
Yemen Arab Republic / Kingdom of the Netherlands

Rada' Integrated Rural Development Project

RIRD - Eleven years of experience in rural development

Yemen Arab Republic
Ministry of Agriculture
and Fisheries

Kingdom of the Netherlands
Ministry of Foreign Affairs
Development Cooperation
(Asia) Department

RADA INTEGRATED RURAL DEVELOPMENT PROJECT

RIRD - Eleven years of experience
in rural development

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Ilaco
Arnhem, The Netherlands

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1 INTRODUCTION

1.1 Background

In August/September 1987 a joint Yemen-Netherlands Evaluation Mission reviewed the activities of the Rada Integrated Rural Development Project. The mission concluded that there was no clear view on the [REDACTED] adopted for the implementation of the Project. The mission recommended that the Project management and the consultants produce a document that provides such a policy and strategy on the basis of a critical analysis of 11 years of Project experience.

1.2 Scope and approach

The present report entitled: "RIRD - Eleven years of experience in rural development", which has been prepared in response to the recommendations of the evaluation mission. It analyses past project performance and sets out a future strategy. It is not meant to replace the present Plan of Operations 1988-1989, which is the result of an agreement between the various interested parties: Yemen, the Netherlands, the consultants and the Project team and thus cannot be altered. Rather the report aims at representing the consensus of the Project team (Yemeni staff, the Technical Assistance Unit (TAU) staff) as to what the [REDACTED] are, and what the future (i.e. beyond 1989) policy and strategy of the Project should and could be. As such, it seeks to strike a balance between what is desirable and what is possible, incorporating also the views of the Governorate and the Ministry of Agriculture. In doing so, an important lesson learned is reflected: the reality that the Project is the synthesis of different views and expectations and therefore requires pragmatic planning.

The outline of the report is as follows. Chapter 2 deals with the project inception, objectives, strategy and changes during project implementation. Chapter 3 discusses the project setting; the national and regional context as well as some relevant institutional aspects. Chapter 4 gives the Project performance and experience. Chapter 5 deals with the analysis of Project issues and constraints. Chapter 6 deals with overall Project policy and strategy issues, which are then elaborated for each section.

Chapter 6 provides a general framework, not a work programme; this needs to be filled in when the next Plan of Operations is prepared. The proposed policy and strategy is the result of long discussions with the Project team. For each section, a session of 2-3 hours was held in which both Yemeni and TAU staff participated. Throughout the sessions, there were frequent discussions with the Project management, while at the end of the exercise a general meeting was held with all senior staff participating. In addition, discussions were held with the Minister and senior staff of MoA, the Governor of Al Bayda Province and the Netherlands Embassy.

In the project meetings the following questions were addressed:

1. what should be the role of the Project in the area: why the present activities and not more or less, or others; what should be the priorities and why;
2. should and can we transfer activities to other agencies (ministries, governorate, LCCD's, etc.) and what are the consequences in terms of training, organization, etc.;
3. should we embark on new activities and what will be the consequences in terms of manpower, finance, etc.;
4. how can we improve the interaction between activities and sections;
5. what should be the role of TAU in the Project, and in general, the role of Dutch assistance;
6. should the Project extend to cover Al Bayda Province (that is increase in quantity) or continue to concentrate on Rada district (improve quality).

2 THE PROJECT

2.1 Project history and objectives

After the Yemen Arab Republic (YAR) became one of the target countries of the then Netherlands Development Cooperation policy in 1974, a foreign aid mission of the Ministry of Foreign Affairs visited the YAR early in 1975 to identify potential projects which complied with the Netherlands' criteria of foreign aid.

In 1975, at the first-held consultations on the cooperation between both governments, it was agreed in principle to start with a development project in the geographically and administratively rather isolated areas of Dhamar and Al Bayda Provinces in the south-eastern part of the YAR.

In March 1976 the Dutch international consulting company Ilaco (Euroconsult) was requested to field an identification mission to study the possibilities of integrated rural development in the Dhamar-Rada area. In June 1976 the report of the mission on "The Integrated Rural Development Plan for the Rada area" was published. The objectives of the project mentioned in this report were threefold:

- to reduce the migration rate;
- to raise the income and improve the living conditions of the population, particularly of the small farmers;
- to step up the production of import-substituting commodities.

It should be noted that emphasis was placed on [REDACTED], a target group which is hardly mentioned as such in later reports. The project area was described as the "Rada area", meaning the Rada District of Al Bayda Province.

In September-November 1976 Ilaco fielded a second mission to collect additional data and to prepare for the implementation of the Rada Integrated Rural Development Project (RIRD). Sociological studies were not carried out, as it was agreed to postpone them until the implementation phase of the new project. The findings of the mission were published in the report of February 1977, "Integrated Rural Development Plan for the Rada area - Preparation on Implementation". This 1977 report, as compared with the 1976 report, is no more specific about aims or objectives of the project as a whole and formulates these aims as:

- to get integrated rural development under way in the Rada subdistrict, without wasting valuable time by making extensive enquiries beforehand;
- to assist in developing a more or less complete civil service which, by the end of the report period, could sustain the development process.

To summarize, it can be concluded that the project was intended to develop the Rada district through an [REDACTED], comprising crop and livestock production, feeder roads and domestic water supply.

During project implementation it became apparent that:

- the reduction of migration in the short term was too ambitious;
- the raising of the population's income was difficult to achieve, due to the limited potential of the area (despite the large influx of "oil money" from foreign labour in the adjoining oil states, at least until 1983);
- the same went for developing production of import-substituting commodities, although the oil crisis and the concomitant government policy of applying import restrictions since 1983/1984 has given a stimulus to the agricultural production of these commodities;
- the development of a competent civil service was a lengthy affair, partly due to the still strongly traditional outlook of the local authorities.

Short-term objectives have been formulated and reformulated over the years to reflect ongoing and newly begun project activities. However the overall long-term objective of the project, as mentioned in the various Plans of Operation, remains unchanged, namely to improve the living conditions of the rural population.

2.2 Strategy

The ~~strategy~~ for implementation as advocated by the Netherlands Development Cooperation Agency and reflected in the 1976 and 1977 reports can be summarized as:

- early, action-oriented implementation;
- participation by the people;
- integrated rural development.

Implementation of project activities was to start as soon as possible without losing valuable time in extensive enquiries beforehand. In other words, project implementation was to start before a complete picture of the overall development of the area, and consequently of the integration of the various aspects, had been gained. It was intended to increase the insight into the Rada reality step by step and to extend, or if necessary adjust, project activities in a flexible way.

The rural works were to be effectuated by simple methods, so that the population could partly execute them themselves and could also maintain and extend them. It was proposed to execute works under project management (on the job training of various kinds of personnel), and villagers should contribute in kind (unskilled labour) or financially, with the underlying idea that they should be directly involved in and answerable for the action to be taken.

The 1976 report does not elaborate on the concept of integrated development. The 1977 report recognizes that the proposed activities together do not automatically lead to integrated development, and that early implementation with starter activities makes perfect integration right from the beginning impossible. No clear conclusion, however, can be drawn from the 1977 report as to what "integration" would encompass in relation to the Project.

In retrospect the following can be observed:

- the principle of fast implementation was abandoned in 1979, as it proved impossible to formulate in a short period of time solutions that could be directly implemented;
- participation by the people did not come about so quickly as originally had been thought, but took place at a later stage;
- the concept of integration was defined for the first time in the Plan of Operations of 1981. Through the years, the degree of achievement of an [redacted] to rural development proved to be very much [redacted]

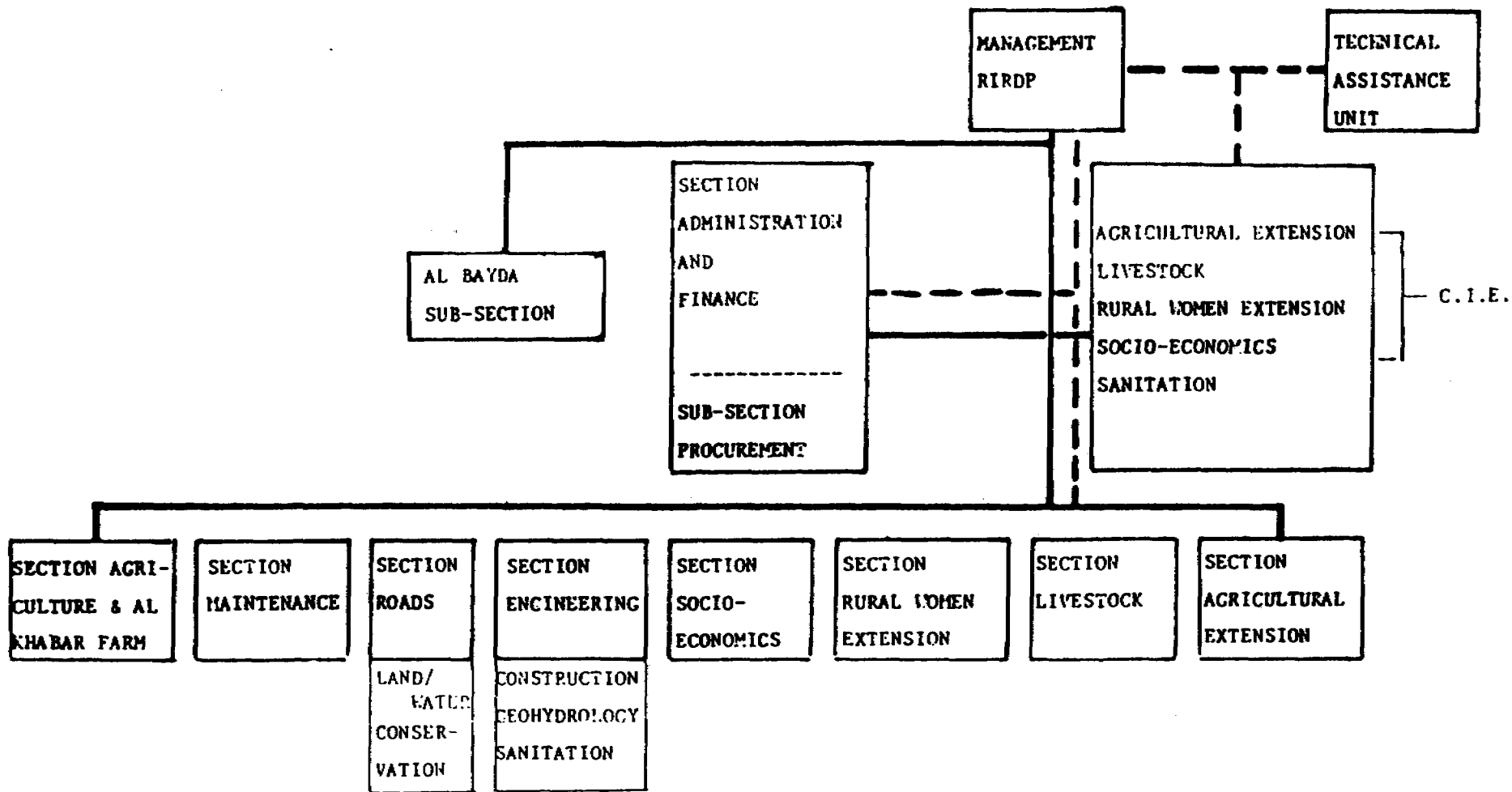
2.3 Organization

The project activities were carried out by different project sections headed by Dutch heads of sections under the responsibility of a Dutch project manager. Various activities were added over the years, resulting in the creation of additional project sections and splitting up of existing sections into subsections. In 1983 the executive power was formally handed over to the Yemeni, preceded by a more or less forced handing over of responsibilities after the evacuation of the expatriate staff in 1982, caused by the war situation in the project area.

The present (1988) organizational set-up is presented in Figure 1. Resorting under the RIRDP management are 9 project sections and the Agricultural office in Al Bayda. The general manager of the RIRDP presides over the committee of integrated extension (CIE) which consists of the head of sections involved in extension activities. The task of CIE is to plan, coordinate, monitor and evaluate the extension activities carried out by the various sections.

The expatriate advisers are pooled in the Technical Assistance Unit (TAU). They are functionally tied to the heads of the project sections according to their expertise.

The total number of project personnel employed at present (November 1988) is just over 160 (15 employed by the Ministry of Agriculture, 140 locally recruited by the project and 5 recruited by the Ministry from neighbouring Arab countries). The number of expatriates at present (November 1988) united in the TAU team is 7 Ilaco and 5 Regional Sudanese/Egyptian experts. Furthermore 4 Dutch associate experts and 2 Dutch (ONV) volunteers are seconded to the project. The duration of assignment of the Ilaco experts varied since the beginning of the project from 1 to 4 years, with an average duration of just over 2 years (Team leaders average 2.2; Agricultural/Extension experts average 1.9; Road experts average 1.1; Livestock experts average 1.3; Water supply experts average 2.6; Administration experts average 2.8). The duration of assignment of the Sudanese/Egyptian experts, the associate experts and the volunteers is about 2.5 - 3 years on average.



————— line of command (hierarchical)
 - - - - - line of communication (functional)

C.I.E. = COMMITTEE INTEGRATED EXTENSION

FIGURE 1 - ORGANIZATION DIAGRAM 1988

3 PROJECT SETTING

3.1 National context

Economic performance. Since the early seventies, the Yemen Arab Republic (YAR) has been in the process of transformation from a subsistence economy with a small external sector to a relatively open market economy, propelled by considerable remittances from migrants working in the Gulf States. During the period 1976-1982 GDP growth averaged about 5% per annum.

Sectoral growth rates differed widely. Agriculture, which is the largest single sector, accounting for about one-quarter of GDP and employing about 70% of the resident labour, expanded at a rate of about 1% per annum. Wholesale and retail trade, and Government services, registered annual growth rates of about 15%.

Since 1983, the growth rates have dropped considerably. Contributing factors have been a reduction in remittances (from US\$ 1.2 billion in 1982 to US\$ 0.6 billion in 1986), the continuous drought in the period 1982-1985 and an overvalued exchange rate. Annual inflation rates increased from 3% in 1982 to 40% in 1986.

Budget deficit. The budget deficit and deficits on the balance of payments have been a major concern over the past fifteen years. By 1982, revenues represented only about 40% of expenditures and the budget deficit had increased to 33% of GDP. In 1986, Government debt accounted for about 45% of GDP and the balance of trade showed a deficit of US\$ 1 billion. However, measures to reduce the deficit (drastic reduction of imports and Government expenditure, and regular devaluations of the rial) are now taking effect. Imports in 1986 are one-third of those in 1982 and have decreased at a higher rate than the reduction in remittances.

Oil exports started end 1987. Together with savings in oil imports (domestic production now meets 30% of the country's requirements) these have caused a considerable improvement of the balance of payments. However, expectations should not be set too high. Low international prices, technical problems with exploitation and other factors render it unlikely that net export gains would be more than US\$ 500 million. This is hardly sufficient to compensate for the reduction in remittances.

Human resources. The 1986 population of YAR was estimated at 9.3 million; population growth is 2.8%; urban population is 19% of the total population and has a growth rate of about 6% per annum. Despite impressive improvements, adult literacy and school enrollment rates are still very low. Life expectancy is 43 years for men and 41 years for women. The shortage of managerial and skilled manpower is the overriding constraint to development, severely limiting the capacity of the Government to implement development programmes. Continued economic growth partly induced by the extra impulse of the oil sector and the competition from the private sector are likely to increase this problem.

Third Five Year Plan (1988-1992). Reportedly the third Five Year Plan has been approved by the Government in September 1987 and will, with one year delay, be implemented as of 1988. Details are not known yet but recent statements of the Central Planning Organization point at a continuation of the policy set out in the second plan. Highest priority will be given to the improvement of the agricultural infrastructure with the aim to increase agricultural production of both food crops and internationally traded commodities. Water availability being the overriding constraint, the emphasis will be put on the construction of small dams and the introduction of low-cost, water-saving irrigation techniques. In other productive sectors, Government policy is directed towards promoting private initiative and investment.

The Government investment programme is directed mainly to the build up of a physical and social infrastructure. As for the latter, the plan aims at providing to 50% of the population adequate health facilities and to 60% of the rural population domestic water supply by the end of the planning period. The Government will continue its policy of rural development through projects and development authorities. With respect to the latter, three authorities have now been established: Tihama, Northern and Eastern Development Authorities. About 40% of the plan will be financed by grants and loans from bilateral donors and international organizations.

3.2 Regional context

General situation. The Project is located in Al Bayda Province, which lies in the south-eastern part of the YAR. The province covers a mountainous area of approximately 11 000 km² and it has a resident population of about 380 000 (1986 census). The province is largely rural with only two urban centres: Al Bayda, the capital of the province (population about 13 000) and Rada town (population about 35 000).

The economy is based on agriculture, mainly rainfed though irrigated agriculture is on the increase. The major crop cultivated is sorghum for home consumption. Qat is the main cash crop and its area has been rapidly increasing in recent years, simultaneously with the increase in groundwater exploitation by deep tubewells. Irrigated agriculture is still subsistence-oriented, though the area planted to vegetables (carrot, courgette, okra, peppers, radish, tomato, onion, water melon and sweet melon) and fruit (apple, apricot and peach) is gradually increasing. In 1982, there were about 25 000 cattle and 700 000 sheep and goats in the province.

Investment in agriculture and other sectors has been heavily dependent on remittances and qat production. The infusion of cash from these sources has led to a vast growth in the consumption of foodstuffs and clothing as well as luxury goods and to a rapid increase in the construction of buildings and boreholes and in the purchase of motorized vehicles. The private sector has been quick in responding to this demand as is demonstrated by the ever increasing number of modern shops, mechanical workshops, wood and metal workshops, construction contractors and the like.

Accessibility of the region, although improving mainly by means of the Project road construction programme, is poor. Large parts of the area are still only accessible by tracks with many bottlenecks. Also the development in health, education and other social services are still at a low level and lagging behind national averages per capita. A number of Project activities is directed towards improving the social infrastructure.

Land and water. The intrinsic quality of agricultural land is influenced primarily by elevation, topography and soils. However, given the climate of the province which is one of the driest in the country with a mean annual rainfall of 150 mm (50-350 mm), the overriding factor determining the usefulness of agricultural land is the availability of water. Most of the agricultural land is on the water divide running roughly from Rada to Al Bayda, and these lands have limited catchment. According to recent surveys, the total agricultural land is 50 000 ha, and the potential irrigable area is about 14 000 ha. The catchment areas of the wadis increase to the north and to the south, but the land available for agriculture is mostly negligible in these regions. An exception to this general pattern is the plain of wadi Markhah (about 300 km²) in the north-east of the province.

Traditionally, water for drinking and for irrigation has come from numerous dug wells and a number of springs and cisterns. In the past decade, there has been a rapid increase in groundwater exploitation by deep tubewells. As a result, the limit of groundwater extraction is rapidly being approached in a number of areas in the province, such as the Rada plains where the construction of boreholes, mainly for qat growing, have sharply increased in the last ten years. Extraction of groundwater from deeper lying aquifers occurs more frequently and there is a real danger of exhausting existing water supplies, with groundwater levels dropping about 7 m per year. The mining of water for qat growing provides a quick and high return to investment and therefore is attractive to private enterprise. But it may dramatically affect the development possibilities and living conditions in the area in the long run. Government regulations for the exploration and extraction of groundwater are therefore required.

Perennial surface water resources are very limited. There are no rivers, although there are a few small perennial streams. However considerable amounts of rainwater are harvested from mountain slopes or floods, contributing to the main crop grown: rainfed sorghum. Water gained in this way may be estimated in the same order of quantity as the total yearly consumption of all wells in the province. In the north-western part of the province, the holocene volcanics have very high infiltration rates. However, infiltration rates decrease in the Tertiary Volcanics towards the south-west and in the sandstone formations just east of Rada and are lowest in the eastern part of the province (Precambrian rock). Terraces in the mountainous areas and compartmental bunds in the plains have been constructed throughout the province for centuries and are in general still in good condition. In some areas, terraces have been abandoned because of a shortage of labour and reduction in flow from artesian wells. Small dams are found throughout the area but many have silted up and only a few are still in operation. Diversion dams and guide bunds for spate irrigation have been built and rebuilt in wadis

year after year. There is scope for the restoration of old and the construction of new, small dams, and for more permanent guide bunds to promote spate irrigation.

Other physical resources. There is no known mineral wealth in the area. Some stone quarrying occurs at various locations. Stone is preferred for private houses but in the construction of commercial buildings (shops and workshops) concrete blocks are more frequently used.

Manpower. The 1986 population census has not yet been worked out in sufficient detail to produce figures on labour force and employment. The labour force has been substantially reduced by emigration to Saudi Arabia and other Gulf States but this has not led to labour shortages in the main sector, agriculture, as many tasks are performed by females. To be true, domestic wages are high relative to marginal productivity but this is likely to be the result of the flow of remittances rather than widespread labour shortages. Analyses elsewhere in Yemen and in RIRDP farm management surveys indicate that in general labour availability is not a serious constraint to agricultural development, though local shortages in peak periods do occur.

This poses the problem that the agricultural sector has insufficient capacity to absorb the increasing labour force resulting from both a reduction in the number of migrants and natural increase. Other sectors need to be developed as well. So far, the private sector has shown to possess the entrepreneurship to meet this challenge. Especially returning migrants have invested in trade, production of building materials and workshops. Recently a small factory was established in Rada for the production of cutlery and other metal products.

3.3 Institutional aspects

In this section, RIRDP's relationship with the most relevant organizations and institutions are discussed.

Ministry of Agriculture and Fisheries (MoA). The RIRDP falls under the responsibility of MoA and more specifically under the Integrated Rural Project Department (IRPD) which has a co-ordinating role. In technical matters, RIRDP sections have direct contact with the relevant departments of MoA. The IRPD prepares the budget allocation on the basis of the Plan of Operations of the RIRDP, coordinates the allocation of MoA staff and undertakes the necessary liaison with other Government organizations. The IRPD has a similar function for the Rural Development Project, Al Mahwit Province, sponsored by the German development aid programme. Both this project and RIRDP are medium sized. Larger, internationally financed, projects such as the Southern Upland Rural Development Project, the Central Highlands Rural Development Project and Al Jauf project fall directly under the Minister of Agriculture. The IRPD has a small staff of four including a technical advisor provided by German bilateral aid and a coordinator for women affairs.

The RIRDP is the sole agent of MoA in Al Bayda Province (the small office in the provincial capital has been put under the umbrella of the Project) and as such regarded by the Ministry as its executive regional branch. This outlook stands diametrically to that of the donor and the resulting friction has been one of the major factors in bringing about the type of project that the RIRDP is today. This friction, which has arisen from a different interpretation of the objectives of the Project, has proved to be an important hindrance in implementing a consistent development approach. This issue will be discussed in Chapter 5. Two observations are made here: a) the differences in interpretation have culminated in the urgent question whether or not to extend the Project to the entire province; b) the MoA has been using the Project as a vehicle for implementing national politics, notably the execution of agricultural trials and the distribution of fruit and forestry trees.

In a new development, the Government of YAR is establishing semi-autonomous regional development authorities on the same lines as the Tihama Development Authority. So far, authorities have been established in the north and the east; they combine a number of small projects and concentrate on agriculture (extension, research, nurseries and provision of inputs and credit), development for women and water supply schemes.

The development authorities cover more than one province. They are financially and administratively independent, having their own separate budget which is provided by the Government and usually a number of different donors. The authority reports to a High Committee consisting of senior officials of the Central Planning Organization, Ministry of Finance, Ministry of Agriculture and other relevant ministries. The High Committee, in turn, reports to the Minister of Agriculture.

The Governorate. The Governor's office and those of the Nahiyahs (district) are mainly concerned with interior and judiciary affairs, development activities being left to the Local Councils for Co-operative Development (LCCD, see below). In addition, many ministries have an office in Al Bayda town and some (Education and Finance) also in Rada town, but their capacity is small and their activities bear no direct relationship to those carried out by the RIRDP.

The exception is the Ministry of Public Works which is represented in the province by the Highway Authority. This body is in charge of the main roads in the area and has been approached by RIRDP to take over also the maintenance of feeder roads constructed by the Project (see Chapter 6, Roads and Land and Water Conservation Section). The Authority has offices in Al Bayda and Rada, from which it maintains the tarred road leading from Dhamar to Al Bayda and the gravel road from Rada to Juban.

LCCD's and villages. Most contacts between the Project and the population are channeled through LCCD's (Local Coordinating Committee on Development) or direct through village leaders. There are [REDACTED]. They originate from the Local Development Authorities and coincide with the boundaries of either a district or a sub-district. The LCCD consists of an assembly of officials

appointed by Government and elected representatives from each village in its area, out of which a board of 5 to 7 members is chosen. The board holds office for three years; three functions (president, treasurer and secretary) carry a salary. At the provincial level, the LCCD's are represented in the Co-ordinating Council. This council, but also the individual LCCD's, have direct access to the national body, the Confederation of Yemen Development Associations. The LCCD's are financed from various sources: donations from the national board and provincial council, direct contribution by villages and from Zakkat (religious tax) funds.

Although the Government attaches great importance to the LCCD's as vehicles for development, the ones in Al Bayda Province are still very weak both in terms of implementation capacity and financial resources. Even the strongest [redacted] in the province has a [redacted] of only [redacted] from which a variety of activities must be financed, including construction and renovation of schools and health centres, and construction of water supply systems and roads. None of the LCCD's have equipment or technical staff. Performance of the LCCD's varies considerably, some [redacted] quite effective, others are not functioning [redacted]. Many have political undertones and allegedly are [redacted] of the village [redacted]. It is partly because of the weaknesses of the LCCD's that the Project has no structural relationship with them. There is no coordination in planning and budgeting. Contacts are on an ad-hoc basis and concern mainly the aid of LCCD's in collecting village contributions to Project works in water supply and road construction. Only in the Land and Water Conservation Programme are the contacts more regular, involving the LCCD's also in the selection of dam sites.

4 PROJECT PERFORMANCE AND EXPERIENCE

4.1 General

In retrospect, implementation of the RIRDP can be divided into three phases:

Phase one (1977-1979)

In many respects this phase can best be described as one of preparation and construction. The project's main buildings were constructed, and a great deal of time was devoted to finding suitable locations for the project centre and project farm. Much time and energy were put into solving internal problems relating to construction, land acquisition, and logistics during this period of project establishment.

Phase two (1980-1982)

This phase is characterized by the further extension of project activities within the Rada' District area, and the development of project organization and management, which were still under Dutch control. Tensions in the southern area of the project, due to the political and military situation as regards South Yemen, culminated in the evacuation of the entire expatriate staff in 1982, while the Yemeni authorities kept the project going successfully in the northern area for another three months till the normalization of the situation and the return of the expatriate staff.

Phase three (from 1983 onwards)

The project was handed over to the Yemeni authorities. Responsibility for project planning and implementation was now in the hands of the Yemeni counterpart staff, while the Yemeni General Manager was responsible for Dutch and Yemeni project funds, and for the observance of administrative arrangements. The expatriates were pooled into a Technical Assistance Unit (TAU) with an advisory and supporting role. The TAU team leader was in charge of supervising the use of Dutch funds. During this phase, project activities in the Rada' area intensified, while at the same time there was a gradual extension of activities into other parts of Al Bayda Province. The project became more and more service oriented. In 1984 and 1985 the European Economic Community (EEC) financed programmes for domestic water supply and road construction.

4.2 Agriculture and extension

1977-1979

Rainfed cropping under marginal conditions proved to be much more difficult than anticipated. Too little direct use was made of the experience of local farmers. Shortage of qualified Yemeni personnel in the agricultural section made adequate supervision of the activities difficult or even impossible.

An extensive programme of trials was set up to identify the general potential of the area. Priorities were not clearly set. Rainfed trials started in 1978 on the project farm location at Al Khabar followed

in 1979 by trials on irrigated crops after providing for a shallow and deep well for the supply of irrigation water. Results of trials on rainfed and irrigated crops were limited because of managerial problems and problems of unreliable rainfall and shortage of irrigation water.

Introduction of new varieties of the four major crops in the area (alfalfa, sorghum, wheat and barley) did not lead to yields higher than those of local varieties.

By the end of 1979 it was concluded that there was little scope for successful investigations and increased production of rainfed crops at the Al Khabar farm and that much more scope seemed to exist for increased production of irrigated crops, a view supported by the 1979 evaluation mission. Basic information on agriculture and its resources remained incomplete. Surveys planned had to be cancelled because of lack of staff. No real extension messages could be formulated due to the disappointing results of the trial programme.

1980-1982

Early 1982 the Dutch agronomist left the project and the Yemeni agronomist counterpart took over. Several Egyptian and Sudanese technicians were employed by the Ministry of Agriculture on a temporary contract to solve the acute problems of lack of qualified staff. A small number of extension agents were recruited from the national agricultural trainings institutes at Ibb and Taiz. It proved, however, difficult to keep them in the project unless they belonged to the Rada area itself.

The project developed the concept of multi-functional extension centers in carefully selected core areas. Those extension centers were to provide store-room, meeting-room and offices for various activities carried out by the extension service, and the livestock section and for the home-economics and literacy classes by the women section. The first center at Al Draybah was constructed in 1981, and a second one in 1982 in Wadi Tha.

Assistance and support were requested from the national Agricultural Research Authority in Taiz (FAO supported) and other agricultural projects in the YAR for the trial programme at Al Kkabar, thus breaking through the, till that time, rather isolated position of the RIRD.P.

The number of farmers visiting the project for help or advice increased. Results of pest control campaigns by the project (in cooperation with the German plant protection project in Sana'a) created goodwill and confidence. Much appreciated services were rendered by the project in the field of threshing and land preparation, renting out of knapsack sprayers, distribution and selling of chemicals for pest control, good quality vegetable seeds and sonalika wheat variety and seedlings of forestry and fruit trees.

Major problems remained in the manpower situation and the formulation of sufficient relevant extension messages. Agricultural extension to women was very much separated from the agriculture section and carried out by the women section. Coordination and cooperation between the sections was far from optimal. Personal relations between Yemeni and expatriates very much determined the degree of success or failure. The cross-sectional activities, defined so nicely in the Plan of Operation, remained mainly paper exercises.

1983 onwards

Extension activities undertaken by the project included construction of extension centers, distribution services and demonstration plots in farmers' fields.

With the arrival of the Egyptian adviser (member of the TAU-team) in agricultural extension a successful effort started to coordinate and integrate the various extension activities of the agriculture, livestock and women section.

Three extension centres (Draybah, Wadi Tha and Wadi Matar) were functioning as multipurpose extension centers. The remaining 4 centers were used by the extension service only or were from time to time more or less closed down because of lack of staff. Nevertheless project management and Ministry planned for a rapid extension of extension centers over the whole of Al Bayda, but the TAU team advised against it and stressed the necessity of consolidation and concentration on improving the functioning of the existing centers and recruitment and training of extension staff before further construction. After long deliberations this line of action was agreed upon and the project was authorized to recruit locally extension staff and train them in the project through in-service training courses, gradually upgrading their level of knowledge and practical experience. At [REDACTED]

Ties with the national Agricultural Research Authority (ARA) were intensified resulting in a programme of applied research mainly on irrigated field crops and vegetables and verification trials at farmer's level. The programme however is still conceived by ARA as being mainly for ARA's own purpose, with little direct involvement of the project regarding planning and analysis/reporting and with little overall relevance to the project area. This does not mean that no positive development can be mentioned: the wheat variety Sonalika proved to be superior under irrigation to the local wheat variety and the project was instrumental in the distribution of Sonalika seed amongst the farmers (in cooperation with the seed multiplication project in Taiz). Extension messages were formulated and simple handouts were made for fertilizer application and proper crop management for wheat, potato and vegetables. Vegetables verification trials at farmers' level resulted in adoption of a wide range of vegetables in the project area and in the diet of the people.

Since 1982 a fruit tree and forestry tree nursery has been in operation at Al Khabar. Since 1987 a second forestry multiplication nursery has been established at the Al Khabar farm with support of the FAO forestry unit in Sana'a. Besides producing for the national tree planting day and some decoration and planting around extension centers, plans and strategies have been developed on how to reach farmers and to organise a distribution system via the extension service and centers.

A programme for protected horticulture started in 1984 with the aim to avoid production peaks of vegetables through experiments with a plastic tunnel in Al Khabar and shade netting in Jarouba (Tihama), but it failed to give the impact which was expected from the programme. A failure attributed mainly to personnel constraints of all kinds in the agriculture section itself and between the adviser and the head of section and lack of experience in similar climatic conditions.

A few testing and demonstration trials of water saving irrigation techniques and rain harvesting techniques were carried out at farmers level in 1987/1988. A start was made in 1988 to upgrade the irrigation infrastructure of the Al Khabar farm. In 1988 the TAU extension adviser was succeeded by an agricultural irrigation engineer.

4.3 Livestock

1977-1979

Activities in this section started in April 1978 with the arrival of the Dutch animal husbandry specialist. A stable was built at the Al Khabar project premises. No extensive surveys were undertaken to identify possible interventions in the field of livestock keeping. Field activities were based on information gathered during the two preparatory missions in 1976 and 1977.

Veterinary services (new in the Rada area) were initiated through a programme carried out with the British Veterinary Team in Dhamar. The area covered was relatively small because of inaccessibility of large parts of the project area due to the political situation and lack of manpower in the section.

The stable at the project centre was used for trials on improved feeding and care with local cows, and (imported) goats. In 1979 the first batch of Saanen goats was imported from the Netherlands. The idea behind the importation of and trials with Saanen goats was that in areas with limited possibilities for fodder growing goats were more efficient and cheaper milk producers than cows (more efficient feed consumption/milk production rates)

Attempts to interest the farmers in the possibilities of natural regeneration of the vegetation (communal range land improvement) by demonstrations of what happened in small fenced-in areas were not successful. The data obtained so far do not have operational value.

For the whole period no counterpart was available for the section and only one or two veterinarian assistants for some period of time.

1980-1982

The Dutch animal husbandry specialist left the project in 1981. After his departure the Ministry of Agriculture contracted two Egyptian and one Sudanese veterinary surgeon for the project, resulting in a clear shift of the section's main activities towards extensive vaccination campaigns and curative veterinary care.

In cooperation with the women section a poultry distribution programme was set up. Day old hybrid chicks from Sana'a (imported layers and broilers) were raised at the Al Khabar project centre and distributed and sold together with 1 kg high quality feed to village women interested in small-scale poultry keeping. The programme however was hampered by the halfhearted cooperation of the Egyptian head of the livestock section, who was more interested in veterinary activities and much less in raising the one day old chicks in the newly constructed chicken scoop and in follow up in the villages on proper feeding and management practices.

Other activities of the livestock section included efforts to develop a small-scale chopper to cut sorghum stalks and a special programme around Wadi Tha to combat mineral (phosphorus) deficiencies of cattle. A local breeding bull was purchased to service cows of the farmers around Al Khabar. A meat inspection programme was initiated in Rada town. As the concept was totally new to the area and the cattle owners it took some time before advice to reject affected organs were heeded. Feeding, behaviour and milk yields of the imported Saanen goats were observed and measured in comparison with inputs and outputs of local cows at the Al Khabar Farm. No clear insight, however, was gained or conclusive results were obtained because of the rather poor management of the trials by the livestock section. The rangeland programme was stopped and shifted to the Dutch financed Livestock and Rangeland Improvement project near Dhamar.

The manpower situation in the section improved slightly with the arrival of one livestock technician from the British Veterinary Training School in Sana'a.

1983 onwards

At the request of the Ministry one of the veterinary surgeons was transferred to the Ministry of Agriculture's office in Al Bayda town but returned soon afterwards to his home country owing to lack of means of transportation and funds. The livestock section remained focused on veterinary aspects till 1986 when the last veterinary surgeon left the project and a Yemeni animal husbandry specialist was nominated by the Ministry as head of the section. About 50 local sheep were brought in on the farm for experimental purposes in cooperation with the Livestock and Rangeland Improvement Project in Dhamar and the Agricultural Research Authority in Taiz.

To date a total of 70 Saanen goats, Anglo Nubian and local goats from the Tihama have been distributed through the women section to poorer women with children (however also project staff and others not belonging to the women target group profited from this programme). Although the families with goats did ask for advice on feeding and housing, lack of manpower in both sections hampered a regular follow up of the distributed animals.

The distribution of broilers initiated by the RIRDPA could be stopped because by now private commercial enterprise had taken over broiler production in the project area. The distribution of layer hens by the project continued and the request for layer hens remained very high. Internal administrative problems and the very low degree of cooperation among the livestock staff itself and between the heads of the livestock and women section lowered and finally stopped the distribution programme in 1986 and 1987. The programme has been resumed in 1988.

Early 1986 the meat inspection in Rada town stopped after the departure of the Egyptian veterinary surgeon and was resumed in the middle of 1987 upon the recruitment of a veterinary assistant.

A female Dutch veterinary surgeon (ONV) joined the livestock section in 1987, in view of the important role of women in livestock keeping. Unfortunately the relation between the Yemeni head of section and the Dutch volunteer did not work out too well, resulting in an early departure from the project by the Dutch veterinary surgeon.

All together the livestock section has not been functioning properly. Management is rather poor and has not led to improved animal husbandry practices at the Al Khabar farm, nor has it improved the motivation of the livestock staff. Trials with local cows had to be abandoned and sheep trials with the Livestock Rangeland Improvement Project were a failure. In general the animals at the premises of the project farm are badly kept and the section remains veterinary oriented. Extension services on improved feeding and management of livestock are provided to the farmers haphazardly.

4.4 Roads/land and water conservation

1977-1979

The basic assumption at the time of project formulation with regard to feeder roads was that the population of the Rada district would need better quality feeder roads, even more so once the highway between Dhamar and Al Bayda would have been constructed. The project, therefore, would undertake the construction of low-cost, equipment-intensive main and secondary feeder roads. The village people were supposed to contribute in labour and financially towards the cost of constructing the feeder roads. In four year's time up to 270 km were to be constructed, an ambitious programme indeed.

The civil engineer arrived in Yemen in February 1978 while the equipment arrived in Rada by July 1978. The equipment was initially used to construct the access road and the internal roads on the project compound.

It was decided by the project management to start construction works in the area north of Rada, as this area received priority for water supply and access for the drilling rig would thus be facilitated. Discussions were held with the LDA* and sheiks on the first alignment. The final choice was against the LDA who preferred a feeder road in the southern project area and contacts with the LDA then broke off. Contributions from the people could not be collected. The project decided to work for one month to show the people that the project was prepared to do something; in the mean time the contributions were to be collected. This however was never realized and the equipment was withdrawn.

Because of the lack of interest in the rural area to pay for feeder roads aiming at opening up central areas, an activity regarded by the people as a public service item to be provided by the Government free of charge, the project, at the request of the LDA of Rada, decided to construct a ring road around the town. Contributions for the construction was received from the people of Rada.

1980-1982

After many fruitless attempts to secure the contribution of the people for feeder road construction, it was decided to scale down the programme to some 63 km of feeder roads built under project management (force account), paid for and maintained by the project.

A number of feeder road were constructed to improve access to the extension centres. The first feeder roads were built according to a design which allowed normal saloon car traffic on 2 lanes in all weather conditions.

The surface materials found in the area necessitated regular maintenance (every 3 to 4 months) by the project.

Due to the political circumstances, road construction activities south of the asphalt road Dhamar-Al Bayda could not be carried out. About 61 km of feeder road (including access road, ring road and streets in Rada) had been constructed by the end of 1982.

* Local Development Association, later called Local Coordinating Committee on Development (LCCD).

1983 onwards

The Dutch road engineer left the project in the middle of 1983 and herewith the road section became, after the maintenance section, the second section in the project under Yemeni management.

The road construction programme now distinguishes two types of roads: feeder roads and village roads. The former aim to open up central areas (core areas) and provide access to extension centres, the latter is to link villages with the feeder roads. No contribution is asked from the villages benefiting from the feeder road programme, while a contribution of 20 % (25 % in 1986 and 30 % in 1987) is required from the villages requesting improvement of their village roads. The idea of the village road programme is to focus on a bottleneck approach, i.e. to smooth out very difficult stretches in the existing track.

In 1983 the EEC decided to assist the RIRDP with a financial contribution of ECU 1.2 million for the plan period 1984-1985. It was also decided that this contribution would be channelled through DGIS. As the finalization of the administrative arrangements between the EEC and the YAR and between the EEC and DGIS took quite some time, the factual project activities and release of funds started in the second half of 1984.

The setting up of a maintenance unit as was foreseen in 1982 (the construction of feeder roads was thought to be terminated in 1983), did not materialize in the sense that separate construction and maintenance units were established. Considering the limited manpower and the geographical spreading of the work it was decided not to split construction and maintenance work over two units but to divide the work along geographical lines.

Since 1986 the successful road construction programme has been extended into the Al Bayda district, where the construction activities are being carried out by contractors under the supervision of the project. From 1983 to 01/05/1988 a total of 126 km of feeder roads were constructed including 45 km in the Al Bayda district. During the same period 824 km were maintained and 55 km were completely repaired by the road section, keeping the constructed roads in a fair to good condition.

Promotion of maintenance activities at LCCD (former LDA) level did not succeed in the past. LCCD's proved to be not very interested to take this burden because of lack of manpower and low to zero budgets for O and M on their side.

In the past, the project management has made unsuccessful attempts at the highest level in the Ministry of Public Works to transfer maintenance activities to the Highway Authority. At present however it seems that chances are getting better now that more rural development projects and development authorities, with an initiating rather than a permanent role in road maintenance, are putting pressure on the Highway Authority in this regard.

In 1986 a reconnaissance survey on the use of surface water in Al Bayda Province was undertaken to investigate the feasibility of certain types of conservation measures, resulting in a positive advice, and the formulation of a land and water conservation programme in Al Bayda Province for 1987-1989.

In August 1987 the Dutch land and water use engineer arrived and in January 1988 a Yemeni counterpart, head of the land and water conservation subsection, was appointed by the Ministry of Agriculture.

A programmatic approach to an action programme was designed, in which close cooperation with the LCCD's is a prerequisite for success of the programme. The programme is taking shape. 8 LCCD's put in a request for over 90 projects. Over 46 sites have been visited by the team and 14 of these have been preselected. Socio-economic surveys were carried out by the socio-economic section of the project. One of the dams (lower Hawat) was constructed in June/July 1988; construction of the middle dam at Hawat and the Mahajaba dam started in the second half of 1988 by private contractors. It is intended that 3 to 4 schemes will be implemented per year. A surface hydrological network was set up, making use of water level recorders of the Preslog type. The network is of limited size and directly related to works under the land and water conservation subsection of the road section.

4.5 Water supply and sanitation

1977-1979

Actual work did not start until the equipment arrived in the spring of 1978. As with the road section its work was hampered by the military and civil unrest at the end of 1978 and the beginning of 1979. A change in approach in 1979, which included the implementation of entire water supply schemes, increased the interest of the villagers greatly. [REDACTED] with the construction of water supply systems were gained in [REDACTED] in the villages of Al [REDACTED]. During this period the programme for domestic water supplies is being executed without priorities based on selection criteria. As the project was under pressure to achieve something, the "first come - first served" principle was applied. Later criteria for selection and implementation were:

- availability and quality of water;
- size of village (more than 15 households and less than 3000 inhabitants, larger ones having priority over smaller ones);
- financial capacity of the village (priority for the poorer villages);
- LCCD (LDA) priorities;
- willingness of village/LCCD to contribute in cash or kind.

To gain insight into the hydrological situation of the Rada plain, a number of non-used wells were selected and their water levels recorded bi-weekly. The results used in combination with rainfall and water abstraction data gave a general but comprehensive assessment of the groundwater resources.

1980-1982

The completion of schemes was rather slow in 1980 and 1981. Villagers had not yet developed confidence in the programme. Village contribution was set at 30 % of the total construction cost. Only once the project had decreased the village contribution to 20 %, by providing labour and construction materials, did this situation improve. The water supply programme was better structured by introducing a letter of intent for implementation, in which total costs, scope of work and required village contribution were indicated.

The first borehole drilling programme was established in this period, supported by geophysical surveys, at first in villages near the completed asphalt road from Dhamar to Rada and Al Bayda, and later on in previously remote areas as feeder roads and village roads were constructed.

Civil unrest stopped the construction activities temporarily in 1982 but by the end of the year water supply schemes had been completed and the programme started in 1983.

1983 onwards

Increasing popularity of the water supply programme allowed the village contribution to be raised to 30% of the total construction costs. Not only was the number of requests (submitted by the villages) increased but also the contribution. In 1986 and 1987 the contribution was further raised to 35 % and 40 % respectively. About 110 villages were registered by the end of 1987 and 65 schemes were completed since the start of the programme. Since 1983 construction is being carried out solely by contractors under supervision of the project. In the beginning of 1987 a brief survey of 42 constructed schemes showed that 8 schemes did not function any more for various reasons (dry well, broken pump etc.), the others appeared to be functioning well.

In 1987/88 more attention was paid to the village management of completed water supply schemes. This involved surveying of existing schemes and training of pump operators in operation and maintenance.

In 1983 EEC financial assistance to the amount of ECU 1.2 million was obtained by the project for water supply and sanitation activities. Release of these funds started in the second half of 1984.

In 1983 a study into groundwater resources in Al Bayda Province was made by the project with as main objectives:

- to provide information on available water resources to enable present and future water use to be assessed;
- to prepare a first framework for future development of water resources and water management.

In 1984 a geo-hydrological subsection was established responsible for further monitoring of water resources and the geophysical surveying for site selection of water schemes at the request of LCCD's and villages and at the request of private farmers against payment.

The development of a groundwater model for the Rada basin (predominantly qat cultivated) started in 1987 and will be completed in 1988. The project feels a great anxiety concerning indiscriminate drilling which has been carried out in the Rada Basin for years. It is important that this process be checked by the Authorities, otherwise irreparable damage may be done to the existing aquifers. The Yemen authorities are working on a water law at present. The groundwater model will be a valuable tool to enable the project to advise the local authorities and to predict what will happen in future if the rapid depletion of the groundwater reserves are not checked.

Based on the results of the groundwater resources study in 1983 it was decided in 1984 to initiate [REDACTED] with the [REDACTED]

- to use them as [REDACTED] projects;
- to produce basic data for the [REDACTED] for future sanitation projects.

Out of the original long list of sanitation activities only two proved to be rather successful in terms of output:

- construction of sanitary facilities at mosques, which started in 1985. This programme became very popular, partly due to the fact that no contribution was required from the village. As from 1988 a contribution of 20 % of the construction costs is required, which has lowered the number of requests and the workload of the sanitation staff;
- monitoring of the chemical and bacteriological quality of RIRDP water schemes. This activity, however, was plagued by a high turnover of staff.

Early in 1988 the sanitation programme was redefined based on the idea that the sanitation programme should be a supplementary programme supporting the initiatives and resources of the rural villages in the project area, comprising activities such as:

- hygiene education and sanitation extension;
- improvement of sanitary facilities for mosques, schools and health centres;
- improvement of sewerage systems;
- improvement of solid waste disposal;
- sanitary improvement of shallow wells;
- water quality control;
- installation of locally developed solar water heaters.

4.6 Rural women extension

1977-1997

Originally no rural women extension section was foreseen in the implementation report (1977). The section came into existence as a result of the initiative of a female Dutch sociologist and a Yemeni counterpart who were available in Rada to work with rural women.

After half a year's experience in working among women in the rural area, it was decided to make the work on women's participation a permanent feature of the project. The tasks of the section became setting up extension activities in the villages in cooperation with other project sections and the Mother and Child Health care clinic (MCH) in Rada.

Much information on rural women was obtained by repeated visits in the villages, each time contacting the same women. Through this approach it was possible to follow women in their day to day life and establish a basis for setting up extension activities, which were to be undertaken and if successful put in a broader programme later:

- poultry programme. In cooperation with the livestock section a small scale layer programme was set up in 3 villages to improve family's diet;
- wool-processing programme. Introduction of labour-saving spinning wheels, which would reduce the work load involved in carpet making.

1980-1982

The Dutch sociologist left early in 1980 and was not replaced till the middle of 1982. The Yemeni counterpart left in autumn 1981 and was shortly afterwards replaced by a Yemeni woman who was previously employed by the project in the administrative sector.

The layer programme was appreciated by the rural women and the section could hardly fulfil the demand. A broiler distribution programme was added. As already mentioned in the chapter on livestock, the cooperation with the livestock section was inadequate and did not result in a regular programme for follow up of the chickens for food or disease treatment.

Distribution of milk-producing Tihama goats started in 1980, followed in 1981 and 1982 by Saanen goats. A regular follow up and monitoring programme could not be realized due to the low availability of manpower. For treatment of diseases or for insemination, the goats were taken back by the rural women to the project compound.

The spinning wheel programme was interrupted mainly due to lack of qualified staff.

The home vegetable gardens programme was started late 1980 with the intention of improving nutrition by introducing more vegetables into the people's diet. The Egyptian female extension agent employed in 1980 gave the women advice and demonstrations on vegetable gardening and provided seeds to begin this programme. Gardens were concentrated mainly in Rada and Mussalah in the back yards of the houses.

After lengthy negotiations, an adult education programme aimed at women was started in the project area in early 1980 under the sponsorship of the RIRD. The Ministry of Education bore full responsibility for the literacy programme. The Rural Women section was involved in the supervision of the classes, distribution of books, transportation of teachers to remote villages at the expenses of the

project, organization of examinations, distribution of certificates, organization of the classes for the new year, and creation of new classes. In the 1981-1982 academic year, 9 classes were opened.

Early 1981 contacts between the rural women extension section and the MCH clinic in Rada resulted in setting up a mobile, weekly clinic in the project extension centre in Draibah. Unfortunately, due to the civil unrest in that area the centre was closed by the end of 1981 and the mobile clinic stopped its activities. Lack of staff made the MCH clinic unable to restart the mobile clinic programme after the area became accessible again.

1983 onwards

The activities of the rural women extension section were going on with a reasonable, though [REDACTED]

Throughout the years lack of Yemeni staff remained a matter of serious concern. The main asset of the rural women extension section was its breadth of approach, working with women in all fields, thus ideally providing an opportunity for improvement in all aspects of women's lives; the section provided facilities for literacy/home economics activities, health, hygiene and nutrition education, and economic activities in livestock, handicrafts and agriculture. But in practice this [REDACTED] proved to be the Achilles heel because of the main constraint of [REDACTED]. In 1983 and 1984 a new strategy was developed to integrate and concentrate the activities, called integrated programmes, in so-called concentration villages. This strategy would allow the section to identify the issues with which it could truly help Yemeni rural women, while giving demonstrations and providing the inputs they wanted. This strategy faded away but was revived in 1988. The same happened to the attempts to identify and train women leaders ("spokespersons") at village level who could act as disseminator of information in the village and would be the permanent liaison between the rural women extension section and the village women.

In 1985 a seminar on rural women related activities, organized by the project and attended by representatives of many Yemeni and donor organizations, met with great success. A number of relevant conclusions and recommendations was formulated and published in a seminar report.

With the arrival of a health education specialist and an agricultural specialist in 1986 a new momentum was given to the development of health and agricultural improvement activities. [REDACTED] as the MCH clinic will carry out its vaccination programme in the concentration villages of the Rural Women Extension section.

Another important positive and more recent development has been a [REDACTED] leading to a greatly improved staff situation and a vibrant and very active rural women extension section.

4.7 Socio-economic research

1977-1979

The task of the Community Development Section as formulated in the implementation report (1977) was considered to be:

- inventory and study of needs, possibilities, strategies;
- providing a liaison function:
 - . on the one hand to pass on information, obtained by study, to the project team and its management, for discussion and operational use;
 - . on the other hand to provide communication between the project and the local population.

One expatriate community development and training officer was appointed in June 1977 to carry out the above tasks. The functioning of the section was problematic right from the start. Lack of communication and coordination with other project sections hampered execution of tasks. A new sociologist, fluent in the Arabic language, took over as head of the section and studies were carried out on traffic intensities and the use of firewood. Internal quarrels, however, made effective work impossible and the sociologist left the project. It seemed that the Yemeni authorities did not appreciate or wanted any socio-economic research by foreigners at that time.

1980-1982

By the end of 1981 a Yemeni sociologist took over the activities of the section, which was then called the socio-economic section, and an expatriate agricultural economist became available in April 1982. In March 1982 a review mission had visited the RIRDP, which recommended that a farming systems research (FSR) survey be carried out. The Wadi Tha area was chosen as the first sub-area where the survey would be carried out, because of its limited size, concentrated agriculture and presence of a newly built extension centre. The aim of the FSR survey, the first to be carried out in the Yemen Arab Republic, was to gain insight into present farming systems and their components in Wadi Tha, their constraints and possibilities for development, so that the RIRDP could be assisted in project preparation and implementation.

1983 onwards

In 1983 a second FSR survey was carried out in Wadi Mansur. Interviewing was done by a multidisciplinary team, consisting of agricultural extension and livestock officers, a veterinary surgeon and a rural economist. Further FSR surveys were not carried out due to lack of staff.

Although the FSR surveys provided some useful information, it was generally felt that they did not provide sufficient solid data as required by other sections.

Upon the arrival of the Egyptian adviser to the socio-economic section in 1984 activities were boosted. The Yemeni head of section carried out a study into the sorghum production; daily prices of agricultural products at the Rada and Al Bayda markets were registered and analysed, and in October 1986 a farm management study in the As Sawadiyah area started where a new extension centre was planned for construction. Three university graduates from the Netherlands participated in the farm management study, which was completed and published in August 1988 covering one winter and one summer season. Short [redacted]

[redacted] The results of the survey are used for selecting suitable dams for construction as part of the Land and Water Conservation Programme.

In 1988 a shift in emphasis was brought about in the section from "fundamental" studies and data collection to monitoring and evaluation activities and studies, which produce results after a few months and which have a direct effect on project operation. A new TAU adviser (Sudanese) arrived in October 1988 to guide the section in their new role.

4.8 Construction

1977-1979

The construction section had a supporting function within the project itself. Its main task was to establish a project centre in Al Khabar (about 3 km from Rada). The physical infrastructure of the Al Khabar project centre to be implemented comprised of the following buildings:

- five family houses for long-term expatriate staff;
- a guesthouse;
- an agricultural store;
- a stable for the livestock section;
- a workshop and a generator shed.

As at the time of project formulation it was not thought feasible to contract the building work out, the construction activities were carried out by the construction section under expatriate management. Office space and temporary housing was rented in Al Khabar and Rada. At the request of the Yemeni authorities, buildings were constructed in local style, using natural stone from nearby quarries. The section was led by an expatriate building engineer working with two ONV supervisors and one Yemeni counterpart as staff members. The construction activities were hampered by a chronic shortage of labour and problems with the neighbouring village Al Khabar, e.g. about interpretation of the contract concerning the site of construction. Irregularities occurring in the stone supply strained the work atmosphere in the section. The section completed the building programme by the end of 1979 and succeeded in producing buildings and facilities of a quality and in a style as planned. However this result was achieved later and at a higher cost than was anticipated in 1977. By the end of 1979 it was decided that the future building programme (counterpart houses and extension centres) would be carried out under Yemeni responsibility.

1980-1982

The construction section continued to operate as an independent section within the project organization, charged with the construction of two counterpart houses in Al Khabar, two extension centres, in Draibah and Wadi Tha, and some project facilities like a chicken coop for the livestock section and a dynamite store for the road section. Buildings continued to be built in the local style. The Dutch contribution for construction costs of the extension centres was 50% and 20% for construction costs of the counterpart houses. The remaining funds were provided by the Ministry of Agriculture. As from 1982 the activities of the construction section included the construction by force account of village drinking water supply schemes to spread the workload of the overburdened water section.

The extension centre at Draibah and the first counterpart house were built in 1980/1981 by contractors under Yemeni supervision. The results were so poor (the extension centre at Draibah collapsed after heavy rains) that for the year 1982 the assistance of an expatriate construction engineer was called in to review drawings and specifications, to establish proper tender procedures and to supervise the remaining building programme in that year.

1983 onwards

In 1983 the construction section ceased to be an independent section and was brought under the water supply section (engineering section). Village water supply schemes were now built by local contractors under the supervision of the construction subsection.

The construction of the second counterpart house was completed in 1983. The extension centres Wadi Matar and Wadi Mansour were built in 1983, and the rehabilitation of the Draibah extension centre was completed in 1984. Centres in Zachem (Sabah), Ar Riyashiya were constructed in 1984. Tenders were floated in 1988 for 4 new extension centres.

At the request of the Ministry of Agriculture a design for a new earthquake proof project office at the Al Khabar project centre was made by a Dutch architect in 1984, financed from Dutch technical assistance funds. Construction started in 1986 by a Yemeni contractor under Yemeni supervision and was completed by the end of 1987. Funds for construction were totally provided by the Ministry of Agriculture.

4.9 Workshop

1977-1979

The project workshop and facilities at the Al Khabar project centre were constructed during this period. The main task of the workshop section, managed by a Dutch mechanical engineer, was repair and maintenance of project cars, heavy road equipment and other sections' equipment.

Manpower problems put a heavy strain on the work performance of the section. Trained mechanics left the project to look for better paid jobs in the Gulf States.

1980-1982

Other additional tasks were taken up, such as technical repairs of facilities in the compound houses and guesthouse. Demand for maintenance and repair of the rolling stock increased considerably as the rough field conditions were causing much wear and tear. The major achievement of the section, in spite of being constantly understaffed, has been keeping the rolling stock and equipment in running condition.

The DAFs 1600 proved to be too light for the work they were required to do and the time spent in the workshop for repair increased considerably, decreasing their work output by almost 40%. Spare parts were ordered directly from the Netherlands but it took some time before the logistic problems connected with a timely acquisition and custom clearance were under control.

A store for spare parts was constructed and quite efficiently managed by an excellent Yemeni storekeeper, who contributed a lot to the solution of the stock control problems.

The expatriate section manager had to leave the project at the time of evacuation of all expatriates from Rada in the beginning of 1982, due to the civil unrest in the project area, and did not return.

To the big surprise of many pessimists the workshop section did not come to a grinding halt in 1982, but proved to be quite successful in continuing to be the backbone of the RIRDP.

Forced by outside circumstances the maintenance section became the first project section managed by a Yemeni head of section.

1983 onwards

The DAFs 1600 were gradually replaced by the more sturdy DAFs 2300 and 2500. Regular maintenance was given to the rolling stock and much attention was paid to keep up a proper stock control. The Yemeni head of section and the chief mechanic followed tailor-made training courses at the DAF and Geveke (Caterpillar) factories in the Netherlands.

The main part of the Dutch funds concerned spare parts, the main elements of the Yemeni budget were salaries and running costs (petrol/diesel).

A relatively high turnover of staff due to the low salaries continued to be the main constraint. Slowly and gradually the work performance, efficiency and output of the section dwindled. In 1987, at the request of the Yemeni project management, it was decided to provide an injection to reverse the downgoing trend by sending an expatriate mechanical engineer on a short-term basis to advise and assist the section in upgrading its performance. This worked out perfectly. The organization and execution of the maintenance and repair of the rolling stock is running satisfactorily and the technical staff is receiving regular on the job training to upgrade their technical skills.

The efforts to solve the long outstanding problem of dependency of spare parts supply from the Netherlands were rather successful: as from 1988, Caterpillar mechanics and most of the spare parts and equipment are supplied by the Yemen Tehama Trading Company in Hodeidah. Hopefully the efforts of the project to involve the DAF agent in Sana'a in a similar way will have comparable results in the near future.

4.10 Management, administration and training

1977-1979

The formal framework within the RIRDP was to operate the general agreement on technical cooperation between the two Governments, was signed on the 3rd of October 1978.

The administrative arrangement where the specifics of the RIRDP were to be stipulated had not yet been signed by the end of 1979 (in fact it was signed in 1980).

Hence, no clear indications for the organizational structure of the project, including rights, duties and responsibilities between the parties involved, were available at the start of the project. Especially the unspecified status of the project manager and co-manager and the nonexistence of well-defined job descriptions for these functions, created, on occasion, misunderstandings, irritation and frictions. Formally the expatriate project manager and the Yemeni co-manager shared the responsibility for project implementation, but the overall responsibility, including responsibility for the budget provided by both sides, remained with the expatriate project manager. However, the Dutch and Yemeni sides differed in the interpretation of this formal responsibility-sharing pattern. As it was, the Ministry of Agriculture seemed to be in favour of having the responsibility for the project completely shared, including that for the finances. On the other hand, DTH (DGIS) wanted the responsibility for the Dutch funds to remain in the hands of the Dutch project manager.

The low number of Yemeni counterparts and personnel hampered a smooth project implementation. The problems RIRDP was facing to recruit government-employed or local personnel was the unattractiveness of Rada as a place to live for people not belonging to the area and the low allowances they got for living in this rural district. Only very few Yemeni had a good knowledge of the English language and hardly any of the expatriates had any command of Arabic. This circumstance has certainly negatively influenced the effectiveness of the project in the first project years.

There was a shortage of office personnel (clerks, typist, translators/interpreters). From the middle of 1979 an expatriate administrator was working with the project administration section. The project did not yet have a proper personnel administration nor a set of clear rules and regulations for buying, receiving and storing project supplies and materials.

In the 1977 implementation report plans for training of Yemeni personnel at all levels were formulated. However, due to lack of staff at the higher levels, the training objective appeared to be only partly realistic. The project did train a number of unskilled people in the road section, the workshop and the water supply section. Many of them, however, left the project after a while to look for jobs in the Gulf States. The expatriates' share in the training was limited to learning by doing due to their scanty knowledge of Arabic.

1980-1982

Rules and regulations for the project were formulated in accordance with those of the Ministry of Agriculture. Procedures governing purchase, recording absenteeism, payment of people sick, etc. were introduced, control on various sorts of project expenditure increased considerably. Job descriptions were made for every employee working in the project. The secretarial, filing and translation services continued to be an important constraint. The relationship between the expatriate project manager and the Yemeni co-manager remained strained, mainly due to the fact that both were requested to defend somewhat different policies. The project manager was responsible to the Yemeni and Dutch executive authorities and as such primarily for the agreed policy of the project. The co-manager was made responsible by the national and regional authorities and village population to solve pressing problems at any moment whether they fitted in the project policy or strategy or not. The counterpart situation remained a major problem. The co-manager left the project for the USA to study and was replaced by the Yemeni counterpart of the agricultural section.

The number of project personnel following training courses paid by the project increased slowly, but steadily. Most of the training was done outside the project in specialized institutions in Ibb, Taiz and Sana'a and outside Yemen in the region. At the end of 1980 5 project staff members (including the co-manager and his wife) left for the USA to follow associated degree or academic degree (BSc) programmes.

Problems encountered lay often in the entrance requirements for the training courses being too high for most of the middle and lower level technicians of the project and in the fact that due to the limited manpower availability the project could hardly do without its higher level technical staff for training courses of 6 months or longer. Training courses, other than the regular on the job training, organized by the project itself in the afternoons (e.g. English courses, practical courses for topographical surveyors, mechanics) died quietly after a while as it appeared too demanding to leave the qat sessions in the afternoons.

1983 onwards

The project management and section management was Yemenized and the Dutch assistance changed gradually from an executive and implementing, to an advising, disbursing (Dutch funds only) and training role. Hence, one could assume that the team leader of the expatriate advisory team, counterpart to the Yemeni project manager should get sufficient time available to elaborate on project planning and project

policy lines. Reality, however, proved to be different. The bewildering variety of issues at various levels, the continuous burden of a multitude of daily small and big problems to be taken care of by Yemeni and expatriates alike (to keep things running) made that the team leader and his expatriate colleagues simply could not afford to take their time and to dedicate themselves to the main policy questions of the project. During the period 1977 till the end of 1987 the project knew 4 Yemeni project (co-)managers and 5 expatriate team leaders.

The Yemenization of the project administration was fully realized by 1984. Budget control of the Yemeni funds and various other procedures were established according the ministry rules.

Throughout the years constraints in the Yemeni budget remained a serious issue. Ever since the start of the project, the project could not obtain the allocated funds as budgetted in the various Plans of Operation. Hence, quite often expenditures not likely to be paid from Yemeni funds due to non-availability were taken care of by the Dutch funds. Increasing salaries of project personnel, hiring additional project staff and extending project activities outside the Rada area was prohibited or very much limited due to the problem of not obtaining the allocated Yemeni project funds. It is estimated that only about 60% of the agreed budgets could be obtained by the project.

Some sections (e.g. the women extension section and the extension section) put quite some energy into training within the project. The majority of the sections are not yet engaged in planning and implementation of a structured transfer of knowledge and skills. In general, the sections are still understaffed, the work has to be done first and both expatriates and senior Yemeni section staff require most of their time to keep things going.

For organizing training programmes in neighbouring Arab countries, the project requested the assistance of Amideast, a US based "training broker" with offices in almost all Arab countries, and a training plan was set up for 1988 and 1989. Ideally the Yemeni project manager and his expatriate counterpart/team leader would monitor the effects of the training and would stimulate a continuous training programme. It is to be expected, however, that these two managers will not be able to spend much time on those activities. Therefore it has been recommended to appoint a full-time training/institutional specialist, whose main task would be to take care of the training and manpower development of the RIRDP.

4.11 The project as a whole

The RIRDP was started in 1977. In its early stages project activities concentrated on improvement of agricultural and livestock production (extension and research), rural road construction and installation of village water supply systems. In the course of the project life, other activities were added: women extension, socio-economic surveys, hydrological studies and groundwater monitoring, sanitation and land and water conservation.

The project has now entered a phase of consolidation during which present activities will be strengthened and their interaction improved. By the end of 1989, the conditions should have been created for replicating and expanding the efforts started under the project to other areas in the province. Final formulation of the next stage of the project will depend on the outcome of an external evaluation to be undertaken mid 1989. The major achievements and problems are summarized below.

Major achievements

Major achievements include (a) improvement of the physical infrastructure (feeder and village roads, water supply, sanitation systems, extension centres), (b) establishment of a hydrological monitoring network, (c) establishment of an agricultural extension service and provision of plant protection, input supply and veterinary services, (d) establishment of a women extension service and (e) in 1983, transfer of the project to the Yemeni authorities. The project has become a reasonably effective organization and the main development agency in the province. The project has made an important impact on the development of infrastructure. Its impact on agricultural development and rural income has been modest relative to the autonomous development coming from the influx of remittances. This was due partly to delays in the execution of project components and the slow maturing of project activities.

Major problems

From the beginning, there has been a duality in the interpretation of the objectives and strategy of the project. The donor organization regarded the project in the first place as an effort to integrated development; the project was to expand gradually its operations in a comprehensive approach to tackle critical areas of basic needs, development potential and institutions. The counterpart organization on the other hand saw the project in the first place as a means of implementing Government policies in the area; a centre for services that would gradually embrace the entire province of Al Bayda. This discord has led to an inconsistent project approach, delays in decision-making and implementation, a frequent shifting of priorities and lack of coordination between project components.

The project has faced constraints in staffing. Recruitment and retainment of capable personnel proved to be difficult. While this could be attributed partly to the general situation in the country, some factors were project-specific: remoteness of the area, low salaries in comparison with those offered in alternative employment, poor career prospects. Cuts in the financial contribution of YAR during the budget year have delayed execution of the project.

These issues and constraints are discussed in detail in Chapter 5.

5 ANALYSIS OF PROJECT ISSUES AND CONSTRAINTS

Chapter 4 of this document provided a detailed account of Project performances and experiences. In the consultants' opinion, three factors have been fundamental: (a) different interpretation of objectives and development approach by the Yemeni and Netherlands authorities, (b) lack of local funds, and (c) manpower problems. These will be treated in more detail in the following sections.

5.1 Different interpretation of objectives and strategy

Objectives. The overall aim of the Project is to improve the conditions of life of the rural population in the Project area. This is to be brought about by strengthening or preservation of the resource base, contributing to the institutional and physical infrastructure and strengthening the organizational and technical implementation capacity of the Government administration and development institutions. These objectives, although rephrased several times, have basically remained unchanged since the inception of the Project eleven years ago (see Chapter 2). At the start of the Project they were translated in the following operational terms: (a) early action-oriented activities to be embarked upon without losing time in elaborate investigations, and (b) participation by the people. In retrospect, it can be concluded that both objectives and strategy have been interpreted completely differently by the Netherlands (the donor organization, DGIS) and the YAR (the counterpart organization, MoA).

The donor organization. As borne out by later events, the donor organization has regarded the early implementation method as a programmatic approach "avant la lettre"; an open-ended approach, building on a few starter activities through which the population would achieve confidence in the Project. This approach was to set into motion a development process that on its path would pick up other activities in an integrated manner. Once activities (or sub-project) had reached full development, they would be transferred to permanent Government structures that in the mean time had been developed with Project support.

Project activities were to be defined in close co-ordination with the local population and organizations so as to reflect their specific needs and possibilities. Although never clearly identified, the small farmers or rural poor were to be the target group. Other aspects in the approach were: the formulation of a development plan, identifying potentials and constraints in an early phase of the Project; and an integrated approach.

The counterpart organization. At the end of the seventies, before the Dhamar - Al Bayda road had been constructed, the province was virtually inaccessible. The central Government was hardly represented and many of the basic facilities were lacking. In view of the paucity of the Government resources (managerial and financial) a comprehensive approach of carefully building up Government services and a Government structure was unfeasible. A Project approach promising quick and concrete results was necessary. Apart from regional development objectives, there were also geo-political considerations. The revolution only fifteen

years old, the Government was in the process of building a nation, and disturbances at the time in a province bordering South Yemen presented a serious security problem.

Against this background, the YAR Government and counterpart organization have seen the Project as a means to assert their influence in the region. The early implementation strategy and the choice of the starter activities (road construction and water supply) suited this policy and at the same time met the requirement for immediate results. Participation of the local population and authority was also sought, though more out of necessity than on account of ethical or methodological considerations; the Government structure was weak and co-operation of sheiks and other authorities was required to gain access to land and villages.

Implications for Project implementation. The dichotomy in development philosophy has hindered a consistent approach to Project execution to date. On the one hand (the donor view) the Project was expected to grow into a broad rural development programme slowly expanding its operations into new fields of activities. On the other hand (the counterpart view) the Project was expected to grow into a services centre for the entire province; the executive branch of the Government primarily of the MoA but also of other agencies (the Ministry of Public works withdrew its water supply construction unit once the RIRDP had accelerated its activities in these fields).

On the one hand, there was a striving for experimentation: finding ways and means to achieve sustained development on the long run. On the other hand, there was an attitude of "let's get on with the job" and the thrust was toward achieving immediate effects. Yet another contradiction was in the field of institution building and participation. On the one hand, there was a strong and constant undercurrent that local institutions were to be developed to take over eventually the activities of the Project. On the other hand, the Project itself was regarded as having filled the vacuum in the Government structure and local institution building was not seriously supported.

The lack of a univocal direction and purpose has led to controversies within the RIRDP and to compromises, often resulting in sub-optimal choices of activities and policies, and frustrations in the Project team. For example:

- a) [REDACTED] were developed for road construction and water supply works. These criteria (e.g. poverty, economic effect, linkages with other Project activities) [REDACTED] due to local pressure groups and the need to reach targets.
- b) Village contributions were instituted as a sign of willingness to participate (donor view). However, it required lengthy procedures of persuasion and administration which retarded execution (counterpart view). Contributions are now often advanced from Project funds, to be refunded later by the villages.

- c) Socio-economic surveys were considered necessary to support the integrated approach. This was never supported by the counterpart organization, leading in one case to removal of the sociologist. Eventually a compromise was reached in that agricultural surveys were to be carried out in support of the extension service.
- d) Agricultural trials were to support the extension service and to be directed to local needs and potential. In actual fact, there were frequent claims on the Project to conduct national trials and produce trees according to nationally set targets.
- e) There was too much room for, otherwise well-meant, hobbyism. Trials are needed in an integrated development, but they must be directed. Often depending on the inclination of Project staff, evaluation missions or backstopping missions, ambitious programmes were started (e.g. plastic tunnels, goats, range improvement) and subsequently abandoned without leaving a trace.
- f) Priorities shifted, not only as a result of point e) but because of the constant friction between quality and quantity. Experiments and other activities which required time to mature were started (in the context of integrated development/donor pressure) but never completed due to the need to produce immediate results (in the context of providing services/counterpart pressure).
- g) All along, the counterpart organization has put the emphasis on roads, water supply and agriculture. Activities in other sectors were, by way of compromise, accepted but often half-heartedly. Only after a few years did they receive adequate support, not only in resources but also in spirit (e.g. women participation, sanitation).

To be clear, the above problems are not attributable to the discord in development approach only. There have also been weaknesses in management, technical expertise (consultant) and administration both inside and outside the Project as well as shortages in manpower and finance. For the most, these issues are elaborated upon further on in this document. The examples above are meant to illustrate that as a result of the different views underlying the Project, there have been frictions, discontinuities, inconsistencies and individual frustrations to the detriment of an efficient and effective implementation of the Project. It is too easy to say that only the consultant and Project management lack a clear view. The confusion was built in right from the beginning of the Project and pertains to all parties involved.

It is true, however, that the problem of finding the right equilibrium, the fine balance of pleasing two masters, was left with the consultants and Project management. They have addressed this problem through pragmatism. Each Plan of Operations is the result of a long exercise of weighing pros and cons, a loss of quality here, a gain of quantity there; a type of multi-criteria planning where a solution is found through negotiation. Each Plan of Operations, therefore, is a consensus of views, and what can and should be done given the limits of Project resources.

Consolidation versus extension. In daily practice, the differences in interpretation have culminated in the question of whether or not to extend the activities of the Project to other parts of the province, i.e. to consolidate Project activities in the Rada district and work on the improvement of the integration process, or to extend and improve Government services. It is the main issue that has been plaguing Project management and the consultants in recent years. To be sure, the Project team has resisted extension as much as possible following the logical notion that activities/sections must be operational and have proved to be working for some time before they can be replicated elsewhere. Road and water supply were at that stage, but others, notably agriculture, not. Political reality, however, has also forced a branching out of this activity.

The move has stretched Project resources and with the pendulum swinging to more services, there has been less attention for integrated development. The 1987 Evaluation Mission moved the pendulum back but meanwhile the pressure for extension of the Project is increasing. A decision must be taken. In Chapter 6, a possible approach is proposed.

The integration aspect. At the inception of the project no clear definition was given on the concept of "integrated development". It was hoped that by tackling the major problems the development process would be freed from all those bottlenecks which stopped the process of development from ever getting momentum. In this way the integration aspect simply meant the organization of concerted action on crucial elements in the socio-economic life of the population. In the Plan of Operation 1981/1982 the integrated aspect of the project was interpreted as follows:

- coordination of activities of all parties involved in the project in a multi-sectoral, inter-organizational and budgetary sense;
- synchronization of project activities, preferentially area wise meaning integration of services and supporting applied research activities geographically in the (in those years) so-called core areas.

Ever since 1981/1982 efforts were made to realize this approach, in which problems were studied and tackled in specified areas (core areas, concentration villages etc.). To achieve an integrated approach a close cooperation and coordination of activities of the project sections was called for. A committee for integrated extension was set up, embracing all sections involved in extension activities, to facilitate the process of integration. Throughout the years of the project success or failure in this respect proved to be very much linked to and strongly conditioned by personal relations. If heads of sections did not have or could not develop good personal relations, project cross-sectional activities invariably were bound to fail.

5.2 Lack of local funds and manpower problems

Finance. Yemeni funds are allocated to the Project on the basis of an administrative agreement between the Yemen and Netherlands Governments and the Plan of Operations. The budget has seven categories,

of which salaries and running costs are by far the most important. Other items include construction, administration and management. In practice, the budget allocation is always different from what the Plan calls for. Salaries and running costs are reduced while items relating to construction are increased; the latter are spent by the MoA and the Project has no direct control. In the course of the budget year, further cuts are made in salaries and running costs due to shifts by the Ministry from one project to the other. As a result, the actual expenditure of the Project on these two items have averaged only about 60% of the budget called for in the Plan of Operations in recent years.

Such a severe cut, of course, has had a negative effect on Project performance and has retarded the implementation of new activities when newly created positions had to be filled in. Also necessary repairs on vehicles could not be carried out at times, causing a stand-still in activities. Where possible, funds were advanced from the Netherlands budget to keep the Project going but this could not always be done for salaries and staff allowances.

Manpower. The Project has been facing three problems in the field of local manpower: (a) insufficient staff, (b) insufficient level of education of most staff and (c) organizational problems. Insufficient staff of an adequate level has been a major constraint to Project implementation, as the experience of the Project has borne out. It is a problem that to a large extent is imported from outside the project, reflecting the overall scarcity of qualified manpower in the country. It has been addressed by the Project through the provision of technical assistance and training. These aspects have been discussed in a recent paper on training and institutional development (April 1988) to which reference is made.

Organizational problems certain to appear such as: (a) lack of coordination between functions and salaries, (b) insufficient development of staff, (c) poor definition of tasks and responsibilities and (d) insufficient delegation of authority. Deficiencies in these fields will lead to demotivation and below-standard performance.

While the effect of (de)motivation of staff is difficult to quantify, it no doubt has had a very important impact on Project performance. Some sections in the Project claim that it has been the major factor determining Project efficiency. Examples of personnel problems given include low salaries compared with other projects in Yemen (extension agents), no or infrequent payment of allowances, no functional scale (people are promoted to higher posts but this is not accompanied by salary increase, assistants earn more than their bosses), insufficient responsibility and decision-making authority, high turnover of staff, etc.

The problem is complex and no solution is sought in the context of this report. Some aspects have a wider cultural background (delegation of authority), others can only be solved within the context of the MoA (salaries). It is signalled here because personnel management will continue to be an important factor in Project performance. An improvement would be found in allowing the Project more flexibility in establishing a salary structure and the hiring and firing of staff

similar to that of the Development Authorities. The RIRD Administration Section could initiate the establishment of a function matrix and career development structure for the project (an effort was made in this respect in 1981/82 when the Project was still under Dutch management).

The efficiency of technical advice has suffered primarily from a lack of clear direction and univocal purpose. The main line unclear, there has been too much room for personal interpretation and inclinations. As a result, in a number of instances on-going activities which had not reached a state of conclusion were dropped because they made no sense in the approach of the newcomer and new activities were started which bore the danger of receiving a similar reception of the next expert. The problem extended to the interaction between sections. For example, a number of surveys carried out by the socio-economic section at the request of another section were not properly used because the relevant person had left at the time of completion of the work.

Continuity of expatriate staff would help to avoid these problems but it is unrealistic to expect assignments for longer than 2 or 3 years. In the current practice of international consultancy and as it happens also for DGIS staff and volunteers, experts just have to be moved on for personal or career reasons lest they will become demotivated.

Final remarks

The factors discussed above (diverse development concepts, financial and manpower problems) stand to show the complexity of implementing a large rural development project. They also underly an important experience of this project, namely that activities have a long ~~period of time before they can be implemented~~. For example, the agricultural programme had its first trials in 1977 but it took until 1982 before the first extension agents became available, and yet another five years before the vacancies were filled (in one batch of 16 in 1987), and still another year to arrange transport so that the supervisors could become effective. The woman participation programme started around 1980 but did not get really off the ground until 1985. Of course, the Project is learning. The recently started Land and Water Conservation Programme has matured much quicker, though it must be noted that conditions were favourable; the programme is carried out at the special request of the MoA and receives continuous attention from Sana'a. Even so, it took more than two years from study to construction of the first dam.

These observations are made in relation to the observations by the 1987 Evaluation Mission that "the present day activities are merely an expansion of those started ten years ago" (page 86 of the Evaluation Report). In that context the Evaluation Mission calls for a comprehensive development plan for district or province. The consultant is quite aware of the rationale of this suggestion and that such a plan should have been prepared years ago. However, the consultant advises against its implementation at this moment. The Project has just now reached a stage where most activities have at last reached a state of maturity. ~~The project can be used for improvement and consolidation of the existing activities~~ nor on a plan that anticipates new

activities. The consultant has gauged the need for such a plan but found no positive response in either Project team, Governorate or MoA, though it was suggested that there may be a need for such a plan at a later stage. The general consensus, however, is that the Project is on the right track as far as the choice of its main activities/sections is concerned. The consultant shares this notion. As elaborated in Chapter 6, the activities coincide with the main objectives and policies of both the Yemen and Netherlands Governments. Besides, ~~political reasons~~
~~strongly suggests that the emphasis is on governmental~~
~~priority activities over the commercial sector.~~ The next chapter is written in that spirit.

6 ON THE FUTURE OF RIRDP

6.1 Development perspective

National. Capital and skilled manpower are expected to remain in short supply over the third Five-Year Plan period; 40% of the plan will be financed by grants and loans from bilateral donors and international organizations. Projects and development authorities will be the modalities for the execution of rural development programmes.

Regional. Agriculture will continue to be the major domestic source of employment and income in Al Bayda Province. And as virtually all suitable land is under cultivation, progress must come from an increase in productivity. In rainfed farming, generations of experience seem to have accumulated in an optimal use of the land. Here, the emphasis will be on the development of micro catchments. Increased production has to come mainly from irrigated agriculture. The main constraint is the limited availability of water and the rising costs of getting it on the field. The focus should be on the testing and introduction of water-saving techniques, land and water conservation methods and the cultivation of products which have a high value per unit of water. At present, farmers have insufficient knowledge of modern irrigation techniques and new crops or varieties. In other productive sectors, private entrepreneurship has been adequate in meeting new opportunities.

The development of social services needs further attention. Health and sanitation facilities are still lacking in many villages. The road system is inadequate. The local administration and LCCD's suffer from a lack of implementation and organization capacity; funds are very limited. A continuous extra effort is required to make up the backlog.

6.2 Proposed objectives and scope for the next stage of the Project

Objectives. The Project objectives have been reformulated to avoid ambiguity and to reflect better the scope of the Project. The main objectives of the Project are to: (a) increase agricultural productivity and incomes of farmers through (i) provision of agricultural services, (ii) better management of land and water resources and (iii) improved irrigation and agricultural practices; (b) improve the health/nutrition standards of the rural families by providing (i) improved domestic water supply, (ii) better sanitation facilities and (iii) development opportunities for women; and (c) improve the mobility of services, goods and people through the construction and maintenance of rural roads.

Rationale. Agriculture is the main livelihood of rural people. Because of the relatively high costs (expensive and limited water, costly inputs) productivity must increase, the more so now incomes from remittances are dropping. Water is the main constraint and requires careful management to avoid waste and depletion of groundwater resources. Many villages are deprived from basic social facilities and are poorly accessible. The Project contributes to the improvement in the living

standards of the rural population. The Project also meets the Government's priority objectives of improved agricultural infrastructure and water-saving irrigation techniques, and the build-up of a social infrastructure.

The Project fits into the Netherlands aid policy for Yemen, which features regional concentration on the provinces of Al Bayda and Dhamar and the Tihama region, sector concentration on agriculture, domestic water supply and health, as well as improvement of the position of women.

Scope. The Project aims at providing services to promote agricultural development and improve the living conditions in the rural areas of Al Bayda Province. The Project components are arranged by section as follows:

a) Project farm

- Applied research (trials).
- Nurseries.
- Demonstration of new farm techniques.
- Demonstration of water-saving techniques.

b) Agricultural Extension

- Establishing a structure of extension service.
- Extension programmes.
- Provision of inputs and machinery services.
- Plant protection services.
- Veterinary and livestock production services.

c) Rural Women Extension

- In-house training courses.
- Agriculture.
- Crafts.
- Livestock production services.
- Health/nutrition education.
- Literacy and home economics.

d) Engineering

i) Water supply and construction

- supervision of Project building construction.
- maintenance of Project buildings and facilities.
- survey, design and construction (through contractors) of village water supply schemes.
- operation and maintenance.

ii) Hydrological investigations and monitoring

- well siting, monitoring of drilling, pumping tests.
- monitoring of groundwater levels and meteorological data recording.

iii) Sanitation

- survey, design and construction (through contractors) of low cost sanitation measures for villages and public facilities.
- extension services through hygiene education, demonstration programmes and training courses.
- monitoring of water quality.

e) Rural roads and land and water conservation

i) Roads

- survey, design and construction (through contractors) of rural feeder roads and village roads.
- maintenance of roads.

ii) Land and water conservation

- survey, design and construction (through contractors) of small (recharge) dams.
- provision of technical advice on improved techniques for development of surface water resources.

f) Maintenance service

- Workshop and storage facilities for maintenance of Project equipment.

g) Project management

- Project management including co-ordination of Project activities.
- Financial and personnel management and administration and stock control.
- Planning, monitoring and evaluation.
- Training and information.

For the most, the activities mentioned above are not new, but that does not imply that they represent an uncritical adoption of those now in existence. Rather they have emerged, through trial and error, as being worth to pursue. Throughout its life, the Project has taken up, tried and, if necessary, dropped new activities.

The ones that have survived the screening process are considered in principle fit to be continued and extended to other parts of the province. This at least is the consensus among the counterpart organizations and project team. It should be noted, however, that

[REDACTED]

Furthermore, the continuation of activities does not mean that approach and technical assistance will remain unaltered. As shown in the next sections, areas of attention will shift, for example in agriculture to water conservation while in the field of technical assistance, the role and the extent of the TAU team will change. Training will be emphasized; the number of TAU staff will be gradually reduced.

The Project will gradually extend its activities to the whole province of Al Bayda, at first with emphasis on Juban, Al Bayda and As Sawmah districts. The road section, and to some degree the agricultural and water supply sections, are already active in these areas. For some Project components (e.g. agricultural extension) this entails an expansion of capacity; for others (e.g. road construction, installation of water supply systems) a shift of emphasis from Rada district to other areas. A judicious approach will be applied to expansion: activities which have not reached maturity or have not proven to be successful, at least in operational terms, will not be expanded. Project organization, personnel and Project facilities should keep in step with the expansion.

The duration of the next Stage of the Project will be three years (1990 - 1992), its period coinciding with the third Five-Year Plan. During this period the technical assistance will be gradually phased out. To this end a comprehensive and stringent training programme should be devised and supervised. A training specialist should be appointed as soon as possible.

The Project will endeavour to strengthen the contacts with LCCD's and other relevant local institutions (e.g. the Co-operative and Agricultural Credit Bank). They would play a role in Project planning and co-ordination and in the distribution of farm inputs. The latest study on the then LDA's dates back to 1982. This study needs to be updated to assess the present capacity and capability of the LCCD's and formulate a realistic approach. Short-term technical assistance will be requested to carry out a study in 1989.

6.3 Project farm (Al Khabar)

Applied research. The agricultural research in the YAR is the responsibility of the Agricultural Research Authority (ARA). Due to limited resources, ARA has no research facilities in the south-eastern region of the country and is using part of the Project facilities for national research. There are plans (construction is completed) to move ARA headquarters from Taiz to Dhamar. At present, there is still a lack of communication between ARA and the Project; research priorities are not clear; the results of ARA trials are not communicated or translated into extension messages.

At the moment, most trials are primarily of interest to ARA and are related to national research priorities. The Project will enter into negotiations with ARA to set up an agricultural research plan for 1989 - 1992 relevant to the needs of the area. Research priorities will be defined in close collaboration with the agricultural extension section and women extension section. The immediate need is for water-saving techniques combined with a package of other cultural practices which aim at improving productivity and increasing return per unit of water. Priority crops for variety, observation and irrigation trials include maize, pulses and tomatoes, but it is possible to add a few crops, e.g. fodder and a number of vegetables. A small collection of fruit trees will be maintained for propagation and demonstration purposes. Priority will be given to peach, nectarine, apple and plum.

Nurseries. The present production capacity of the nursery, about 25 000 seedlings (10 000 budded trees and 15 000 trees from seeds or cuttings) per year, will be maintained. Targets will be set in collaboration with the extension service, and will reflect actual demand in the Project area. Priority crops for distribution will be peach and nectarine. At present, the national programme calls for apple but this fruit is considered less suitable for Al Bayda Province conditions because of high water requirements and poor storage quality. The nurseries will be financially self-supporting. In addition to fruit tree multiplication, the forestry nursery will continue at the same scale as at present.

Extension of nurseries. When demand warrants and extension services are in place to distribute the trees and provide the necessary follow-up, sub-stations for nurseries for fruit and forestry tree multiplication will be established in other parts of the province, first in Al Bayda and probably later also in Juban. By expanding the capacity of these sub-stations, gradually full use will be made of the experience gained at the central Project farm in Al Khabar. Applied research and demonstration activities will be restricted to the Al Khabar farm for the time being.

Demonstration of new farm techniques. The Al Khabar farm is now being reorganized. Once this is completed, and the new irrigation equipment installed and tested, the farm will be used also as a demonstration and training ground. This will include demonstration of various irrigation techniques, the pruning and training of grapes and farm mechanization techniques in close collaboration with the extension service.

6.4 Agricultural extension

Structure of extension service. The extension service will gradually expand its activities to cover the whole province. At present there are 6 extension centres completed (Wadi Tha, Draibah, Sabah, Ar Riyashia, Wadi Matar and Wadi Mansour). In Al Bayda, the premises of the MOA are used. In accordance with the Plan of Operations, four will be built in 1989 to replace rented premises (Markhah, Juban, Dhi Naim and As Sawmah). In the period 1990 - 1992, four more centres will be constructed (As Sawadiyah, Nati, Mashwaram and Al Bayda as part of the sub-station). The centres will be used where possible also by the women extension.

By the end of 1992, there will thus be 15 extension centres which will be divided among 7 to 8 zones each headed by an area supervisor. At present, there are 6 supervisors (B.Sc. level); initially one more will be recruited at the beginning of 1990. Each has been (or will be) provided with transport. There will be three subject matter specialists, for plant protection, irrigation and animal husbandry; they are already in position. For two functions technical assistance is provided. The subject matter specialists will support the organization and supervision of demonstration activities, pay field visits and provide in-service training in the field and classroom training. A fourth subject matter specialist will be attached to the information and training unit to be

established directly under Project management. In the long term, other subject matter specialists may be required, notably for horticulture and farm mechanization. It is considered, however, that horticulture is sufficiently covered by the Project farm for the time being, while farm mechanization should be transferred to the private sector. Area supervisors and subject matter specialists fall under the responsibility of the head of section.

There are at present 14 extension agents. A total of 30 will be required (on average 2 per centre) and it is planned to recruit and train in one batch 20 trainees, allowing for drop-outs. The training will be done in 1990 and, similar to the one carried out in 1987, will consist of a six-month introduction course followed by short-duration follow-up courses. The candidates will be recruited from the province and, after training, return to their place of origin. Trainees who are temporarily superfluous because centres have not yet been constructed will be placed in existing centres as understudies to present staff. Each agent will be provided with a motorcycle or where conditions require, a miniwagon.

The rather high density of area supervisors will allow for frequent field visits and intensive in-service training of extension agents in the field. This will be supplemented by in-service training by subject matter specialists and classroom training. To this end a strict programme will be set up each year.

Extension programmes. The extension activities are based on the Training and Visit (T & V) system. This system is based on personal contacts between extension agent and (contact) farmers, field demonstrations and field days, extension campaigns and the use of mass communication and audio-visual aids. In the past, the emphasis was on quantity rather than quality. Following recommendations by the 1987 Evaluation Mission, the extension service has reduced the number of demonstration plots and has concentrated on a limited number of activities. This approach will continue in the future. The extension activities will centre on the introduction of water-saving techniques including the development of micro catchments and the dissemination of improved cultural practices as an integral package accompanying such techniques. Furthermore, the emphasis will be on priority crops. In addition, verification trials will be carried in collaboration with the Al Khabar farm and ARA. The provision of information (instruction leaflets and audio-visual aids) will be strengthened.

Provision of services. The extension service supplies seeds, fertilizers, agro-chemicals, fruit trees, forestry trees and hiring out of farm machinery (mainly sprayers). The Project will encourage the private sector and other organizations (e.g. the LCCD's, farmers associations or the Co-operative and Agricultural Credit Bank) to take over gradually some of the functions, such as the supply of seeds, fertilizers and agro-chemicals and the provision of mechanization services. In this respect, a study will be carried out prior to the start of Stage II to assess the willingness and capacity of such institutions and to work out a programme for transfer and the new mechanisms required for properly carrying out these functions.

Veterinary and livestock production services. The livestock section has not been functioning properly for a number of years. It has proved very difficult to combine demonstration activities and the provision of services at the station in Al Khabar with extension activities. Meanwhile, attention has shifted to extension activities, with a recently started improved feed programme. The goats at the station are being handed out.

After consultation with ARA, sheep production and other facilities at Al Khabar will be phased out and the staff will be transferred to the extension service as a separate sub-section, which will then feature an animal husbandry subject matter specialist and veterinary services. There are at present one veterinary surgeon and two veterinary assistants. This staff will increase as the expansion services expand to other areas. The livestock production programme will focus in close collaboration with the women extension programme on the demonstration of the use of improved feed, advise on better housing and provide head and bonemeal. The demonstrations will be held at the extension centres and at the places of selected farmers. Research results will be obtained from the Range and Livestock Improvement Project at Dhamar and other organizations, which the extension service already co-operates with. In consultation with these organizations, a programme will be worked out for regular visits and training of extension agents. Veterinary services will include both preventive care and curative treatment. Drugs, and head and bonemeal will be provided at a charge.

6.5 Rural women extension

The Rural Women Extension Section (RWES) aims at improving the living conditions of rural women by providing extension programmes in agriculture, handicrafts, health and nutrition, and functional literacy. Within these programmes, there is a wide range of activities adjusted to the needs and interests of the women. These activities, and the Plan of Work for 1988 - 1989, were recently reviewed in an elaborate report [REDACTED] and will not be repeated here. Furthermore, adjustments are now being made on the lines indicated by the 1987 Evaluation Mission and it is intended to [REDACTED] based on the experience gained. An external senior consultant will assist in this exercise. At this stage, therefore, a detailed account of future activities and strategy would be premature; only some general observations are made.

The section will continue its strategy of concentrating its programmes on a limited number of villages. This facilitates the integration of the different programmes, enables the supply of a wide variety of activities that suits the needs and interests of rural women as well as facilitates training and supervision of extension agents, and monitoring and evaluation. The capacity of the section will gradually increase, and so will the number of 'concentration villages', to expand the area of impact of the Project. [REDACTED]

The section will continue to operate in the surroundings of Rada. ~~No extension is foreseen to other areas in the project.~~ In the coming years, the main thrust would be toward establishing a viable model of women extension through intensive training and education programmes (in-house and outside the Project) and concentration on improving extension programmes and activities which at present are in various stages of development. Once fully developed, the section could be used as a training ground for replication elsewhere.

A number of issues need to be resolved before implementation of the next Stage II of the Project:

the handicraft programme has now reached a stage where permanent marketing services are required. The Project could be instrumental in setting up a marketing system but should refrain from going into a commercial activity itself. A study should be carried out with external assistance to determine the scope of marketing and, on the basis of the findings, decide on the continuation of the programme. the distribution of chickens has re-started. However, it is being considered to stop this activity; good layers are now locally available and advice should centre on improving the accommodation and feeding of chickens. A final decision will be made after an internal evaluation of the effect of the activity, to be undertaken at the end of 1988.

6.6 Engineering

Water supply and construction. The sub-section will continue its activities in the field of Project building construction and maintenance, and construction of village water supply schemes. The present implementation capacity (that is, with the filling of the vacancy of a local civil engineer) will be maintained but construction of water supply schemes will increasingly shift to districts other than Rada.

There will be a ~~reorientation in the selection process~~ of villages that participate in the Project water supply construction programme. Pressure groups have caused constant shifting of priorities resulting in delays in implementation. Villages which required assistance most urgently, and which answered to the selection criteria, have not always received assistance first. There is also recognition that certain villages or categories of villagers may have been systematically excluded from the programme because of too stringent an application of the selection criteria, particularly the requirement of a village contribution to the costs of construction. In accordance with the recommendations of the 1987 Evaluation Mission, the sub-section will carry out in 1989 a study in a number of sample villages with and without water supply to detect whether there are structural factors determining the participation of ~~individuals and families within villages in the Project.~~ The outcome of the study is expected to lead to a ~~new selection process~~ and set of criteria which will determine the scope of the programme in Stage II. The study will be carried out by the socio-economists in the Project, but in view of their other duties will require short-term consultancy support of about 2 man-months.

With the growth in number of water supply systems, the operation and maintenance problem increases. The Project will set up a unit which will pay regular visits to villages to monitor the functioning and use of the systems. The unit would provide useful feedback information for the adaptation of water supply scheme design and for health education and sanitary extension programmes. On-the-job training and short classroom training courses will be organized for village operators. The unit will consist of an advisor and local staff to be recruited.

Hydrological investigations and monitoring. The geohydrological sub-section conducts research and provides services. Research activities include the monitoring of groundwater levels, rainfall and other meteorological data and groundwater modelling of the Rada catchment, in order to set up and maintain a data base for water management and to provide data to the national data bank in Saria (WRAY Project within the Ministry of Oil and Mineral Resources). By their nature, these activities have no ending and will remain a permanent feature of the Project as long as there is no other organization (national or regional) to take over.

Services include well siting, supervision of boreholes drilled under MoA contracts, well logging, technical advice on well construction and test pumping of boreholes. The services are provided in the first place to the water supply section and for drillings under direct contract of the MoA which are undertaken in the context of the Project. If time allows, the services are also provided to the private sector at a charge. This part of the programme has suffered from a lack of personnel in recent years but shall be strengthened shortly with an expatriate advisor and geohydrological assistant. The counterpart engineers have already been appointed. Once developed, the activities will be continued.

Sanitation. This sub-section is at present going through a process of reorientation and it is too early to set out a path for the future. The immediate need is to create in the villages an awareness of the relationship between health and sanitation. Consequently, the activities have shifted into the direction of an integrated health and sanitation coupling health and hygiene education to concrete actions on low-cost sanitation measures. Demonstration and actual implementation of sanitation facilities are undertaken to raise the villagers' interest in sanitation. For the time being, these are concentrated on garbage disposal and the improvement of shallow wells sites. The basic sanitary improvement programme will be gradually expanded. If successful, the programme will be gradually expanded making use of low-cost sanitation measures suited to local conditions; alternative designs are being prepared for that purpose. An evaluation to be held in 1985 will assess the effect of the approach and decide on continuation of the programme. Sanitation is linked strongly to water extension and it is the intention to integrate the two programmes in the future.

6.7 Rural roads and land and water conservation

Rural roads. For want of another agency, construction of new feeder roads and the removal of bottlenecks will continue to be the main function of the section. The present capacity will not be increased but rather it will be directed to other parts of the province; in Rada district 80-90% of the requirement for feeder roads have been covered by the project. In future, the LCCD's will be more involved in planning the road construction programme and in setting priorities. Procedures will be worked out after a study has been carried out on the possible extent of LCCD participation.

The rural road programme is rapidly reaching a point where road maintenance will employ most of the resources of the section (especially manpower), leaving little room for the execution of its main function. In discussions with the MoA, it became clear that many other rural development projects in the YAR are facing the same problem. We understand that recently the discussion has been taken at a high level whether the Ministry of Public Works should be responsible for feeder road maintenance. In practical terms, this would mean for Al Bayda Province that either the Highway Authority is given the instruction to carry out the maintenance or that the Project is provided with a budget. In the latter case, the road section would require extra manpower and equipment. The LCCD's are not yet equipped to take over this activity; they lack the finance and manpower. It has been considered to promote this activity at one LCCD, with the Project providing expertise and equipment, but the experiment would take at least three years while the impact would be small, being restricted to the borders of the LCCD. Awaiting an official pronouncement of the role of the Ministry of Public Works, the experiment has been shelved for the time being.

Land and water conservation. Reference is made to the review of March 1988 which provides details of the programme. One dam has been completed, two others are under construction and it is still too early to make a well-balanced judgement of the programme. An evaluation is scheduled for 1990; it will form the basis for decision-making on continuation of the programme, and for the direction the programme should take.

Meanwhile, two issues have cropped up which should be resolved at short notice:

- a) After detailed design, the cost estimates are much higher than foreseen. Given the budget constraints the number of dams that can be built will be lower. Also the LCCD contribution will be much higher than expected, endangering a proper execution of the programme.
- b) MoA tends to regard the Project as the sole implementing agency for dam construction in the province. Large dams, however, are outside the scope of the programme as they require full-fledged feasibility and engineering studies. An agreement should be reached as to what maximum size of dam, i.e. cost of a dam, should be covered by the land and water conservation programme.

6.8 Maintenance service

The section carries out periodic maintenance and repair of Project transportation vehicles, earth moving equipment, trucks, generators, tractors and agricultural machinery. These services will be continued. As the Project expands its activities to other parts of the province, a small annex will be established at Al Bayda. Cooperation with the local agent for Caterpillar equipment with the aim of promoting privatization will be continued.

6.9 Project management and administration

Project management and co-ordination. The Project management has recently appointed a deputy Project manager for agriculture. As soon as the Project is going to extend its area of coverage, a second deputy will be appointed to take charge of Project activities in the surroundings of Al Bayda. This deputy will be provided with office facilities; land has already been allocated for the prospective complex of offices, extension centre, workshop and nursery.

The appointment of deputy managers will strengthen the management co-ordination capacity both at the planning phase and in the execution of activities. The Committee of Integrated Extension has already been re-activated but also simple relation-matrixes, barcharts, and maps will be prepared to promote co-ordination both in terms of time and location.

Administration. The administrative unit will continue its efforts to improve the administrative and financial procedures including accounting, personnel administration, procurement, stock keeping and stock control. Where possible, the financial and personnel administration will be computerized. Budgeting and budget control will be improved. The section suffers from a lack of adequately educated staff and much time will be spent on on-the-job training. Out of necessity, the speed at which improvement and modernization can be brought about will be slow.

The motivation of staff is a matter of concern. Whereas the Project is bound by Government rules, internal improvements will be made by means of the preparation of a functional chart and salary categories which will offer a clearer picture of career perspectives within the Project. This will be accompanied by improved personnel management "to place the right person on the right job".

Planning, monitoring and evaluation. This unit will replace the existing socio-economic section. The change, which will be instituted shortly, arises from the need expressed by Project management to shift the emphasis of the section from more fundamental research on resources and production systems in the Project area to support of management in short-term planning and monitoring, and evaluation of the effects of Project action.

The tasks of the unit will be as follows:

- a) to assist the management in setting up and co-ordinating a monitoring and evaluation system;
- b) to assist the management in planning and co-ordinating Project activities;
- c) on the basis of specific studies, to support the implementation of Project programmes and activities; examples of on-going and planned studies are: (i) area and machinery surveys for the agricultural extension, (ii) socio-economic surveys for the Land and Water Conservation programme, (iii) socio-economic survey on water supply, (iv) survey of LCCD's;
- d) to co-ordinate the relationship between the Project and local institutions
- e) in collaboration with the extension service, to set up a data collection system on the economics of crop growing (priority crops).

The routine price data collection of major commodities in Rada and Al Bayda towns will be reduced in frequency from once per day to once per week. A yearly work programme will be made well in advance indicating what and when short-term assistance is required, either local (e.g. Sana'a University) or expatriate.

Information and Training. This new staff unit will assist Project management and the sections in manpower problems, training activities and the production of audio-visual aids. With respect to the latter, the task of the unit will be to supply the Project with information material (videos, leaflets, brochures, etc.) for extension and public relations purposes. Some equipment has been acquired and one staff member has been recruited but the unit has not been operational up to now.

Although training has been receiving increasing importance in the Project, its implementation has been left with Project management. In the next stage, training will be of prime importance to reach the objective of gradually phasing out technical assistance. Therefore a full-time training specialist will be appointed who would have as main tasks: (i) to organize external and internal training programmes (logistics and timing), (ii) to assist the sections and units in preparing and implementing training activities, (iii) to advise on on-the-job training, and (iv) advise on information/communication activities.

6.10 Technical assistance and training

With the appointment of a training specialist, and renewal of the contract of the specialist for maintenance of water supply systems, the Technical Assistance Unit (TAU) will have reached its maximum strength. During the next stage, the Project will endeavour to phase out most of the long-term technical assistance. This process will be carefully planned as an integral part of the Plan of Operations for the period 1990 - 1992 and will contain the following elements:

- a) a firm commitment by the YAR Government that all key counterpart positions will be filled;

- b) procedures for a smooth and effective take-over by the Yemenis of the major tasks of the TAU members. While Yemeni staff is officially in charge, TAU members often act in an executive role; procedures will be worked out to guide sections in gradually shifting the role of the TAU to purely advisory;
- c) the establishment of a comprehensive and stringent programme for on-the-job training and training outside the Project;
- d) a schedule for short-term technical assistance.

The training specialist will supervise the process. If deemed necessary, short-term technical expertise will be deployed to prepare the plan for phasing out. Sections and activities are in different states of development and therefore will require a different approach; for some sections the phasing out of technical assistance can be achieved earlier than for others. It is foreseen that the role of short-term assistance will increase as long-term assistance diminishes. In particular, this will be the case for activities that require high technical expertise, e.g. geohydrology.

During the discussions in November/December 1988 between project management and consultant a tentative schedule was drawn up for phasing out the long-term technical assistance in the period 1990-1992, subject to further elaboration in the Plan of Operations for the period 1990-1992 and discussions with the forthcoming evaluation mission in June 1989. This tentative schedule is presented in Annex A.

6.11 Organization

For the time being, the Project will remain a permanent structure in the province directly responsible to the MoA. The scope for shaping the Project into a development authority has been explored but during discussions with the Minister of MoA it became clear that the Project area is considered to be too small. A development authority should at least cover two provinces. There are no plans for the near future to combine the Project with neighbouring projects in the province of Dhamar.

A sub-station will be constructed near Al Bayda town. The station will contain offices for administration and extension services, a small workshop, stores and simple stay-over accommodation as well as a farm for tree multiplication. A deputy to the general manager will be in charge of the sub-station and be delegated the authority to carry out efficiently the daily affairs of the station. The details of cost and staffing requirements will be worked out as part of the 1990 - 1992 Plan of Operations.

The Project will seek to strengthen the planning and implementation capacity of the LCCD's and other suitable institutions in the Project area. The intention is to increase the role of LCCD's and other institutions in (a) establishing priorities for Project activities, (b) extension activities and recruitment of extension personnel, and (c) distribution of farm inputs and provision of farm mechanization services. Furthermore, the Project will assist the LCCD's in better planning and implementing their own activities. To this end, the Planning,

Monitoring and Evaluation Unit of the Project will carry out a survey in 1989 to assess the current state of the LCCD's and other institutions and on the basis of the results, determine training and possibly other requirements. The survey will require short-term technical assistance of 2 man-months. The Governor of Al Bayda has already approved the execution of such a survey.

**ANNEX A
TENTATIVE SCHEDULE
FOR PHASING OUT
LONG-TERM TECHNICAL
ASSISTANCE**

ANNEX A
TENTATIVE SCHEDULE FOR PHASING OUT LONG-TERM TECHNICAL ASSISTANCE

Functions	1988	1989	1990	1991	1992
I Ilaco experts (Dutch)					
TL TAU/General adviser Project Management					x
Administrative/financial adviser					x
WS Water supply expert		x			
Land and water conservation specialist				x	
Irrigation engineer					x
Horticulturist		x			
Mechanical engineer		x			
Agricultural extension specialist	x				
II Regional experts (Arab countries)					
Wo General adviser Rural Women Extension Section		x			
Wo Agricultural extensionist (<i>women extension</i>)				x	
WS Sanitation extensionist					x
Agro-economist				x	
Agricultural extension specialist				x	
Training specialist					x
III Associate experts (Dutch)					
Wo Health education specialist					x
Geohydrologist				x	
Geophysicist				x	
WS Sanitary engineer					x
IV ONV experts (Dutch)					
Wo Home-economist		x			
Technician		x			
Livestock specialist	x				
Number of staff	1988	1989	1990	1991	1992
I Ilaco experts	7	7	4	4	3
II Regional experts	4	4	5	5	2
III Associate experts	3	4	4	4	2
IV ONV experts	3	2	-	-	-
Total	17	17	13	13	7

Group I: Ilaco experts

It is proposed that the team leader of the Technical Assistance Unit and adviser to the Project Management will stay for the full project period. The same holds for the administrative and financial adviser, who will continue the training of the Yemeni project staff in the automation of the financial administration, stock and budget control and in a proper management information system regarding financial and administrative matters.

The engineering section has proved to be rather successful in its operations. Most of the work became a routine matter. Standard designs are available for reservoirs and pump houses. Since 1982 all engineering work has been contracted out to local contractors, who built up experience in the construction of water supply systems during their association with the Project. The head of the engineering section is a qualified civil engineer who just completed a 6 month international training course in water supply and sanitation at the International Institute for Hydraulic and Environmental Engineering in Delft, The Netherlands. Phasing out of the technical assistance in 1989 is justified and will stimulate the head of the section to take full command of his section.

The land and water conservation programme is still developing and meets with much enthusiasm from the Ministry of Agriculture and the villages/LCCD's. Counterpart staff positions were filled in rather late and counterpart training in the field is much needed. The programme will mature in 1990 and the technical assistance can probably be phased out by the end of 1991.

The irrigation engineer arrived by the end of 1988. At least 3 years of technical assistance is foreseen to provide the agricultural section with well-trained irrigation field staff and sound extension messages on appropriate water saving techniques for the farmers. Technical assistance will be phased out during 1992.

The output of the technical assistance provided in the field of horticulture was much less than expected due to the problematic internal situation of the agricultural section and the input of the first technical adviser. However, during the past two years the farm and fruit tree activities became more structured and better planned. Contacts with the Agricultural Research Authority (ARA) have been intensified and more to the point adapted research has been implemented at the Al Khabar project farm. The infrastructure of the farm and the nurseries will have been greatly improved by the middle of 1989. More counterparts have been provided by the Ministry of Agriculture and more agricultural engineers are expected to arrive in 1989. The research programme on suitable vegetables will continue in cooperation with ARA and will ultimately provide the farmers with more alternatives to diversify their crop production and increase their farm income.

The injection of technical assistance by providing a mechanical engineer for short periods to upgrade the work performance of the maintenance section proved to be very successful. The head of the section received a sound on-the-job training and is very well capable by now to lead his section without the continuous support of technical assistance. The post of mechanical engineer will be phased out in 1989.

The expatriate agricultural extension specialist left the project in 1988. The regional agricultural extension and training specialist took over his role as technical assistance unit adviser to the agricultural extension section.

Group II: Regional experts

The general adviser to the rural women extension section will leave the project in the beginning of 1989, at the end of her contract. There is no need for succession.

The female agricultural extensionist will remain with the rural women extension section till the end of 1992. Her input is highly appreciated, and with the arrival of Yemeni staff in the section, training of the staff will be her prime responsibility.

The sanitation expert, adviser to the engineering section, started his duties in 1988. The section's activities in the field of solid waste disposal and health education are slowly taking shape but need more time and assistance to mature. Technical assistance will be provided throughout the project period.

The agricultural economist started his assignment by the end of 1988. He will assist and support the transformation of the previous agro-economic section into a planning, monitoring and evaluation unit. The activities of this unit will be focussed on the support of the project management in short-term planning and monitoring and evaluation of the effects of project actions. Technical assistance will be provided for at least 3 consecutive years.

Technical assistance in agricultural extension and training will continue. The main emphasis will be put on the upgrading of the knowledge of the extension agents. Technical assistance will be phased out presumably by the end of 1990 as sufficient counterpart positions are filled in by experienced staff.

A training specialist will be recruited in 1989. His main task will be the establishment, supervision and coordination of a comprehensive and stringent programme for on-the-job training and training outside the project.

Group III: Associate experts

Technical assistance in environmental health education connected to the activities of the rural women extension section will continue throughout the project period. The project management has requested the Dutch government to provide a successor of the female environmental health education specialist, who will leave the project by the middle of 1989.

A successor has also been requested for the geohydrologist, as his assignment is to end by June 1989. This request is based on the continuous high demand and pressure from the villages for assistance in the site selection for drilling deep wells for drinking water. Enormous amounts of money can be saved by correct site selection so as to avoid drilling dry wells, which results from the trial and error method currently applied by the villages. Monitoring the groundwater resources and advising on its proper utilization and transfer of knowledge to the counterparts will be the main focus of the technical assistance.

To alleviate the workload of the geohydrological subsection of the engineering section, a second geohydrologist/geophysicist arrived at the project at the end of 1988. His assignment will terminate by the end of 1991.

A request for a successor of the present sanitary engineer will be submitted by the project management to the Dutch authorities. Sanitation activities connected to the engineering section are slowly taking shape and need continuation of technical assistance to develop and mature.

Group IV: ONV experts

The assignment of the female home-economist will end in 1989. Most probably a successor will not be requested.

The technician involved in training of pump operators of drinking water supply schemes completed by the project, left the project by the end of 1988 upon expiry of his contract with ONV. An extension of his study is sought by the project, to be financed through project funds.

The female livestock specialist left the project in 1988. In view of the prevailing circumstances in the livestock section it was thought to be inopportune to request for a successor.