Beihan in the Shabwah governorate and Hagar and Hadramaut in the Hadramaut governorate. Subsidiary wadis also exist. (See Table 4.)

Table 4 ANNUAL SPATE WATER QUANTITIES IN WADIS  
('000 m<sup>3</sup>)

GOVERNORATE/WADI	AVERAGE ANNUAL WATER QUANTITY
<u>Lahej</u>	
1 Wadi Tuban	210 (Incl. 100 ponds)
2 Wadi Maadin	12
3 Wadi el Azarigh	12
4 Wadi el Rabwah	12
<u>Abyan</u>	
1 Wadi Bana	167 (Ponds not incl.)
2 Wadi Ahwar	39
3 Wadi Hassan	30
4 Wadi Thara-Tharan	10
5 Wadi Azan-Kahran	10
<u>Shabwah</u>	
1 Wadi Beihan	54
2 Wadi Maifaa	30
3 Wadi Abdan	7
4 Wadi Nahra	9
4 Wadi Yashbum	7
<u>Hadramaut</u>	
1 Wadi Hadramaut	330
2 Wadi Hagar	228
<u>al Mahrah</u>	
1 Wadi Gashn	12
2 Wadi el Gheitha	10

Source: Ministry of Agriculture and Agrarian Reform.

Underground water, which is the main source of permanent irrigation, is affected by rainfall, that is, increased storage and decreased salinity with high rainfall and the reverse in the case of low rainfall. The cost of underground water irrigation is higher than that of spate irrigation. Estimates of quantities vary, but most recent studies give an approximate total of 751 million m<sup>3</sup> in the main wadi deltas of Hadramaut, Tuban, Abyan, Beihan and Maifaa and the plateau of Mekiras. An additional 44 million m<sup>3</sup> is estimated to be stored in the secondary wadis.

Using the 1978 estimates for the number of economically active persons in agriculture (184 000 persons) and the number of animals for the same year (Table 5) to determine the

share of each species for the economically active person in agriculture, the result is 0.54 cattle, 20.5 sheep and goats, 0.54 camels and 0.87 donkeys.

Table 5 ESTIMATED LIVESTOCK NUMBERS, 1972-73 TO 1977-78  
( '000 heads)

PERIOD	CATTLE	SHEEP AND GOATS	CAMELS	DONKEYS
1972-73	80	1 600	160	—
1973-74	80	1 895	160	—
1974-75	80	2 000	120	—
1975-76	80	2 000	120	140
1976-77	90	2 000	100	130
1977-78	100	2 050	100	160

Source: Ministry of Agriculture and Agrarian Reform, Statistical Yearbook 1980.



## II GOVERNMENT COMMITMENT TO RURAL DEVELOPMENT

### POLITICAL ORIENTATION AND INSTITUTIONAL CHANGES

In PDRY, the Government is deeply committed to rural development. A rurally oriented leadership came into being in order to launch a rural poverty alleviation programme ten years before WCARRD chanted the slogan.

Within the context of a socialist philosophy that included a belief in strong central planning, rural development in PDRY has been closely linked with and greatly affected by a series of drastic structural and institutional changes following the corrective movement of June 1969. Those changes provided a suitable socioeconomic environment to launch ambitious and comprehensive development programmes in which the concept of rural development was deeply entrenched and included:

- The establishment of a strong public sector with continued support to that sector in its major role in the national economy. The nationalization of profit-making foreign interests and the state control of foreign trade marked the first steps toward expanding the base of the public sector while enabling it to direct and mobilize resources to a rurally oriented socioeconomic development effort favouring the less privileged members of the society.
- Enactment of the 1970 Agrarian Reform Law to replace, rectify and bridge gaps in the 1968 Agrarian Reform Law. The 1968 law led, through misinterpretation, to land fragmentation and a failure to recognize necessary socioeconomic specifications of the beneficiaries of land reform. It also failed to develop healthy production relations among rural productive forces. The 1970 Agrarian Reform Law capitalized on the necessity of the incorporation of the beneficiaries into state-supported cooperatives. The law also contributed to the abandonment of the traditional, inequitable sharing system (muhasasa) and absentee land-ownership.
- The enactment of a series of basic laws aimed at (a) the elimination of an unjustifiable disparity in income by setting a maximum wage rate through a progressive income taxation system, and (b) curbing the inflation in government expenditure which led to a drain on public resources.

One of the most people-oriented laws was the nationalization of commercial estates and living (apartment) compounds with a view to solving the housing problems of the limited-income groups on reduced and controlled rentals.

### MULTISECTORAL APPROACH

PDRY, in facing the problems of development and rural poverty alleviation, has adopted a multisectoral approach to rural development. As, indeed—with little exaggeration—the whole of PDRY may be considered rural, all its development efforts may be legitimately seen as rural poverty alleviation programmes. Its concentration on the agricultural sector as the material base by which to effect a socioeconomic rural upheaval is evidenced by the Government's steadfast efforts to transform the sector, regardless of the constraints and bottlenecks involved in this arduous process. To implement its policies, the Government has established the necessary executive institutions.

### ADMINISTRATIVE SETUP FOR AGRICULTURE AND AGRARIAN REFORM

#### Ministry of Agriculture and Agrarian Reform

The Ministry of Agriculture and Agrarian Reform is entrusted with the execution of agricultural policies and the supervision of agricultural activities throughout the

country. It is represented by full-fledged administrations in the governorates. Several public corporations also come under the ministry, namely the Public Corporation for the Marketing of Vegetables and Fruits, the Tuban Delta Development Corporation, the Abyan Delta Agricultural Corporation, the Public Corporation for Poultry Development, the Agricultural Services Corporation and the Public Corporation for Well-Digging.

The administrative setup comprises:

1. Statistics and Planning Administration
2. Production Administration (state farms)
3. Cooperatives Administration
4. Veterinary and Animal Wealth Administration
5. Research and Agricultural Extension Administration

The deputy minister for Production and Planning assumes responsibility for these five departments.

6. Irrigation and Mechanical Engineering Administration
7. Corporations Administration
8. Administration of Financial and Administrative Affairs
9. Manpower and Cadre Administration

The deputy minister for Irrigation and Administrative Affairs is responsible for these four departments.

#### Public Corporation for Marketing Vegetables and Fruits (PCMVF)

This corporation undertakes responsibility for marketing vegetables and fruits, buying products from state farms and cooperatives through its local collection centres in the governorates and, as necessary, imports vegetables and fruits. The corporation sells its acquired products to wholesalers as well as directly to consumers through its retail centres which are scattered throughout the country.

#### Public Corporation for Poultry Development (PCPD)

This corporation, established in 1969 with a poultry industry development project, undertakes the breeding of poultry for egg and meat production. It owns a number of poultry farms and feed factories. In 1977 it established a training school.

#### Public Corporation for Agricultural Services (PCAS)

This corporation imports machinery, equipment, spare parts and fertilizers for state farms and cooperatives, through the Public Authority for Foreign Trade, on a loan basis with limited commission.

#### Public Corporation for Well-Drilling

Established in 1981, this corporation drills wells for both irrigation and drinking water and also has authority to contract out this work.

#### Public Corporation for Tuban and Abyan Deltas

This corporation mainly supervises cotton production and the organization of irrigation in the deltas. The corporation also gins the cotton produced before selling it through the Public Authority for Foreign Trade.

#### Other Public Institutions

The other institutions with a bearing on rural development, but not within the Ministry of Agriculture and Agrarian Reform, are the following:



- The National Corporation for Fish Marketing

This corporation was established in 1979 by amalgamating the Internal Marketing Administration, the National Cooling Corporation and the External Marketing Division. It falls under the jurisdiction of the Ministry of Fisheries. As a corporate, autonomous body, the National Corporation for Fish Marketing is responsible for buying all the fish from cooperatives, the public sector and foreign companies, and for its storage, sale in local markets through the corporation's retail centres, and export.

- Public Corporation for Meat Marketing

Established in 1975, this corporation functions as an administratively and financially autonomous body under the Ministry of Trade and Supply. It is entrusted with the importation, storage and distribution of meat and live animals throughout the country through its retail centres, and acts as a wholesaler to private distributors.

## STRUCTURAL ORGANIZATION OF THE AGRICULTURAL SECTOR

The agricultural sector in PDRY comprises state farms for crop and animal production, agricultural production cooperatives, agricultural service cooperatives and an agricultural production service, in addition to several private farms and public supporting corporations.

### State Farms

The first of the state farms was established in 1967. By 1980 state farms numbered forty-six and at this writing there are forty-seven. The total area of state farms is 38 300 acres of which 25 100 acres are cultivable. Seven of the state farms specialize in animal production and the rest in plant crops. The Government provides the necessary funds for establishment and running costs for two years, after which the farms assume full financial and administrative responsibility. The established funds, however, cover irrigation works, including well-drilling and pump installation, the provision of inputs at cost price, and agricultural credit at nominal interest from the agricultural development fund, in addition to the free training of employees. Each state farm has an independent administration and a permanent labour force at fixed wage rates. (See Table 6.)

State farms sometimes recruit seasonal labour. Animal production farms do not incorporate poultry units, as poultry production is exclusively the responsibility of the Public Corporation for Poultry Development, which does not come under the Ministry of Agriculture and Agrarian Reform.

State farms abide by the production plans and programmes of the Government in determining crop patterns (areas and types). They are administratively and financially controlled by the State through the Ministry of Agriculture and Agrarian Reform and prepare a yearly budget of revenue and expenditure.

Most of the state farm land is irrigated on a permanent basis from wells, which permits a more stable and intensified pattern of production and better chances of specialization than would be the case in spate-irrigated areas.

### Agricultural Cooperatives

The first agricultural cooperative was formed immediately after independence in 1967. The number of agricultural cooperatives has now reached fifty-nine, with a total membership of 39 400 and a total area of 385 400 acres of which 98 400 acres were cultivated in 1982. (See Tables 7 and 8.)

There are three types of agricultural cooperative:

- a. Production Cooperatives — in which members (farmers) receive wages for their work on the farm in addition to a share of the profits realized by the cooperative. There is only one collective cooperative in PDRY, in the Lahej governorate.

Table 6

NUMBER AND AREA OF AGRICULTURAL COOPERATIVES, 1973-80  
('000 acres)

YEAR	NUMBER	TOTAL	CULTIVABLE AREA	CULTIVATED TOTAL	AREA SPATE- IRRIGATED	WELL- IRRIGATED
1973	37	275.1	170.4	84.2	50.3	33.9
1974	45	323.8	207.8	95.9	62.6	33.3
1975	44	333.4	212.1	92.3	63.4	28.9
1976	44	344.9	214.2	78.2	45.7	32.5
1977	44	344.9	214.2	78.2	45.7	32.5
1978	45	355.5	229.0	102.9	66.5	36.4
1979	48	367.8	233.8	91.5	57.0	34.5
1980	59	385.2	249.3	98.4	58.3	40.1

Source: Ministry of Agriculture and Agrarian Reform.

Table 7

TOTAL OF CULTIVABLE AREAS OF AGRICULTURAL COOPERATIVES, 1980-81  
(acres)

YEAR	1980			1981		
	CULTIVABLE AREA	TOTAL AREA	NO. OF COOP.	CULTIVABLE AREA	TOTAL AREA	NO. OF COOP.
GOVERNORATE						
Aden	—	—	—	—	—	—
Lahej	43 419	52 077	14	48 457	59 027	13
Abyan	130 287	149 987	14	138 382	149 987	14
Shabwah	18 690	36 266	11	18 844	37 424	11
Wadi Hadramaut	52 575	146 960	11	52 797	146 960	11
al Mahrah	—	—	—	—	—	—
TOTAL	244 971	385 290	50	258 480	393 398	49

Source: Department of Agricultural Planning and Statistics, Ministry of Agriculture and Agrarian Reform.

- b. Service Cooperatives — in which each member farms his own land while the cooperative provides him with the necessary inputs and services. There are thirty-seven service cooperatives in PDRY.
- c. Production-Service Cooperatives — in which farmers form production teams of groups of five to ten members. These groups collectively cultivate the land and share costs and returns according to their share of land. Each single acre is considered a share. In this setup, the cooperative provides the teams with necessary inputs and services. There are twenty-one cooperatives of this type in PDRY.

The services offered by the cooperatives to their members include:

- a. Provision of seeds, fertilizers, pesticides and other chemicals.
- b. Provision of equipment, tools and instruments on a long-term loan basis.
- c. Servicing of the agricultural machinery (engines and equipment) owned by the cooperatives or hired from the machinery renting stations (MRSs).
- d. Short-term loans (in cash or in kind) to secure inputs.
- e. Transport, storage and marketing of products.

The management of cooperatives is entrusted to an elected board which appoints a director who becomes an ex-ufficio member of that board.

Table 8 AGRICULTURAL COOPERATIVE DISTRIBUTION AND MEMBERSHIP, 1982

GOVERNORATE	NUMBER	MEMBERSHIP
Aden	—	—
Lahej	17	11 060
Abyan	17	17 580
Shabwah	12	4 012
Hadramaut	11	6 530
al Mahrah	2	220
TOTAL	59	39 402

Source: Ministry of Agriculture and Agrarian Reform.

Cooperative managerial boards set an annual production plan for their members in line with the targets of the national agricultural plan. They are also responsible for collecting production taxes for the Government. The cooperatives come under the direct supervision and guidance of the Cooperatives Administration of the Ministry of Agriculture and Agrarian Reform.

Government support of agricultural cooperatives includes:

- i) Land reclamation, well-drilling, dam construction and the installation of pump units—all free of charge.
- ii) Provision of fertilizers, supported from a price adjustment fund.
- iii) Credit facilities from the agricultural development fund prior to 1978, and since from the agricultural and industrial financing unit of the National Bank of Yemen.
- iv) Provision of hired agricultural equipment through the MRSs.
- v) A free agricultural extension service.
- vi) Meeting the cost of training various levels of a specialized cooperative cadre, as well as that of the cooperative's local leaders and farmers.
- vii) Contribution to the administrative staff payroll of cooperatives.

#### Individual Farmers

No reliable information is available on the numbers and agricultural areas of this sector, whose members are scattered throughout the country.



### III APPROACHES TO RURAL DEVELOPMENT AND POVERTY ALLEVIATION

#### AGRARIAN TRANSFORMATION

##### Agrarian Reform Laws

The 1970 Agrarian Reform Law gave the right of usufruct to landless agricultural workers and to poor farmers and tenants who owned less than the maximum holding size permitted by the law (for a nuclear family, 20 acres of irrigated land or 40 acres of rainfed land or 40 acres of irrigated land and 80 acres of rainfed land for an extended family). The farmers' uprising of 1972, however, especially in Wadi Hadramaut, established a status quo system which has yet to be legalized. Here, the slogan of "land is for he who tills it" was adopted and the holding size, though apparently less than the approved ceilings, is still variable. Beneficiaries of the agrarian reform law are legally bound to function as members of a cooperative.

##### Cooperative Farms: Number, Area and Irrigation Systems

The total area of cooperatives increased from 275 100 acres in 1973 to 385 200 acres in 1980 (40 percent) and the cultivable area increased from 170 400 acres to 249 300 acres (46 percent), while the actually cultivated area increased from 84 200 acres to 98 400 acres (16 percent) during the same period. The ratios of cultivated and cultivable areas to the total area of cooperative farms in 1973 were 30.6 percent and 62 percent, respectively. In 1980 these ratios became 25.5 percent and 64 percent, respectively, reflecting a relatively slower pace in land reclamation and irrigation efforts than was the case for state farms. The increase in spate-irrigated cultivated land on cooperative farms was 15.9 percent, from 50 300 acres in 1973 to 58 300 acres in 1980. In land irrigated by wells, the increase was 18.3 percent, from 33 900 acres in 1973 to 40 100 acres in 1980.

The number of cooperative farmers increased from 8 001 in 1967 to 36 822 in 1974 and to 40 793 in 1980, making the average landholding per farmer 6 acres. This, however, may not be the case in reality, owing to discrepancies in the records of membership of these societies.

##### State Farms: Number, Area and Irrigation Systems

The total area of state farms increased from 16 800 acres in 1973 to 38 300 acres in 1980 (127 percent) and cultivable land increased from 7 600 to 25 100 acres (230 percent), while actually cultivated areas increased from 4 900 to 16 800 acres (242 percent) during the same period. The ratios of cultivated and cultivable areas to the total area of state farms in 1973 were 29 percent and 45.2 percent, respectively. Because of reclamation and irrigation efforts, the ratios of cultivated and cultivable land to the total area rose in 1980 to 44 percent and 65 percent, respectively. The increase in spate-irrigated cultivated land on state farms was 540 percent, from 500 acres in 1973 to 3 200 acres in 1980. In land irrigated by wells, the increase was 209 percent, from 4 400 acres in 1973 to 13 600 acres in 1980. (See Tables 9 and 10.) These figures demonstrate the effort invested in reclamation and irrigation systems.

The number of workers on state farms rose from 4 864 in 1975 to 5 506 in 1980. (See Table 11.)

Table 9

STATE FARMS: NUMBER, AREA AND IRRIGATION SYSTEMS  
('000 acres)

YEAR	NUMBER	TOTAL AREA	CULTIVABLE AREA	CULTIVATED TOTAL	AREA SPATE-IRRIGATED	WELL-IRRIGATED
1973	18	16.8	7.6	4.9	0.5	4.4
1974	26	23.4	14.2	8.9	1.4	7.5
1975	29	24.6	15.4	10.8	2.9	7.9
1976	35	29.4	18.0	12.1	1.1	11.0
1977	36	32.3	15.3	11.5	1.6	9.9
1978	34	29.9	19.3	12.7	1.4	11.3
1979	41	35.3	23.4	14.2	1.9	12.3
1980	46	38.3	25.1	16.8	3.2	13.6

Source: Ministry of Agriculture and Agrarian Reform.

Table 10

TOTAL AND CULTIVABLE AREAS OF STATE FARMS, 1980-81  
(acres)

GOVERNORATE \ YEAR	1980			1981		
	CULTIVABLE	TOTAL	NUMBER OF FARMS	CULTIVABLE	TOTAL	NUMBER OF FARMS
Aden	550	1 000	1	1 000	1 100	1
Lahej	8 815	10 997	17	9 227	11 502	17
Abyan	8 393	11 773	12	9 351	12 601	13
Shabwah	2 510	5 205	6	2 252	5 581	6
Hadramaut	4 838	9 335	10	5 369	9 402	10
al Mahrah	—	—	—	—	—	—
TOTAL	25 106	38 310	46	27 199	40 186	47

Source: Department of Agricultural Planning and Statistics, Ministry of Agriculture and Agrarian Reform.

Table 11

## NUMBER OF WORKERS ON STATE FARMS, 1975-81

YEAR	WORKERS
1975	4 864
1976	4 910
1977	4 984
1978	5 133
1979	5 136
1980	5 506
1981	5 697

Source: Ministry of Agriculture and Agrarian Reform.

### Development and Planning: The Three Plans

The People's Democratic Republic of Yemen has made serious and steadfast development efforts during the last decade, beginning with the inception of the three-year development plan of 1971-74 and followed by the first five-year development plan of 1974-79. The second five-year development plan, scheduled to be carried out between 1979 and 1984, was discontinued at the start of its third year and replaced by an amended, second five-year development plan for 1981-85 in concurrence with the requirements of the Arab Council for Economic Unity.

The three-year plan marked the first organized development effort of a newborn socialist state committed to comprehensive central planning of rurally oriented socio-economic development. The plan was essentially a learning process by which national policymakers and planners discovered the needs and problems of locating, preparing and mobilizing possible and available resources—both local and foreign—and committing them to realize plan targets. In doing so it was possible to revise, reallocate and increase annual investment. Much planning experience was gained and the competence of local planners was greatly improved, as reflected by the performance of the first five-year development plan.

The volume and distribution of investment during the period 1971-79 evidence much development (whether on a current or a constant price basis). By the end of the first five-year plan, investment increased to YD 276.2 million from YD 75.4 million, or a 366.3 percent increase with an actually achieved investment of YD 195.9 million, unlike the three-year plan which allocated only YD 40.3 million, revised to YD 25.1 million. The second five-year plan, which allocated a total investment of YD 369.9 million, was able to realize an actual investment of YD 52 million in 1979 from an amended allocation for the year of YD 80.7 million.

The country is currently executing its second five-year plan. Its main objectives include expanding and developing the productive base of the national economy, increasing the domestic product, and using the social production generated to raise per caput income and thereby the index of poverty defeat.

### Development and Resource Mobilization

By clever manipulation of its import tariff and taxes, and the mechanisms and initiative of economic activity, PDRY has managed to increase its public domestic revenue from YD 11 million in 1969 to about YD 107 million in 1980, almost tenfold. The Government has also succeeded in attracting foreign assistance for its development programmes. Foreign contributions rose from about YD 2.5 million in 1969 to more than YD 85 million in 1981. Remittances from Yemenis working abroad have also played an important role in improving the country's balance of payments. In other words, despite the difficulties encountered in providing the necessary financing for development plans, PDRY has been remarkably successful in mobilizing both available local resources and potential foreign resources and directing them toward the fulfilment of development needs. Expenditure and inflation have been kept to a minimum. Contributions from local public revenue resources were 35 percent in the three-year plan and 22 percent in the first five-year plan. The current five-year development plan is 30 percent locally financed and 70 percent foreign financed.

### ORGANIZATION OF THE PRODUCTION BASE

#### Relative Importance of the Sector

As in most developing countries, the agricultural sector of PDRY occupies an important position. It engages about half the country's labour force, which earns only about 15 percent of the total paid wages—a fact that has a bearing on rural poverty. The agricultural sector contributes about 10 percent to the GDP and shares in the export list of local products. It has, however, shown a relative decline despite the sizeable investment directed toward it. The harsh effect of drought and floods during the past decade, in addition to other, inherent factors, has led to a reduction in the production and export

of agricultural products. Increased production costs have led to reduced net returns. This, coupled with the Government's increasing investment in industry, fisheries development and other productive sectors, has brought about this relative decline in the contribution of the agricultural sector. (See Table 12.)

Table 12

DEVELOPMENT OF RELATIVE IMPORTANCE  
OF AGRICULTURAL SECTOR, 1973-80  
(percentages)

INDICATOR	1973	1974	1975	1976	1977	1978	1979	1980
Production	16.2	13.2	12.6	10.9	9.1	6.8	6.9	7.7
Income	15.6	14.8	15.0	12.6	10.4	8.0	7.7	7.7
Investment	—	23.9	22.9	18.7	20.4	22.6	24.6	17.1
Labour force	49.0	48.0	47.0	46.5	45.4	45.0	44.9	44.6
Wages	18.9	20.0	19.1	16.7	14.1	10.4	10.4	9.5
Exports	—	—	7.6	5.4	5.9	13.2	13.2	9.2

Source: Ministry of Planning.

Notably, while the agricultural labour force decreased from 49 percent of the total labour force in 1973 to about 44.6 percent in 1980 (a decrease of about 9 percent), wages dropped from 18.9 percent of total wages in 1973 to 9.5 percent in 1980 (a drop of about 50 percent). This has serious implications on the magnitude and persistence of rural poverty and calls for the adoption of immediate remedial policies and measures.

#### Strategy for Agricultural Development

The strategy of PDY in combating poverty emphasizes:

1. Sustained growth in the production of agricultural food products, in order to:
  - a) match the growing needs of an increasing population, b) reduce imports, c) provide raw materials for agroindustries and d) expand the production of export crops.
2. Maximum mobilization of material and human resources, channelling them rationally to developing cooperatives and state farms in addition to other forms for assisting both production and services.
3. Socialistic changes and trends in agriculture, basically linked to developing and supporting the more economically advanced forms which bind the farmer only by improving his socioeconomic status and proving their worth compared with other forms.
4. Optimum use of available agricultural resources and horizontal land expansion and improvement, using modern agricultural technologies in realizing vertical expansion. With these strategic directives in mind, the current second five-year socioeconomic development plan was evolved to quantify those rurally oriented development concepts, along lines of action expressed as quantified targets.
5. Increasing agricultural production (1980 prices) by 52.3 percent during the period 1981-85, with an average increase of 8.8 percent per year, and increasing the gross agricultural income by 46 percent with an annual growth rate of 9.1 percent, thereby increasing the relative importance of the agricultural sector in the GDP at the end of the plan by 10.4 percent.



6. Increasing crop production by 63.4 percent and animal production by 27.8 percent.
7. Expanding agriculturally cultivable area to 263 800 acres, that is, 5 350 acres more in 1985 than in 1980. From the existing land, 39 300 acres will be surveyed, levelled and improved. An additional 3 100 acres of new land is to be reclaimed. (See Table 13.)

Table 13

EXPANSION OF CULTIVABLE LAND, 1981-85  
(acres)

LAND	SPATE- IRRIGATED	WELL- IRRIGATED	TOTAL
Improvement of existing lands	22 800	16 500	39 300
Reclaiming new lands	1 000	2 100	3 100
TOTAL	23 800	18 600	42 400

8. Developing animal wealth by increasing numbers through a) modern breeding methods and b) disease control. Table 14 implies an improvement in the status of the nomads and bedouins who own about 70 percent of the animal wealth of PDRY with the exception of cattle and poultry which are mostly on state farms.

Table 14

## PROJECTED GROWTH OF ANIMAL WEALTH, 1981-85

INDICATOR	INCREASE OF LIVESTOCK (%)
Cattle	16.0
Sheep	12.6
Goats	12.6
Camels	2.1
Poultry	70.5

9. Increasing the export of agricultural products by 4.2 percent.
10. Increasing the agricultural labour force from about 195 200 in 1980 to 237 200 by 1985 (or by 21.5 percent) distributed as shown in Table 15.

Table 15

PROJECTED INCREASE OF AGRICULTURAL LABOUR FORCE, 1980-85  
(percentage)

SECTOR	1980	1985	PROJECTED INCREASE
Public	15.5	17.1	10.3
Cooperatives	40.2	39.6	1.5
Private and seasonal	140.1	179.9	28.4

## Agricultural Technology and Production

### Methods of Production

Since the start of its agricultural revolution for rural development, the PDRY Government has accepted the idea of machinery and modern agricultural techniques as a means of increasing the productivity of the farmer or farm labourer and the land. The Government's intentions, however, have been constrained by certain realities of the situation. Production patterns were determined by the irrigation system. On state farms, where 90 percent of the cultivated land is irrigated by wells, permanent multicropping patterns were feasible. On the remaining 10 percent of spate-irrigated areas, however, monocropping systems prevailed. Machinery and equipment have therefore, to a relatively high degree, found their way to state farms, with only limited use of draught animals. The total number of tractors in the country in 1981 was said to consist of 1 247 wheeled tractors and 240 crawlers. Tillage equipment is adequate, but other agricultural equipment, such as seed drills, sprayers, fertilizer applicators and spreaders, are in short supply. Most land preparation is done mechanically, but very little planting, fertilizing, weed control or harvesting is done by machine (only on state farms and on some of the cooperatives).

But insofar as cooperatives are concerned, where three-fifths of the land is spate- and rain-irrigated and only about two-fifths irrigated by wells, draught animals are used more despite the expanding machinery services provided by the MRSSs. On the cooperatives, most agricultural operations are still performed manually.

The increasing quantity of agricultural machinery and equipment on state farms, in addition to the continued expansion, development and activation of the MRSSs servicing state farms and cooperatives, coupled with steadfast efforts to construct dams and irrigation canals, are all indications of the Government's intentions in this direction.

The Government is also actively concerned with improved seed and plant propagation, techniques already adopted for potatoes and wheat. Fertilizers and plant protection chemicals and techniques are also finding their way into agricultural practices.

The importation of foreign animal breeds as well as hybridization and upgrading techniques, together with improvement efforts, are also part of the technological revolution the Government is mobilizing in solving rural development problems.

### Production and Productivity

It is clear from Table 16 that agricultural production, as represented by the total production of various crops, stagnated during the period 1975-81. Only fodder production showed a steady and marked increase. It is notable that fodder is traded in the free market, prices being determined by supply and demand. Furthermore, most livestock is privately incorporated in the production patterns of some state farms.

Insofar as productivity is concerned, it is also quite clear that there has been no discernable improvement. The increase in fodder production is decidedly a result of horizontal expansion rather than a vertical increase in the productivity of land.

Weaknesses and limitations in the availability, timely deployment and informed application of inputs (fertilizers and pesticides), as well as a low usage rate and mismanagement of machinery owing to an acute shortage of a trained cadre, have contributed to this stagnation. Harsh, unpredictable climatic conditions are also contributing factors.

Table 17 demonstrates a sizeable increase in the relative contribution of the public sector and a progressive decrease in the relative contribution of the private sector in agricultural production. While the public sector's relative contribution almost doubled (from 8.4 percent to 16.7 percent between 1975 and 1980), the cooperative sector's relative contribution increased by 20 percent, whereas the private sector's contribution decreased by 19 percent. However, the private sector still constitutes more than 54 percent of the total agricultural production and 89.7 percent of animal production.

Table 16

## PRODUCTION AND YIELDS OF MAIN CROPS

CROP	1975	1976	1977	1978	1979	1980	1981
<u>Production ('000 tonnes)</u>							
Cotton	10.8	9.3	4.9	10.4	6.6	4.6	5.2
Sesame	2.0	1.9	2.9	1.9	1.7	1.5	1.8
Wheat	10.0	10.0	8.6	6.8	7.4	7.8	7.5
Coarse grains	20.0	18.1	22.8	18.1	18.8	19.9	27.6
Fodder	97.1	99.0	51.6	73.1	111.6	134.7	273.9
Vegetables	25.2	31.4	30.3	33.1	41.5	32.7	37.0
Melons	5.7	7.9	8.9	9.0	9.0	9.7	16.4
Fruits	13.6	15.3	12.9	13.2	13.8	14.9	11.0
Dates	20.0	13.2	13.6	15.0	15.0	7.9	18.5
<u>Yields (kg/ha)</u>							
Cotton	960	860	910	1 190	890	720	770
Sesame	640	420	370	370	300	400	440
Wheat	1 330	1 630	1 280	1 240	1 410	1 410	1 430
Coarse grains	770	420	440	590	720	860	830
Fodder	12 400	10 500	5 300	16 000	12 700	12 000	15 000

Source: Central Statistics Organization.

Table 17

CONTRIBUTION OF OWNERSHIP SECTORS  
TO AGRICULTURAL PRODUCTION, 1975-80  
(percentages)

INDICATOR	1975	1976	1977	1978	1979	1980	1985 ESTIMATE
<u>Total Agricultural Production</u>	100	100	100	100	100	100	100
Public sector	8.4	10.6	10.7	12.5	13.5	16.7	28.2
Cooperative sector	23.7	27.6	28.3	30.8	29.8	28.4	35.0
Private sector	67.9	61.8	61.0	56.7	56.6	54.9	36.8
<u>Plant Crop Production</u>							
Public sector	10.3	10.5	11.1	14.3	17.3	19.6	30.5
Cooperative sector	36.5	39.6	43.4	47.5	43.2	41.5	47.4
Private sector	53.2	49.9	45.5	38.2	39.5	38.9	21.1
<u>Animal Production</u>							
Public sector	4.6	10.7	10.1	9.2	4.9	10.3	24.2
Private sector	95.4	89.4	89.9	90.8	95.1	89.7	75.8

Source: Ministry of Agriculture, Second Five-Year Development Plan. (Unpublished report)

### Constraints in the Agricultural Sector

1. Statistical inaccuracy on areas, production and productivity for several crops, and the use of rough estimates owing to the lack of a qualified and trained cadre, and thus an absence of a methodology.
2. Harsh and erratic climatic conditions consisting of sporadic floods and drought, with great variations among the areas of land which are spate-irrigated from year to year, resulting in output instability.
3. The difficulty of incorporating into the agricultural development plan the private sector, which controls large areas of unquantified land and contributes sizeably to production.
4. The movement of the agricultural labour force to other sectors, owing to the drudgery and low wages of the agricultural sector, and also to the inadequacy of information on agricultural manpower.
5. The continued high illiteracy rate among workers and farmers on state farms and cooperative farms.
6. Low labour productivity and low land productivity for certain crops.
7. The lack of veterinary care for livestock resulting in a high risk of disease.
8. The inaccuracy of statistics on demand for agricultural products.

### Research and Extension

#### Research

Prior to independence, research was carried out only on cotton cultures and involved a substation of three sections. Since independence, however, the need has been felt for a full-fledged research and extension base to support agricultural development, the stated material base of rural development. Since 1969, with the assistance of UNDP/FAO projects, research needs and priorities have been identified, a multicultural approach ratified and a research infrastructure and programmes adopted. The selection and introduction of suitable varieties of crops, including vegetables and fruits, followed. Research on inputs (fertilizers and pesticides) and on the economics of production was also carried out. During the last five years, a multidisciplinary approach has been adopted. Farm mechanization, irrigation and farm management have been incorporated in the programme and a substantial amount of scientific data accumulated. In the process of building up research institutions, several PDRY nationals were trained abroad. Three pilot farms were also established to apply the knowledge and techniques acquired from research programmes.

As a logical corollary of research development, the question of the allocation of research funds to applicable technologies was answered by the development of a farming-systems approach. This multifarious, multidisciplinary context—in which research must find a practical application in the "real world" of the farmer—now shapes the tripartite answer of research, extension and the farmer to vertical agricultural expansion, with modern technology as a basic input. The Development of Improved Irrigation Farming Systems and Strengthening of Extension project, jointly financed by UNDP and PDRY, with a contribution of US \$1 959 million and YD 655 000 (in kind), respectively, is currently applying this promising approach.

In addition to the main research station of el Kod in Abyan and the substation in Sayoun (Hadamaut), the distribution of the findings of the service is handled by a central administration for the plant protection project and a central administration for the fruit development project in Abyan. There are three agricultural stations, one each in Lahej, Dalie and Yafie. There is also a plant protection centre in Lahej with a branch in Dalie, an agricultural station in Loder, another in Ahwar and a third in Rusud (working on fruit production and protection). A centre in Modia works on citrus and another in Milkayras on potatoes and stone or nut fruits. Three agricultural centres, one each in Beihaan, Nisab and Maifaa, work on citrus and wheat. The one in Beihaan is to be

developed into a substation and is now linked with the Wadi Beihan project. In Hadramaut, there is a fruit project centre (for the coast and wadi) and a small agricultural centre for the coastal plains. In Mahara there is a plant protection centre in el Gheida.

#### Extension

Insofar as the extension service is a newly introduced service, its geographic distribution is limited. Apart from the main Agricultural Training and Extension Centre in Gaar, Abyan, there is a newly formed extension administration in Sayoun, a centre in Lahej and a small station in Shabwah. The Hadramaut extension administration comprises five units: information, training, demonstration farms, audio-visual aids and followup.

#### Agricultural Education and Training

It is generally agreed that the development of agriculture requires the continued introduction of new techniques and inputs. This necessitates the provision of skilled labour and a local vocational, technical and professional cadre, and thus, the establishment of agricultural institutes, training centres, and vocational schools in the governorates of PDRY. Enrolment in these educational institutions was 206 in 1980 and is estimated to reach 1 080 in 1985 (the end of the current five-year plan). The graduates will help to satisfy the requirements of different levels of agricultural activity.

#### Agricultural Extension and Training Centre

In 1970, the Agricultural Extension and Training Centre was established to train farmers for cooperatives and intermediate-level agricultural workers for state farms (Table 18). Located in the most fertile agricultural area of PDRY (Abyan governorate), it is able to draw upon the accumulated knowledge, experience and expertise available at the El Kod Centre and the Nasser College of Agriculture.

Table 18

STATISTICS ON NUMBERS TRAINED IN AGRICULTURAL  
EXTENSION AND TRAINING CENTRE, 1970-80

GROUP	SESSIONS	TRAINEES
Farmers	57	2 073
Extensionists	9	304
Plant protection workers	9	37
Women	5	203
Technicians	3	87
Teachers	3	58
Agriculturists (graduates)	2	40

Source: Agricultural Extension and Training Centre.

The centre has conducted more than 100 training sessions of short-, medium- and long-term periods, ranging from one week to nine months. Clients include cooperative farmers, state farm workers, extension workers, technical staff, teachers, agriculturists (college graduates) and women. In addition, the centre runs demonstration farms, offers information programmes, seasonal extension handouts and publishes a monthly magazine, "Issues of the Hour for the Farmer." In 1982, twenty-eight demonstration farms were run on cotton, tomato, potato and coffee cultures, with 500 leaflets on each crop in August, September, October and November, respectively. An extra twenty demonstration farms for the weeding of crops were also convened throughout the Abyan governorate. The centre is now being developed into a national institute for agricultural training and extension. In 1982, 279 persons

were trained in twelve sessions. Women's programmes, however, are developed in coordination with women's organizations. Positive relations exist between the centre's administration and the research staff at el Kod.

#### Constraints

The following constraints were identified in the field of agricultural education and training:

- i) The illiteracy rate among farmers is a barrier to the effectiveness of information handouts or any written instructions. (On many occasions written material was found by this author hoarded in desks and a lack of response was clearly evident.)
- ii) The involvement of rural youth in extension programmes is limited.
- iii) Farmers' organizations have no role in the selection of farmers or workers for training or instruction sessions. This is done instead by the administration of the centre.
- iv) Very little is actually done regarding animal production or improvement. There is not, as yet, any body of supporting research on this activity.

#### Fisheries

##### The Role of Fisheries in Rural Development

The Gulf of Aden is said to be one of the richest fishery resources in the Indian Ocean, with an estimated annual yield of more than 350 000 tonnes, if well-exploited. In 1980, however, the total landings of PDRY were about 89 685 tonnes, of which 34 872 tonnes came from cooperatives, 12 433 tonnes from the public sector, 15 000 tonnes from the private sector and 21 944 tonnes from foreign companies. Table 19 shows a production of 18 312 tonnes for the cooperatives and 4 933 tonnes for the private sector. Figures for joint ventures and for foreign companies are not available.

Table 19

FISHERMEN AND FISH PRODUCTION, 1978-82

YEAR	FISHERMEN		TOTAL	TOTAL PRODUCTION (t)	
	PRIVATE SECTOR	COOPERATIVE		PRIVATE SECTOR	COOPERATIVE
1978	2 000	4 000	6 000	11 599	25 634
1979	1 650	3 800	5 450	7 816	30 771
1980	1 400	3 200	4 600	12 433	34 872
1981 <sup>b/</sup>	1 148	3 142	4 290	11 306	21 957
1982 <sup>c/</sup>	1 000	3 089	4 089	4 933	18 312

a/ Excluding joint ventures (foreign companies and private sector)

b/ Provisional

c/ Estimates

Source: Ministry of Fisheries.

There are about sixty-five fishing villages, including those on the island of Socotra, with a total of 4 089 fishermen (Table 19) and most of them (3 089 fishermen) are members of cooperatives.

The role of fisheries in the economy of PDRY is an important one and its contribution to the protein diet of the Yemenis is substantial. Fisheries also contributes, in constituting a large proportion of the country's exports, a large share of foreign earnings. (See Table 20.)

Table 20

PRODUCTION AND EXPORT OF FISH, 1976-80  
(Cooperative, Public Sector, Joint Ventures,  
Foreign Companies and Private)

YEAR	PRODUCTION <sup>a/</sup> (t)	E X P O R T <sup>b/</sup>		FOREIGN EXCHANGE EARNINGS <sup>c/</sup> (US \$m)
		QUANTITY (t)	VALUE ( '000)	
1976	64 142	7 533	4 400	12.8
1977	63 986	8 906	6 100	17.9
1978	48 063	5 145	2 500	7.3
1979	51 600	3 616	3 600	10.6
1980	74 685	6 729	6 200	18.1

a/ Fresh weight

b/ Export of processed fish, fish meal and fish oil, excluding that of Japanese Nichiro Company.

c/ Includes royalties paid by Nichiro Company and is not of certain payment made abroad.

Source: Ministry of Fisheries.

The considerable investment by the Government in this sector over the past decade and the establishment of the Ministry of Fish Wealth in 1977 substantiates the positive intentions of the Government toward this sector of the rural poor. The current five-year plan allocates about YD 50 million for investment in fisheries, with the objective of increasing production from about 75 000 tonnes in 1980 to about 200 000 tonnes in 1985.

There is at present in PDRY no resource which lends itself more readily to the production of protein requirements and the provision of surplus for export than fisheries. Indeed, it constitutes one of the country's more immediately exploitable resources, which fact has an important bearing on the alleviation of rural poverty.

#### Constraints in the Fishery Industry

1. A lack of adequate research and studies on fisheries.
2. A shortage of qualified local cadres to adopt new technologies.
3. An inability to control the changing physical and biological marine factors and their effect on the availability of fish food.
4. A high rate of illiteracy among fishermen.
5. The costly transport and deployment of fish catches.
6. The mismanagement of cooperatives which deal with a great portion of this wealth.
7. Redundancy in manpower of some of the corporations.
8. The relatively low incomes (YD 30 to 45 per month) of fishermen compared with the wages of the other sectors (YD 45 to 60 per month).

## Implications

There is a necessity for:

1. Development of human resources in the fishing industry, namely training.
2. Development of the technological base necessary in promoting the industry.
3. An adjustment in prices and wages to permit higher margins in the face of rising costs.

## Agroindustries

In founding an industrial base in the country, the PDRY Government laid emphasis on agroindustries. The rationale was not only to provide an economic outlet for surplus agricultural production, but also to improve the status of the rural people by paying prices that were more remunerative to producers and by creating more job opportunities.

Two tomato paste factories with an annual capacity of 2 000 tonnes of paste (10 000 tonnes of raw material), and a cotton textile factory with an annual capacity of 7.2 million yards of cloth (1 000 tonnes of lint) were the vanguards of the agroindustries. In addition, fisheries industries (canning fish meal and refrigeration), dairy industries, date packing, oil and soap industries, a shoe factory and a vegetable canning industry are in progress. The production plans of the state farms and cooperatives are geared to meet the raw material requirements of these growing industries.

Such agroindustrial endeavours, in addition to a more remunerative return to farmers and new job opportunities to the rural poor, are of significant benefit to farmers.

## PARTICIPATION OF RURAL PEOPLE

### Local Government

In PDRY there is great informality in daily transactions. People treat each other with much courtesy and generally have an impressively amiable attitude, so much so that one feels to be in a totally classless society. This communal temperament, together with the attributes of the extended family system, are solid foundations for participation in agricultural development. The institutionalization of such participation into the functional processes of decision-making on public issues, however, is still a challenge to the political leadership of Democratic Yemen.

As recently as 1977, a Ministry of Local Government was established to help in the creation and guidance of local town and provincial councils. After three years of experimentation with pilot councils, the idea is now being expanded to involve all of the Hadramaut governorate before extending it to the rest of the country. These councils comprise elected members who represent the party, popular organizations, and functional administrations at the local level. They are involved in planning and decision-making on local issues in accordance with central plans and directives, but once decisions are sanctioned and budgets approved at central level, the authority for expenditure becomes local.

### Popular Organizations

In PDRY there are several sociopolitical, popular organizations. These organizations are: the Democratic Yemeni Youth Union, the Democratic Yemeni Farmers' Union, the Democratic Yemeni Labourers' Union and the national defence committees, in addition to the Yemeni Socialist Party, which is the ruling body. All these organizations function as democratic, voluntary organizations, and on a de jure basis throughout the country as grassroot basic units. They are intended to initiate popular action through the democratic involvement of the people. The participation of the people in discussion, planning and decision-making, and ultimately in execution and followup, is overtly called for. It is important to note, however, that the role of popular organizations in rural development is limited.



Being the party tools for generating and adopting policies and for socioeconomic change in favour of the majority of the people, these organizations are fully supported by the party and the State. They also enjoy high status in the power structure of the country.

#### Farmers' Union

The Democratic Yemeni Farmers' Union is a sociopolitical popular organization for farmers, nomads, bedouins and cooperative employees. With other popular organizations and under the guidance of the party, it leads and organizes the movement and action of its members.

Established as recently as October 1976, it has still a long way to go to fulfil its tasks and to realize its objectives to defend the legal rights and just demands of farmers for equity in development. The promotion of a cooperative movement and the execution of party and State directives in agricultural production rank high in the organization's priorities. The farmers' committees form the basic units of the structure and they are involved in planning programmes geared to the sociocultural development of farming communities, such as literacy campaigns, seminars, and sessions to improve and organize production efforts.

The fact that the farmers' committees came into being with the enactment of the Agrarian Reform Law of 1970, and well before the inception of the union itself, has facilitated the union's movement among farmers through its cultural and guidance programmes in conjunction and coordination with various institutions. The union publishes the paper, "al Fallah." Neither quantitative nor qualitative records exist, however, and therefore it has not been possible to evaluate union activities.

#### Women's Union and Participation

The Democratic Yemeni Women's Union, established in 1968, claims to be the oldest union in PDRY, but was not formally institutionalized until 1974. Its organizational setup has not yet reached the heart of the rural domain and its role in rural development is humble.

In rural towns, the Women's Union operates among women who work in administrative positions, nursing, MRSs, ginneries, processing plants and factories. They also run some vocational centres for training and recruiting women from low-income groups and sponsor literacy campaigns through an ad hoc administration.

To account for the declining membership of the union (from 15 600 members in 1977 to 10 000 members in 1982), it is explained that many women have been absorbed by other institutions of local and central government. Women's participation in PDRY should, however, be looked at from three different angles:

- Legally, women have equal rights with men. Family law, in fact, goes almost beyond societal norms to fulfil that end, but it has provided a reverse socio-cultural reaction, to the extent that the law has almost been shelved.
- Economically, women play an active role in agriculture, not only as unpaid family labour, but also as a large portion of the seasonal labour force, especially during harvesting. Women also form an appreciable part of the labour force in processing plants and factories, both in rural areas and urban centres.
- Socially, women still play a limited role. The difference between the de jure and de facto situation is evident in rural areas. A comment by one of the Women's Union leaders that the union is not accepted by the rural population bears out this point.

It is said that about 40 child care and maternity workers were trained in a Women's Union Leaders session. About 136 kindergarten supervisors and 60 health workers were also trained, the latter in collaboration with the World Health Organization (WHO).

However, given the de jure status of women in the constitution and the laws of the country, together with the large numbers of women enrollees in the different levels of the country's coeducational system, the prospects for women's full participation in public life and involvement in decision-making are indeed bright.

#### National Defence Committees

Established in 1973—first in Aden and later throughout the country—the national defence committees engage in raising the people's social, cultural and political awareness and help to consolidate social security. It is claimed that they also play an important role in environmental health and hygiene programmes. Further, they help to increase productive initiative on farms and in factories by setting an example as leaders. Their performance during the destructive floods of March 1982 is highly regarded by the rural people of the afflicted areas.

#### Youth Union

The task of the Democratic Yemeni Youth Union is to mobilize youth for social, economic and political activities. Youth contribute in self-help projects and programmes and promote mass initiative campaigns for the implementation of development projects by volunteer workers. They also participate in literacy campaigns. In 1982 they played an effective role in relieving the victims of a catastrophic flood. They also contribute in enlightening the rural poor on different issues with a view to augmenting participation.

### ACCESS TO BASIC NEEDS

#### Access to Education

The declared policies of the country for free education for all men and women equally—with compulsory education for the first eight years—link education to development needs and inculcate ideas of involvement and participation in the execution and development plans, combining educational substance with a practical approach to development realities.

The enactment of the 1972 education law led to the implementation of declared policies and strategies. The rural poor were given access to this basic need. Of a total of 65 300 children (aged seven), 37 439, or 57.3 percent, joined the first-year class of regular education in 1980. The current five-year plan provides for the enrolment of 72 519 children, or 93.7 percent, of an anticipated total of 74 300 children (aged seven) into the first class of regular education by 1985. (See Table 21.)

Table 21

NUMBER OF CHILDREN AT VARIOUS LEVELS  
OF REGULAR EDUCATION, 1980-85  
(five-year plan)

LEVEL	1980	1985	INCREASE (%)
Unified (first 8 years)	250 742	382 555	52.6
Secondary level	27 019	32 777	25.0
<u>Enrollees, first year</u>			
Unified	37 439	72 519	93.7
Secondary	15 598	7 799	50.0
Graduates of unified level	13 360	26 900	101.3

Source: Ministry of Education.

The geographical distribution of schools in PDRY (Table 22) clearly indicates the remarkable achievement which the country has made in providing education to the rural populace. In fact, access to education is no longer a problem. Tables 22, 23, 24 and 25 bear out the judgement of this progress as spectacular.

Table 22 DEVELOPMENT IN EDUCATION, 1967/68 TO 1979/80

GOVERNORATE	SCHOOLS		TEACHERS		STUDENTS	
	1967/68	1979/80	1967/68	1979/80	1967/68	1979/80
Aden	47	75	911	1 911	25 913	67 580
Lahej	36	304	571	2 715	7 345	45 425
Abyan	40	182	575	2 098	6 567	39 192
Shabwah	34	94	94	633	2 334	11 300
Hadramaut	187	300	858	3 008	4 760	96 243
al Mahrah	18	30	39	277	1 250	6 308
TOTAL	362	985	3 048	10 642	48 169	266 048

Source: Ministry of Education.

The number of schools rose from 362 in 1967/68 to 985 in 1979/80, an increase of 172 percent. The number of teachers for the same period increased by 249 percent and the number of students by 452 percent.

Table 23 shows the degree of expansion in the education of women and the infinitesimal stride in the education of the bedouins, the poorest of PDRY's rural population.

Table 23 DEVELOPMENT IN EDUCATION  
Enrollees by Level and Sex, 1969/70 and 1980/81

LEVEL	1969/70			1980/81		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Kindergarten	40	35	75	2 979	2 562	5 541
Unified (elementary)	1 815	960	2 775	157 947	68 030	225 977
Secondary						
Academic	1 009	357	1 356	17 603	8 557	26 160
Commercial	39	30	69	183	143	326
Technical	18	18	506	105	105	611
Teacher training	117	68	185	963	266	1 229
Vocational institutes	235	67	302	2 975	116	3 091
TOTAL	3 273	1 535	5 268	182 755	79 779	262 935
<u>Nomads and bedouins</u>						
Unified (elementary)	—	—	—	36 316	5 663	41 979
Secondary	—	—	—	562	—	562
TOTAL	—	—	—	36 878	5 663	42 541

Source: Ministry of Education, Statistics and Planning Administration.

Table 24

URBAN/RURAL DISTRIBUTION OF UNIFIED  
SCHOOLS AND STUDENTS, 1982

	SCHOOLS	%	STUDENTS	%
Urban	332	38.6	99 360	44.6
Rural	529	61.4	123 733	55.4
TOTAL	861	100.0	223 093	100.0

Source: Ministry of Education.

Table 24 shows the equity achieved in the distribution of educational establishments.

Table 25

NUMBER OF STUDENTS, SCHOOLS AND TEACHERS,  
1966/67 (Pre-Independence) and 1981/82

LEVEL	SCHOOLS		STUDENTS		TEACHERS	
	1966/67	1981/82	1966/67	1981/82	1966/67	1981/82
Kindergarten	1	28	150	6 076	3	367
Unified (intermediate)	249	861	49 828	223 903	1 745	10 832
Secondary						
Academic	7	40	2 992	27 201	165	1 407
Commercial	-	1	-	344	-	27
Agricultural	-	1	-	108	-	31
Technical	1	1	492	747	39	32
Teacher training	4	8	240	1 173	45	93
Professional institutes	1	16	6	3 144	2	426
TOTAL	263	956	53 708	262 696	1 999	13 215
Increase (%)	263		388		561	

Source: Ministry of Education, Statistical Yearbook, 1981-82.

### Literacy

At the dawn of independence, 95 percent of the population was illiterate and the Government waged a serious campaign against the problem. By 1970 an Administration for Literacy and Adult Education was set up within the Ministry of Education. This was followed up in 1973 by the enactment of a Literacy and Adult Education Law on the basis of which nationwide literacy campaigns were launched in which all public institutions participated. The two main principles which governed the plan were:

- i) the necessity, on a nationwide basis, to enrol all children in school at age seven in order to eliminate further illiteracy, and

- ii) the need for an intense campaign against adult illiteracy.

Whereas the new Administration for Literacy and Adult Education was allowed to pursue its task, the law also entrusted all government institutions, the cooperative sector and private corporations with the education of their employees. As a result, literacy campaign centres increased from 169 in 1972/73 to 583 in 1979/80.

#### Constraints

The numerical, horizontal and spacial expansion of education over the past decade has caused what is known as a tyranny of size, with its problems of maintenance, finance and quality in training, especially in a country with limited resources such as PDRY.

In remote rural areas where awareness evolves slowly because of traditional attitudes, there are many dropouts from the unified (eight-year) level of school, especially among girls. A shortage of willing and well-trained, rurally oriented teachers is another problem, as is the difficulty of providing teaching aids and books. The high cost and low usage rate of school compounds required to meet the educational needs of bedouins and nomads confront the policymaker as particularly difficult problems.

#### Implications

- i) Educational and training philosophy, policies and implementations should be revised. The theme of such revision should be: How to instill in the graduate a positive attitude toward the rural domain in his career choice.
- ii) To develop functionally effective material for rural educational and training programmes, much deeper analysis and research into the qualitative and quantitative manpower needs of the various tasks and jobs of rural development and agricultural production is needed.
- iii) Employment policies and the distribution of job opportunities should be revised in such a way as to attract the product of the educational and training system into a productive rural domain.

Education, as a vital component of rural development and as a basic human right, has been given high priority in the socioeconomic plans of PDRY. The decision-makers fully realize the important role of education in bringing about a desirable socioeconomic transformation. Linking education with development is theoretically easy but evidently hard to put into practice, as again and again education has been cited—either directly or indirectly—as at least partially causative of rural-urban migration, and even of emigration. This raises the very important issue of the relationship between process (the content of educational programmes) and product (the behavioural changes effected on those subjected to the process). The question here, as in other developing countries, is: Why do graduates (the educational product), and even those trained to do rural jobs, develop urban attitudes and ultimately neither do what they have been trained to do, nor stay in the rural domain. Perhaps the educational programmes (the process) concentrate more on imparting job competencies than on the necessity of creating positive rural attitudes in the beneficiaries of those programmes. After all, a vocation or a profession is partly competence and partly attitude. The implication here is that education and training should not be conceptualized as one concept or as interchangeable concepts; training should always be regarded as part of the whole educational process, which must ultimately produce rurally oriented graduates. Otherwise the vicious circle of a drain of those most needed for rural development is likely to be perpetuated. This argument, however, should be heeded only with full consideration of the other causes of rural-urban migration.

#### Access to Health Services

The number of hospitals in Democratic Yemen increased from 19 in 1970 to 29 in 1980, and the number of beds from 1 380 in 1970 to 2 593 in 1980. Health centres increased from 4 with 85 beds in 1970, to 16 with 330 beds in 1980. Health units also demonstrated a spectacular increase from 91 in 1970 to 274 in 1980. Also, whereas in 1968 there was only one mother-and-child care centre in PDRY, by 1980 there were 27. (See Table 26.)

Table 26 DEVELOPMENT IN HEALTH ESTABLISHMENTS, 1970/1980/1985

FACILITIES	1970	1980	1985 ESTIMATE
Hospitals	19	29	33
Hospital beds	1 380	2 593	3 573
Health centres	4	16	24
Health centre beds	85	330	580
Health care units	91	274	325
Mother-and-child care units	1	27	27
TOTAL: BEDS	-	2 923	4 183
TOTAL: DOCTORS	116	272	514
Nationals	-	154	514
Expatriates	-	118	-
TOTAL: NURSES	796	1 644	2 131

Source: Ministry of Public Health

The number of medical doctors also rose from 116 in 1970 to 272 (including 154 Yemenis) in 1980, thereby reducing the number of beds per doctor from 11 522 in 1970 to 6 996 in 1980. The number of pharmacists, midwives, nurses and medical assistants also increased (Table 27). Public expenditure on health services rose from US \$2.4 million in 1971/72 to US \$24.2 million in 1980, or by 1 325 percent. (See Table 28.)

The geographic distribution of health establishments and facilities (Table 29), indicates the accessibility of health services to the rural population.

#### Primary Health Care System (PHC)

Essential health care is based on practical, scientifically sound and socially acceptable methods and technology made accessible to individuals and families in the community through their full participation. It is also based on a cost that the community and the country can afford to maintain at every stage of development in a spirit of self-reliance and self-determination. Primary health care forms an integral part both of the country's health system—of which it is the central function and main focus—and of the overall social and economic development of the country. It is the first level of individual, family and community contact with the national health care system, bringing health care as close as possible to where people live and work, constituting the first element of a continuing health care process through an organized referral system. It is the tool by which countries hope to realize health for all by the year 2000 (HFA/2000).

**Personnel.** 1. Primary Health Care Guide. This is an unpaid volunteer selected by the community on the basis of his/her willingness to work, having a reasonable standard of education, being acceptable to people, and length of stay or permanence in the village. He/she is trained for three months (each month one week of theoretical and three weeks of practical training under supervision) on the treatment of the most common diseases prevailing in the area. He/she is oriented mainly toward the prevention of illness and guiding people to care for their health and to participate as far as possible in all activities related to sanitation, refuse disposal, and the provision of clean water. He/she carries out health education, reports on health conditions in the area and refers difficult cases to higher levels of the health system. The health guide does not work from a static health unit.

Table 27

PROFESSIONAL, TECHNICAL AND SUPPORT STAFF IN HEALTH SERVICES, 1970-80

INDICATOR	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Specialists	26	58	58	72	86	81	84	182	99	99	134
General doctors	90	49	51	66	57	70	101	-	126	107	128
Dentists	3	5	5	8	8	6	9	9	10	10	9
Pharmacists	2	4	4	11	9	9	14	-	12	19	16
Asst. pharmacists	23	27	27	46	40	45	50	54	-	-	-
Midwives	8	8	8	13	14	8	-	-	-	-	-
Asst. midwives	11	-	-	44	69	166	169	203	-	-	-
Registered nurses	64	108	108	98	91	63	61	85	-	-	-
General nurses	796	786	788	1 016	810	1 047	1 053	1 089	-	-	-
Medical assistants	-	217	217	245	233	290	290	315	-	-	-

Source: Ministry of Public Health.

Table 28

PUBLIC EXPENDITURE ON HEALTH SERVICES  
(US \$ million)

	1971/72	1972/73	1973/74	1974/75	1975	1976	1977	1978	1979	1980
1 Current expenditure on health	2.4	2.6	3.4	4.3	4.1	6.5	7.1	10.2	13.4	18.3
% of Total Current Expenditure	5.0	4.8	5.1	5.4	5.5	5.7	5.5	6.5	-	6.6
2 Development expenditure on health	-	-	-	1.3	0.8	0.9	2.2	4.0	3.1	5.9
% of Total Development Expenditure	-	-	-	2.3	1.5	0.8	1.3	1.3	2.1	2.7
3 Total public expenditure on health	-	-	-	5.6	4.9	7.4	9.3	14.2	16.5	24.2
% of Total Public Expenditure	-	-	-	4.1	4.6	3.2	3.6	4.3	-	4.9

Source: Ministry of Health, World Health Organization office.



Table 29

## HEALTH FACILITIES IN PDRY, 1982

GOVERNORATE	HOSPITALS	BEDS	HEALTH CENTRES	BEDS	MCH* CENTRES	RURAL HEALTH UNITS	MOBILE HEALTH UNITS
Aden	7	858	1	20	11	15**	1
Lahej	6	487	5	130	10	69	2
Abyan	5	289	2	50	6	49	-
Shabwah	4	210	1	20	4	35	1
Hadramaut	6	521	9	180	6	88	3
al Mahrah	1	88	1	20	2	10	-
TOTAL	29	2 453	19	420	39	266	7

\* Mother-and-child health centres

\*\* Workers' health clinics; 27 health units now closed.

Source: Ministry of Public Health, WHO office.

2. The higher levels of health care consist of health units, health centres, rural hospitals, governorate hospitals and teaching hospitals staffed with health auxiliaries and professionals. The system entails the retraining of all health auxiliaries in preventive and promotional measures.

Financing. The health system is supported by WHO, UNICEF and a World Bank loan. WHO and UNICEF jointly will give special support to PDRY and will try to raise funds from other agencies in the UN system and other possible donors. (See Table 30.)

Table 30

WHO PROGRAMME BUDGET CONTRIBUTION  
(US dollars)

	1974	1975	1976	1977	1978/79	1980/81	1982/83
Regular	300 460	374 630	603 800	682 800	1 976 700	2 602 900	2 927 000
Other resources	540 800	542 200	845 200	793 000	1 223 800	1 827 700	2 903 600
TOTAL	841 260	916 830	1 449 000	1 475 800	3 200 500	4 430 600	5 830 600

Note: 1. Other resources include voluntary funds, UNDP, UNFPA financing and projects executed by WHO.

2. From 1978/79, the budget allocation has been biennial.

Source: Ministry of Health, WHO office.

## Constraints

A shortage of basic health services (preliminary health care) in rural areas still prevails, as does a general lack of awareness among the rural population of public health and hygiene matters. Traditions and customs, a low level of nutrition, bad environmental conditions and a lack of access to clean water are major health constraints for most of the rural people. Poor housing and low standards of accommodation arrangements in the ancient quarters of villages and rural towns continue to contribute to substandard health conditions.

Insofar as the incidence of disease is concerned, it is reported that:

- a. Nineteen point one (19.1) percent of the population have malaria.
- b. Forty percent of children under seven years old suffer from enteritis and other intestinal infections.
- c. Nineteen percent of the reported cases of illness are respiratory infections and tuberculosis; the latter is said to have a rate of spread of 2.6 percent.
- d. Fourteen percent of reported cases have serious symptoms of anaemia.
- e. Fifty percent of children under seven weigh less than 80 percent of the desirable weight for their age.

## Access to Water Services

There has been an improvement in the provision of clean (tapped) water in PDRY as shown by the percentage increase between 1975 and 1980, especially in the more rural governorates of Lahej, Abyan, Shabwah and Hadramaut (Tables 31 and 32). In the Lahej governorate the increase was 101.6 percent; in Hadramaut it was 90.9 percent; in Abyan it was 81.7 percent and in Shabwah it was 32.1 percent. This is indicative of the rural orientation in the provision of this essential service.

Table 31

### IMPROVEMENT IN PROVISION OF DRINKING WATER Total Water Reservoir ('000 m<sup>3</sup>/day)

GOVERNORATE	1975	1976	1977	1978	1979	1980	% INCREASE 1980-75
Aden	42.2	45.2	47.9	52.1	53.4	53.4	26.5
Lahej	3.6	3.6	3.6	4.7	5.5	9.6	166.6
Abyan	4.9	5.5	6.9	7.9	8.2	8.8	79.6
Shabwah	5.2	5.8	6.6	6.9	6.9	8.8	69.2
Hadramaut	6.3	6.9	8.2	8.2	9.6	12.3	95.2
al Mahrah	0.5	0.5	0.5	0.5	0.5	0.5	—

Source: Public Corporation for Water.

Table 32

TOTAL CLEAN WATER PRODUCTION FROM THE  
PUBLIC WATER CORPORATION, 1975-80  
('000 m<sup>3</sup>/day)

GOVERNORATE	1975	1976	1977	1978	1979	1980	% INCREASE 1980-85
Aden	16.00	16.10	16.90	18.43	19.23	19.43	21.4
Lahej	1.23	1.28	1.32	1.68	1.98	2.48	101.6
Abyan	1.75	1.96	2.42	2.82	2.94	3.18	81.7
Shabwah	1.90	2.10	2.36	2.46	2.46	2.51	32.1
Hadramaut	2.30	2.51	2.69	2.79	3.29	4.39	90.9
al Mahrah	0.02	0.02	0.02	0.02	0.02	0.02	-

Source: Public Corporation for Water.

By the end of the first five-year plan (1974-79), water networks had for the first time reached the following rural areas:

- a. Ataq: Establishment of a central network to supply the town and the populated rural areas of Bir Qusha Road.
- b. Beihan: Establishment of a central network to supply the neighbouring villages.
- c. Sayoun: Establishment of a central network.
- d. Socotra: Establishment of a pipeline.
- e. Alghaida: Establishment of a network to supply the whole area.

The geographic distribution of these networks is a good indicator of accessibility (Table 33).

Table 33

WATER TUBE WELLS DRILLED, 1973-79, 1980-81 AND 1982  
DTCD Bedouin Development

GOVERNORATE	NUMBER OF WELLS			TOTAL
	1973-79	1980-81	1982	
Aden	-	2	-	2
Lahej	-	1	-	1
Shabwah	6	6	-	12
Hadramaut	28	14	7	49
al Mahrah	7	6	3	16
TOTAL	41	29	10	80

Source: Ministry of Local Government.

### Rural Electrification

In Wadi Hadramaut, a 16-MW power station came into being only in 1982. Travelling through the wadi, there is ample evidence of the official claim that about 80 percent of wadi villages now have access to electricity. The implication here is not only that rural people have access to this vital service, but also that the possibility has thus been created for the establishment of rural and agroindustries, thereby averting rural-urban migration by offering rural and agroindustrial job opportunities locally. The fact that only one-quarter of the power generated by the station has so far been utilized makes such a possibility feasible. The power station has already created great confidence and high expectations among the local leaders and farmers as regards future agricultural development of the wadi.

### Roads and Rural Accessibility

Prior to 1970, paved roads in PDRY were virtually limited to Aden; very few cabled roads existed elsewhere. In the last ten years, however, two main roads have been constructed to link more than 80 percent of the rural areas, namely Aden, Makalla, Sayoun Road and Aden Taiz Road. The feeder roads in Wadi Hadramaut, Abyan and Lahej were also built to bring hundreds of villages within reach of the main roads. Paved roads increased by more than 176 percent and unpaved roads by 23 percent over the last ten years. (See Table 34.)

Table 34

ROAD BUILDING DEVELOPMENT, 1970-80  
(kilometres)

YEAR	PAVED ROADS	UNPAVED ROADS	TOTAL
1970	506.3	4 542	5 058.2
1971	522.9	4 737	5 258.9
1972	559.1	4 920	5 979.1
1973	717.7	5 104	5 821.7
1974	810.8	5 474	6 284.8
1975	922.0	5 786	6 708.0
1976	1 059.0	5 578	6 637.0
1977	1 191.0	5 533	6 724.0
1978	1 240.4	5 414	6 854.4
1979	1 345.4	5 614	6 959.4
1980	1 400.0	-	-

Source: Central Statistics Organization.

Roads and feeder roads have helped rural people to seek new means of transport. The increasing numbers of motorcycles in use by rural homesteads and in villages and rural towns are noteworthy insofar as they indicate added income for rural people from either internal activities or external sources (remittances). They play an important role in providing access to socioeconomic services and functions. These motorcycles (and similar artifacts) can be taken as possible indicators in monitoring and evaluating rural development programmes.

## DYNAMICS OF RURAL DEVELOPMENT: TRENDS IN GROWTH AND MARKET FACTORS

Growth Trends

It is evident that PDRY's GNP has maintained a remarkable rate of growth over the past decade. On the basis of current prices, it increased from YD 50.86 million in 1970 to YD 213 million in 1980 at factor cost, and from YD 51.79 million in 1970 to YD 249.76 million in 1980 at market cost. In other words, the GNP realized an average annual growth rate of 14.4 percent at current factor cost prices, or 17.68 percent at current market cost prices. (Table 35.)

Table 35 DEVELOPMENT OF GNP AT CURRENT PRICES, 1970-80  
(YD millions)

YEAR	GNP AT FACTOR COST	INCREASE OVER PREVIOUS YEAR (%)	GNP AT MARKET COST	INCREASE OVER PREVIOUS YEAR (%)
1970	50.86	-	51.79	17.7
1971	52.65	3.5	53.66	3.6
1972	55.69	5.8	55.93	4.2
1973	73.06	31.2	81.55	45.8
1974	87.55	19.8	98.45	20.7
1975	91.24	4.3	102.76	4.4
1976	116.55	27.7	131.83	28.3
1977	145.76	25.1	165.96	25.9
1978	158.78	8.7	183.14	10.6
1979	186.83	18.0	216.72	18.1
1980	213.00	14.0	249.76	15.2
AVERAGE ANNUAL INCREASE		14.4		17.7

Source: Central Statistics Organization.

Table 36 shows that the GDP for agriculture, excluding fisheries, stagnated during the period 1975-80. The relative contribution of agriculture to the total GDP dropped from 14.3 percent in 1975 to a mere 8.3 percent in 1980, on the basis of constant prices.

Table 36 GDP AT CONSTANT MARKET PRICES  
(percentages)

	1975	1976	1977	1978	1979	1980
Agriculture GDP	14.8	14.4	14.2	13.1	14.5	14.6
TOTAL GDP	103.5	123.8	148.5	150.5	164.3	175.0
GDP for agriculture relative to total	14.3	11.6	9.6	8.7	8.8	8.3

Source: Central Statistics Organization.

Table 37 shows that the per caput GDP increased from YD 40 in 1970 to more than YD 122 in 1980—an increase of over 206 percent on a current price basis. On the basis of constant prices, the increase was about 118 percent for the same period. Likewise, the GNP showed an increase of 273.5 percent between 1970 and 1980 on a current price basis and 164.6 percent on a constant price basis for the same period.

Table 37

## PER CAPUT GDP AND GNP

INDICATOR		1970	1975	1980	1985 ESTIMATE
Per caput GDP					
Current prices	YD	40.00	60.34	122.75	—
Per caput GDP					
1980 constant prices	YD	56.21	103.10	122.75	171.37
Per caput GNP					
Current prices	YD	35.17	61.38	131.38	—
Per caput GNP					
1980 constant prices	US\$	144.00	305.00	381.00	512.00

Source: Central Statistics Organization.

Although both the GDP and GNP maintained a reasonably high rate of growth over the past decade, the GNP manifested a higher rate of growth than the GDP, accounted for by remittances from Yemenis working abroad. (See Table 38.)

Table 38

RATE OF GROWTH OF GDP AND GNP  
(percentages)

	1970-75	1977-80	1970-80	1980-85 ESTIMATE
<u>Rate of GDP Growth</u>				
Current prices	11.0	18.3	14.8	—
Constant prices	15.9	6.2	10.9	9.7
<u>Rate of GNP Growth</u>				
Current prices	14.7	19.4	17.0	—
Constant prices	19.2	7.3	13.1	8.9
<u>Rate of Per Caput GDP Growth</u>				
Current prices	8.6	15.3	11.9	—
Constant prices	12.6	3.6	8.1	6.9
<u>Rate of Per Caput GNP Growth</u>				
Current prices	11.8	16.4	14.1	—
Constant prices	16.2	4.6	10.2	6.1

Source: Central Statistics Organization. (Unpublished report)

### Flow of Resources

It is clear from Table 39 that public expenditure in agriculture assumed a comfortable magnitude over the decade, with a relative decline evident as a percentage of total expenditure between 1975 and 1980. However, in 1978 and 1979, following the first five-year plan and during the current five-year plan (prior to its amendment), expenditure in agriculture again assumed greater relative importance. This came as a reaction to the stagnation in the sector in preceding years. Nineteen seventy-eight and 1979 were also years of evaluation of the first five-year plan in the face of the challenge posed by the unsatisfactory performance in the agricultural area to the objective of self-sufficiency.

Table 39 ACTUAL PUBLIC SECTOR DEVELOPMENT EXPENDITURE  
(YD millions)

SECTOR	1974-75	1975	1976	1977	1978	1979	1980
Agriculture	4.97	4.27	7.87	12.02	14.84	13.42	13.52
Fisheries	3.04	2.85	8.43	6.54	5.36	4.57	4.38
Industry	5.07	4.28	6.81	9.79	8.02	6.80	18.27
Transport, communications and construction	4.67	4.08	10.36	17.29	20.35	15.69	21.00
Water supply	0.11	0.54	0.81	0.45	0.90	1.49	17.05
Education	0.44	1.19	1.83	3.20	3.39	4.50	
Health	0.30	0.28	0.38	0.77	1.08	1.06	
Housing and other	1.00	1.41	2.74	7.28	5.81	5.89	
TOTAL DEVELOPMENT EXPENDITURE	19.60	18.90	39.23	57.34	59.75	51.96	74.22
Expenditure in agriculture as % of total public expenditure	25.00	22.60	20.00	20.90	24.80	25.80	18.30
% including fisheries	40.80	37.60	41.50	32.70	33.80	34.60	24.10

\* Developed from an original table.

Source: Ministry of Planning.

Most of the public investment in agriculture has gone to irrigation installations (Table 40). Over the past decade, irrigation has absorbed about 80 percent of the funds allocated to the agricultural sector. Irrigation—whether in terms of controlling floods or of providing sufficient groundwater for permanent cropping—poses a great challenge to agricultural development policies and activities, and definitely calls for international aid.

It is evident from Table 41 that most of the foreign aid to agriculture in PDRY goes to irrigation and a small part to training. State farms no longer receive any aid, notwithstanding the fact that they form one of the main approved vehicles of alleviating rural poverty.

Although there was an absolute increase in investment in agriculture with an average of YD 9.55 million for the years 1974-80, its relative value to total public investment showed a decrease (Table 42).

Table 40

PUBLIC INVESTMENT IN AGRICULTURE  
(YD millions)

	1974-78	1979	1980	1981*
Irrigation, including machinery and construction	40.4	9.8	8.4	12.2
Studies	2.9	1.6	4.5	0.3
Other	-	2.0	0.6	2.4
TOTAL	43.3	13.4	13.5	14.9
% Total irrigation	93.3	73.1	62.2	81.9

\* Preliminary

Source: Ministry of Planning.

Table 41

FOREIGN AID TO AGRICULTURE  
(YD millions)

	1974-78	1979	1980*	1981*
Training and research	1.6	n.a.	0.4	0.2
Irrigation	8.4	n.a.	6.0	6.0
Abyan Delta Improvement	3.4	n.a.	0.3	0.3
Other	2.9**	n.a.	-	-
TOTAL	16.3	n.a.	6.7	6.5

\* Estimates of the Ministry of Planning

\*\* Development of state farms

Source: Ministry of Planning.

Labour Force and Wages

## Distribution

The 1973 census estimates the agricultural labour force in PDRY at 155 800, or 49 percent of the total labour force. Projections for subsequent years show that despite the absolute increase in the numbers of workers in the agricultural sector, their number in the total labour force has continuously declined. (Tables 43 and 44.) This has resulted from

1. Low wages compared with the wages paid in other sectors of the economy.
2. The reduced need for manual labour owing to the introduction of mechanization.
3. A tendency among the educated and trained to seek other jobs with better wages and welfare conditions. (This has an important implication on education, its philosophy and aims.)



Table 42 DEVELOPMENT OF INVESTMENT IN AGRICULTURE, 1974/75-80  
(YD millions)

YEAR	INVESTMENT	% OF ANNUAL INCREASE	% RELATIVE TO TOTAL INVESTMENT
1974/75	4.7	-	23.9
1975	4.1	-11.8	21.9
1976	7.3	77.5	18.7
1977	11.7	59.6	20.4
1978	13.5	15.3	22.6
1979	12.8	-5.4	24.6
1980	12.7	-0.5	17.1
AVERAGE	9.6	22.5	21.3

\* Excluding fisheries

Source: Ministry of Planning.

Table 43 AGRICULTURAL SECTOR LABOUR FORCE, 1973-80

YEAR	AGRICULTURAL WORKERS ('000)	% OF TOTAL LABOUR FORCE
1973	155.8	49.0
1974	160.7	48.0
1975	167.6	47.0
1976	173.5	46.5
1977	178.5	45.4
1978	184.4	45.0
1979	189.3	44.9
1980	193.6	44.6

\* Excluding fisheries

Source: Central Statistics Organization.

Table 44 LABOUR FORCE DISTRIBUTION BY ECONOMIC ACTIVITY  
( '000)

ECONOMIC ACTIVITY	1973	1975	1980
Agriculture and fisheries	164	176	204.0
Industry	18	25	41.1
Electricity, water and power	3	3	5.0
Construction	17	22	32.4
Transport, communications and storage	17	22	27.1
Trade, catering and restaurants	29	30	39.0
Finance, insurance and estates	2	3	5.0
Other services	68	75	81.3
TOTAL	318	356	434.9

Source: Ministry of Planning.

Also, in spite of the fact that the agricultural sector engaged about half of the labour force, the total wages paid to the sector have not exceeded 20 percent of the national total, even in the best year (1974). In recent years the total agricultural wages paid have dropped by half. Also, the average wage of those working in agriculture has remained at a relatively low level. The rise in 1979 was part of a general policy of wage increases. (See Table 45.)

Table 45 TOTAL AND AVERAGE WAGES IN AGRICULTURE, 1973-80

YEAR	TOTAL WAGES IN AGRICULTURE (YD m)	% OF TOTAL NATIONAL WAGE	AVERAGE ANNUAL WAGE (YD)	RELATIVE ANNUAL INCREASE (%)
1973	25.2	18.9	162	-
1974	22.8	20.0	142	-12.3
1975	30.2	19.1	181	27.4
1976	30.7	16.7	177	-2.2
1977	31.5	14.1	177	-
1978	29.4	10.4	160	-9.6
1979	35.4	10.0	187	16.8
1980	37.0	9.5	191	2.1

Source: Ministry of Planning.

The total labour force in the fisheries sector has shown a relative decline from 2.6 percent of the total labour force in 1973 to 2 percent in 1980. (Table 46.)

Table 46 NUMBER OF WORKERS IN FISHERIES, 1973-80

YEAR	WORKERS ('000)	TOTAL LABOUR FORCE (%)	ANNUAL INCREASE (%)
1973	8.2	2.6	-
1974	8.3	2.5	1.2
1975	8.4	2.4	1.2
1976	8.5	2.3	1.2
1977	8.5	2.2	-
1978	8.6	2.1	1.2
1979	8.7	2.1	1.2
1980	8.7	2.0	-

Source: Ministry of Fish Wealth.

The relative decrease of the labour force in this sector resulted from improved fishing techniques and a trend toward mechanized operations. The development of this sector is demonstrated by an increase in the wages of its labour force from YD 1.5 million in 1973

to YD 2.75 million in 1980, or 81.8 percent, amounting to about 3.3 percent and 2.1 percent of the total wages, respectively. The average annual wage of workers in the fisheries sector rose from YD 185 in 1973 to YD 317 in 1980, an increase of 71.3 percent. (Table 47.)

Table 47

## TOTAL AND AVERAGE WAGES IN FISHERIES, 1973-80

YEAR	TOTAL WAGES IN FISHERIES (YD m)	TOTAL NATIONAL WAGES (%)	AVERAGE ANNUAL WAGES (YD)	RELATIVE ANNUAL INCREASE (%)
1973	1.52	3.3	185	-
1974	1.79	3.7	216	16.8
1975	2.00	3.7	238	10.0
1976	2.72	4.3	320	24.6
1977	2.79	3.6	328	2.6
1978	2.68	2.8	313	4.8
1979	2.65	2.3	305	2.4
1980	2.76	2.1	317	4.0

Source: Ministry of Fish Wealth.

In 1970, an intermediate-level Fisheries Training Institute was established in PDRY to cater to the growing need by fishery cooperatives for skilled manpower. In 1980, sixty-five people were enrolled in the institute and thirty-nine graduated. The current five-year plan projects a total enrolment of 234 graduates.

The execution of the first five-year plan offered 76 000 job opportunities with a resultant increase in total wages from YD 46 million in 1973 to YD 90.6 million in 1978, or an increase of 97 percent. The average per caput wage rose from YD 136 to YD 220, or an increase of 61.8 percent.

It is purported that whereas in the early seventies there was a surplus of labour, there is now a shortage, especially of certain skills. It is conceded, moreover, that the labour force is badly distributed and unemployment and underemployment disguised. Current wage and incentive policies to rectify the situation, as well as new measures to link wages to production are, however, being contemplated.

Rural-urban population mobility, and vocational and job movement, which has been observed over the past decade as a continuous dynamic feature, is reckoned to be more positively effective and conducive to production when more directly geared to the wage and incentive structure.

The figures in Table 48 show the labour force of PDRY at about 48.6 percent of the total population, whereas those in the working group form 45.5 percent. Also, while there is an increase in the absolute figures, the relative proportion of the total population reflects no change between 1973 and 1980. Data also show that there has been a marked increase in the sector of the labour force engaged in economic activity, amounting to 38.3 percent during the period 1973-80. This reflects the extent to which the pace of development has created new job opportunities.

#### Seasonability

There is high seasonability in rural labour dynamics, especially in spate-irrigated areas. There are frequent labour shortages during the more critical periods of crop establishment and harvesting. High wage rates may maintain labour during these periods, but much lower wage rates and underemployment over the year as a whole is the norm. Much of the seasonal labour peak demand is met by women, particularly during harvests.

Table 48

ESTIMATES OF LABOUR FORCE AND DYNAMICS OF EMPLOYMENT  
( '000)

	1973	1975	1980
<u>Total Population</u>	1 590	1 674	1 903
<u>Population</u>			
Ages <15 and >60	866	912	1 037
15 to 60 (working age)	724	762	866
<15 and >60	48	50	57
<u>Total Labour Force</u>	772	912	923
Economic activities	318	355	440
Home activities	400	417	438
Enrolled in formal educational systems and special study courses	6	10	23
Unemployed	48	30	12

Source: Ministry of Planning. (Unpublished report)

Price Control Policy

Under party directives, the PDRY Government adopts a firm policy of relative stability in the retail prices of basic commodities. For different commodities, prices are fixed for varying periods and at levels bearable by the consumer. This policy is applied through five avenues:

1. The price adjustment fund, which deals with
  - a. price stabilization for long periods of seven basic foodstuffs: wheat, rice, flour, plant oils, millet, sugar and tea.
  - b. subsidization of the prices of agricultural inputs such as fertilizers, pesticides and seeds, and servicing MRSs.
  - c. support of the cost of transport of certain products to the governorates in order to standardize prices throughout the country.
  - d. financial aid to some local productive establishments, such as flour mills and tomato paste plants.
  - e. financial support to some marketing bodies, such as the Public Corporation for Marketing Vegetables and Fruit, the National Corporation for Fish Marketing and the Public Corporation for Meat Marketing.
2. Stabilization of the prices of some necessary foodstuffs and consumer goods, such as household sanitary goods for a period of not less than six months.
3. Flexibility in prices in certain sectors, such as for 20 percent of the cooperative fish landings on condition that the maximum increase in price does not exceed 50 percent of the fixed price.
4. Fixing prices according to supply and demand except in the case of individual fishermen's fish landings where the Government does not intervene.
5. Raising the price of complementary goods by levying high taxes on their c.i.f. value; the money goes to supporting the price adjustment fund.

Official records show that between 1969 and 1980 the wholesale price index and retail price index exhibited sharp increases of 351 percent and 254 percent, respectively. The paradox here is that while the rural poor as consumers are supposed to have benefited from subsidies to inputs, they suffered as agricultural commodity producers.

1. Price policies have for a relatively long time continued to be incompatible with the prevailing patterns of production and have reflected
  - a. favouring the consumer at the expense of the producer, resulting in the progressive reduction of producers' returns, and
  - b. excessive intervention by the State—to the extent of monopoly—at a time when newly born public corporations were unable to cope with the responsibilities of marketing (collection, storage, transport, distribution and financing).
2. Price and marketing policies, being linked with tax and subsidy policies have failed—through an inability to differentiate between state farms, cooperatives and individual farmers—to help in developing production relations in the new forms of production patterns.

See Tables 49, 50 and 51.

Table 49 FARMGATE PRICES OF SELECTED AGRICULTURAL PRODUCTS, 1976-82

CROP	1976	1977	1978	1979	1980	1981	1982
<u>Cereals (YD/t)</u>							
Sorghum	70	70	70	75	160	160	-
Wheat	75	95	95	100	170	175	-
Maize	70	70	70	75	75	115	-
Sesame	135	175	175	185	500	500	-
<u>Vegetable Crops (fils/kg)</u>							
Winter tomatoes	25	35	40	40	50	50	50
Summer tomatoes	60	60	75	100	125	100	100
Oct/Nov tomatoes	70	70	n.a.	n.a.	150	150	150
Red onions	40	50	n.a.	95	140	140	140
Eggplant	20	20	25	25	50	50	50
Winter okra	30	45	n.a.	n.a.	125	125	125
Summer okra	30	35	n.a.	n.a.	100	100	100
Dry red pepper	200	300	450	450	-	450	-
<u>Fruits (fils/kg)</u>							
Bananas	20	30	n.a.	n.a.	55	55	55
Papaya	20	20	20	45	55	55	55
Watermelons	15	15	15	20	50	50	50
Oranges	100	100	-	250	275	275	275
Limes	100	100	100	160	160	160	160
Dates (fresh, ripe)	60	60	n.a.	n.a.	90	90	-

Source: Ministry of Agriculture and Agrarian Reform, Department of Planning and Statistics.

Table 50. CONSUMER PRICES OF SELECTED FRUITS AND VEGETABLES, 1976-82  
(fils/kg)

CROP	1976	1977	1978	1979	1980	1981	1982
Tomatoes (average)	68	56	84	73	141	108	n.a.
Winter tomatoes	45	45	45	50	75	80	100-150
May/June tomatoes	85	85	85	120	150	150	150
Oct/Nov tomatoes	85	85	n.a.	n.a.	200	200	250
Red onions	65	65	n.a.	150	175	180	200
Eggplant	35	35	35	40	80	80	100
Winter okra	50	50	n.a.	n.a.	160	160	160
Summer okra	50	50	n.a.	n.a.	130	130	130
Potatoes	135	135	135	150	200	200	200
Watermelons	25	25	25	50	70	70	70
Bananas	40	40	n.a.	n.a.	160	100	150
Papaya	40	40	40	80	85	90	90
Oranges	150	150	200	300	350	450	500
Limes	160	160	155	220	225	n.a.	n.a.
Dates	100	110	n.a.	n.a.	n.a.	270	270

Source: Ministry of Agriculture and Agrarian Reform, Department of Planning and Statistics.

Table 51 CONSUMER PRICES OF SELECTED STAPLE FOODS, 1976-82  
(fils/kg)

STAPLE	1976	1977	1978	1979	1980	1981	1982
Wheat	43	43	43	43	45	45	45
Wheat flour	45	45	45	45	45	45	45
Sugar	100	100	100	130	129	134	150
Vegetable oil	170	170	170	170	170	170	170
Rice	90	90	90	90	90	90	90
Meat (lamb)	500	750	750	750	750	750	750
Eggs (fils/dozen)	275	260	220	400	500	500	500

Source: Ministry of Agriculture and Agrarian Reform, Department of Planning and Statistics.

### Income Distribution

Macrodata on income distribution are not available in PDRY. The only information available is an estimate of income on a per caput and per household basis. Table 52 shows that while the national income increased by about 200.8 percent from 1969 to 1980 and the population by about 33.5 percent, the per caput income increased by 125 percent and household income by 122 percent. This is based on an estimated population growth rate of 2.6 percent and a family (household) size of 5.5. There are no data on a rural-urban breakdown of income.

Table 52

#### ESTIMATES OF AVERAGE HOUSEHOLD AND PER CAPUT INCOME, 1969-80 (current prices)

YEAR	NATIONAL INCOME (YD '000)	POPULATION ( '000)	PER CAPUT INCOME (YD)	NUMBER OF HOUSEHOLDS ( '000)	INCOME/ HOUSEHOLD (YD)
1969	55 376	1 425	38.9	256	216.5
1970	55 075	1 465	37.6	263	209.4
1971	56 325	1 506	37.4	270	208.6
1972	57 955	1 547	37.5	278	208.5
1973	78 600	1 590	49.4	286	274.8
1974	87 500	1 639	53.4	293	298.6
1975	100 500	1 690	59.5	303	331.7
1976	137 800	1 742	79.1	314	438.9
1977	111 237	1 764	63.1	325	342.2
1980	166 600	1 903	87.5	346	481.2
RATE OF INCREASE (%)	200.8	33.5	125	35	122

Source: Central Statistics Organization.

### Trade: Internal and External

In meeting the requirements of development in terms of equipment, machinery, spare parts, fuel and raw materials, the Government's liability in its import programmes has grown beyond its limited resources. However, bilateral and international economic cooperation programmes have helped to ease the situation. Negative expansion in the balance of trade has continued as a result of a limited capacity to develop exports. By imposing stringent import policies and measures, including prohibitive taxes on complementary goods, and by augmenting exports, the Government has managed to improve what was a worsening situation. Commodity imports increased from YD 35 million in 1973 to YD 122.8 million in 1978, or by 251 percent, while exports increased from YD 4.3 million in 1973 to YD 7.6 million in 1978, or by 71.6 percent. The contribution of the public sector (the main sector in foreign trade) rose from 9.7 percent in 1973 to 89.5 percent in 1979. The public sector was also entrusted with the marketing of both local and imported goods to curb exploitation and to ensure reasonable profits for producers. Much effort was entailed in establishing wholesale and retail prices in all parts of Democratic Yemen and in ensuring availability, proper storage, transport and distribution to consumers. As a result, retail commodity transactions increased from YD 101 million in 1973 to YD 172 million in 1978, with a substantial rise in the average individual share from YD 63.5 to YD 95.6.

The deficit in the balance of trade continued to increase from YD 30.7 million in 1973 to YD 115.2 million in 1978. The Government, however, adopted policies and measures to encourage the flow of money from external sources, especially remittances from Yemenis working abroad. This resulted in swinging the balance of payments from a deficit of YD 1.4 million in 1973 to a surplus of YD 30.2 million in 1978.

The increasing gap between steadily and disproportionately rising imports and stagnating, if not declining, exports over the past few years has resulted in a seriously increasing deficit in the balance of trade. Although increasing remittances from Yemenis working abroad partially relieve the situation, the problem calls for prompt remedial measures. (See Table 53.)

Table 53

## IMPORT/EXPORT TRADE BY OWNERSHIP SECTOR, 1976-80

INDICATOR	1976	1977	1978	1979	1980
<u>Total Imports</u>	<u>246.2</u>	<u>352.2</u>	<u>355.9</u>	<u>393.7</u>	<u>639.8</u>
Government	12.5	18.8	40.8	24.1	38.3
Public	170.6	266.5	274.9	307.6	519.8
Cooperatives	0.7	1.2	0.8	0.9	0.6
Mixed	22.7	39.1	11.4	10.4	13.2
Private	39.7	26.6	28.0	50.7	67.9
Foreign companies	-	-	-	-	-
<u>Total Exports</u>	<u>44.9</u>	<u>45.8</u>	<u>22.1</u>	<u>24.7</u>	<u>42.1</u>
Government	-	-	7.5	11.6	20.3
Public	20.5	18.7	8.9	4.9	14.5
Cooperatives	-	-	-	-	-
Mixed	17.3	20.7	0.1	0.3	0.3
Private	7.1	6.4	5.6	7.9	7.0
Foreign companies	-	-	-	-	-

Source: Central Statistics Organization.

Foreign Aid to Rural Development

PDRY has been receiving an appreciable amount of international assistance. Of the YD 61 935 million current five-year (1981-85) total investment in agriculture, local sources provide YD 23 218 million (37.5 percent) and foreign sources are to provide YD 38 716 million (62.5 percent). Of the foreign component, however, already committed and confirmed loans amount to YD 34 316 million (88.6 percent of the foreign component), while committed foreign aid amounts to YD 1 071 million (2.8 percent of the foreign component).

Of the YD 33 176 million allocated to fisheries, local sources contribute YD 5 488 million (16.5 percent) and foreign sources are to contribute YD 27 688 million (83.5 percent). Of the foreign component, already committed, confirmed loans amount to YD 26 795 million (96.8 percent of the foreign component), while committed aid accounts for YD 393 000 million (1.4 percent of the foreign component).



Projects in progress include:

1. Wadi Hadramaut Agricultural Development Project (IDA financing)
2. Wadi Beihan Agricultural Development Project (IDA financing)
3. Agricultural Services Support Project (IFAD financing)
4. Wadi Tuban Agricultural Development Project (IDA financing)
5. Dar Saad Cooperative Training Institute (UNDP/ILO)
6. Development of Improved Irrigated Farming Systems and Strengthening the Extension Service

All of these projects work toward the realization of PDRY's development objectives and form essential elements of the Government strategy for achieving greater productivity in agriculture and improving the quality of life of its rural population.

Since the Wadi Hadramaut project has already made an appreciable impact on the alleviation of rural poverty and has succeeded as well in increasing the awareness of the local people and arousing their interest in cooperation for development, it is appropriate to discuss that project.

#### Wadi Hadramaut Agricultural Development Project

The first phase of this project has helped to:

1. Increase agricultural production, using underground irrigation in an annually cropped area of 19 768 acres of the wadi, through input supply, improved technology, agricultural extension and management, over a three-year period.
2. Supply the area with thirty-three tractors and agricultural implements on medium-term loans to MRSs, forty pumpsets to cooperatives and some implements to state farms.
3. Introduce fertilizers and pesticides, whose increased use includes: urea from 0 to 1 000 tonnes; TSP from 0 to 200 tonnes; and pesticides, 2 tonnes in 1980-81.
4. Establish an agricultural extension centre, the first in PDRY, staffed with twenty-five graduates and nine technicians, supplied with training equipment.
5. Provide potable water to those villages and towns in dire need.
6. Provide training abroad for eighteen nationals (MRS-level).
7. Introduce an experimental programme for sand dune fixation and green shelter belts.
8. Improve date production.
9. Erect a date-packing plant of 4 942-acre capacity (1980) which, although under-utilized, processed 410 to 470 tonnes of dates in 1981 and 1982, respectively.
10. Build twenty feeder roads with a total length of 115 kilometres, linking nineteen villages to the main east-west road.

The principal beneficiaries of the project were 5 000 cooperative members (farmers), that is 30 000 people. The project also provided the people with 300 000 man/days of work and supplied 40 000 people with water.

The second phase, Wadi Hadramaut II—the first five-year phase of a twenty-year strategy—is designed to improve agricultural production by increasing irrigation intensity from 50 to 93 percent in a total command area of 35 830 acres, incorporating 900 families in sixty-five farming units of about 123.5 acres each, in a total area of about 7 977 acres evenly distributed in fifteen sectors along the wadi.

Ten pilot farms of about 123.5 acres each, similar to those proposed, were successfully established at the Suwairy substation and at the Tareem and el Gara cooperative farms.

Constraints on agricultural production which limited the impact of Hadramaut I, such as weaknesses in the production planning organization of cooperatives and taxation and price inequities, are all being revised.

Table 54 UNDP PROGRAMMES RELATED TO RURAL DEVELOPMENT IN PDY

A. Projects continuing second cycle (1976-81), 1982		US\$	
PDY/75/019/J/01/12	Crop Production	260 800	
PDY/76/009/J/01/12	Agricultural Statistics	101 400	
PDY/76/012/M/01/11	Strengthening Cooperative Institutions	279 953	
PDY/77/005/F/01/12	Animal Husbandry	74 058	
PDY/79/001/H/01/32	UNV Multisectoral Project	41 970	
PDY/79/002/F/01/01	Bedouin Development	42 400	
PDY/79/009/E/01/12	Group Feeding Management	19 000	
B. New-Phase Projects			
PDY/81/001/C/01/12	Improved Farming Systems and Extension	560 440	
PDY/81/004/E/01/14	Institutional Health Manpower	508 900	
PDY/81/007/C/01/11	Institutional Workers Education	227 500	
PDY/81/008/C/01/12	Desert Locust Control	70 000	
PDY/81/012/E/01/12	Est. Seeds Development Programme	287 290	
PDY/81/014/D/01/12	Livestock Development	263 486	
PDY/81/017/B/01/01	Bedouin Development	191 352	
C. Proposed Projects (under consideration), 1983			
PDY/81/001	Improvement of Farming Systems and Extension	400 000	
PDY/81/017	Bedouin Development	164 600	
PDY/81/018	Improvement of Fish Marketing	231 000	
PDY/81/021	Agricultural Census	100 000	
D.			
		1981 Actual	
		1982 Planned	
PDY/81/002/B/13/31	Emergency Relief for Heavy Rains Destruction	30 000	—
PDY/81/003/B/13/31	Repair to Damaged Houses and Buildings	320 000	—
PDY/81/013/A/13/31	Emergency Relief to Abyan Delta Victims	—	30 000
PDY/81/022/A/13/31	Reconstruction Programme of Abyan Delta	—	200 000
PDY/81/004/A/13/31	Emergency Relief to Victims of Catastrophic Floods	—	30 000

#### Important Projects

Of the twenty-six agricultural projects of the current five-year development plan, three projects with a sizeable foreign component have a strong bearing on rural development, not in terms of their relatively large investment, but in the more integrated and comprehensive approach they adopt. Insofar as these projects would cater to production for local consumption, the introduction of new technology and the provision of extension and training facilities—all in the context of regional and international cooperation—they would apply themselves quite readily to poverty alleviation and rural development.

Wadi Hadramaut Agricultural Project. This project is, in fact, the second phase of a fruitful, sustained development effort in the wadi. It aims at the provision of irrigation water for nearly 9 000 acres of additional land to increase the number and area of crops for both local consumption and as raw material for agroindustries in the wadi. A total investment of about US \$32.5 million is broken down into allocations of US \$22.8 million for irrigation works, US \$4.3 million for developing agricultural operations and the introduction of appropriate techniques, and US \$4.7 million for management and training, with US \$0.7 million for relevant studies.

Tuban Delta Development Project. This is a tripartite venture to which the Kuwaiti Fund contributes US \$6.1 million, the World Bank US \$5.2 million and PDRY US \$1 million. Directed toward vertical expansion by improving the efficiency of water use and raising land productivity, it is expected to increase production by 107 percent. The scheme aims at changing the irrigation network, replacing old equipment, constructing feeder roads and training the necessary cadre. It also involves ground and underground water research in addition to the study of prices, taxes and agricultural subsidies. The project, costing US \$12.3 million, is expected to be executed by 1984.

Wadi Beihan Development Project. This project aims at the provision of agricultural inputs and technical know-how, in addition to improvement of the spate-irrigation network and well-irrigation in the Shabwah governorate. A very important facet of the project is the provision of transport and communication facilities between the project area and the agriculturally active villages around the project in order to transport and distribute inputs as well as products. The project also provides for the establishment of an executive unit to supply and distribute inputs. Improvement of the irrigation network and its protection from erosion, the deepening of eighty-eight wells, the replacement of thirty pump units, the construction of feeder roads and a meteorological station fall under the terms of project responsibility. The US \$18.12 million investment involves the World Bank, US \$8 million; IDA, US \$6 million; and the PDRY Government, US \$4.12 million.

#### Foreign Aid to Fisheries

Since independence, international assistance has been provided by UNDP, FAO, the World Bank, the Abu Dhabi Fund, the Kuwaiti Fund and the Arab Fund. With FAO collaboration, the following projects are in operation:

1. Fisheries Extension Services, covering all of PDRY (SM/PDY/79/013)
2. Quality Control Laboratory for Fisheries (SM/PDY/79/011)
3. Fisheries Library Project (SM/79/012)
4. Red Sea and Gulf of Aden Fisheries Development (RAB/81/002)

The World Bank contribution comprises:

1. Fisheries IDA I: Construction of a cold store in Makalla with a capacity of 800 tonnes.
2. Fisheries IDA II: Construction of a fishing port in Nishtun with a cold store capacity of 800 tonnes and 100 fibreglass boats for fishermen.
3. Fisheries IDA III: Contribution to the construction of a fisheries institute in Aden, providing fishing equipment and an ice plant.



#### IV CONCLUSIONS AND RECOMMENDATIONS

##### CONCLUSIONS

PDRY is deeply committed to rural development and to the alleviation of rural poverty. Its power structure, emanating from rural origins, is mass-oriented and, being the outcome of a revolutionary liberation movement against a combination of foreign colonial rule and a semifeudal tribal system, the new leadership has adopted rurally oriented policies in favour of the poor and underprivileged. A multisectoral approach has been adopted to effect a radical transformation in the economic, social, cultural, institutional and human aspects of an essentially poor rural society.

New structural, organizational and administrative structures conducive to change were introduced within the context of a socialist philosophy of strong central planning. A strong public sector was established to play a major role in leading the national economy, to be supported by a full-fledged cooperative sector. Nationalization of profit-making interests and state control of foreign trade marked the first steps in expanding the base of the public sector and enabling it to direct and mobilize resources toward rurally oriented socioeconomic development. A series of laws favouring the poor (rural or otherwise) were enacted. The most important of these was the 1970 Agrarian Reform Law which put an end to inequity in land tenure.

Agriculture, the mainstay of over two-thirds of the people in PDRY, became the material base for socioeconomic transformation and has assumed the focal position in the country's economic plans. As a sector, agriculture—including fisheries—has received the highest share of development plan allocations. The average share for the period 1974-80 was 35 percent of actual public sector development expenditure. For 1980 the figure was 24.1 percent.

Land reclamation and irrigation networks, including dams, embankments, drains in flood-irrigated areas and bore-drilling and pump unit installations in areas irrigated by wells have all absorbed a large part of allocated funds, the average figure for 1974-78 being 93.3 percent. In 1980 the figure was 62.2 percent and for 1981, 81.8 percent. Judged on the basis of GNP and per caput income, appreciable economic growth has been achieved over the past decade, amounting to an annual growth rate of 14.4 percent at current factor cost prices. Where access to basic needs, such as education, health, water and electricity, is concerned, achievements over the decade have been spectacular.

In 1972 the enactment of the Education Law led to the implementation of declared policies in this field. According to the current five-year plan, by 1985 approximately 93 percent of seven-year-old children in PDRY will be enrolled in the first year of regular education. Whereas in 1968 the number of schools in the six governorates totalled 362, by 1980 there were 985. In the same period, the number of teachers rose from 3 048 to 10 642, an increase of almost 250 percent. Women's education at all levels increased by 4 625 percent. From zero enrolment in 1967-68 among bedouins in elementary and secondary school levels the level had reached 42 541 in 1980.

The fact that 55 percent of PDRY's education establishments are located in the rural domain illustrates the level of equity so far achieved in accessibility of the rural poor to this basic need. Insofar as literacy is concerned, no reliable figures are available. Although a statutory body and a specified plan exist, the ambitious target of eliminating illiteracy has not yet been realized. Literacy campaign centres increased from 169 in 1973 to 583 in 1980.

Access to all facets of health services has greatly improved, since public expenditure rose by 1 325 percent between 1972 and 1980, and the number of hospitals, health centres and health care units, therefore, increased considerably, as did the number of medical and paramedical staff.

Between 1970 and 1980 the number of hospitals increased by 52 percent, hospital beds by 87 percent, health centres by 300 percent, health centre beds by 288 percent, health care units by 201 percent, mother-and-child care units by 2 100 percent, the number of doctors by 134 percent and the number of nurses by 106 percent. The number of beds per doctor decreased by 39 percent.

Water networks have been expanded considerably, providing for an estimated average increase of approximately 66 percent in the production of clean (tapped) water throughout the country between 1980 and 1985.

The rural electrification scheme, now supplying about 80 percent of the Wadi Hadramaut villages, has opened up possibilities for the creation of rural and agroindustries, which will help to reverse the rural-urban migration trend.

Communications have been improved by the construction of main and feeder roads, linking more than 80 percent of rural areas, thereby providing access to socioeconomic services for the rural population.

The adoption of new forms of economic activity, such as state farms, cooperatives, machinery renting stations, public marketing corporations, an agricultural credit institution and a price adjustment fund, marked the decade 1970-80. Forty-seven state farms have been established (39 for crop production and 8 for animal production), covering about 15 to 20 percent of the total cultivated area and employing about 5 500 agricultural workers (or over 30 000 rural family members). First incepted in 1967, there were 46 state farms in 1980; there are now 47. State farm areas increased by 127 percent between 1973 and 1980. Their labour force increased from 4 864 in 1975 to 5 506 in 1980. Between 1975 and 1980, the value of crop production on state farms increased by 142 percent as compared to 48.4 percent from the cooperatives and a decrease of 6 percent in the private sector.

Agricultural cooperatives increased by 59 percent between 1973 and 1980, with an increase of 40 percent in total area. Land actually cultivated on state farms and on cooperative farms is only 44 percent and 25 percent, respectively. Membership in cooperatives increased by 10.7 percent between 1974 and 1980. Fifty-nine agricultural cooperatives have been formed (mainly engaged in crop production), covering about 70 percent of the total cultivated area and engaging over 40 000 farmers (over 200 000 rural family members).

There are over sixteen MRSs to provide the agricultural machinery and equipment for tillage operations and to help transfer agricultural operations from their backward state to modern technology. There are now about 1 260 tractors.

There are public corporations for (a) agricultural services (b) poultry production (c) marketing vegetables and fruit (d) marketing meat and (e) marketing fish. Furthermore, sizeable portions of public investment were directed to other aspects of agricultural development in the three-year, first five-year and the amended second five-year development plans, all of which concentrated on developing the material technical base for rural development.

Many educational and training institutions and centres have been established to prepare, qualify and train the required cadre for agricultural and rural transformation. A faculty of agriculture was set up in Aden University. The Agricultural Extension and Training Centre (now being transformed into a national institute) in Gaar, the Cooperative Institute in Dar Saad, two agricultural secondary schools, and several vocational training centres have also been established. A research station in el Kod with substations in Tuban and Sayoun, as well as affiliated centres in Beihan, Fayoush and elsewhere were set up to generate a pertinent body of practically oriented agricultural research.

The level of awareness of farmers has been raised as far as their role in development is concerned. This is reflected in their interest in improving their lot and their positive attitude and open mind toward agricultural inputs and the necessity of their availability to individual farmers.

## RECOMMENDATIONS

In spite of the strong emphasis on agriculture, production has lagged behind the requirements of the country. Agricultural commodity imports now account for nearly 40 percent of PDRY's total import bill, thereby constituting a burden on the country's economy. The main constraints on increasing production--besides a small agricultural base, the harsh and unpredictable nature of droughts and destructive floods and a shortage of external resources--are:

1. A shortage of trained personnel
2. The drainage of manpower to other sectors
3. A shortage of labour and low productivity
4. Poor performance in the utilization of reclaimed land
5. Inefficient marketing structures
6. Unfavourable price policies
7. Low crop productivity
8. A lack of appropriate technology
9. Weak organization of extension services.

It is quite clear, however, that most of these constraints indicate the necessity of directing immediate attention not only to production inputs, but also to human resources and to training and organization in the efficient utilization of inputs.

The limitedness of PDRY's physical agricultural potential and the meagreness of the country's financial resources call for reconsideration of the cropping system. Intensification, cropping patterns of high-value crops and concentration on vertical expansion should receive preference over current cropping patterns which are directed toward economically unrealizable targets of self-sufficiency.

The capacity of institutions to supply production inputs should be enhanced if production is to be expanded. The necessity of ensuring that input supplies reach farmers in time to apply them cannot be overemphasized.

The introduction of incentives as well as the expansion and improvement of managerial and other personnel in state and cooperative farms is called for.

The need to revise the agricultural credit system is evidenced by the failure of financing institutions (Agricultural Development Fund and the Yemeni National Bank) to meet the credit requirements of the agricultural sector. The long and unsuccessful experience of the Agricultural Development Fund, resulting in the accumulation of bad debts, the absence of feasibility studies and the meagreness of resources have all contributed to a weak agricultural credit system.

A revision of price policies is required in order to favour the consumer at a time when production costs are increasing, thereby taxing the cooperative producer, reducing his returns and pushing him to seek sources of income other than agriculture.

The marketing corporations must be enabled to move with the efficiency and speed needed in marketing perishable goods (collection, packing, storage, transport and delivery) to avoid considerable waste and a delay in making badly needed payments to the producer.

There is a need for unification and coordination between the sources of inputs and the corporations that provide production inputs as well as an improvement in corporate efficiency in the timely deployment of these inputs, either in kind or in quantity, to fulfil the requirements of agricultural operations.

Fisheries currently seems to be PDRY's most expandable economic resource, thus far only limitedly tapped. It is also considered capable of repaying all investment made in its development and of helping in capital formation which would, in turn, help in the development of other sectors of the national economy. The creation of new forms of social ownership, that is public and cooperative, has helped a great deal in the promotion of this activity. In addition to meeting the needs of the people for fish as a basic food item, the fishing sector has helped to increase the export volume of local products, with a consequent positive effect on the balance of trade. It has also created job opportunities and helped in the acquisition of new skills. For fisheries development the implication is that there is a potential, and indeed a requirement, for the extension of bilateral and international aid. The fact that fisheries represents a very promising but little-tapped resource for a country like PDRY, whose resources are meagre, clearly calls for an international aid commitment.

The establishment of a unified rural development administration is required to coordinate and follow up rural development programmes sponsored by various agencies, that is government, cooperative and otherwise, national or international, and to monitor, evaluate and report on the progress achieved.

A built-in monitoring system, with functions that go beyond those of mere progress control, should be developed. Such a system should closely monitor programmes, the development of appropriate skills and the establishment of a research bank with practical application possibilities.

International aid is badly needed in the following fields:

1. Training at all levels and in all areas related to rural development.
2. Strengthening of already existing structures relating to rural poverty alleviation activities, by the provision of expert assistance, financing and equipment.
3. Strengthening of the national surveillance system through better international guidance, especially in statistics.