

PN-ACB-564

INTERNATIONAL  
FUND FOR  
AGRICULTURAL  
DEVELOPMENT



IFAD

EC 93/7/W.P.2

2 July 1993

ENGLISH

ORIGINAL: ENGLISH

Evaluation Committee

Seventh Session

Rome, 17 September 1993

Agenda Item 3

YEMEN

YEMEN

SUMMARY

of the

COUNTRY PORTFOLIO EVALUATION

YEMEN  
COUNTRY PORTFOLIO EVALUATION

SUMMARY

I. Evaluation Purpose and Scope

1. Responding to an Executive Board request, it was decided that Country Portfolio Evaluations (CPEs) be carried out in countries where a substantial amount of experience has been accumulated. The purpose of CPEs is to contribute to better project design and implementation in the light of IFAD's actual experience in a specific national context. While this CPE could not be a substitute for individual projects evaluations, it aimed, however, at rapidly providing solid comparative information on the most essential aspects of project performance as well as of their relevance to IFAD's concerns.

2. The selected methodological approach gave priority to understanding how the projects interacted with their environment taken in a broad sense (natural, institutional, socio-political, etc.). This approach helped to put IFAD's intervention into perspective.

3. The assessment of project experience in Yemen started during the last quarter of 1991 with a desk review, the result of which provided relevant focus as well as background information for the field work. The latter took place in December 1991 during which the 11 project areas were visited. Time-wise, the CPE came at an opportune moment as the country was reviewing its development policy in the light of the new situation created by the unification of the country.

4. The evaluation report consists of ten chapters grouped into three sections. The first section provides an overview of the IFAD country programme since its inception, putting it into perspective with the evolution of the national context (Chapters II and III). Project performance is subsequently described from an operational and financial point of view (Chapter IV). Chapter V concludes this Section by analysing in depth the project's contribution to institution-building. Particular attention is paid to the various forms of project organisation and their effects on project performance.

5. The second part of the report (Chapters VI to VIII) assesses project experience in the major fields of IFAD intervention in Yemen: irrigation and rural infrastructure, generation and dissemination of improved technology and agricultural credit. Essential facts on project achievements are presented together with the relevant issues involved.

6. On the basis of the above, an attempt is made, in the last section of the report, to look at past experience from the specific standpoint of IFAD (Chapter IX). Beyond providing some indications on the contribution of the projects towards poverty alleviation, this Chapter discusses the specific issue of targetting approaches and instrumentalities in Yemen, as revealed by actual experience.

## II. The National Context and the IFAD Programme

7. Whereas the former South Yemen inherited educational and administrative structures which helped in the management of rural development projects, North Yemen, which was by far the most populated, had to build these capacities from scratch. Yemen, particularly the North, has nevertheless experienced rapid growth during the last 15 years, which in turn, deeply transformed a country and a society which only recently opened to the modern world (1962). Growth soon created new problems or exacerbated existing ones, particularly with the ever-increasing pressure on the narrow natural resources base. Hence, the lack of sustained achievements witnessed by many projects regardless of their source of financing. As in many countries which followed a similar pattern of growth, there are clear indications that equity issues were given insufficient attention.

8. In this context, marked by the high priority given to institution-building, the Government and its major development assistance partners used rural development projects to create the nucleus of future development authorities at a regional level. This strategy involved, by its very nature, less attention being given to both community level and national level development programmes. As a result of the weakness of internal resources mobilisation, institution-building has been greatly dependent on external financing. Hence the succession of project phases in the same area which is one of the salient characteristics of the Government's portfolio of rural development projects.

9. IFAD has financed a total of 11 projects<sup>1/</sup> in Yemen starting in 1979 in the North and 1980 in the South for a total project cost of USD 371 million. The share of IFAD amounted to about 25% of the total cost of the projects (USD 91.1 million), with a lower percentage contribution in the North. Eight of these projects were initiated by other donors and cofinanced by IFAD. IFAD-financed projects dealt with a wide range of projects and agro-ecological zones, whose objectives included: the establishment and rehabilitation of rural infrastructure; the development and dissemination of technical packages; and institution-building.

---

1/ A twelveth project has been approved since the completion of the evaluation mission.

### III. Main Results

10. IFAD projects in Yemen have contributed their share to the significant achievements which were realised by the country since the mid-eighties with regard to institution-building.

#### A. Implementation Performance

11. Physically, the projects made substantial contributions in irrigation structures, water supply schemes, agricultural research, extension, fisheries and credit infrastructures, and rural roads. Yet, some of these structures are incomplete or not fully operational for various reasons (including contractual disputes, social conflicts, radical changes in policy environment, lack of operating funds, and lack of sustainability in institutional or environmental aspects). Disbursements were generally low in the first three years of project life due to a slow start in project implementation.

12. Complications in procurement, withdrawal application and customs clearance procedures have contributed significantly to implementation delays. Counterpart funding was problematic due to budgetary constraints, inflationary pressures and a redundant labour force, which is at the same time not of adequate quality. In relation to these issues, the mission supports the recommendations of the Country Implementation Review (CIR) undertaken by the International Development Association (IDA) in July 1991.

13. Supervision of most projects was found adequate in terms of providing early signals on major problems - including those of IFAD. The Government's response was often slow or even lacking in some cases.

#### B. Institution-building

14. Over the last two decades, sizeable financial and technical resources were used to build organisational structures, at the regional and national level. Progress towards realising the full benefits was masked by numerous problems. However, even the present barely efficient institutions for rural development represents real progress when compared with the previous absence of any institutional capacity at all, particularly in the Northern Governorates. The time has come now to consolidate previous achievements.

15. The lack of resources to support central institutions has resulted in their lagging behind project-supported institutions. Indeed, central authorities have adopted various means of control that are seen as obstacles to institutional development at project level. Project assistance has been used to foster institutional development for national institutions such as the Cooperative Agricultural Credit Bank (CACB) through the Southern Uplands Rural Development Project Phase II (SURDP II) and the Agricultural Credit Project (ACP) and the Agricultural Research and Extension Authority (AREA), through the Agricultural Research and Development Project (ARDP), among others. It should be used similarly for the support of other concerned central government institutions. For such action to be rewarding, government should be encouraged to draw a comprehensive plan for national and regional institution building, and provide reasonable counterpart financing to implement it.

16. At the regional level, the intermediate stage of a semi-autonomous project implementation unit seems to be problematic. The Government of Yemen (GOY) should consider swift action to legislate and harmonise regional development authorities which seems to be a more viable model. Currently, this model is only fully applied in the Tihama Development Authority (TDA), though recently the Northern Agricultural Development Authority (NORADA) has been established.

### C. Irrigation and Rural Infrastructure

17. Notwithstanding the tremendous effort made by IFAD and other donors, the sustainability of institutions set up for the purpose of providing irrigation and rural infrastructure is a real concern in the face of a growing demand for the limited national budgetary and human resources.

18. Spate Irrigation Improvement. The selection of the appropriate development concept of a spate irrigation system requires a very clear understanding and appreciation of traditional water rights and operating arrangements at the design stage to avoid disputes and misuse of the water by the upstream users. The sustainability of what has been achieved so far is seriously threatened by the lack of adequate maintenance, the absence of recovery of costs, and low beneficiary participation.

19. Groundwater Irrigation. Groundwater development programmes have been relatively successful. The reason for their success has been that projects have played the role of facilitators by providing loans, design, and construction assistance. Once facilities are constructed they are turned over to farmers who operate and maintain them. Overexploitation of groundwater requires immediate and decisive regulatory measures and the development of a master plan to rationalise the exploitation of groundwater resources is highly recommended.

20. Rural Water Supplies. The enthusiasm of villagers for water supply improvements has given publicity to the projects, thus facilitating the implementation of other components. Therefore, it needs continuing support, especially where initiatives can strengthen and empower communities. Water supply schemes are very vulnerable to competition for scarce water resources, especially from irrigation. Therefore, planning of water use is paramount. Regulations should be promulgated to create a priority system for access to drinking water, to create restricted zones in areas where aquifers are depleting and to impose a minimum distance between wells to avoid interference.

21. Rural Roads. There is ample evidence that the rural roads component in the projects cofinanced by IFAD has increased accessibility of all beneficiaries to input and product markets; reduced the cost of transportation of merchandise and contributed effectively to the fruit and vegetable import-substitution policy adopted by the Government in 1984.

22. The overriding consideration in road construction, however, is the adequacy of maintenance. Since rural road specifications and standards of alignment are often inadequate to sustain the traffic build-up there is also a need for upgrading. Thus arrangements should be made to turnover those roads with heavier traffic to the competent authority.

D. Generation and Dissemination of Improved Technology

23. There is evidence that farmers have adopted and adapted improved seed varieties and technology when these were made available to them. There is also evidence that the production of a number of crops has improved considerably not only due to research and extension messages, but also in response to initiatives by innovative private farmers.

24. IFAD-financed projects have contributed to the generation and dissemination of improved technological packages that have been utilized by farmers. Relatively more success has been achieved with cash crops compared to traditional food crops, with irrigated compared to rainfed crops, and with wheat and maize compared to sorghum and millet. Projects financed by other donors have contributed as well.

25. The achievements in terms of cropping patterns diversification and the penetration of commercial agriculture owe a lot to investments in irrigation and infrastructure. They are, however, very sensitive to market fluctuations. At present, the weakness of marketing structures has become a major limiting factor.

E. Rural Credit

26. CACB represents the only available rural credit institution in Yemen. Therefore, IFAD, in collaboration with other concerned donors, should continue to support it, taking into account lessons learnt to date.

27. The credit components in the projects reviewed did not generally receive adequate assessment during project preparation and appraisal. Except for the recent ACP project, there is no evidence that the performance of either credit institutions or credit dissemination was carefully studied and incorporated into project design.

28. When credit was directly supplied by the projects,<sup>2/</sup> it lacked effectiveness and did not necessarily reach the intended target groups. Supervised credit (based on the traditional concept of credit granted by a specialised institution with loan appraisal done by extension and technical departments) were more effective. However, the target groups with whom IFAD is most concerned were not always reached either: experience shows it is particularly difficult for credit institutions to consider managing resources using methods which they may not have used before.

---

<sup>2/</sup> Due to the absence, in the Southern Governorates, of any credit institution to finance the agricultural sector.

#### IV. Contribution to Poverty Alleviation

29. Notwithstanding the remarkable growth in national income witnessed during the last two decades, Yemen suffers from endemic poverty caused by a poor resource base, and population pressure. Concentration of ownership of strategic natural resources compounds the problem.

30. The decrease in rural poverty which occurred in Yemen in the last decades is essentially dependent on external factors and to a lesser extent on productivity gains in agriculture. As a result the achievements obtained in poverty alleviation are fragile and may be shortlived because of the combined action of international tensions (which reduce expatriate job opportunities and the amount of aid available), internal population growth, slow productivity growth and, last but not least, the introduction of labor saving technology, particularly in the low lands.

##### A. Approaches to Poverty Alleviation

31. So far, poverty alleviation has been considered as an ultimate goal in Yemen's development strategy but no targets for poverty alleviation have been set, such as for the national food self sufficiency objective. The latter remains the priority objective of the Government's agricultural development policy. This applies equally for both the ex-North and the South, despite their sharply contrasted economic systems and macro economic policy orientations. Projects were therefore primarily expected to contribute to economic growth: they were designed to increase agricultural output and raise general incomes but did not have a poverty alleviation focus per se. This is not to say that they did not have an effect on the state of rural poverty.

32. While the first generation of projects (1979-1984) was rightly aiming at institutional building, the second generation of projects (1987-1992) could - within the gradually improving institutional framework - build a much stronger poverty alleviation dimension. Of the two IFAD-initiated projects of the latter period, the Agricultural Credit Project (253-YA) has been facing the difficulties referred to in para. 33 (and analyzed in detail in paras. 116-120 of the Evaluation Report). The other project is in the Eastern Region (228-YD) and has been under implementation for two and a half years only before the evaluation mission. It was therefore too early to examine its impact on poverty reduction. IFAD should however be credited for having over time developed and incorporated into its project designs a set of approaches and instrumentalities aiming at reaching the target groups it is most concerned with, including rural women. These efforts have not always been fully effective in reaching the poor due to tough social, political and institutional constraints. Also, in view of the lack of previous experience in this field, making targetting objectives operational is, by necessity, a trial and error process which cannot be expected to quickly yield positive results. Through general as well as specific recommendations this evaluation is part of such a process.

##### B. Constraints to Targetting

33. Too much was expected from rural women's development programmes that had to function under socially unfavourable conditions. These conditions, among others, include the limited number of Yemeni women available to manage programmes, the difficulty in identifying Arabic speaking female experts and the scarcity of qualified women for training as extension agents. Limited progress in these programmes could also be attributed to a lack of local funds.

34. Certain types of projects are simply unsuitable for targeting according to IFAD's criteria. Experience confirms that the injection of productive capital, where ownership of strategic natural resources is concentrated, primarily benefits the wealthiest and increases social inequality. Hence the recommendation made below (para. 57) to avoid in Yemen endeavours aiming at increasing agricultural productivity in areas where land and ownership are very unevenly shared.

35. Political commitment to the equity objective has not been sufficient; and the trickle down approach to poverty alleviation is still popular within the administrative structures. IFAD's project impact has been constrained by the absence of national institutions with a poverty alleviation focus.

### C. Overall Impact

36. Starting from an apparently simple and straightforward question on the contribution of IFAD supported projects to the reduction of poverty, it appeared to the mission that there is no simple and global answer to what is in fact a very complex and multifaceted issue in which IFAD intervention is but a modest element.

37. While it was possible to reach some understanding of how the various projects interacted with their environment, it was often difficult to distinguish the specific contribution of the projects from other factors which had an impact in the project area. The report does, however, reflect on some of the more tangible effects of individual projects on agricultural production within the limits imposed by the availability of relevant data, as well as by the purpose of the present exercise (Chapter IX).

38. The projects' impact has been limited by a combination of interrelated factors that impinged on the sustainability of the achievements:

- the implementation of projects in the absence of government sub-sectoral programmes which could have provided for the necessary support during project lifetime and for their follow-up thereafter;
- the diversion of scarce budgetary resources to projects at the expense of existing structures and programmes in a context marked by a continuous decrease of the share of the rural/agricultural sector in public expenditures as the economy diversified;
- the low starting level of institutional capacities which the projects often improved considerably, but locally, and sometimes only temporarily. In some cases, however, inadequate project organisation arrangements did little to help overcome this constraint;
- the limited resource-base (combined with the absence of any significant institutional framework for natural resources management) could not always sustain the effects of both public and private resource mobilisation investments;

- Government policies which constrained producer initiative in South Yemen, or subsidised public services at the expense of the sustainability of the institutions in charge of delivering these services, for example credit services in North Yemen. In addition, the former Governments of North and South Yemen adopted agricultural development orientations which privileged areas of high potential, and irrigation in particular, despite the fact that a majority of the farmers derive their main income from the rainfed sector. This policy has had, as a result, a negative effect on the evolution of income distribution; and
  
- the insufficient participation of the beneficiaries in project design and implementation which resulted in socially sub-optimal/unmanageable designs of some rural and productive infrastructure and which did not instil a sense of ownership among the beneficiaries. Non-participatory approaches proved to be an important factor behind problems such as insufficient infrastructure operation and maintenance and of inequitable distribution of project benefits.

## V. Lessons and Recommendations

39. The unified Government of Yemen, together with its development partners, is now faced with the need to develop new policies to consolidate and preserve previous achievements while making a qualitative step in development planning so as to ensure more consistency of its programmes and a real participation of the population in the management of the development process. This is an even more pressing need in view of the additional burden on the economy created by the massive flow of returnees in the aftermath of the Gulf crisis.

40. At the policy level, the Government will have to address on a priority basis, the issue of how to increase its absorptive capacity. In this process, the coordination of external assistance will have to be enhanced. Without a significant and positive change in this matter, increasing the number of projects (particularly those which are highly dependent on long-term institutional support) will only aggravate an already serious problem.

41. The concentration of external assistance in some sub-sectors and geographical areas, largely results from the low priority given to the rainfed (or so-called marginal areas) in which the majority of the rural population live. A policy shift in favour of the traditional livestock/cereal sub-sector should be considered favourably as it would presumably favour natural resource conservation and growth with equity while facilitating the management of external assistance by government.

42. Enhancing people's participation in project design and implementation should become a major preoccupation for IFAD in Yemen. This would hopefully result in a more realistic assessment of the size of externally-supported public investments needed in the rural sector, and in better targetting of IFAD's interventions on the regions, activities and social groups most relevant to its mandate.

43. The evaluation mission's recommendations in accordance with the above mentioned are as follows: improving project implementation, focussing the projects on poverty alleviation, enhancing sustainable development and building-up internal political support for IFAD projects.

### A. Improving Project Implementation

44. GOY and donors should attempt, at the project level, to define a clear role for management and technical assistance; draw effective programmes for training; and develop a serious attitude towards monitoring and evaluation. Opportunities for local community participation in project design should be created so that realisation and sustainability of benefits can be ensured.

45. Successful project implementation was found to be dependent on the following three factors:

- (i) Strength and continuity of leadership;
- (ii) Sharp Focus: Since successful projects were those which were focussed either on a relatively small number of beneficiaries (not exceeding 60 000 people) or on a specific type of activity; and

- (iii) Extensive Management Support Component. The share of institutional support in total project costs seems to be critical.

46. These findings, should encourage IFAD to be generous in the provision of incentives and funds for project management, while focussing project objectives on its central target group/area/theme.

B. Focussing the Projects on Poverty Alleviation

47. Projects whose purpose is to improve the productivity of the traditional grain-livestock food system are naturally targetted towards the poor in Yemen. Therefore, project concepts should be built around the problem of technology generation and dissemination for those food systems. It is simultaneously necessary that development planners, both national and international, reconsider the low priority ranking given to the traditional livestock/cereal sub-sector, if the above-mentioned kinds of projects are to be effective.

48. The handling of poverty alleviation and targetting issues needs to be more consistent through the project cycle. This entails:

- (i) conducting more systematic socio-economic surveys with the aim of providing a basic understanding of the processes involved in poverty alleviation in the project area and, as a result, leading to an operational definition of the target group;
- (ii) ensuring that the findings of such studies will actually be taken into consideration in project design. Poverty alleviation should become an operationally identifiable objective supported by project activities, not just an ultimate goal of the project; and
- (iii) spelling out clearly and in greater detail what share of project resources would benefit directly the target group and the results expected; this implies setting targets in this respect.

49. The above is a prerequisite for strengthening project Monitoring and Evaluation Units in that it would provide them with a consistent and relevant format for organizing their own activities.

50. In the light of actual experience, there is no single best instrumentality for targetting the poor. The real lesson is that targetting is very demanding in terms of involvement from IFAD staff in all stages of the project cycle and in terms of national institutions' managerial capacity.

51. Nevertheless, there are promising approaches to targetting that should be given priority in future:

- (i) Designing suitable technical and credit packages which are particularly attractive to resource poor farmers;
- (ii) In Yemen, targetting broad categories of households is neither practical nor cost effective, while targetting poor villages is easier and is best suited to the country's social structure; and

- (iii) Often, good targetting can be obtained through simple site specific criteria, and by considering at an early stage of project design what the preferences of the target group are so they can be built into project design.

52. It is also recommended to carefully select project areas so as to avoid projects aiming at increasing agricultural productivity in areas where land and water ownership is shared unevenly. The mission acknowledges that this might be a difficult recommendation to follow: since land ownership is often concentrated in areas of high potential, it may exclude too many of the few investment opportunities available in the agricultural sector. In these cases, and pending any other alternative, IFAD should focus to an even greater extent its projects on specific poverty alleviation targets.

53. Credit lines, even when they are made conditional, do not lend themselves easily to proper targetting and should therefore be avoided as well, pending some institutional and policy adjustments are implemented, for example: the practice of subsidized interest rates bears directly on the possibility of effectively targetting the poor as, in Yemen, access to credit is more important for the target group than low interest rates on loans, particularly in view of the small size of the loans they need and the short period of repayment (see para 9-167 of the Evaluation Report).

#### C. Enhancing Sustainable Development

54. The injection of capital aimed at increasing natural resource mobilization in ecologically fragile environments is harmful unless:

- (i) capital investment is primarily directed towards the conservation and efficient use of scarce natural resources, particularly underground water; and
- (ii) there are effective institutions able to enforce resource conservation regulations. In their absence an adequate proportion of the project investment should be allocated for this purpose and Central Government should allocate the necessary budgetary resources.

55. Irrigation. Since water is the major limiting factor to agricultural production development, future projects should focus their objectives on water resource conservation. Project strategies should be more holistic to take into account the relationships that exist, in a given ecological unit, between different systems of water resource mobilisation such as spate and well irrigation. Farmers should be encouraged to introduce water saving technology.

56. As a guiding principle, future interventions in spate irrigation, should favour low-cost diversion structures and avoid sophisticated technical solutions which prove to be economically unjustifiable and difficult to operate properly.

57. The most critical issue in future planning will be to achieve the optimal mix of government and local responsibilities for creating and sustaining irrigation facilities. Careful consideration needs to be given to the implementation process, such that if farmers can be productively

involved in implementation, changes are more likely to be adopted and sustained. Hence the importance that national technicians be trained in participatory design and implementation of irrigation projects.

58. Research and Extension. A major problem facing the extension service and ultimately the producer is the limited flow of appropriate technical packages verified under local conditions. In view of this, IFAD should reorient its focus, which has been leaning heavily towards extension, to give more emphasis to adaptive research.

59. Research and extension should be directed towards solving the problems of farmers. With respect to small farmers, who are of special interest to IFAD, their needs rest on technical packages suitable for rainfed agriculture (combined with livestock) and increased returns to water, the latter being the most scarce resource.

60. The organisation and implementation of field trials to test station research findings must be a joint cooperation between research and extension, with active farmer participation. This can bring into the research process a better participatory perspective on research/extension recommendations.

61. Credit. Projects should be designed to contribute to the long-term sustainability of the credit institution. Whenever this objective involves policy changes, the latter should be obtained before project effectiveness. As a matter of fact, project designers have often underestimated the difficulties involved in bringing about such changes.

62. There is a continuous need for IFAD to link credit with the dissemination and adoption of technical packages designed to help its target groups. A case in point are the technical packages for rainfed farmers and improvements in livestock, including poultry, which is raised by women. A strong credit beneficiaries' monitoring and evaluation capacity should be established within the Cooperative Agricultural Credit Bank.

#### D. Building-up Internal Political Support for IFAD Projects

63. IFAD should pursue and further enlarge its dialogue with the Government to ensure that project resources are primarily channelled to the poor.

64. Poverty alleviation issues are not principally of a techno-economic nature. Experience strongly suggests that unless a desirable poverty alleviation/development objective fits with the chief interest of at least one party actively involved in the project, there will be little prospect for achieving the desired result.

65. For this reason, the mission believes it is an error to consider that socio-political issues are out of the scope of project analysis. In fact these issues are at the heart of the problem and therefore should be formally and positively considered in the process of project formulation and implementation. Ignoring them will often lead to results which are contrary to the original purpose.

66. In brief, it is not enough to design good projects. IFAD must also build political commitments to ensure that these projects would be given a fair chance to perform according to the set objectives. What kind of activities and approaches IFAD should consider, within and outside the project formulation process, to ensure political support to its endeavours, is an open question which should be considered in the development of a country strategy and of future operations. The Mission would recommend as a contribution to this process, that a discussion of this evaluation be held with the Yemeni authorities and other IFAD development partners during a workshop to be organised in Yemen.

INTERNATIONAL  
FUND FOR  
AGRICULTURAL  
DEVELOPMENT



PN-ACB-564

Distr. IFAD  
RESTRICTED

EC 93/7/W.P.3  
2 July 1993

ENGLISH ONLY

Evaluation Committee  
Seventh Session  
Rome, 17 September 1993  
Agenda Item 3

YEMEN

YEMEN

COUNTRY PORTFOLIO EVALUATION

(Main Report and Annexes)

Document of  
The International Fund for Agricultural Development  
For Official Use Only

YEMEN  
COUNTRY PORTFOLIO EVALUATION  
Main Report & Annexes

Monitoring and Evaluation Division  
Economic and Planning Department

CONFIDENTIAL  
REPORT No. 0386-YE  
OCTOBER 1992

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without the authorization of the International Fund for Agricultural Development (IFAD).

## YEMEN COUNTRY PORTFOLIO EVALUATION

### TABLE OF CONTENTS

	Page No.
Maps	v-vi
Currency Equivalents	vii
Abbreviations and Acronyms	viii-x
I. INTRODUCTION	1
A. Purpose, Scope and Limitations	1
B. Organisation of the Report	4
 <u>SECTION ONE: PROGRAMME FEATURES &amp; DELIVERY</u>	
II. THE NATIONAL CONTEXT	5
A. Resources and Constraints	5
B. Economic and Political Setting	7
C. Agriculture in the Development Strategy of Yemen	9
D. Development Assistance	10
III. IFAD OPERATIONS IN YEMEN: AN OVERVIEW	15
A. Programme Development	15
B. The Projects	19
IV. IMPLEMENTATION PERFORMANCE	23
A. Disbursements	23
B. Physical Performance	26
C. Conformity with Loan Covenant	29
D. Implementation Problems	30
E. Supervision	33
V. THE INSTITUTIONAL FRAMEWORK AND PROJECT ORGANIZATION	35
A. The Institutional Framework	35
B. Evolution of Project Organization and Delivery Mechanisms	36
C. Community Institutions for Rural Development	39
D. Projects Impact on General Institutional Performance	39
E. Aid Management	41

SECTION TWO: MAIN RESULTS BY FIELD OF INTERVENTION

VI.	IRRIGATION AND RURAL INFRASTRUCTURE	43
A.	Water Resources	43
	(1) The Resource Base	43
	(2) Institutional Aspects	44
B.	Irrigation	46
	(1) Improvement of Traditional Spate Irrigation Schemes	46
	(2) Groundwater Irrigation	51
C.	Rural Water Supply Schemes	55
D.	Roads	58
VII.	AGRICULTURAL RESEARCH AND EXTENSION	61
A.	Background	61
	(1) Research	61
	(2) Extension	61
B.	Development of Improved Technical Packages	62
C.	Dissemination of Improved Technical Packages	64
D.	Impact on Farmers' Productivity and Cropping Patterns	67
E.	Impact of Production Increase on Farmers Income	71
F.	Impact on Institutional Development	72
	(1) Research	72
	(2) Extension	74
	(3) Research-extension, Institutional Linkages	74
VIII.	AGRICULTURAL CREDIT	77
A.	Credit Institutional Framework	77
B.	Typology of Agricultural Credit	79
C.	Performance of Credit Components	80
D.	Credit Sustainability and Project Design	82
E.	Beneficiaries Characteristics	83

SECTION THREE: PROJECTS IMPACT: POLICY IMPLICATIONS FOR IFAD

IX.	POVERTY ALLEVIATION IMPACT	89
A.	Introduction	89
B.	Methodological Aspects	89
C.	Incidence of Rural Poverty	91
D.	Poverty and Economic Change	92
E.	Access to Land and Water Resources	95
F.	Gender Considerations	98
G.	Targetting the Poor: A Brief Retrospective	101
H.	Tihama Development Project (Phase III)	102
I.	Beihan Agricultural Development Project	107
J.	The Southern Regional Agricultural Development Project	113
K.	Agricultural Credit Project	116
L.	Conclusions	121

X.	CONCLUSIONS AND RECOMMENDATIONS	123
A.	IFAD Programme	123
B.	Implementation Performance	124
C.	Project Performance Ranking	125
D.	Typology of Problems Encountered	127
E.	Targetting the Poor	127
F.	Institution-building	131
G.	Credit	132
H.	Agricultural Research and Extension	133
I.	Irrigation and Rural Infrastructure	134

#### LIST OF TABLES

Table 2.1:	Total and Per Caput Food Production in Yemen 1979-1990
Table 2.2:	External Assistance Sectoral Disbursement: Amounts and Percentage Share 1990 and 1991
Table 3.1:	IFAD Operations in North and South Yemen
Table 3.2:	IFAD Programme Development
Table 3.3:	IFAD Projects: Salient Features and IFAD Components - North Yemen
Table 4.1:	Project Duration and Disbursement Profiles (as of 31.12.1991)
Table 6.2:	Water Distribution Schemes and Total Benefitting Population by Projects
Table 7.1:	List of Improved Cereal Varieties Released by ARA
Table 7.2:	Promising Cereal Varieties Recommended for Release
Table 7.3:	Crop Yields at Base Year, Appraisal and Completion in Wadi Mawr
Table 7.4:	Appraised and Actual Crop Yields With and Without Project in SURDP II
Table 7.5:	Area Cultivated, Yield and Production at Appraisal and Completion of Wadi Beiha Project
Table 7.7:	Research Staff at Different Research Centres of AREA in 1991
Table 7.6:	Estimates of Farm Incomes Before and with the ASSP
Table 8.1:	SURDP II: Credit Recovery Rates
Table 8.2:	Credit Beneficiaries Sample Distribution by Farm Size
Table 8.3:	SURDP II - Credit Beneficiaries Sample Percentage Distribution by Annual Income Source
Table 8.4:	SURDP II - Credit Beneficiaries Sample Number and Percentage Distribution of Beneficiaries by Income Strata
Table 8.5:	SURDP II (YR-46) Credit Beneficiaries Sample Analysis Percentage Distribution of Loan Value by Purpose"
Table 9.1:	Development Indicators
Table 9.2:	Distribution of cultivated and irrigated land by type of farms
Table 9.3:	Cropped areas, yields and productions
Table 10.1:	Classification of problems encountered by projects in Yemen

LIST OF FIGURES

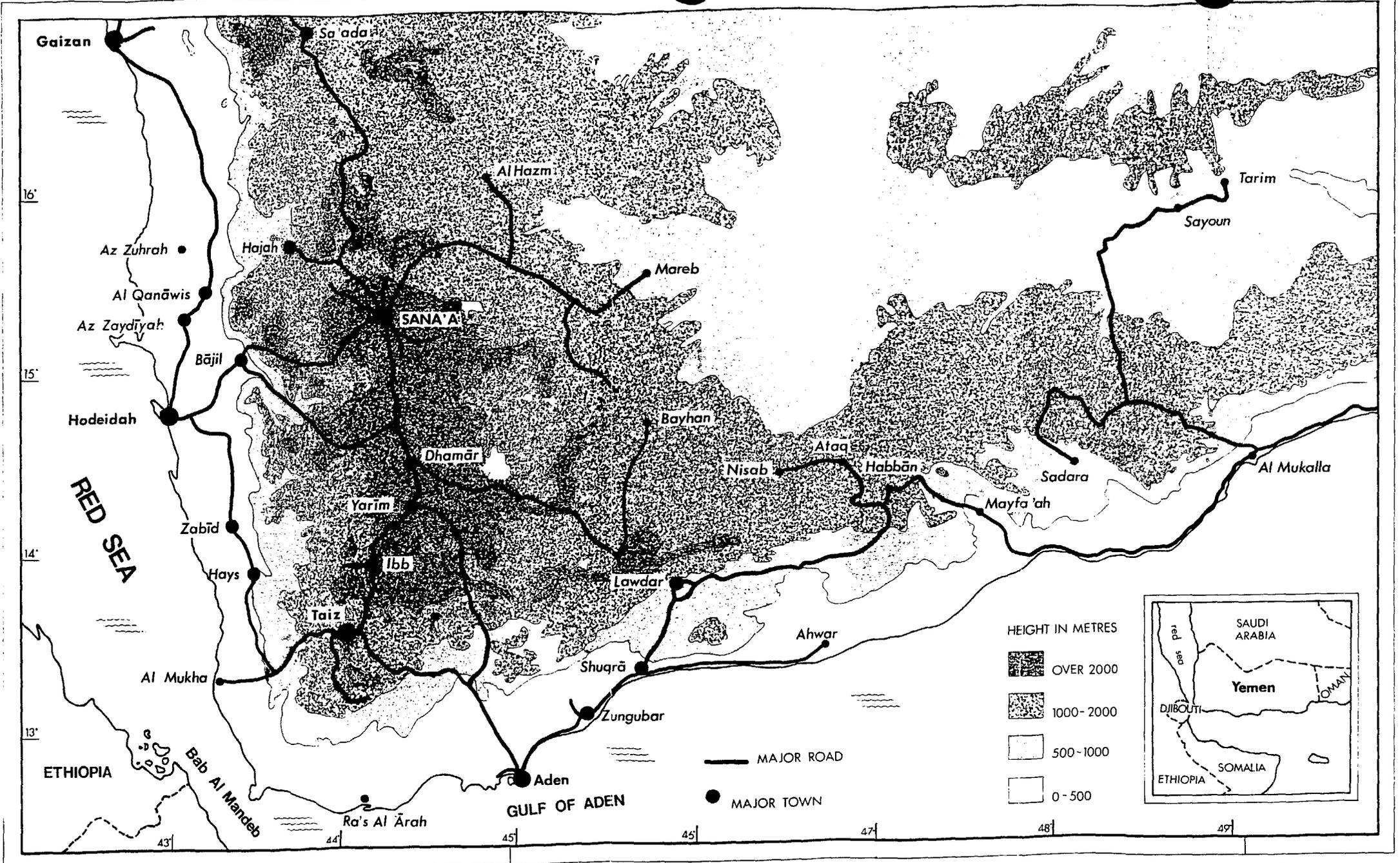
- Figure 4.1: IFAD Loan Disbursements
- Figure 4.2: IFAD Loan Disbursements by Category (All Projects Average)
- Figure 6.1: Increase in Number of Pumped Wells in Tihama
- Figure 8.1: Analysis of Credit Beneficiaries Sample
- Figure 8.2: Credit Beneficiaries by Family Income

ANNEXES

- ANNEX I: TERMS OF REFERENCE AND FIELD WORK PROGRAMME OF THE MISSION
- ANNEX II: ECONOMIC STRUCTURE
- ANNEX III: PROJECT PROFILE, Loan No. 013-YA
- ANNEX IV: PROJECT PROFILE, Loan No.: 046-YA
- ANNEX V: PROJECT PROFILE, Loan No.: 105-YA
- ANNEX VI: PROJECT PROFILE, Loan No.: 156 YA
- ANNEX VII: PROJECT PROFILE, Loan No.: 202-YA
- ANNEX VIII: PROJECT PROFILE, Loan No.: 253-YA
- ANNEX IX: PROJECT PROFILE, Loan No.: 060-YD
- ANNEX X: PROJECT PROFILE, Loan No.: 068-YD
- ANNEX XI: PROJECT PROFILE, Loan No.: 106-YD
- ANNEX XII: PROJECT PROFILE, Loan No.: 228-YD
- ANNEX XIII: PROJECT PROFILE, Loan No.: 269-YE
- ANNEX XIV: GENERAL BIBLIOGRAPHY
- ANNEX XV: LIST OF OFFICIALS MET

# YEMEN: COUNTRY-WIDE EVALUATION OF IFAD OPERATIONS

## MAP 1: PHYSICAL UNITS, MAJOR CITIES AND COMMUNICATIONS

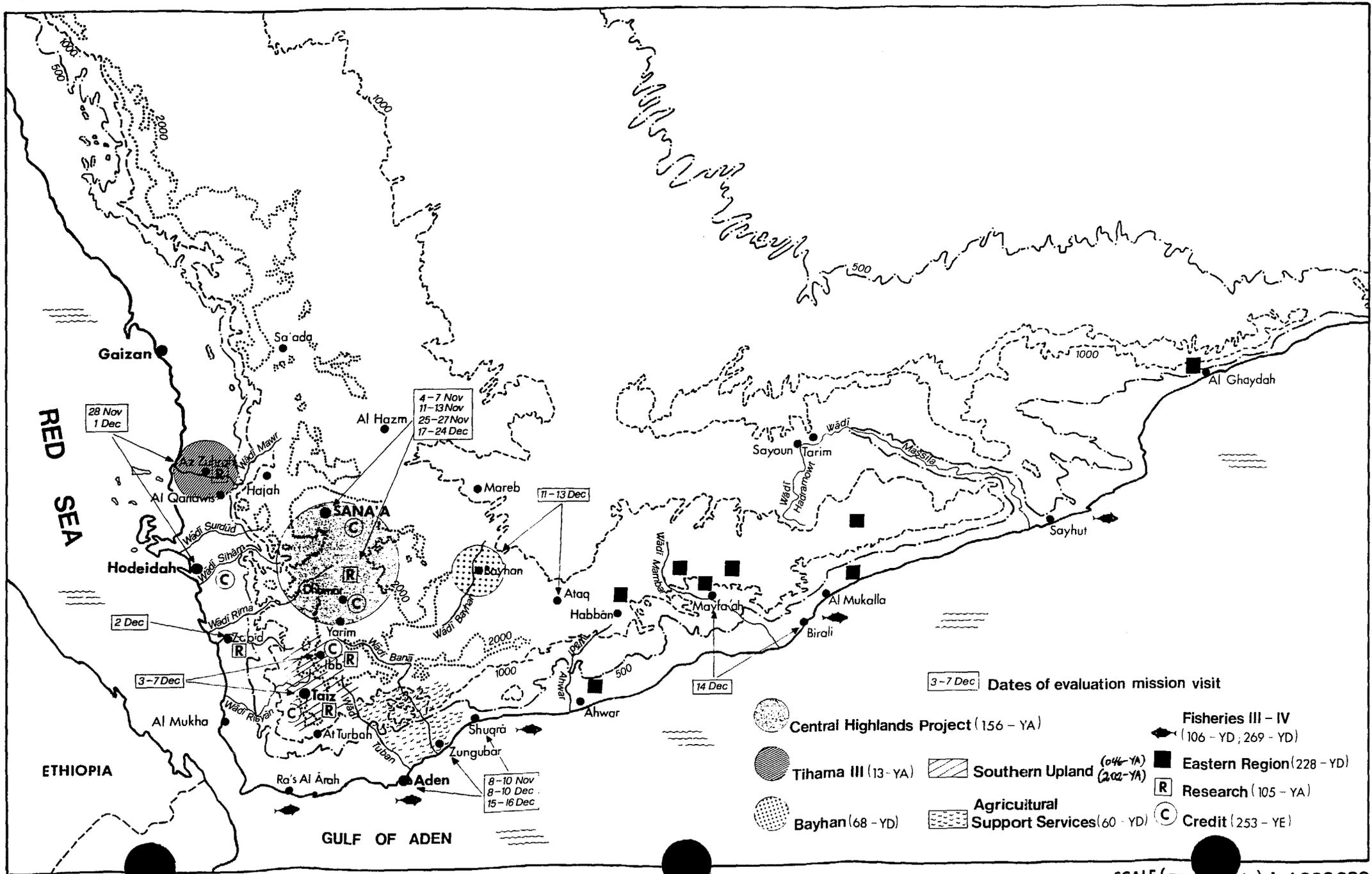


SCALE (approximate) 1: 2.000.000

12

# YEMEN : COUNTRY-WIDE EVALUATION OF IFAD OPERATIONS

## MAP 2: LOCATION OF PROJECT SITES AND EVALUATION MISSION ITINERARY



CURRENCY EQUIVALENTS

Yemen (North): Yemeni Riyal (YR)

Period	Official Exchange Rates --Yemeni Riyal per US\$--
1979-1983	4.56
1984	5.35
1985	7.27
1986	9.42
1987	10.21
1988	9.76
1990-1991	12.0

Yemen (South): Yemeni Dinar (YD)

Fixed Exchange rate of YD 1.0 = US\$ 0.35

Unified Yemen: Yemeni Riyal (YR)

1990-1991 Official Exchange Rate: YR 12.0 = US\$ 1.0  
YD 1.0 = YR 26

Market Exchange Rate: YR 25.0 = US\$ 1.0

YEMEN COUNTRY-WIDE ASSESSMENT

ABBREVIATIONS AND ACRONYMS

ACP	Agricultural Credit Project
ADh	Abu Dhabi Fund
AFESD	Arab Fund for Economic and Social Development
ARA	Agricultural Research Authority
AREA	Agricultural Research and Extension Authority
ARDP	Agricultural Research Development Project
ASSP	Agricultural Services Support Project
AVRDC	Asian Vegetable Research and Development Centre
b/d	barrels per day
BPU	Wadi Beihan Project Implementation Unit
CACB	Cooperative Agricultural Credit Bank
CBY	Centram Bank of Yemen
CHADP	Central Highlands Agricultural Development Project Phase I and Phase II
CPO	Central Planning Organization
DRE	Directorate of Research and Extension (former PDRY)
EEC	European Economic Community
ERADP	Eastern Region Agricultural Development Project
FAO	Food and Agriculture Organization of the United Nations
FAO/IC	Food and Agriculture Organization Investment Centre
FAO/WB-CP	Food and Agriculture Organization/World Bank Cooperative Programme
FMDC	Fisheries Manpower Development Centre
F-VDC	Fisheries Village Development Centres
GDI	General Department of Irrigation
GDP	Gross Domestic Product
GNP	Gross National Product
HWC	High Water Council
HTC	High Tender Committee
ICARDA	International Centre for Agricultural Research in Dry Areas
ICB	International Competitive Bidding

ABBREVIATIONS AND ACRONYMS (cont'd)

IDA	International Development Association of The World Bank
IFAD	International Fund for Agricultural Development
IsDB	Islamic Development Bank
IMF	International Monetary Fund
KD	Kuwait Dinars (KD 1.00 = US\$3.4)
KFAED:	Kuwaiti Fund for Arab Economic Development
LCCD	Local Council for Cooperative Development
LDA	Local Deveopment Association
ODA	Oversesas Development Administration of the United Kingdom
MAWR	Ministry of Agriculture and Water Resources
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Fisheries
MFW	Ministry of Fish Wealth
MOF	Ministry of Finance
MRS	Machine Rental Stations
MSSRI	Marine Science and Resources Research Institute
NBY	National Bank of Yemen
NCFM	National Corporation for Fish Marketing
NORADA	Northern Agricultural Development Authority
PCR	Project Completion Report
PCVFM	Public Corporation for Vegetables and Fruits Marketing
PDRY	People's Democratic Republic of Yemen
PER	President's Executive Report
PIU	Project Implementation Unit
PM	Project Manager
PMT	Project Management Team
PMU	Project Management Unit
PVC	Polyvinyl Chloride Pipes
RCC	Research Coordination Committee
RDA	Rural Development Authority
RDU	Rural Development Unit
RETC	Research/Extension Technical Committees

ABBREVIATIONS AND ACRONYMS (cont'd)

ROY	Republic of Yemen
SAR	Staff Appraisal Report
SDC	Swiss Development Corporation
SRADP	Southern Regional Agricultural Development Project
SURDP	Southern Upland Rural Development Project
SURDU	Southern Upland Rural Development Unit
SMS	Subject Matter Specialist
TA	Technical Assistance
TDA	Tihama Development Authority
UNDP	United Nations Development Programme
WBADP	Wadi Beihan Agricultural Development Project
WFP	World Food Programme
VDC	Village Development Committees
VFD	Village Fisheries Development
YAR	Yemen Arab Republic
YD	Yemeni Dinar
YR	Yemeni Riyal

GLOSSARY

al qaba-il	Tribal leadership
aqil	A head of a big family (UQAL is plural of AQIL)
barr	Rainfed lands
majlis al-shura	Member of the Senate
oqmas	Earth embankments
shirk	Sharecropping arrangements
wadi	Seasonal water flood course
wakil	Water managers/masters
qat	A tree whose leaf when chewed, produces a mild narcotic effect
zakat	Religious income tax

## I. INTRODUCTION

### A. Purpose, Scope and Limitations

1.01 IFAD's management recently decided that Country Portfolio Evaluations/Assessments<sup>1/</sup> (CPEs) be carried out for countries in which IFAD has financed so far seven or more projects. Since Yemen<sup>2/</sup> has had a portfolio of 11 projects, it qualified for such an exercise. The purpose of the CPE is to draw lessons from project experience and to establish a basis for a dialogue with national authorities on identified issues.

1.02 In accordance with the terms of the Agreement establishing IFAD, the latter does not administer the project loans it finances. In the case of Yemen, IFAD has entrusted IDA with the supervision of eight of its eleven projects and AFESD with the remaining three. Whereas, in most cases, resolving implementation problems in the field is the direct responsibility of the cooperating institution, their implications in terms of achievement of the objectives as well as for future operations design are of direct concern to IFAD. Hence the main objective of the present country portfolio evaluation exercise is the thorough investigation of the constraints, successes and failures of the implementation of IFAD's projects in Yemen and their consequences and/or implications in terms of both IFAD country strategy and project design.

1.03 It should be clearly understood that this country portfolio evaluation is a diagnostic approach, not designed to elaborate solutions to the problems of specific projects, but rather to draw lessons from the overall observations regarding the assistance programme and synthesize these lessons into a comprehensive policy-cum-operational approach.

1.04 The country portfolio evaluation was conducted in two main phases. Phase I comprised a desk study during which a thorough review of relevant documents, including Programming and Identification Missions, Staff Appraisals, President's Executive Reports, Loan Agreements, Supervision, Mid-term Evaluation and Project Completion Reports were undertaken. In addition, extensive discussions were conducted and views were exchanged with IFAD staff dealing with various aspects of IFAD operations. On the basis of this thorough review of literature and interactions, a discussion paper was prepared and disseminated to attract further comments, suggestions and contributions from all concerned within IFAD.

---

<sup>1/</sup> As it is not feasible to carry out "strictosensu" evaluations of all projects, on-going as well as closed, "assessment" will often be used in this report in place of "evaluation".

<sup>2/</sup> The two Yemens were unified into the Republic of Yemen in May 1990. Henceforth, for the purposes of this report, the former YAR will be referred to as North Yemen and the former PDRY as South Yemen.

1.05 In accordance with the outcome of the desk study, Phase II comprised an investigation of the field performance of IFAD operations in Yemen. IFAD-supported projects were found to have concentrated on five fields, viz.: (a) irrigation (including spate and underground irrigation); (b) rural infrastructure, including rural water supply, roads and fisheries development; (c) research and extension; (d) credit; and (e) rural programmes designed to reach specific target groups and enhance beneficiaries' participation. In addition, special attention was given to institutional as well as implementation performance of IFAD operations.

1.06 A preparatory mission (composed of the Evaluation Officer and the Mission Leader) visited Yemen for a week to discuss with the Government the proposed country portfolio evaluation, to incorporate the authorities' views in advance and to prepare for the field trip. Subsequently, four subject matter specialists corresponding to the areas described earlier joined the evaluation team.<sup>1/</sup> The Mission visited all IFAD-financed projects in Yemen, collected relevant data and information, had extensive discussions and interviews with project, regional and central government officials, and visited structures and project sites with on-going activities. The evaluation team conducted extensive interviews with beneficiaries, their organizations and special target groups, such as rural women. Furthermore, in the case of credit, it was possible to select a random sample of credit beneficiaries and analyse their application files.

1.07 There are considerable limitations to this task, however. The nature of the exercise is composite involving:

- (a) rural development projects with many components and multiplicity of objectives;
- (b) a geographically dispersed programme and wide-spread project coverages;
- (c) diverse structure of beneficiaries and target groups;
- (d) the variations in the objectives and priorities of the co-financing institutions; and
- (e) the complexities of the Yemen situation with wide natural and human diversity accentuated by the recent unification of previously two very different states.

1.08 In most cases, IFAD-financed components were completely integrated in the projects concerned and represented a minority share in total projects costs. For these reasons, it was, more often than not, difficult to identify specific objectives for IFAD-financed items, separate from

---

<sup>1/</sup> The team was composed of Messrs. El Sayed Zaki (mission leader); M. Ait Kadi (irrigation and rural infrastructure specialist); A. Kambal (research and extension); A. Lahlimi (credit and institutions); and M. El Sammani (socio-economist). Mr. K. El Harizi, IFAD Evaluation Officer provided overall guidance to the mission and reviewed the final report.

those of the project. Methodologically, it was practically impossible to assess IFAD components separately<sup>1/</sup>. Consequently, the evaluation team chose to undertake assessment of whole projects, but with particular emphasis on IFAD-financed components whenever possible.

1.09 The complexity and variability of the components financed by IFAD, which included irrigation, village water supply, rural roads, fisheries development, research, extension, women's programmes, credit, institutional development including training, monitoring and evaluation, have posed special difficulty. On the face of limited budgetary resources and time constraints, team members had to expand their sphere of competence to cover a number of related areas considered of prime importance for the assessment. For example, the irrigation specialist undertook the task of village water supply and roads, the researcher had to evaluate the extension component and the credit specialist had to examine the institutional performance. The team did not include a fisheries specialist and had therefore to rely on local/expatriate expertise available on the spot<sup>2/</sup>.

1.10 Another point of methodology concerns the evaluation criteria used by the mission. It is difficult, in fact, given the diversity of the projects and of their environment, to think of a single set of evaluation criteria to be used. The mission deliberately and pragmatically chose to adapt to the situation it encountered in each case to try to answer the questions arising from project experience. In many instances, it had to recognise that the minimum threshold of information needed was not available, as mentioned above. In other cases, the mission reached the conclusion that there were no simple answers to apparently simple questions. In all such cases it would have been unproductive to define evaluation criteria/indicators which the mission would not have been in a position to measure in an objective and fully satisfactory manner. Hence the choice often made by the mission to give insight to the reader of the dimensions of the issues involved instead of oversimplifying complex issues. This would hopefully contribute to a better understanding of the issues involved.

1.11 Last, but not least, the exercise was significantly affected by the lack of quantitative data. This was more pronounced in the case of social data which is particularly important for the assessment of IFAD's specificities relating to targetting, beneficiaries' participation, women's programmes and food and nutrition. In general, the situation was exacerbated by the weak monitoring and evaluation systems in most of the projects. Under the circumstances, available data was supplemented with extensive field investigations and interviews of the various actors. Yet the fact remains that the evaluation team had to limit its judgements to the fields and issues which it felt could be reasonably well substantiated. Areas or fields where no reliable information was available are therefore under-represented in this assessment, whether they potentially correspond to problem or success areas.

---

<sup>1/</sup> More recent projects in the portfolio present a different picture but they are less concerned with this review of past experience, due to the fact that they are not advanced in implementation.

<sup>2/</sup> The mission thankfully acknowledges the contribution of local and expatriate expertise in this regard.

B. Organization of the Report

1.12 The evaluation report consists of ten chapters grouped under three general sections, viz., programme features and delivery; the main results by major fields of intervention, and; projects impact: policy implications for IFAD.

1.13 Chapter I, Introduction, discusses the methodology adopted for the CPE and the limitations and constraints which faced the evaluation team in undertaking the task. Chapter II is designed to provide the reader with the basic information on Yemen, particularly with regard to natural resources, the political environment, the economic structure and role of agriculture and the prospects of agricultural development as well as the overall level of development assistance extended to the country. Chapter III reviews IFAD's intervention in Yemen including a historical perspective for IFAD's programme development and a brief description of the portfolio.

1.14 The assessment of the overall performance of implementation is discussed in Chapter IV. Closely linked to implementation is the institutional framework and projects' organization which are examined in Chapter V.

1.15 Chapters VI, VII and VIII present the results of the detailed field investigations of irrigation and rural infrastructure, research and extension, and agricultural credit, respectively.

1.16 Chapter IX analyses the projects' contribution towards poverty alleviation, taking into consideration the dynamics of economic change and poverty in Yemen. It subsequently discusses the specific issue of targetting approaches and instrumentalities in the light of actual experience. Finally, Chapter X presents the major conclusions and recommendations of the mission.

## II. THE NATIONAL CONTEXT

### A. Resources and Constraints

2.01 The total population of the country is currently estimated at about 12.5 million of which 2.4 million, i.e. about one fifth, live in the Southern Governorates. The annual population growth rate is estimated to be about 3.1 percent, with about 48 percent of the population being under 15 years of age. About 75 percent of the population live in rural areas and are dependent on agriculture.

2.02 Climatic conditions in ROY vary widely because of topography. Elevations vary from sea level to about 3 700 m above sea level. Five main agro-ecological regions may be discerned as follows: (i) Coastal Lowlands; (ii) Southern Uplands; (iii) Central Highlands; (iv) Northern Highlands; and (v) Eastern Region. The country, being arid and mountainous, lacks adequate rainfall and suitable land for cultivation and hence has very limited agricultural potential.

2.03 Rainfall, which is highly variable, ranges between 0 mm to less than 100 mm in the eastern regions and coastal plains of the South, and 100 mm to 200 mm in the coastal plains of Tihama and gradually increasing with elevation in the watershed mountainous region to the interior, reaching a high annual average of over 800 mm. This precipitation on the watershed then forms the run-off valleys that cross the Tihama coastal plains to the west, towards Marib to the east, and towards the southwest and to the southern coastal plain. Whereas the rains in the high altitudes may support cultivation with very little supplementary irrigation, if needed, the areas which are commanded by the valleys depend invariably on the floods (spate irrigation) and supplementary irrigation from groundwater.

2.04 For centuries, Yemenites have harvested water for cultivation and domestic consumption by building dams on valley courses, digging wells and constructing terraces on the foothills. The variation in climate brought about by the variation in elevation gives the opportunity for a wide range of agricultural products such as tropical, subtropical and temperate crops. Opportunities for profitable agricultural production therefore vary considerably within relatively short distances.

2.05 Estimates of agricultural lands in the country, in particular, vary widely because of the weak data base and are put between 1.4 and 1.6 million ha (i.e. about 3% of the total area). About 61% of the cultivated area in 1990 was rainfed and 39% was irrigated from different sources, namely groundwater (28%), spate irrigation (9%) and springs (2%). As 1990 was a particularly dry year, the percentages of rainfed and spate-irrigated areas in that year were below average.

2.06 The rough grazing lands which support livestock raised by the nomadic population is approximately 22 million ha, or about 42% of total land area. Woodlands and savannah occupy 7 million ha, a share of about 13%, while the rest of the area of about 22 million ha (or 42%) is barren land and is not suitable for agricultural production. In Table 3, Appendix I, a land use pattern for Yemen is depicted based on data from the mid-1980s.

2.07 Given the fact that the main feed resources are obtained from crop residues, primarily sorghum and maize stover, and since their production depends on rainfall, the livestock raising and production is in turn circumscribed by the incidence of rainfall. This is reflected in the relatively small population of livestock which is presented in Table 4, Appendix I. In spite of the small contribution of livestock to agricultural gross domestic product, such contribution is important to meet a growing demand for meat, broilers and dairy products. In the North, imports of livestock and their products increased rapidly to satisfy an increasing demand; but the North was able to reach self-sufficiency in poultry by 1986, when output increased seven-fold between 1982 and 1986. Livestock production in South Yemen was favoured by government policy in that price controls were not applied to fodder or to the sale of live animals.

2.08 Yemen has a total coastline of approximately 1 900 km on the Indian Ocean, Arabian Sea and Red Sea. The total potential for fisheries is estimated between 250 000 mt and 350 000 mt per annum, though presently only a third of this potential is utilised. The contribution of the fishing industry to the economy of South Yemen is significant since it contributed in 1987 about 80% of agricultural exports, equivalent to about 45% of total exports, including re-exports of oil products from the Aden refinery. In North Yemen, the production was estimated at about 22 000 mt in comparison to a total of about 90 000 mt in South Yemen. The fishing sector provided employment to a total of about 34 000 artisan fishermen in Yemen, about 22 000 in the North and 12 000 in the South. In addition, there have been a number of joint ventures and licensed vessels operating in the national waters of South Yemen.

2.09 The most important national asset of Yemen contributing to foreign earnings has been the immigrant labour force to adjacent oil-rich countries. In North Yemen, about one-third of the men of age 15-54 years (about 1.23 million) were abroad during peak demand for labour in the early 1980's. The total migrant labour from South Yemen was estimated at about 100 000 labourers and traders. Most of those migrant labourers were basically unskilled, but have, presumably, gained skills in the meantime through on-the-job training. Their return could have a positive impact on the social, political and economic configuration of the country, provided it is done in an orderly manner.

2.10 Unfortunately, the Gulf War of 1991 has abruptly expedited the return of those migrants, such that about eight hundred thousand to one million have already poured into the country. This would initially strain the economy and the social structure. In the short-term, the economy would suffer from the loss of foreign exchange; where remittances peaked to over a billion dollars for North Yemen, it decreased to about half a billion in 1984, and further levelled to about US\$ 240 million for North Yemen (against US\$ 170 million for South Yemen in 1989). Nevertheless, remittances exceeded the value of exports of goods and services for Yemen in 1984 and 1989 as well. Hence, further loss of remittances due to the exodus from Saudi Arabia and the Gulf states deprived the country from an important source of foreign exchange and drove the exchange rate of Yemeni riyal to the American dollar to the unprecedented levels of around YR 30 per one dollar.

2.11 The economy and the social fabric would be further strained by the lack of employment opportunities for such a huge influx of returnees. In fact, unemployment has doubled during the course of 1990/1991 to 30% of the labour force.

2.12 The economy is likely to lose another source of foreign exchange - the hefty economic assistance from oil-rich Arab neighbours. Saudi Arabia used to donate about US\$ 600 million annually.

2.13 Oil discoveries in Yemen put the total reserves at 4.75 billion barrels, (1.0 and 3.75 billion barrels in North and South Yemen, respectively). Yemen started exporting crude oil both from the North and South in 1987. The level of exports from the North fields reached 200 000 barrels per day (b/d) by the end of 1988. The government's share amounted to about 90 000 b/d during 1990. From the South fields, crude oil exports are scheduled to increase to 120 000 b/d by the end of 1991. Though oil export earnings provide some needed cushion for the economy which is facing depletion of other sources of foreign exchange, yet these earnings are far from either meeting the demand on foreign exchange or compensating those losses. Overall, these recent developments are likely to significantly modify the national context in which IFAD is going to implement its future projects as compared with the past.

#### B. Economic and Political Setting

2.14 The two Yemens, before their unification, differed in two respects: their agricultural resource endowment and their politico-economic systems. Differences in resource endowments are only of magnitude, in that the North has more land and water resources and wider variations in climate than the South, and hence is prone to expansion in agricultural production, albeit on an extremely limited scale. The South, on the other hand, has a long coast, good natural harbours and rich fish resources, though insufficiently exploited. In as far as resources are concerned, they are now pooled together anyway. Though these resources are modest, presumably there is a better chance for their development jointly.

2.15 With respect to the politico-economic systems, that of North Yemen can be considered to be an interaction between feudalism and tribalism with its implication especially on land ownership where land, though fragmented, is owned by landlords and leased to sharecroppers. Upon abolishing the monarchy in 1962, the economic system gradually emerged as liberal in transactions and trade. Indicative planning has been used to foster investments in the public sector, especially infrastructure and institutional capacity building.

2.16 The system of the South attempted to abolish all forms of tribal leadership and rival political parties, redistribution of ownership of resources, including redistribution of agricultural land. Administrative prices and trade controls were widely applied. State planning was adopted as a means for the mobilisation of national resources and foreign assistance to improve the infrastructure and for institutional capacity building, just like in the North.

2.17 It is generally anticipated that the merger of the two systems would ultimately lead to the adoption of the more liberal politico-economic system which has been practiced in the North. The expectation is based on a number of observations. Firstly, the South tacitly dropped scientific socialism years before its demise elsewhere. Secondly, the population of the North is four-fold of that of the South. Thirdly, the North is more endowed with natural resources than the South. Finally, social and religious beliefs are more commensurate with the model of the North.

2.18 As a matter of fact since the unification in May 1990, it has been generally observed that the Republic of Yemen is emerging as synonymous to that of the North. In the political arena a multiparty, democratic system has been introduced. Lands and property which were expropriated by the ex-socialist regime of the South are being returned to their original owners, with profound implications on agricultural land, agricultural cooperatives and farming communities. Significant measures have been undertaken to privatize the fishing industry, where small fishing boats were already handed over to owner-operators and plans are underway with respect to larger vessels. Internal trade and prices were liberalized, favourably affecting the market structures and the marketing of all products, particularly perishables and fish. In brief, the driving force and dynamism of the private sector, for which the Yemenites are well reputed, was unleashed.

2.19 Yemen, the ex-North in particular, had been following free-trade policy since the creation of the modern state after the 1962 Revolution. Two significant actions, however, have had profound impact on production and marketing. The first is the construction of rural roads in which the Government, international donors (including IFAD) and the rural communities, through their respective Local Development Associations (LDAs)<sup>1/</sup> actively participated, thus opening up both input and product markets and reducing the incidence of market failures. The second is the cognizant policy measure undertaken in 1984 banning the import of all fruits and vegetables into the country. It is generally recognized that such a measure could lead to inefficiency in resource allocation, it enhanced, however, the production of fruits and vegetables.

2.20 All governments in Yemen have accorded high priority to institution building. At the national level, the Government and its major development assistance partners used rural development projects to create the nucleus of future development authorities at regional levels. With respect to the local level, the South had actively assisted the establishment of cooperatives which were, however, centrally controlled and riddled with redundant staff and bureaucratic controls. In the North, spontaneous growth of local development associations took the lead and provided initiative for rural development for over a decade. The drive started to lose the earlier momentum upon the loss of an important source of funding, the donations from immigrants and because of less feel for critical rural infrastructural needs. Currently the Government is in the process of re-organizing the LDAs and considers associating them with local government structures.

2.21 Realizing the huge assistance required for the transformation of Yemen from a medieval to a modern state, international donors and neighbouring oil-rich Arab countries have extended generous economic assistance during the last two decades. Recently, in the aftermath of the Gulf crisis (1990-1991), a critical turn in the Yemen relations with its Arab neighbours has taken place, leading to the severance of economic assistance, the return of about one million Yemenis working in these countries and the loss of their remittances. Moreover, the pace and magnitude of assistance of some international donors are likely to witness a marked decline, since they perceive Yemen as already past the critical level of poverty and underdevelopment. There are some donors whose assistance is likely to continue unabated for various other reasons.

---

<sup>1/</sup> LDA's are grouped to form Local Councils for Cooperative Development (LCCDs) at the national level.

C. Agriculture in the Development Strategy of Yemen

2.22 It is not likely that Yemen would have a detailed development plan drawn shortly after the unification. As a stop-gap measure, the Government of Yemen has decided to formulate an investment programme for the period 1992-1995 which will be presented to a round table of donors scheduled for the second quarter of 1992. In the meantime, the Government contemplates the preparation of a Five Year Plan for the period 1996-2000. Before unification, however, both Yemens since early 1970s embarked on formal development planning. North Yemen prepared a Three Year Development Programme in 1973, which resembled the Three Year Investment Programme of South Yemen drawn in 1971. Both programmes incorporated lists of investment projects which were neither comprehensive nor coherent. However, they served a useful purpose in that any investment at the time was an important contribution to national development and paved the ground for more future comprehensive planning.

2.23 The First Five Year Plan was prepared for the period 1977-1981 in North Yemen, and was followed by a second one for the period 1982-1986. The priorities in these plans were given to the development of the agricultural sector in terms of building the infrastructure and increasing the agricultural production. The First Five Year Plan in South Yemen (1971/72-1973/74) had given similar emphasis to agriculture. Though in the Second Five Year Plan for South Yemen planned investments in agricultural sector were reduced significantly, from a total of 34% to around 17% of planned investments for agriculture and fisheries combined. The agricultural investments in the two parts of the country were primarily directed towards irrigation infrastructural works, both for spate irrigation and groundwater exploitation, rural infrastructure such as roads and domestic water supply; with varying degrees of intensity agricultural credit, research and extension.

2.24 The Second Five Year Plan for North Yemen was to achieve a reasonable level of food self-sufficiency in a context of a food security policy. Self-sufficiency would be met by the mobilisation of potential water resources and their efficient utilisation, the development of agricultural support services and of rural infrastructure. The establishment of buffer stock of staples, the promotion of cooperatives and the adoption of a price policy that supports domestic production and rationalises consumption were the major areas of intervention which characterized this policy. Emphasis was placed on the support to the private initiative. The Cooperative and Agricultural Credit Bank (CACB) provided credit to private individuals. Rural markets were developed for the supply of agricultural inputs. Commodity prices were determined by the market forces and not by direct government interventions. Long-term trends for public investment in agriculture show a decrease of its share of total public investment expenditure following the diversification of the economy and the increasing reliance on the rural sector (Table 8).

2.25 South Yemen pursued, as well, an agricultural strategy that was supposed to utilise the agricultural, irrigation and fisheries potentials efficiently, enhance food self-sufficiency and cooperative and institutional capacity building. In contrast to the North where traditional land ownership remained intact, the South redistributed agricultural lands with upper limits of 8 hectares of irrigated and 16 hectares of unirrigated lands; at the same time large tracts of land were reserved for the establishment of state farms. Even though land was distributed to private farmers, lack of land ownership did not give

farmers security and adequate incentives to invest on the land or water conservation. In both Yemens, there has been a continued danger of depletion of groundwater resources and thus there has been a serious threat to the sustainability of agricultural production.

2.26 Another major difference between the North and the South was related to the role of the market. In the South, prices of agricultural products were preset for producers as well as consumers. The distribution of consumer goods and agricultural inputs was entrusted to state-owned corporations and cooperatives. Agricultural credit was extremely limited in scope and coverage because the credit institutions remained underdeveloped and only the National Bank of Yemen (NBK) provided those limited agricultural credit services to cooperatives only. Furthermore, agricultural services including Machinery Rental Services (MRS) and credit were permissible only to cooperative members.

2.27 There was of course, different emphasis on sub-sectoral development. In the North, agricultural crop production has been significantly more important than fisheries, for satisfying domestic demand for food. In the South, though agricultural crop production is very important, the fisheries sub-sector is the primary foreign exchange earner.

2.28 The priority accorded to agriculture in Yemen development strategies has helped to improve total food production towards the end of the eighties (Table 2.1). Despite this, the gap between domestic food production and consumption is widening and hence food imports are rising steadily. According to FAO estimates,<sup>1/</sup> costs of food imports in Yemen jumped from US \$ 581.2 million in 1985 to US \$740.6 million in 1990. Wheat grain and flour, rice, maize and meat constitute the main food imports.

#### D. Development Assistance

2.29 Development assistance to Yemen has generally been generous. In 1988, net external assistance and grants accounted for about 5.3% of GDP for North Yemen, where budgetary deficits were usually covered by external finances in the form of foreign loans, development aid and cash grants. The total disbursements of external assistance had risen steadily, and approximately doubled from US\$ 135 million in 1984 to US\$ 265 million in 1987. On the other hand, official grants from Arab neighbours were over US\$ 200 million in 1986, but started to decline since then till their termination in the aftermath of the Gulf crisis. These grants constituted about 1.5% of GDP compared to 3.8% in the case of other external assistance in 1988.

2.30 The economic survival of the pre-unification South was largely dependent on external assistance. For example, 70% of the financing needs of the 1981-85 development plan were covered by external sources, with 60% from former Soviet Union, China and North Korea, 30% from Arab countries and only 10% from other multinational and bilateral donors.

2.31 For the unified Yemen, UNDP statistics estimated the disbursement on external assistance for 1990 at US\$ 391 million. However, in view of the negative implications of the Gulf war, the planned 1991 disbursements of external assistance are estimated at US\$ 187 million, a decline of

---

<sup>1/</sup> FAO 1990 Trade Yearbook, Vol. 44, Rome 1991

Table 2.1: Total and Per Caput Food Production in Yemen 1979-1990  
Taking 1979-81 Average as 100

Total Production												
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Food	102.0	106.1	91.8	92.8	82.4	88.4	97.6	110.0	105.1	119.1	115.0	112.9
Total Crops	104.3	108.5	87.2	85.3	65.4	70.5	73.9	90.3	82.2	92.5	95.6	91.3
Cereals	98.6	99.9	101.4	93.9	50.4	51.2	57.0	85.2	75.0	91.6	94.9	83.9
Livestock Products	96.5	98.9	104.6	111.8	119.9	128.5	147.9	151.4	152.2	174.0	157.1	159.9
Per Caput Production												
Food	105.4	106.0	88.6	86.6	74.3	77.4	82.1	90.1	82.2	89.9	83.7	79.3
Crops	107.7	108.3	84.1	79.5	58.9	61.4	62.1	73.2	64.5	69.2	69.5	64.0
Cereals	102.0	99.1	98.1	87.7	45.5	44.7	48.0	69.3	58.8	69.2	69.2	58.9
Livestock Products	99.9	100.01	101.2	104.	108.3	112.2	124.6	123.1	119.4	131.6	114.6	112.3

Source: FAO 1990 Production Yearbook, Vol. 44, Rome 1991

21

approximately 52% from the preceeding year level. The main countries<sup>1/</sup> providing economic assistance to Yemen presently are Japan, USA, The Netherlands and Denmark. Among multilaterals, IDA, UNDP, WFP, EEC and AFESD are the leading donors.

2.32 As revealed in Table 2.2, assistance is primarily directed towards agricultural and rural areas development, a share which amounted to 32.9% of the total assistance for 1990 (with the exclusion of the huge one-time industrial assistance of US\$ 155 million from Japan to build a cement factory) and 32.5% for 1991. Economic management, development planning and human resource (institutional building) received a share equivalent to 22.8 and 10.4% for 1990 and 1991, respectively. Natural resource development which includes oil and natural gas exploration has a share of about 23.7 and 12.6% for 1990 and 1991, respectively. Health services also receive a significant share of 11.7 and 14.9% for 1990 and 1991, respectively.

2.33 IFAD's disbursements were not shown separately for years prior to 1990 (possibly included as part of IDA's), but for 1990 and 1991 they represent only 0.8 and 1.4% respectively, of total assistance. In terms of sectoral assistance, they are 2.7 and 5% of total disbursements for 1990 and 1991, respectively. Thus they constitute both in absolute and relative terms a small share of external assistance total disbursements.

---

<sup>1/</sup> Saudi Arabia was also shown in the list for 1991, though with a diminishing role.

Table 2.2: External Assistance Sectoral Disbursement:  
Amounts and Percentage Share 1990 and 1991  
(Million US\$)

Sector	Amt	Percentage Share	Adjusted <sup>a/</sup> Percentage Shares	Amt	Percentage Share
	-----1990-----	-----1990-----	-----1990-----	-----1991-----	-----1991-----
1. Economic Management/ Development Planning/ Human Resources	53.5	13.7	22.8	19.4	10.4
2. Natural Resources	28.2	7.2	12.0	23.7	12.6
3. Agric, Fisheries & Area Development	77.2	19.7	32.9	60.9	32.5
4. Industry <sup>b/</sup>	156.1	39.9	--	6.0	3.2
5. Energy	4.2	1.1	1.8	2.9	1.5
6. Transport and Communication	26.0	6.7	11.0	25.1	13.5
7. Social Development	12.0	3.1	5.1	12.1	6.5
8. Health	27.4	7.0	11.7	28.0	14.9
9. Humanitarian Aid	4.9	1.2	2.1	6.8	3.6
10. Other <sup>c/</sup>	1.4	0.4	0.6	2.5	1.3
<b>Total</b>	<b>390.9</b>	<b>100.0</b>	<b>100.0</b>	<b>187.4</b>	<b>100.0</b>

Source: Abstracted from UNDP, Republic of Yemen, November 1991, "Development Cooperation Report, Summary of External Assistance Disbursements."

<sup>a/</sup> Adjusted shares were obtained by reducing total external assistance by the one time Japanese investment of US\$ 155 million in a cement factory.

<sup>b/</sup> Cottage and small-scale industry assistance of about US\$ 5.1 million and US\$ 5.9 million for 1990 and 1991 is added to the agricultural sector in the respective years.

<sup>c/</sup> "Others" refer to various assistances including internal trade and disaster preparedness which could as well be considered institutional development.

### III. IFAD OPERATIONS IN YEMEN: AN OVERVIEW

#### A. Programme Development

3.01 IFAD operations in Yemen started shortly after the Agreement establishing IFAD entered into force 30 November 1977. The first operation - the Tihama Development Project III (WADI MAWR) - was signed with the Yemen Arab Republic (YAR) in April 1979, whereas the Agricultural Support Services Project was signed with the People's Democratic Republic of Yemen (PDRY) in February 1980. For the sake of convenience "North Yemen" and "South Yemen" will be most often used instead of, respectively, YAR and PDRY. Since then IFAD has financed a total of eleven projects in the Republic of Yemen: six in North Yemen, four in South Yemen while the last project was signed after the unification (Tables 3.1 and 3.2). Out of these eleven projects, only one is IFAD-initiated and exclusively financed by IFAD (financing type e): in South Yemen, the Agricultural Support Services Project (ASSP), approved in 1980, closed in 1987. Two projects are IFAD-initiated and co-financed with other institutions (financing type f): one in South Yemen, the Eastern Region Agricultural Development Project (ERADP), approved in 1988, ongoing; and the other in North Yemen, the Agricultural Credit Project (ACP), approved in 1990, ongoing. The eight other projects were initiated by the International Development Association (IDA) of the World Bank and co-financed by IFAD (financing type c). Throughout the text the letter c following the project title or its acronym therefore indicates that the project was initiated by IDA, while the letters e and f refer to IFAD-initiated projects, whether exclusively financed by the Fund (e) or co-financed (f).

3.02 The projects were primarily for agricultural and rural transformation. The total costs of the first ten projects committed by IFAD, co-financiers, the Government and beneficiaries are estimated at US\$ 371 million, of which US\$ 292 million in North Yemen and US\$ 79 million in South Yemen. IFAD's total share amounted to 25% i.e. US\$ 91.1 million, of which US\$ 53.3 million were committed for North Yemen and US\$ 37.8 million were committed for South Yemen. It is clear from Table 3.1 that IFAD has a minority share in North Yemen projects, most likely because projects were relatively larger and more expensive compared to South Yemen projects (average total project cost of US\$ 49 and US\$ 20 million, respectively in North and South Yemen). The loan agreement for the eleventh project (Fourth Fisheries Development Project, approved in 1990, financing type c) was signed in 1991, after the unification. Its total costs amount to US\$ 410.9 million, out of which IFAD's share is nearly 24%, i.e. US\$ 97.6 million.

3.03 Attempts at programming IFAD activities in Yemen started in the mid 1980s, almost a decade after its establishment and five years after the first project was approved. The first special programming mission (SPM) was sent to South Yemen in late 1984, and produced its report in 1985; whereas the SPM for North Yemen visited the country in 1987 and produced its report in 1988. As a result of this late start in IFAD strategic programming activities, five of the six projects in North Yemen were approved before the SPM, and only one project (the Agricultural Credit Project, f) was prepared and approved after the SPM in 1989/1990.

3.04 As far as South Yemen is concerned, three out of four projects were approved before the programming mission was launched. Only the Eastern Region Agricultural Development Project (ERADP, f) was prepared after SPM. The Fourth Fisheries Project (c) was signed in April 1991 after the

unification and became effective in August 1992. These two projects are likely to have benefited from SPM to South Yemen. Details regarding project approval dates and the institutions which prepared and initiated these projects for financing are given in Tables 3.1 and 3.2.

3.05 Yet, there has been another short-term programming exercise in the form of periodic general identification missions launched by IFAD. For South Yemen, IFAD solicited assistance of FAO Investment Centre in 1978 in this respect. Thus, though the Agricultural Support Service Project (ASSP, e) was not chosen within a context of a formal SPM, the project was nevertheless selected within a priority framework as far as IFAD was concerned. An identification mission was also sent to North Yemen in 1980.

3.06 IFAD's decision to enter into agreements for project financing in Yemen early on was facilitated by the widely recognised fact that Yemen has been one of the Least Developed Countries (LDCs). Both North and South Yemen had a per capita GNP estimated at US \$ 270 in 1976. In 1978, per capita GNP improved to US \$ 420 because of the impact of the oil boom in the area on remittances of Yemenites working abroad. However, this did not change the overall development status of the country, particularly in the rural areas. Thus it has been a relatively straightforward decision for IFAD to develop its operations in Yemen.

3.07 Furthermore, for North Yemen, there had been a series of interventions based on national development strategies and backed by programmes and projects prepared by reputable international donor agencies, such as the International Development Association (IDA) of the World Bank. In fact, the first project alluded to earlier was the third in a series of successive projects financed by IDA to utilise the water resources of the coastal plains of Tihama for agricultural and rural development. Quite understandably, IFAD chose, in the early stages of its intervention to reinforce the efforts of other donors. These early interventions supported by the various donors were generally aimed at accumulating physical assets to increase the resource base for production, in addition to the development of rural communities, and the strengthening of national institutions' capabilities for the implementation of projects to some minimum threshold.

3.08 In contrast, South Yemen which espoused scientific socialism and practiced state planning as a tool for optimum resource allocation, had limited access to international financial markets and international donor support apart from aid from the Eastern Block and some Arab institutions, such as the Arab Fund for Economic and Social Development (AFESD). Yet, this did not preclude IFAD from providing assistance as early as 1980, when IFAD financed its first self-initiated operation: the Agricultural Support Services project (e) which was prepared by the Investment Centre of the Food and Agriculture Organization (FAO/IC) and entrusted to AFESD for its supervision.

3.09 In conclusion, formal country programming by IFAD in Yemen is a relatively recent exercise and has, therefore, had limited impact on IFAD operations. This should not imply that IFAD management did not have specific guiding principles which they pursued in the course of designing their lending operations in Yemen (and elsewhere) before and after the SPM.

Table 3.1: IFAD Operations in North and South Yemen

Project Title	Loan No.	Approved Date	Location	Feasibility, Identification Done by	Initiating Instn.	Cooperating Instn.	Total Project Cost (US\$ Million)	IFAD's Share (US\$ Million)	IFAD's Share (rounded to nearest %)
Tihama Development Project III (Wadi Mawr)	13-YA	1979	North Yemen Wadi Mawr	Consultant firm	IDA	IDA	87.6	12.0	14
Southern Upland Rural Development Project II (SURDP II)	46-YA	1980	North Yemen TAIZ/Ibb	FAO/IBRD/CP	IDA	IDA	81.7	14.0	17
Agricultural Research and Development Project III	105-YA	1982	North Yemen Coastal Taiz Dhamar	FAO phase I of Research Prog.	IDA	IDA	32.4	5.8	18
Central Highlands Agricultural Development Project I	156-YA	1984	North Yemen Dhamar Sana'a	FAO/IBRD/CP	IDA	IDA	20.0	4.0	20
Southern Regional Agricultural Development Project (SRADP)	202-YA	1987	North Yemen Wadi Bana Taiz/Ibb	FAO/IBRD/CP and FAO/IC	IDA IFAD	IDA	28.5	2.5	9
Agricultural Credit Project	253-YA	1990	North Yemen Sana'a Dhamar Hodeida Marib	SPM	IFAD	AFESD	42.3	15.0	35
SUB-TOTAL FOR NORTH YEMEN							<u>292.5</u>	<u>53.3</u>	<u>18</u>
Agricultural Support Services Project	60-YD	1980	South Yemen All Over	FAO/IC	IFAD	AFESD	14.6	9.8	67
Wadi Beihan Agricultural Development Project	68-YD	1981	South Yemen Wadi Beihan	Consultant FAO/BRD/CP	IDA	IDA	18.1	6.0	33
Third Fisheries Development Project	106-Yd	1982	South Yemen 600 km coast	IDA	IDA	IDA	21.4	5.0	23
Eastern Region Agricultural Development Project	228-YD	1989	South Yemen Eastern Areas	IFAD	IFAD	AFESD	24.5	10.5	43
Fourth Fisheries Project	269-YE	1991	South Yemen	IDA	IDA	IDA	-	6.5	-
SUB-TOTAL FOR SOUTH YEMEN (Excluding Fourth Fisheries <sup>a/</sup> )							<u>78.6</u>	<u>37.8</u>	<u>40</u>
TOTAL FOR YEMEN (Excluding Fourth Fisheries <sup>a/</sup> )							<u>371.1</u>	<u>91.1</u>	<u>25</u>

Source: IFAD Project Reports.

<sup>a/</sup> Fourth Fisheries Project was signed after the unification



## B. The Projects

3.10 Of the eleven projects financed by IFAD, five are already completed and their accounts closed; five are still on-going; and one project became effective in August 1992. The salient features of these projects and the specific components financed by IFAD, their development objectives and average investment costs, together with a summary description of their respective target groups are given in Table 3.3. A more detailed presentation of the project profiles is given in Annexes III to XIII.

3.11 The projects covered a wide variety of agro-ecological zones. The funds have been utilised in agricultural and rural development, particularly to finance:

- (i) the establishment and rehabilitation of rural infrastructure such as irrigation, village water supply, rural roads, fishing vessels, fisheries village development, extension and animal health facilities;
- (ii) the development and introduction of improved technological packages (research and extension, input supply and veterinary services);
- (iii) institutional capacity building (delivery mechanisms, project management units, support to national institutions such as planning, training and credit institutions, etc.); and
- (iv) the promotion of beneficiaries' participation and involvement through supporting recipients structures such as women and other specific target groups, LCCDs and other cooperative institutions etc.

Table 3.3: IFAD Projects: Salient Features and IFAD Components - North Yemen

Project Title	Main Components	Target Group	Total Area (Hectares)	Development Objectives	Average Cost US\$	
					Per Beneficiary	Per Ha
1. Tihama Development Project III (WADI MAWR) (13-YA/1979)	- Project Headquarters - Irrigation Works - Village Water Supply - SURDUP Farm * - Agricultural Extension * - Access Road * - Veterinary Services	- 6 200 small farm families or 53 000 people	76 000	- Increase per capita income from US\$ 166 to US\$ 390 at full development	1 653	1 152
2. Southern Upland Rural Development Project II (SURDP II) (46-YA/1980)	- Project Management - ARS Buildings - Water Supply - Extension - Credit* - Veterinary Services	- 60 000 farm families or 330 000 persons <sup>a/</sup>	46 000	- Raising crop and and livestock - production - Provide potable water supply and reduce incidence of water based diseases	1 362	1 776
3. Agricultural Research and Development Project III (105-YA/1982)	- Infrastructure* - Technical Assistance*	- Subsistence farmers which have an average income of US\$ 200 /capita (Tihama, Southern & Central Uplands)	n.a.	- Develop technical packages within the implementation means of subsistence farmers	n.a.	n.a.
4. Central Highlands Agricultural Develop- -ment Project I (156-YA/1984)	- Project Management* - Technical Assistance - Rural Water Supply* - Extension*	- 8 235 families (45 000 people) with income of US\$ 150 per capita compared with country's average of US\$ 510	16 000	- Increased crop yields by 40-60%	444	1 250
5. Southern Regional Agricultural Develop- -ment Project, SRADP (202-YA/1987)	- Project Management - Agricultural Services (Input supply, Credit) - Extension - Irrigation - Veterinary - Rural Development for Women*	- 120 000 families - IFAD financed component would directly benefit some 10 000 rural poor families	195000	- Increase in agricul- tural production	238 <sup>a/</sup>	146
6. Agricultural Credit Project (253-YA/1990)	- Institutional Support for CACB* - Credit*	- 15 465 farm and fishing families (158 200 persons) whose income is well below the national poverty line of US\$ 178	n.a.	- Increase lending capacity of cooperative and Agricultural Credit Bank	268	n.a.

Source: Compiled from project profiles

<sup>a/</sup> Assuming 5.5 persons in family on average  
\* Components financed totally or partially by IFAD  
n.a. Not applicable

Table 3.3 (contd.): IFAD Projects: Saline Features and IFAD Components - South Yemen

Project Title	Main Components	Target Group	Total Area (Hectares)	Development Objectives	Average Cost US\$	
					Per Beneficiary	Per Ha
7. Agricultural Support Services Project (60-YD/1980)	- Project Management (Equipment)* - Irrigation Works* - Water Supply* - Farm Machinery* - Farm Inputs* - Extension and Training*	- 4 150 families (22 500 people)	4 530	- Increase farm incomes by 150-250%	649	3 230
8. Wadi Beihan Agricultural Development Project (68-YD/1981)	- Project Management* - Irrigation Works (Spate) - Water Supply - Groundwater* - Input supply and distribution - Extension* - Feeder Road* - Veterinary Services	- 3 300 families (18 150 people <sup>a/</sup> )	4 800	- Integrated rural development	1 000	3 770
9. Third Fisheries Development Project (106-YD/1982)	- Fisheries Manpower Development* Centre (Civil works, equipment, vessels and training) - Fisheries Village Development* (civil works, equipment and consultants)	- 4 000 families	n.a.	- Remove two constraints limiting fish production: - lack of trained and skilled manpower - compensate for Govern- ment past development policies which gave low priority to the artisanal fisheries sub-sector	5 350	n.a.
10. Eastern Region Agricultural Development Project (228-YD/1989)	- Project Management* - Irrigation* - Credit* - Agricultural Extension* - Animal Health* - Cooperative Development* - Women's Development*	- 54 000 people or: - 5 100 farm families in the cooperative sector - 1 500 farm families out of the cooperative sector - 2 500 nomad families	4(govern orates)	- Improve land productivity - Increase supply of ground- water - Strengthen role of coopera- tives	453	n.a.
11. Fourth Fisheries Development Project <sup>b/</sup> (269-YE/1991)	- Project Management - Processing Facilities - Fishing vessels* - Support to Institutions* (NYB, MRRSI, NCFM)* - Training* - Women in Development*	- 3 500 fishermen (19 000 people?)	n.a.	- Expand fish production for local consumption and exports - Encourage sectoral institu- tional and policy reform	2 047	n.a.

Source: Compiled from project profiles

<sup>a/</sup> Assuming 5.5 persons in family on average<sup>b/</sup> Project located along the coast of South Yemen, but loan is to the Republic of Yemen

\* Components financed totally or partially by IFAD

n.a. Not applicable

#### IV. IMPLEMENTATION PERFORMANCE

4.01 Delays in the implementation of projects are widely reported in North and South Yemen, though there remain differences in magnitude. Some projects were delayed both during the start and completion for a total period of up to four years. In some cases, balances of the loans had to be cancelled because of failure to disburse, even with repeated extension of the project closing dates. There are a number of reasons cited in the project documents, especially supervision and completion reports. It is reported that IFAD-financed projects, which were often part of larger programmes carried out by IDA, have been constrained by a number of implementation problems which include low-key management procedures, inadequate counterpart funding and staffing and imprecise and tedious procurement procedures, in addition to the inadequacy in design of physical facilities<sup>1/</sup> and delays in loan effectiveness.

4.02 The costs of implementation delays could be quite high. These costs would include: benefits foregone from failure to realize project products in time, increased commitment of local counterpart funding exacerbated by high rates of inflation, and increased borrowing to meet additional foreign exchange costs. One would expect a high pay off from faster and more efficient implementation.

##### A. Disbursements

4.03 Project disbursement profiles are presented in Table 4.1. It highlights the generally low start in disbursement regardless of the nature or location of the projects (North/South Yemen). As a result, the duration of project life often exceeded the original duration. Out of six projects in the North, three were already completed; but only in case of SURDP II (IFAD-financed credit component) was the loan closed on schedule. The other two projects, TDP III and ARDP, had taken two and three-and-a-half more years respectively to finish. CHADP which was supposed to be completed two years ago has been granted an extension for one more year. The South had a better record; but all three projects were implemented with a delay of one year each.

4.04 It is generally noticed that the rate of disbursements are invariably slow for the first two years of implementation and only start to gain momentum from the third year onwards. Delays in start of project implementation were often attributed to:

- (a) prolonged ratification periods, especially in the North, the period ranged between 7 and 29 months; but in the South, the record has been significantly better, between 4 and 7 months;
- (b) lack of counterpart financing; and
- (c) lack of basic technical data on natural resources as well as socio-economic data, needed to finalise the design of physical facilities.

Hence, special efforts should be made to speed up the ratification process and put up funds for adequate technical preparations and baseline surveys for collection of socio-economic data.

---

<sup>1/</sup> This was particularly the case for projects with large infrastructure-building components, viz., Tihama III (013-YA) and Fisheries III (106-YD).

49

Table 4.1: Project Duration and Disbursement Profiles (As of 31.12.1991)

Projects and Loan Number	Agreement Time	Time Elapsed Before Effectiveness (Months)	Life Duration <sup>a/</sup>		Number of Extensions	Loan Amount '000 SDR	Cumulative Disbursements of IFAD Loans in %				
			Initial	Actual (Years)			Year 1	Year 2	Year 3	Year 5	Completion Year
1. Tihama Development Project III (Wadi MAWR) (13-YA)	4/79	10	6.5	8.5	2	9 300	2	7	13	60	100
2. Southern Upland Rural Development Project II (SURDP II) (46-YA)	9/80	9	4.5	4.5	0	10 600	12	41	72	100	100
3. Agricultural Research and Development Project III (105-YA)	12/82	12	5.5	9.0	3	5 250	38	44	65	74	90 <sup>b/</sup>
4. Central Highlands Agricultural Development Project I (156-YA)	10/84	7	4.7	n.a.	3	3 900	4	16	23	45	n.c. (67% <sup>b/</sup> )
5. Southern Regional Agricultural Development Project (SRADP) (202-YA)	3/87	15	6	n.a.	n.a.	2 000	0	6	17	21	n.a.
6. Agricultural Credit (253-YA)	2/90	29	7	n.a.	n.a.	11 750	3	n.a.	n.a.	n.a.	n.a. <sup>e/</sup>
7. Agricultural Support Services Project (60-YD)	12/80	5	5	6	1	7 700	2	8	65.5	98	100
8. Wadi Beihan Agricultural Development Project (68-YD)	9/81	7	5.5	6.5	1	4 900	2	26	45	84	100
9. Third Fisheries (106-YD)	11/82	4	5	6	1	4 450	4	4	17	28	100
10. Eastern Region Agricultural Development Project (228-YD)	1/89	8	6.5	n.a.	n.a.	8 100	11	11	n.a.	n.a.	n.a.

Source: IFAD Project Reports.

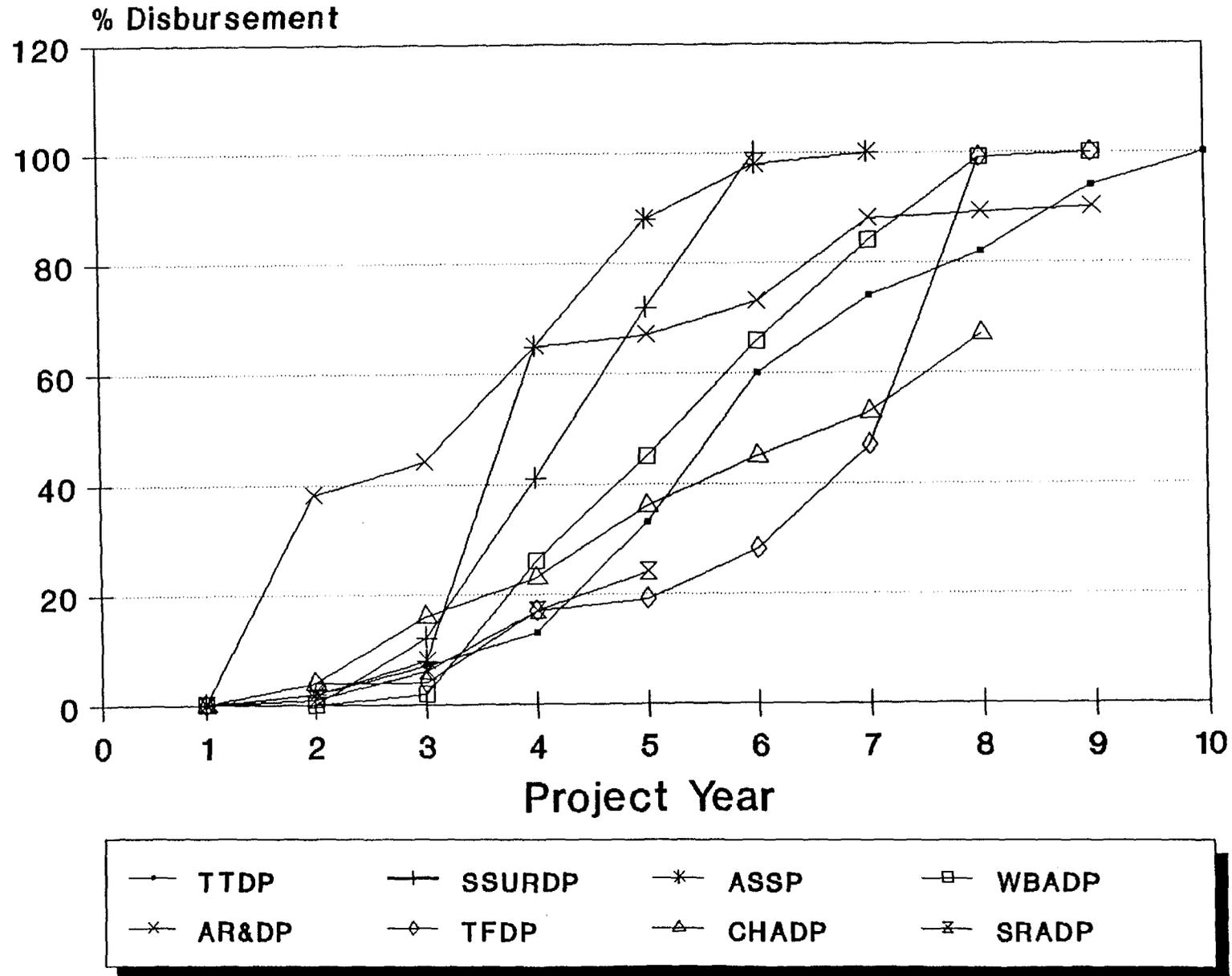
n.a.: not applicable

n.c.: nearly completed

<sup>a/</sup> As from loan effectiveness date.<sup>b/</sup> As of ...

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loan Disbursements



49

4.05 Project expenditures taper off, but linger on towards the final two years of implementation. This is probably unavoidable to achieve settlements of contractual problems and obligations (see Figure 4.1).

4.06 There are some components which lend themselves to faster implementation. Credit, especially in absence of extensive screening criteria, would be disbursed relatively quickly. This is clearly illustrated by the on-time completion of SURDP II and also by the performance of total credit disbursements depicted in Figure 4.2 which picked up in the third year and excelled from there on.

4.07 Technical assistance component as clearly shown in Figure 4.2 has started early and continues with the highest disbursement rates for almost all projects' lives except briefly exceeded by credit during peak activity. In contrast, the training component lags far behind. The performance of these two components has adverse implications for institution building. The equipment, machinery and vehicles component comes close to technical assistance disbursement. Obviously vehicles are purchased initially to assist in establishing management structures, but often consumed early and fast such that by the time project implementation gains momentum vehicles become seriously in shortage.

4.08 Civil works need considerable design specification, document preparation, tendering, award, approval, procurement and installation. Consequently, they start slowly and their disbursements increase progressively over the project life. Final settlements of contracts and commissioning at the end could drag on and hence projects would in many cases have to be extended repeatedly to cater for this (see Figure 4.2).

4.09 While delays in disbursements are mainly due to implementation problems as described in section B of this Chapter, inadequate design contributed to the problem as well. This has been particularly the case of two projects (Tihama III and Fisheries III) which included a large component of physical infrastructure construction. In Tihama III, detailed design studies and their review went for three years from 1982 to 1985 (see project profile, annex III, page 3). As far as Fisheries III project is concerned, implementation has been similarly delayed by the time required to finalise engineering design of village facilities and overcome disagreements in this respect; in addition, implementation has been delayed by what appears to be an over-design of some facilities. A greater accuracy in project design could have reduced uncertainties and the resulting delays and cost overruns.

#### B. Physical Performance

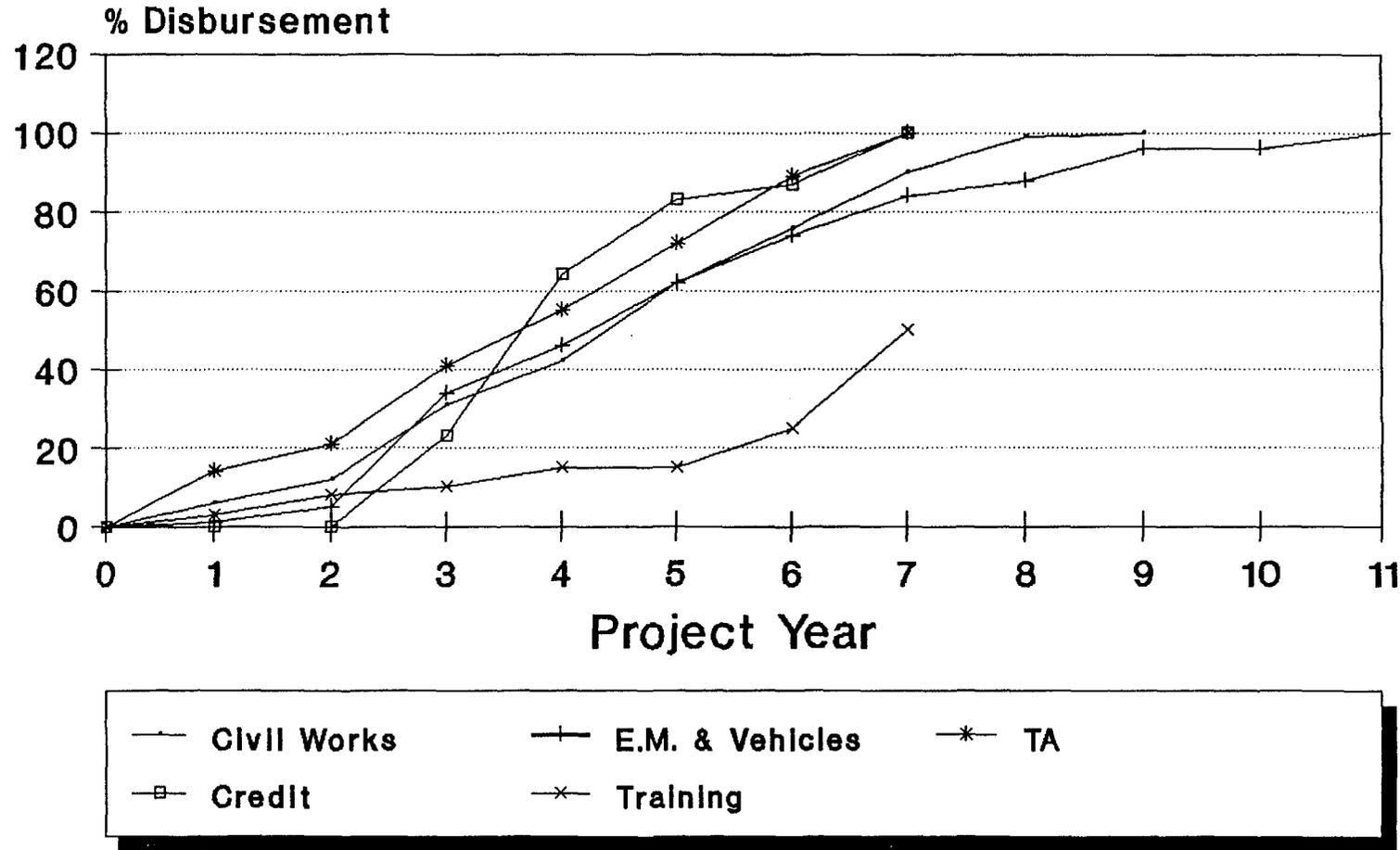
4.09 Projects investments in Yemen included physical construction of structures such as irrigation diversion weirs, head regulators and sediment control, well construction and deepening, canal lining and PVC pipe laying; water supply centres; rural roads; buildings for research such as research stations, farms and houses, extension blocks and centres; credit branch offices and fisheries villages and manpower development centres.

4.10 As indicated in the discussion of project disbursements, civil works were the major contributors to the delays in most of the projects. There are numerous examples. One case is the construction of water centres in TDP III, SRADP and CHADP. TDP III constructed 71 rural water schemes, for 44 of them (i.e. 62%) hand-pump technology was applied. Villagers rejected these schemes and the evaluation team had a chance to visit and see some of them idle. In the case of SRADP and CHADP, opposition to the

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loan Disbursements by Category

### All Projects Average



51

construction of water schemes or their completion, on the ground of water rights constituted a major reason for failure to complete installation and make use of them. In ERADP, the irrigation wells lacked pump installations because of lack of loans to obtain pumps, since CACB had not yet availed its services to Shabwa Province.

4.11 The building programme for some projects faced major problems. The construction of extension blocks and centres was a major concern voiced repeatedly by the supervision missions of CHADP. The main problem was the failure to connect electricity and water supplies to these buildings because of lack of counterpart funds. A visit to an already operating extension block and to one extension centre revealed that additional reasons, such as lack of vehicles and funds for maintenance and operation were cited. Beyond the necessity of improved effectiveness in construction it is most important, in terms of performance, that after completion there are sufficient resources for operation and maintenance of the newly established infrastructure.

4.12 There are cases (limited in number) where failure to deliver was caused by co-financiers. An example of such failure, with serious negative impacts on an important IFAD-financed project is the ARDP housing component, under an Italian grant and contractor. Researchers have to commute weekly between home in Taiz and the new AREA headquarters in Dhamar. This has created a serious situation adversely affecting productivity of researchers and the development of technical packages to farmers.

4.13 IFAD was involved directly in financing rural road components in Tihama and Beihan. In both projects, significant portions of these rural roads were upgraded to become part of the national road network. In addition, AFESD financed two feeder roads in the Central Highlands. Those roads have contributed significantly to the economy of the projects and the national economy. However, those portions of rural roads in Tihama and Central Highlands which have gravel surfaces require periodic maintenance for which resources are lacking.

4.14 The Third Fisheries Project included a construction of the Fisheries Manpower Development Centre (FMDC) and Fisheries Village Development Centres (FVDC). FMDC financed in parallel by AFESD has been completed successfully and is currently operational. FVDC, jointly financed by IFAD and IDA, comprised facilities in four locations. The physical construction has been completed successfully. However, due to the change in policy-environment in the aftermath of the unification, only one of the facilities in Shugra is currently used effectively. Other facilities are sitting idle, and in fact some are facing serious maintenance problems such as Bir Ali.<sup>1/</sup>

4.15 Notwithstanding the above difficulties, there are two aspects which need to be recognized. Firstly, these investments are generally needed for the accumulation of a minimum threshold of infrastructures essential for the political, social and economic integration of the country. Secondly, some of these infrastructures and their efficient operation are necessary requisites though not sufficient to increase production, to avail opportunities and to open markets for the whole population including the poor, who are of concern to IFAD.

---

<sup>1/</sup> It is now a Government policy to withdraw from direct involvement in production and marketing. During the Geneva Round Table Conference for the ROY, held in June/July 1992, the Government indicated its intention to privatise public assets in the fisheries sector.

### C. Conformity with Loan Covenant

4.16 A classification of covenants reveals three categories. A first group of covenants which deals with organizational structures of implementation units and assurances of efficient implementation, accounting, record keeping, auditing, procurement, local funding and subsidiary loan agreements. The second group deals with institution building including technical assistance, training and monitoring and evaluation. The third group is composed of project-specific covenants, which handle special project problems or special concerns of the financing institution(s). Thus water conservation, sustainability issues, improved access to project resources, equitable distribution of project products, services and benefits and the required attention for target groups including women, the poor and the landless are addressed as relevant to each project. Covenants which impact directly the start of projects are those precedent to loan effectiveness and which affect the ratification of the agreement(s).

4.17 IFAD conditions of effectiveness for co-financed projects, especially with IDA, invariably match those of the co-financier. The traditional statement in the loan agreement would read as follows: "The following is specified as additional condition to the effectiveness of this Agreement: The Credit Agreement shall have come into force and effect". The Credit Agreement is that of IDA, and examination of these loan covenants revealed that they were not exclusively project-oriented covenants, in that they included conditions regarding the whole economy as essential for project viability. It was difficult to appreciate to what extent these type of covenants contributed to delays in project effectiveness, but this mission is convinced on the basis of actual experience, that policy-related covenants often stem from unrealistic assumptions on the possibility of desirable policy changes and actually reveal a flaw in project conception. Projects should be consistent with established policies which are unlikely to change in the short- or medium-term.

4.18 The South generally coped with project conditions of effectiveness quite well as evidenced by the speed of ratification. The time elapsed between signing the loan agreement and declaration of loan effectiveness for three projects ranged between three and seven months. In the North however, the period was within one year, with the exception of ERADP (13 months) and Fourth Fisheries Project (not yet effective), the latter because of co-financing problems after the Gulf crisis.

4.19 The evaluation team's careful scrutiny of the covenants indicated their adequacy and relevance. Moreover, covenants precedent to project effectiveness were not a significant cause of delays since they were not controversial, and whatever lapse between the signing of the agreement and declaration of effectiveness only reflect the cumbersome ratification procedures to conclude legislation(s) and subsidiary loan agreements. Hence, a call for the simplification of these procedures is in place.

4.20 The third group of covenants are of primary concern to IFAD both in terms of the physical implementation and the likely effects and impacts of project on beneficiaries, institutions and environment. IFAD loan documents (SAR, PER, and the relevant co-financing credit agreements) have shown progressive improvements in incorporating covenants that are increasingly commensurate with its specificity. However, the loan

agreement itself as an instrumentality has not been modified to include these concerns. One difficulty may be the dynamic nature of these issues and the needed flexibility in decision-making vis-à-vis the static nature of loan agreements. The paradox could be resolved by annexes and addenda - such as the one used for ACP loan agreement - which could be modified as necessary at the operational level.

#### D. Implementation Problems

##### Counterpart Funding

4.21 Local counterpart funding has been a major problem for all IFAD funded projects in the North. The first project in the South, the Agricultural Support Services, did not experience such a problem, but other projects faced minor consequences when the development programme of the South expanded. Given the expected dominant impact of the experience of the North on the unified country and the prevailing economic conditions including unemployment and high inflation rates, this issue can only become more acute in the future.

4.22 The root cause of the problem is fiscal. The bottom line is that the Government's real budgetary resources are limited and stretched. If Government resorted to deficit financing, this would lead to further deterioration of an already precarious economic situation. The Government, eager to attract investments, accords new projects highest priority. Budget circulars would read "development budget should include projects for which foreign funding is secured". In the process, on-going projects start to face the crunch of reduced local funding; and the normal administrative functions performed by government departments receive the lowest priority and hence, become dependent on the projects' funds. This was the situation which emerged clearly from the experience of SRADP, CHADP and TDP III.

4.23 A legitimate concern over prioritization then arises, especially as the government usually indicates full commitment to the project including full or partial local counterpart funding. Firstly, the government planning under uncertainty would not accord priorities exclusively on the basis of local funds available. Secondly, most public investment programmes tend to be shopping lists and as such any project is as good as the other. Thirdly, project priorities in many cases are determined by the clout of the domestic internal groups. Lastly, since foreign funding is considered the most important variable by the government, the priorities would then be determined by the interests, mandates and budgets of bilateral and multinational donors.

4.24 The government, under pressure to balance the budget, has exercised significant cuts in the annual budget, but it is important to ensure that budgetary cutbacks reflect real priorities rather than taking the form of across-the-board reductions. For example, these cuts amounted to 48% in 1991 compared to 1990 for MAWR, which would then apply same principles for the reallocation of these funds among projects. This tendency will only accentuate an already acute problem. Beihan, for example, obtained only 13% of its request for the capital maintenance and 20% for operational expenses in 1989. SRADP in 1988 obtained 31% of its request for capital expenditure and 23% of operation and maintenance. Furthermore, recurrent expenditures on wages and salaries which cannot be reduced absorb about 60% to 90% of the local counterpart project budgets.

4.25 What else should, or could be done other than filing complaints with the government and registering in the supervision reports that the local component has not been made available to projects under implementation?

- (a) First of all, could IFAD (and for that matter other co-financiers) increase their share of the local costs of the projects? In fact, CHADP co-financiers did exactly this. But would this be a durable solution, under the situation where foreign assistance is shrinking? The SPM for North Yemen made some proposals to tackle this problem. Specifically it advocated an initial subscription by donor agencies to the local component with a declining balance over the years,
- (b) Secondly, there have been some advocates for a slower speed of development for countries such as Yemen; which implies, amongst other things, adequate pacing of programmes and projects successively. The argument, in effect, calls for more awareness of and consideration for the social acceptability and the absorptive capacity of the economy,
- (c) Thirdly, revolving funds administration should also be improved. As far as credit projects are concerned, special care should be given to increase the recovery rates. In general, projects should be designed with considerable cost-sharing, increased cost recovery and enhanced mobilization and participation of the beneficiaries, and
- (d) Finally, every effort should be made in project design to minimise recurrent costs after project completion.

4.26 Weakness of project management has led repeatedly to failure in timely application for project budgets and/or failure to defend budgetary proposals with the central finance or planning authorities. Because of deficient national management capacities, most of the project's finances were actually administered by expatriates who may not have enough leverage in defending budget proposals: CHADP, Third Fisheries Project and ERADP are cases in point.

#### Procurements, Withdrawal Applications and Customs Clearance

4.27 Procurement procedures were considered by supervision missions as a stumbling block for almost all projects and time lost in implementation estimated by IDA to be about nine months. There are usually at least two procurement guidelines to reckon with, even in case the project is financed only by IFAD; those of the government and of IFAD. In reality, however, there could be three or more procurement guidelines, the government's, the cooperating institution and other co-financiers, if any. As a general principle, and except in very rare cases, IFAD accepts the application of the procurement guidelines of the cooperating institution in case of co-financed projects. A further complication arises from tied loans procedures applied by bilateral donor agencies participating in the financing of the project. In tied loans, procurement of foreign goods and services are limited to the donor markets and very rarely to a third country market. Moreover, the government of Yemen has a procurement administrative hierarchy for final approval. It was frequently reported that the recommendations of the lower committees and the final approval by the High Tender Committee (HTC) were contradictory, a situation which had led to an impasse in the past and hence delayed implementation of projects.

5

4.28 There were cases when procurement procedures of co-financing agencies collided as well, causing both delays and cost over-runs. A case in point was the procurements of vessels for the Third Fisheries Project. In another situation one co-financier insisted in ICB for civil works which resulted in delays in the start of ERADP. Consequently, there is urgent need for streamlining these procedures. The first step is coordination among the co-financing agencies so as to minimize confusion and loss of valuable managerial resources and time. The second step is to encourage the government to improve on its approval procedures. The third step is for IFAD to evaluate the procurement procedures of the client country, on a case by case basis, and if found adequate and if the cooperating institution support is obtained, IFAD may choose to adopt the procurement procedure of that country. The advantages of such an approach would be that the national management would find it easy to operate with familiar regulations and hopefully this would improve the efficiency of the projects' implementation.

4.29 Procurements of international goods and services could sometimes be delayed because of cost overruns. The latter were partly due to delayed tendering. Credit or loan agreements usually include a stipulation that the borrower would make the needed funds available, including foreign exchange, to complete the project in case of shortfalls or cost over-runs. More often than not, if foreign costs are involved, projects have to be scaled down and in the process their implementation is delayed. In South Yemen, there was one case in which the Government succeeded in covering the additional foreign costs of the project, but in another case the Government could not meet these costs. The Third Fisheries project was delayed even though a co-financier, AFESD, stepped in with additional resources which also proved to be inadequate.

4.30 Closely linked to procurement is the processing of withdrawal applications necessary to pay for goods and services and replenish the special accounts. In the South, the procedure used to be simple and involved minimum paperwork where the project manager was authorized to send the application directly to the donor. In the North, the system has always been complicated, involving processing by four departments: the project, MAWR, CPO and the Central Bank. Within MAWR, the documents are sometimes signed by the Minister himself. The evaluation mission has seen withdrawal documents signed and stamped by over 25 officials, taking two months to process.

4.31 Customs clearance is also reported as causing considerable implementation delays. IDA estimated that customs clearance of materials and equipment destined for development projects has taken on average about six months. The mission confirmed this information from project authorities and has witnessed the case of CHADP.

4.32 During July 1991, IDA concluded a Country Implementation Review (CIR); the Government of ROY made a commitment to review these procedures among other implementation problems and issues. The evaluation team did not observe any changes during its field visit six months later, in December 1991.<sup>1/</sup> IFAD and other donors should exert further pressure to ensure that the government meets its commitments and simplifies these procedures.

---

<sup>1/</sup> The operational division informs that more recently, some measures have been taken to streamline the process of clearance of withdrawal applications on projects' special accounts.

## Staffing

4.33 The most widely reported reason for the delays in the start of project implementation is the failure in the recruitment of suitable personnel and technical experts for the management of the project and its activities. Recruitment of expatriates in particular posed the maximum difficulties. Yemen was considered, and still is, a hardship place to live in. The language is also a major barrier. Yemen applies financial rules, according to which, part of the expatriate's earnings is paid in local currency. In addition, the expert is allowed to remit only part of his salary. Recently, more restrictions have been introduced regarding the share of the expert's salary which can be transferred abroad. This is particularly hard when expatriates have to support families and children's education abroad, since education facilities are mostly lacking inside the country. It is no surprise that supervision reports continued to report the disincentive impacts of these measures and procedures. Disbursement profiles showed that technical assistance was utilized up front during project implementation. This trend might continue in the future, but those recruited would not necessarily be the most qualified and motivated for the job.

4.34 In general, projects are suffering from lack of qualified national staff. Training is lacking and limited in scope. Implementation of training components has always lagged behind. Paradoxically, the projects are required to employ staff even without need for their services. SRADP and CHADP management and Third Fisheries Cooperatives complained repeatedly from redundant staff. Furthermore, project managements do not have the right to dismiss employees or reduce labour force. The implication is that resources are increasingly shifted to meet the work force obligations at the expense of other project activities. The evaluation team noticed the low morale of national staff on the account of lack of budgetary resources to undertake the job (SRADP), lack of training (ERADP), and on account of overall low pay.

## E. Supervision

4.35 Seven projects in Yemen have been co-financed by IDA which has also been IFAD's cooperating institution. Moreover, IDA had a majority share of these projects. Also, regarding financing, most of the components were usually jointly shared except in cases which represented special interests for IFAD, such as credit in SURDP and women's programme in SRADP. Given the situation, the stakes of IDA in diligent project implementation are high. For the remaining three projects (the eleventh project not yet effective), AFESD has taken the responsibility of the cooperating institution. However, AFESD participated as co-financier with IFAD only in one project - ACP.

4.36 The evaluation team had a hard time getting hold of the supervision reports, let alone detailed lists of missions, their composition and duration. One reason would be that long periods passed since projects were completed and records closed. Another, is the lack of systematic record-keeping of this activity within IFAD, though it lends itself to computerization. Unfortunately, this information is lacking at the project level, even in those projects with established M&E sections. One last complication, is that supervision missions sometimes cover several projects at a time. Consequently, unless clearly indicated by the mission, it would not be possible to know how their time is apportioned in the field among projects and other tasks.

4.37 Projects for which there was a fairly complete record such as CHADP, have had about three to four supervision missions annually. Composition of those missions are usually as needed in terms of expertise to follow up issues and tackle problems in the field or pass specific recommendations to the financier. The record of missions of ARDP, CHADP, SRADP, ACP and ERADP during 1990-1991 confirms the same. Also in this record, there is a clear evidence of active participation of IFAD staff in the supervision and follow-up of projects. The evaluation team benefitted considerably from staff BTO reports.

4.38 The evaluation team found the supervision, especially of IDA, reasonably adequate in the sense that all major implementation problems were brought in time to the attention of both the government and the financiers of the project, including IFAD. Examples of such notable problems include the performance of credit component in SURDP II, the managerial, financial and budgetary constraints and delays in the implementation of CHADP, the water resource sustainability in TDP III, SRADP, CHADP and WBADP, the managerial problems of ERADP. The supervision missions have identified and drawn attention to broad economic management issues and problems such as procurement, withdrawal application, local funding, national staff, etc. The degree of success in resolving these issues and problems at the project and national levels depends on numerous factors not under their control.

## V. THE INSTITUTIONAL FRAMEWORK AND PROJECT ORGANISATION

5.01 The government and its major development assistance partners used rural development projects for institutional capacity building at various levels (Ministries, AREA, CACB) but with particular emphasis on the creation of the nucleus of future development authorities at regional level (TDA I, SURDU, CHADP, ERDAP). Hence, institutional support has been incorporated explicitly or implicitly in almost all rural development projects.

5.02 This chapter draws general lessons regarding the way projects have been integrated to the existing institutional framework and how they possibly contributed to its development. More specific conclusions regarding a particular sub-sector or activity are to be found in the relevant chapters of this report.

5.03 The comparative analysis of these institutions poses both methodological and practical difficulties. The project documents, usually included only a general description of institutional support. There were rarely quantitative targets to be achieved and no clear criteria outlined for institutional performance. On the practical side, there is the lack of proper documentation of project activities, of managerial continuity, due to the high staff turnover of local and expatriate staff, and to the weakness of the monitoring and evaluation structures in most of the national and regional and institutions.

### A. The Institutional Framework

5.04 Three institutional levels are recognised in the organisational structures of both North and South; viz. central ministries and institutions (CACB, AREA), regional and project units and local institutions. These institutions vary with respect to their organisational structures, hierarchy and the type of services which they provide.

5.05 The ideological and political system of the erstwhile South and North were responsible for the differences in the institutional frameworks. In the South, which had a stronger civil service, emphasis was given to institutional control at the centre that would specify means and targets, and leave the implementation details to the local or project level institutions. Cooperatives were developed as a tool to ensure political control as well as implementation of Government Agricultural Development Plans. In contrast, the North developed traditional bureaucratic structures at the central and regional levels, but depended on private initiative and the associated grassroot movement, the Local Development Associations (LDAs) at the local level.

5.06 In spite of these variations, both systems shared some common attributes, which are:

- (a) multiplicity of organisational structures;
- (b) centralised decision and political polarization;

- (c) oversized government (central, regional as well as cooperatives) which intensified after unification, and imbalanced distribution of skills, tilting overwhelmingly in favour of administrative as compared to technical specialisations; and
- (d) inefficient bureaucratic rules, particularly for the North.

GOY is presently in the middle of a process of restructuring and revitalising its organisational structure, which should be completed by the end of the transitional period, 1992. It is not clear what shape would emerge, but certainly the GOY's aim is to incorporate the strengths of the two ex-systems, such as, the strong civil service and the reduced red-tape of the South, and the private initiative of the North.

#### B. Evolution of Project Organisation and Delivery Mechanisms

5.07 The management organisation of development projects including those in which IFAD participated was not based on a deliberate choice of a specific model. Rather, it has been an evolutionary process during more than two decades. The various forms of managerial structures are thus a reflection of the successive phases of interventions and interactions and their logical conclusion. Some of the factors which affected the choice of these managerial structures include:

- (a) the locations of projects, their proximity to the decision-making centres and accessibility;
- (b) the technical nature and the degree of sophistication of the projects investments;
- (c) the rate of expansion of area development programmes and the successive commitments of projects; and
- (e) the importance of external financing and its conditions.

5.08 Accumulation of experiences and interactions have given rise to about three types of managerial structure; integrated Project Coordination Units (PCU), semi-autonomous Project Implementation Unit (PIU) and at the apex of the evolutionary process, the Regional Development Authority (RDA).

5.09 The PCU is integrated in, and supervised by, the relevant central ministry or organisation. The basic assumption in this case is that the existing government structures are adequate for the implementation of the project. Consequently, respective units and specialised agencies undertake the implementation of their shares of the project. The PCU main role would be to coordinate these units, usually through a high-level committee. It would also channel the project funds for the supply of imports, logistical support and technical assistance. It shoulders the responsibilities of formal contacts with donor organizations funding the project, in addition to follow-up, monitoring and evaluation, and accounting. This model was tried with ASSP, but it was heavily dependent on the performance of other institutions, including agricultural cooperatives, marketing corporations and Machine Rental Stations (MRS). The same model was tried again in the case of the Third Fisheries Project, with some modifications. The unit gained more autonomy and operated

directly under the permanent secretary in isolation from other departments of MFW. It depended on foreign expatriates in managerial posts and on international consultants and contractors for the design, implementation and supervision of the project.

5.10 Contrary to what could be expected, projects implemented through such organisations faced sustainability problems after project completion. With respect to management, once the unit is dismantled, responsibility for project products and performance is diffused. This is exactly what has become of ASSP. Regarding operation and maintenance, the Third Fisheries Project is very illustrative. The isolated unit -- once the respective fisheries cooperatives became functionless -- could not make a good case for budgetary support outside project allocations. The evaluation team witnessed a saddening situation in Bir Ali and Fukum where the project installations -- equipment and machinery -- are deteriorating rapidly, even before their use.<sup>1/</sup>

5.11 The semi-autonomous Project Implementation Unit (PIU) is legally very similar to PMU, except that administratively the unit reports directly to the concerned minister. Such units are entrusted with the implementation of projects which are geographically in distant locations from the centre and have a number of inter-related components which fall under the jurisdiction of various agencies. In addition, the project would include initiation, preparation, execution and/or supervision of the execution of infrastructures by contractors, budgetary resources and international funding. However, it still abides by all financial and employment rules and regulations of the public sector.

5.12 This project organisation was first attempted in the North when a unit was established for the Tihama Development Project I (TDAI) in 1972. Subsequently, similar units were created: SURDU for SURDP I, II and SRADP, as well as separate units for CHADP and ERADP. In the South, Beihan Project Unit (BPU) was first established for Wadi Beihan Agricultural Development Project in 1980. Whereas in the North, these units have been transformed, either to full-scale regional authorities such as Tihama Development Authority or to an expanded implementation unit such as SURDU or CHADP, in the South (with the exception of ERADP approved after unification in 1990), BPU had neither been expanded nor imitated.

5.13 Regarding the continuity and sustainability of PIU, as of this evaluation, it had not yet been tested in the North. In the case of Tihama, the unit had been transformed to a full-scale regional development authority and given the responsibility of implementing successive projects. In the case of SURDU, two important events took place. First, it had been entrusted with the implementation of three successive projects. Second, the unit had been mandated to administer all agricultural activities in Taiz and Ibb Governorates and the branch offices were affiliated to the project. Though CHADP did not yet complete the implementation of the first project, a follow-up project is under consideration and the branch offices of the Governorates of Dhamar and Sana'a (until 1991) became subordinate to the project authority from the start. The only test for continuity comes from BPU, since the completion of the project, the unit was reduced to a small nucleus only overseeing the administration and residential campus and maintaining heavy equipment.

---

<sup>1/</sup> In this case, an additional important reason was that the role of cooperatives has changed, in line with Government policy of withdrawal from the productive sector.

5.14 Both for the South and the North, PIU implemented projects starved for funds during implementation and more so after their completion. In Beihan, water conservation and extension activities were almost incapacitated. In SURDU, activities completed during earlier phases are surviving only by sharing the resources and facilities of the follow-up project currently under implementation (SRADP). CHADP represents a classic case of underfunding repeatedly voiced by supervision missions for over five years.

5.15 PIUs to which regional agricultural branch offices were affiliated, and the regional directors who were appointed deputies to the director general of projects have suffered most from administrative disputes. In the case of CHADP, the problem could only be overcome by the severance of Sana'as branch office and attaching it to Northern Regional Agricultural Development Authority (NRADA). There was clearly scepticism between the SURDU Director General and his Regional Deputy Director over leadership and the lack of resources for recurrent expenditures which are financed from the development budget. The attention of the Director General of SURDU was focussed on running the regional administrative structures. The evaluation mission watched as the Director General SURDU was taking decisions on a legal case against sub-standard poultry feed and importation of unhealthy animals or the failure of the water supply system. No question, the sustainability of both the institutions and project activities are in jeopardy under the present mediocre organizational structure.

5.16 The Regional Development Authority is considered the most complete model. RDA is a legal entity and a financial unit established under the Public Companies and Corporations Act 1981 (a later version 1991), by the Head of State. The government appoints the chairman of the board of directors while the concerned minister appoints the director general and endorses the administrative structure. The board of directors has the mandate to run the authority under the supervision of the concerned ministers including agriculture, finance, as well as other government units responsible for procurement withdrawal application, employment and wages. The board of directors has more flexibility compared to PIU, since the director general is responsible to the board. The board takes decisions which are sustained unless the concerned minister overrules them. The authority has the right to establish needed administrative structures, simplify rules and regulations and assist in raising funds from local sources for regional development.

5.17 The regional branch offices of agriculture are affiliated with the regional development authority. The objective is to create an autonomous regional authority responsible for all sectoral activities at least cost. The experience in Tihama is far more constructive in comparison to SURDU and CHADP. The Tihama Development Authority, is the only organisation that seems able to provide institutional stability and constitute strong institutional links between the centre and the regional levels. It has, in fact, taken over 20 years during which large successive projects were implemented to reach such an advanced stage. Consequently, there is a valid question as to whether the Tihama should be copied directly or rather be given a chance in each locality or region to evolve gradually into a stable institution.

5.18 There is every evidence that the chances to maintain this organisational structure and the project products under a mature RDA are much greater than in PMUs and PIUs. The threat is always there, if the resources, both national and international dwindle.

### C. Community Institutions for Rural Development

5.19 Community institutions mainly include cooperatives in the South and LCCDS in the North. There was enthusiasm for both up to about the mid 1980s. Especially in the case of LCCDS, there was until then active participation from the rural population. In both cases, the central governments attempted to regularise the activities of these institutions and had imposed certain financial rules for orderly conduct. Whereas the South was already using cooperatives as a means of control, the intentions in the North had unwittingly led to the control of the LCCDS by the government. Again, whereas cooperatives, including agricultural, fisheries, marketing and MRS collapsed at the loss of authority and support of the government during post-unification, LCCDS lost their initiative with less felt needs for essential rural services and considerable reduction in financial resources.

5.20 Rural community institutions' primary contributions were, in the case of cooperatives, the creation of inputs distribution channels and loan recovery (eg. ASSP and Third Fisheries Projects). In the case of LCCDS, there were less complicated work procedures and low cost projects. The projects have used these institutions and entrusted, for example, LCCDS to implement some components such as rural water supply, health and women programmes (SURDP II, SRADP, CHADP), or provide assistance in their implementation.

5.21 A more important role should have been given to grassroots organisations by their participation in the choice of socially acceptable design, implementation, and cost recovery to ensure the sustainability of the investments and services. Participation is the key to success. In Tihama, the evaluation team have seen completed village water supply schemes which the villagers refused to take over because of technical design problems. In CHADP, water supply equipment could not be installed because of disputed water rights. In ASSP, farmers argued against concrete lining of surface irrigation canals which could be washed away by floods or easily broken.<sup>1/</sup> Henceforth, this was changed to PVC pipes in Beihan. To enhance this participatory role of rural institutions, projects should have been designed to help their promotion and development.

### D. Projects Impact on General Institutional Performance

5.22 The impact of projects on the overall institutional performance depends on three factors:

- (a) the level of interaction and integration of projects organisational structures with central, regional and community institutions;
- (b) the limitations of projects own organisational structures. Regarding the attempts at regional level integration, the investigation revealed a high degree of resistance from regional agricultural authorities and considerable friction between the project and regional authorities. The two major elements at stake which cause these strained relations are administrative control and financial resources; and
- (c) the level and duration of external support.

---

<sup>1/</sup> In February 1982, floods destroyed the irrigation infrastructure in the project area, badly damaging the wells and spate canals. Their reconstruction was a costly burden on the cooperatives, the farmers and the Government.

5.23 The limitation of project organisational structures are numerous. Projects are overstaffed with heavy representation of administrative and accounting departments at the expense of technical departments and of control units within the project at the expense of field units. This basically implies that: (a) over time, more resources would have to be devoted to meeting salaries and wages which are already 60-80% of recurrent budgets; (b) professionals represent only 2-3% of the project work force and technical capacities are not commensurate with project needs; and (c) the contacts and interactions with rural community institutions would be meagre.

5.24 In most of the projects, institutions, especially SURDU, CHADP and ERADP, the administrative approach is found to be one of command, control and centralised decision-making rather than sharing. There was absence of collective management and a lack of exchange of information accentuated by non-existing or weak monitoring and evaluation units. Lack of, and shortages of data and statistics constitute a serious constraint, not only to efficient management of projects but also to the development of institutional capacity for effective planning resource allocation and monitoring, both at central and regional levels.

5.25 Time is primarily invested in administrative and bureaucratic procedures for detailed design, specifications, tendering, vetting, selection, awarding, and obtaining approval from government and donors. Indeed, very little time is left for the professionals, of whom the majority are expatriates, and top management to provide guidance and undertake on-the-job training necessary to enhance institutional capacities. The emphasis given to irrigation works, vis-à-vis rainfed and livestock sub-sectors has possibly contributed to this situation.

5.26 Furthermore, most projects investments were prepared by international consultants and implemented by contractors selected on the principle of international competitive bidding (ICB). The supervision of their works is undertaken by expatriates. Thus, nationals could not accumulate experience because of non-participation in all stages from choice of technical alternatives to construction. Alienation of nationals had a negative impact on institutions at all levels. This is apparently a vicious circle, since extensive involvement of external expertise was itself motivated by the lack of qualified national staff. A possible break of the circle could come with the decision to go for more manageable designs of project by the National Staff.

5.27 Technical assistance was generally not very well synchronised with the appointment of national staff who could not fully benefit from expatriates. Furthermore, ROY opportunities for selection of professional experts has always been limited by language barriers and hardship conditions. ROY recent initiatives in this matter have aggravated the situation. The terms of services of expatriates have been seriously downgraded as well, over time.

5.28 The training component in most projects consisted of short-term study tours in countries which do not have comparable organisational structures. With the exception of agricultural research, long-term training which would have a profound impact on institutional building at all levels was lacking. In cases where training was conducted locally, courses were limited in scope and trainees lacked proper incentives for participation.

E. Aid Management

5.30 The Government of ROY undertook a review of several Government procedures in order to improve aid performance and management, including:

- (a) the ratification of loan agreements which at present requires parliamentary clearance;
- (b) the issue of counterpart funding in relation to the budget preparation procedure;
- (c) customs regulations and procedures; the Government is working closely with UNDP and the IMF to streamline customs procedures and systems; and
- (d) procurement and disbursement: some measures have recently been taken to streamline the process for clearance of withdrawal applications on projects special accounts. As far as IFAD loans are concerned, an agreement was reached with the Government that all withdrawal applications submitted by projects would be copied to IFAD. Subsequently, IFAD would follow-up on the applications directly with the Cooperating Institutions in order to cut down on delays in approving them.

5.29 During the Round Table conference (June/July 1992), some donors called for greater donor coordination, especially to avoid heavy concentration of donor assistance in any one sector. It was emphasised, however, that donor coordination was a shared responsibility by the donors and the Government, and must be driven by the latter. The role of the Ministry of Planning and Development in the management and coordination of external aid needs to be strengthened in this regard.

5

## VI. IRRIGATION AND RURAL INFRASTRUCTURE

6.01 An estimated 1.4 million ha are cultivated annually in the ROY, of which 400 000 ha benefit from applied irrigation water. Irrigated agriculture consumes 90% of the total water resources and provides 50% of the gross total agricultural production.

6.02 During the period 1979-1991, IFAD co-financed with other donor agencies a number of agricultural development projects which included irrigation and other rural infrastructures such as potable water schemes and roads. These components were reviewed for all the projects where IFAD was involved even if they were not in some cases, specifically supported by IFAD's funds. The aim was to draw lessons from the experience as a whole in order to help formulate future approaches that are supportive of improvements in project design, implementation and management.

### A. Water Resources

6.03 Scarcity of water throughout Yemen is emerging as a serious issue in agricultural/rural development. This section provides a brief compilation of the available information about the resource base and highlights some of the institutional aspects related to water use in Yemen.

#### (1) The Resource Base

##### Surface Water

6.04 Running north-south between Sa'da and Ibb, the highlands represent the main water divide, with the principal catchments on the western side draining to a series of wadis through the Tihama plain towards the Red Sea, and from principal catchments on the eastern side draining into the Empty Quarter Desert. The average surface runoff can be estimated at 1 500 to 2 000 million m<sup>3</sup> per year. Even though rainfall is not abundant in Yemen, rain storms often produce more water than the upper soil layers can absorb immediately. Hence, surface water runs downstream towards the wadis. The regime of the streams is generally flushy: within 24 hours the discharge in the major wadis of Tihama, for example, may increase from less than 1 m<sup>3</sup>/s to as much as 500 or 1 000 m<sup>3</sup>/s. The floods may be destructive and carry much sediment. Permanent or almost permanent flow (base flow) occurs only in some stretches of the wadi channel upstream.

##### Groundwater

6.05 Knowledge about the extent and potential of groundwater reservoirs in Yemen is still scanty. Hydrological studies have, until now, been confined to few specific wadi areas where development projects were carried out in collaboration with international or bilateral donor agencies. However, the available information on the hydrogeological environment of Yemen indicates that the aquifers in the alluvial plains are relatively well developed. Their recharge is produced predominantly by the wadis and by return flows from irrigation. In the highlands, the potential of groundwater reservoirs is much more limited. Most of this territory is underlaid by basement rocks, where only local aquifer systems can be found in weathered, fractured and faulted zones or in the narrow

alluvial fills of the wadi beds. Groundwater has been developed extensively for irrigation and public supplies without enough consideration of the possible after-effects. The overexploitation has already brought a degradation of the natural hydrogeological regime in many areas.

## (2) Institutional Aspects

### Water Resources Database

6.06 The database essential for a rational planning and management of water resources in Yemen is qualitatively and quantitatively deficient. Not only are there gaps in coverage but there is evidence of deterioration. The hydrometric network for surface and ground water measurements and monitoring is insufficient and not adequately operated and maintained. Regional water resources or local units established as part of development projects (Tihama, Wadi Beihan) are unable to obtain adequate resources and face serious difficulties with respect to equipment procurement, staffing, vehicles and maintenance of instruments. There are many reasons for this such as cash limits on recurrent budgets which affects field supervision, high priority to project planning as opposed to routine data work and at national level a decision to decentralize without sufficient experienced staff and equipment. There is an urgent need to strengthen the collection analysis and distribution of water resources data. It is necessary to continue to accumulate and process stream hydrology time series and sediment load data which are necessary for better planning, design and management of surface water schemes. Similarly, the need to monitor the behaviour of groundwater in space and time is more acute in order to control withdrawals. Efforts are now underway to make an inventory of data of various water catchment which have been undertaken in the past.

### Water Rights

6.07 The system of water rights in Yemen is based upon a mixture of Islamic and legal customary practices. The distribution of surface water generally follows rules which provide for upstream areas to take water first, and for plots of land nearest to the water course to take water first. Local practices intervene once the water has been distributed. The first user can take as much water as he wants regardless of the amount available to downstream users. Concerning groundwater, according to custom and Islamic law, every landowner is entitled to dig a well on his own land or land intended for development. Thus, legally, extraction of groundwater is at the owner's discretion. However, continued use of the newly dug well is prohibited if it proves to be detrimental to an already established well. In other words, the owner of the land or the well has primary right and can own the water he withdraws, but the groundwater system remains common ownership.

### Water Regulations

6.08 Regulations on abstractions of water are still virtually non-existing. At the same time, the overdevelopment and exploitation of water resources require immediate and decisive action. The government authorities are fully aware of the problem. A comprehensive Water and Irrigation Law, recently drafted by MAWR, is still under discussion. Attempts to control groundwater extraction rates made by imposing a minimum spacing requirement of 500 m between new and existing wells, by refusing credit to those in certain critical zones (although control

through the supply of credit is only partially effective where farmers can raise their own resources to pay for the investment) and, most recently, by licencing well digging. In an effort to rationalize water policy and investments and to improve coordination in the water sector, a High Water Council (HWC) was established in the north in 1981, under the chairmanship of the Prime Minister. The major thrust of the council concerns data programmes, water policy and water regulations and legislation. However, its operations only started on the ground in 1989. Technical assistance personnel and related costs for the HWC are being supported by a four-year UNDP-assisted project: "Assistance to the High Water Council in Preparing a Water Master Plan (YEM/88/001)".

#### Government Irrigation Institutions

6.09 Before unification, in both parts of Yemen, irrigation was organized nationally under the Ministry of Agriculture which in the North had a General Department of Irrigation and in the South the Department of Irrigation and Land Reclamation. These departments were responsible for planning, design, some major constructions, flood control and monitoring of water resources. However, most of the irrigation projects were implemented by regional development authorities or by project units with little guidance and support from the irrigation departments.

6.10 Acknowledging that water resources are critical to sustained economic development, the post-unity government designated the Ministry of Agriculture and Water Resources (MAWR) as responsible for overall coordination of water resources development. Within MAWR, one of the three sub-ministries headed by a Deputy Minister is for water resources. The sub-ministry consists of two general departments each headed by a director general:

- (i) General Department of Water Resources has been organized into seven departments: Technical, General Services and Coordination, Water Legislation, Conservation and Environmental Protection, Studies, Meteorology and Climate, and Water Resources.
- (ii) General Department of Irrigation and Water Supply Installations Maintenance (GDI) has been organized into seven departments: Irrigation Projects, Studies and Planning, Survey, Irrigation Installation/Engineering, Supervision and Execution, Remote Sensing and Early Warning, and General Services. In addition, GDI has provisions for a Maintenance and Operations Department.

6.11 The team was informed that the government's thoughts are now directed towards the creation of a "General Water Resources Authority" which will bring under the same roof all government services involved with water resources development.<sup>1/</sup>

<sup>1/</sup> During a Round Table Conference for the ROY which was held on 30 June/July 1992 in Geneva and which included most of the multilateral organizations and bilateral donors, the issue of water management and conservation was discussed. The participants expressed considerable concern about the unsustainable exploitations of groundwater and the subsequent decline in the water table beyond any chance of recharge. The Government elaborated on its intention to develop a better management of water resources through possible licensing and introduction of water charges. It also indicated that the introduction of efficient water-saving methods of irrigation remained high priority, since a continuation of uncontrolled deep drilling for water would compound the problem even more. Effectively, during the second half of July 1992, the draft Presidential decree instituting a new Authority for Irrigation and Water Resources was ready for signature. It would set out policies and oversee their implementation.

## Types of Irrigation Systems

6.12 The most dominant irrigation patterns in use in Yemen are spate irrigation (150 000 ha) and groundwater irrigation (230 000 ha).

6.13 Spate Irrigation. Spate irrigation has been widely practiced for many years by farmers in Yemen. It refers to the diversion of flash floods from wadis by submerged spurs and/or temporary earth embankments (ogmas) into large unlined canals and hence to banded field basins. Spate irrigation is also intended to bring silt to the land and it contributes to the recharge of the aquifer. Traditionally, wherever there is a spate irrigation system there exists a well-established water user's organization for construction and replacement of diversion structures, maintenance of the canals, distribution of flows and conflict resolution. Costs are shared on the basis of benefit received which depends on the area of land, its elevation and its proximity to irrigation supply.

6.14 Government efforts concentrated on the improvement of the traditional spate systems in some of the major wadis. In the North, three large spate control developments have been completed in Tihama (Wadi Zabid, Wadi Rima, and Wadi Mawr<sup>1/</sup>). In the South, large-scale spate development exist in Wadi Hadramawt and Wadi Beihan<sup>1/</sup> (Shabwa Governorate).

6.15 Groundwater Irrigation. Groundwater irrigation has grown increasingly popular in Yemen over the past 20 years. The demand for a secure water supply and deficiency in wadi flows in recent years are doubtless contributing factors. At present there are an estimated 45 000 wells irrigating some 230 000 ha. In the early 1970s, irrigation from wells was practiced on approximately 45 000 ha which underlines an astonishing rate of groundwater exploitation. The wells are mostly open, stone lined and about 15-20 m deep, equipped with a diesel-powered pump. However, the overexploitation of the shallow aquifer has fostered in recent years the development of deep tube wells.

6.16 Investments are made either privately or supported by the government through projects. Finance for individual developments are often derived from the remittances of family members working abroad. Pump owners generally make arrangements to provide water to adjacent lands where farmers are unable to make the necessary investments and crop sharing is the predominant method of payment. There are also situations where successful informal water cooperatives have been formed by close relatives and/or neighbours and costs are shared on the basis of land area irrigated from the well. Access to groundwater has also been supported by the government through installation of deep tube wells and/or deepening and rehabilitating existing wells which are subsequently sold at cost or subsidized terms. Credit is made available to farmers for the purchase of the pumping installation. The operation and maintenance costs are fully borne by the beneficiaries themselves.

## B. Irrigation

### (1) Improvement of Traditional Spate Irrigation Schemes

#### Development Options and the Equity Issue

6.17 In a traditional spate irrigation scheme, the existing system of water management has developed over the centuries and is a part of community life. The fundamental feature of this system is that of the

<sup>1/</sup> With the assistance of IFAD.

priority for upstream users as previously described. It is a well established principle which basically means that irrigated areas upstream have prior rights to water abstraction over the downstream users. However, when the upstream user has had sufficient water, he then has an obligation to release the water downstream. In the wadi, this system is to some extent automatic as the upper deflectors are periodically washed away, thus allowing water to pass to the lower offtakes. Therefore, along a wadi, the old system is perceived by the farmers to function on a relatively equitable basis. This equity (fairness) from the farmers' point of view should be recognized and considered in the planning, design and implementation of improvements of traditional spate irrigation systems. Clearly, the established water rights and the system of allocation of flows in the wadi must be taken into account as it determines the selection of the appropriate design concept.

6.18 Two quite different concepts for utilization and diversion of spate flows have been adopted and implemented in Wadi Zabid and Wadi Mawr.

6.19 In Wadi Zabid, the concept adopted consists of improving spate diversion throughout the length of the wadi. The design of the system was largely influenced by the old water rights and traditions. Five diversion weirs were constructed along the wadi. The farmers in the middle and lower reaches who formerly had to cope with a larger unmanageable spates have been given at least same, if not more, attention as the farmers in the upstream areas who in the past have been able to manage the base flow and small spates without great difficulty using their traditional methods.

6.20 In Wadi Mawr the same concept has been adopted at the feasibility study. It was envisioned to improve the intake of the uppermost Daraaniah canal by a gabion dike and to build two diversion structures, each one serving a group of canals downstream. However, during the detail design stage, the concept has been changed. Indeed, the revised design has been based on a concept that differs radically from the Zabid system. The traditional system aiming to divert water at many locations was replaced by a system relying on the diversion of low flow rates (base flow and small spates) at only one location. It was estimated that this change would result in cost savings that amount to 8% as compared to the feasibility study alternative of 27% if the latter were upgraded by using inverted syphons instead of two separate offtake structures to supply the northern and southern canals.

6.21 A panel of three experts was appointed by TDA to review the new design. The panel decided not to question the option of one diversion instead of two and limited its recommendations mainly to improvements in the design of the proposed sediment control structures. As a result, the Wadi Mawr system, as built (see project map) contains one diversion weir with twin canal head regulators and sediment control structures; a combined headreach canal with a design capacity of 40 m<sup>3</sup>/s; a division structure, located at 4.2 km downstream splits the flow in two parts, one of which on the right bank of the wadi as the North Supply Canal (15.6 m<sup>3</sup>/s) and the other passes under the wadi in a syphon underpass and feeds the South Supply Canal (22.5 m<sup>3</sup>/s). The North Supply Canal is 22.6 km long and serve 18 primary canals whereas the South Supply Canal is 24.5 km long and feeds 21 primary canals. The offtakes from the supply canals have been sized on the basis of 2 l/s/ha. The offtake for Daraaniah is located on the headreach canal. A gate operation schedule derived from computer simulation of hydrologic data has been prepared. All offtakes from the supply canals incorporate some means of flow measurement in order that allocation of supplies can be monitored.

6.22 It was intended that the responsibility for determining which offtakes from the supply canals receive water at any time will be that of Tihama Development Authority (TDA) canal operation personnel. Therefore, "Water Masters" will no longer control the offtakes serving their main canals. But, due to some opposition during construction, TDA, with participation of the Ministry of Agriculture and the Governor of Hodeidah, signed an agreement with the Daraaniah canal farmers that they could have full control of the offtake to their secondary canal. This signed agreement, coupled with failure of measuring devices, made it difficult for TDA to effectively carry out any water distribution plan. As a result, the scheme is largely benefiting the Daraamiah canal farmers. Indeed, a 1990 study on the water distribution in Wadi Mawr revealed that Daraaniah canal which commands 950 ha used 100% of the available base flow in 1988 and 1989. Whereas according to the water allocation plan the base flow was expected to be distributed among ten other secondary canals serving 4 800 ha. Similarly, 39% of total flow (base and spate) was diverted by Daraaniah which is about six times its allocated share.

6.23 The equity rule that underlied the design of Wadi Mawr system and the associated water allocation plan was 'equity' in field water application which is more appropriate for a perennial system and does not necessarily correspond to equity from the farmers' point of view in spate irrigation systems. Thus, the selection of the appropriate development concept of a spate irrigation system requires a very clear understanding and appreciation of traditional water rights and operating arrangements at the design stage. Farmers downstream should not be deprived of what little rights they had to water without some compensation. The recommended scheme should give careful consideration to the social implications of any improvements in the system and traditional concepts should not be discarded without justification of all aspects of wadi development.

6.24 In Yemen, where traditional water rights are an acceptable norm and political committment to equitable distribution of irrigation water is difficult to ensure, each decision about necessary infrastructure, should be based on whether the proposed decision will enhance or impede the probability of achievement of the equity. The decision should be based upon the probabilities of effective implementation and not on possibilities. Wadi Mawr is an example of a system designed on the basis of possibilities that could not be realized.

6.25 To implement new rules and operational procedures, it is necessary to make changes for the existing physical and organizational structures. The design process for both the physical and organizational changes should start with tentative decisions about the equity objectives working back to physical and organizational structures required to achieve them. A deliberate effort should be made to consider a wide range of design options.

#### Sustainability

6.26 A serious issue facing spate irrigation development is sustainability beyond the periods of donor agencies' support. Poor maintenance, the absence of adequate recovery of costs from beneficiaries and lack of farmers' participation are seriously endangering the sustainability of existing development projects.

## Maintenance

6.27 Works that have been undertaken require continuing maintenance in order to keep the systems in full operating conditions and obtain maximum benefit from the significant investments made. In those development projects that have involved construction of permanent spate diversions in the wadis, maintenance work such as repair of the concrete, masonry and mechanical parts of the structures as well as the canal embankments and side slopes should be routine operations. The mechanical removal of sediment deposits and trash has to be arranged on a continuous basis. Equipment required for maintenance and operations should be available on site during the whole irrigation season.

6.28 It is difficult to gauge sustainability of engineering works from a snapshot. In Wadi Mawr, maintenance appears to be acceptable. But this may be an illusion. Incorporating lessons from previous projects in the design of sediment control facilities seems to be effective in alleviating the sedimentation problem. However, in other situations which the team has visited, such as the Wadi Zabid project or the Nuqud Weir in Wadi Beihan (which has been rehabilitated by the Beihan project) sedimentation and poor maintenance have resulted in the rapid deterioration of the infrastructure requiring costly repairs.

6.29 The primary constraints to the effective maintenance of irrigation works can be described as follows:

- (i) lack of adequate technical and professional staff: irrigation engineers, surveyors, mechanics;
- (ii) lack of equipment and often for the the available machinery an acute shortage of spare parts exists;
- (iii) lack of sufficient financial support to sustain essential support services for maintenance works on the irrigation infrastructure;
- (iv) the existing hydrometric network for flow measurements and monitoring is insufficient and not adequately operated and maintained;
- (v) lack of early warning systems and communication including radio and telephone connections that are necessary for proper operation of the sediment control facilities and better spate water management and distribution since spates often occur at night;
- (vi) absence of an effective institution capacity within the department of irrigation at the central level capable of supervising, coordinating and providing technical backstopping to regional and/or local units.

6.30 Unless stringent measures are taken to properly overcome these constraints, the sustainability of existing projects will be seriously undermined.

### Cost Recovery

6.31 The government still does not have a clear cost recovery strategy to charge beneficiaries in order to generate sufficient revenues to operate and maintain the irrigation systems. In Tihama, it was agreed as an initial measure to levy annual charges (additional to the religious Zakat) equivalent to 2% of the gross value of agricultural production. Provisions for collection of these taxes have been made by a government decree in 1978. TDA is not involved in the collection of this tax but officials assert that these taxes are indeed collected along with Zakat. Another experience exists in some major projects in the South; there farmers pay a maintenance fee which amounts to LYD/feddan. This fee is collected by the maintenance unit of the project. Funds collected are earmarked in their entirety to be used for maintenance activities.

6.32 Given that scarce public funds are mainly directed towards donor-driven projects, there should be a stronger commitment from the government to cost recovery. Recovery of public spate irrigation costs by direct or indirect methods should cover total O&M costs plus as much as reasonably possible, of capital costs, taking into consideration the capacity of the beneficiaries to pay and the need for them to have adequate incentives to participate in the project.

### Farmer Participation

6.33 In traditional spate-irrigated areas, users built main and secondary canals, along with dikes and bunds in the wadis to catch water for irrigation. "Water masters" are hired to supervise flood water distribution, the maintenance of canals and dikes following heavy floods and to resolve disputes. Unfortunately, the projects have not taken advantage of this valuable tradition of local resources mobilization and the results are irrigation systems that are costly to construct, operate and overly dependent on government support.

6.34 In many instances, project identification documents have advocated simple designs and selection of appropriate materials so that construction can be carried out by the beneficiaries themselves. But the fact that this has rarely happened can be attributed to the shortcomings of the current strategies and manner of implementation.

6.35 This situation is best illustrated by the implementation of the Eastern Region Agricultural Development Project. This project intends to improve small traditional spate irrigation systems in 12 agricultural cooperatives scattered in four governorates. It was assumed at preparation, that the cooperative members will undertake the majority of the works under guidance from recruited technical assistance. However, time pressure caused by unrealistic timetables for implementation, project management impulse to show immediate results, lack of professional capacities required to implement a participatory approach and, last but not least, donor's preference to contracting construction works did seriously impede the participation of the beneficiaries in the construction. Most of the works will be done through contracting.

6.36 Without an explicit policy of what the post-construction scenario will be, our fear is that this may lead to an absurd situation where traditional (oqmas) are replaced with concrete weirs that function, but a short time. This will result in considerable waste of scarce public resources.

6.37 In future developments there should be a clear instrumental goal of creating spate irrigation projects that are self reliant so far as routine operations and repairs are concerned. Sure, they need to be backstopped by a responsive and technically capable project and/or government units. But developing small-scale spate irrigation projects should not be thought as a process where the project gets itself into constructing facilities scattered here and there and expecting that the government will later provide the necessary resources for maintenance. It is unlikely that the government will do this.

6.38 Projects for which users are responsible and for which the administration is ready to provide backstopping as necessary, are the ones that are likely to be around for awhile and most likely to contribute to achieving broader production and livelihood purposes. This requires not only that designs be right but also, and most important, that the implementation process be conducive to effective users' participation.

6.39 It is well recognized that within donor agencies there often is a pressure to commit funds and ensure that they are flowing to projects. But this imperative should not drive project implementation. Getting things built is, of course, an important objective but equally important is the quality of the final product and the process that leads to effective beneficiaries' participation. A learning perspective can contribute to this objective. Therefore, the development of small pilot projects to test new ways for implementing a participatory approach should be sympathetically considered by IFAD.

## (2) Groundwater Irrigation

### Project Interventions

6.40 Several IFAD co-financed projects had a component aiming at developing the use of available groundwater for irrigation. Interventions under this component encompassed a wide range of activities which generally included:

- deepening and rehabilitating (masonry lining) existing wells;
- digging new open or tube wells;
- providing replacements of pumping sets;
- improving conveyance and distribution systems by lining water courses and/or installing buried PVC pipes; and
- equipping demonstration fields with improved irrigation technologies, such as sprinkler, drip and bubbler systems.

6.41 In the development of groundwater irrigation, projects have basically played the role of a facilitator by providing loan, design and construction assistance. Government withdraws after installations are constructed, which are then owned, operated and maintained by water users.

### Description of Installations

6.42 Typically, the project develops a tubewell or an open well which is subsequently handed over to farmers often free of charge or at subsidized prices. However, in many instances, wells were drilled where the chances of finding water were the greatest without enough consideration of who benefits (e.g. in Eastern Agricultural Project). Therefore, site selecting criteria are in need of improvement.

6.43 Beneficiaries are individual farmers but most often a group of farmers composed of relatives or neighbours. They have to purchase their own pumping equipment. Pumping equipment has been found to exhibit a high degree of standardization on a regional basis (same pump and engine trade marks) with common use of multistage line-shaft pumps powered by diesel engines. In principle, this standardization should facilitate the procurement of equipment and spare parts. But, there are instances where 23 HP engines have been used everywhere regardless of the actual power requirements derived from the pumping discharge and the manometric head needed. Over designs increase, of course, the investment and operating costs.

6.44 Installations that were visited, are in general well constructed. Information obtained indicate that well construction, equipment and establishment are in the range YR .4 - .5 million, which for an average command area of 8 ha represents an investment cost of YR 50 000-63 500 per hectare. Credit facilities were made available for this purpose through local branches of the credit banks. Informal credit arrangements or the raising of financial resources from the remittances of family members working abroad are also common.

6.45 Pumps usually discharge into a small basin (1 to 2 m<sup>3</sup> capacity), 1.5 m above ground from which water is conveyed under gravity by canal to the fields. Conveyance and distribution canals follow the crest of earth embankments which command the irrigated area. Individual plots may be located some distance from the well head. As the canals are often unlined, a substantial proportion of water pumped from the well is lost by seepage. Our observations indicate that the seepage loss from water courses in sandy soils may be as high as 50% of the water pumped at the well head.

6.46 However, conveyance losses have substantially been reduced by the installation of buried low pressure PVC pipes, resulting in water savings that amount to 25-30% (in Abyan and Beihan) with subsequent reduction in fuel consumption and/or extension of irrigated area. It is to be mentioned that in Beihan, the installation of low pressure buried PVC pipe system that has been promoted by the project has gained tremendous popularity among the farmers. Installation of these systems is still continuing after the completion of the project. It is entirely financed by the farmers themselves. Technical back-stopping for design and installation is provided against payment by the former project maintenance unit which is now integrated into the regional Agricultural Department.

6.47 In other instances the installation of PVC pipes has not been part of a complete new development package because of lack of coordination between project activities (in Abyan for example).

#### On-farm Water Management

6.48 Successful informal water supply cooperatives have been formed by farmers irrigating from the same well. They have developed a rotation system where each farmer is entitled to one day of irrigation per feddan and he has to provide diesel fuel required for pumping. Repairs are usually made by private mechanics and the cost is shared on the basis of the area benefiting from the well water. A mobile maintenance unit has also successfully been established to serve cooperatives in Abyan.

75

6.49 Irrigation is normally carried out by small scale basin flooding. Generally water application extends over 10 hours/day for some 275 days per year, resulting in annual running costs that may reach YR 90 000/well or YR 4 500/feddan. This might represent a substantial financial burden on farmers considering that costs of fuel and lubricants have more than doubled in recent years.

6.50 Field observations indicate that farmers have little knowledge of crop water requirements and optimum water application schedules. On-farm water management is not at all part of the extension package provided to farmers. One of the reasons is that the extension agents lack the experience with irrigation.

6.51 Experiments with improved irrigation technologies such as sprinkler, bubble and drip systems are carried out in a few small plots, mainly in the experimenting stations in Tihama. Unfortunately, the trials are not scientifically designed to provide sound information as to the optimal management of irrigation water under these systems. In Wadi Beihan, experiments with these systems were discontinued and equipment given to some farmers to serve as demonstration plots but without any guidance.

6.52 On-farm water management is an important aspect of groundwater irrigation that should receive increasing attention. There is a very high economic pay-off from on-farm improvements. Improved on-farm water distribution increases crop yields, frees more water to irrigate additional areas and reduces operating costs. Extension efforts and field demonstrations may be the most effective way to getting the message across to farmers but these have to be supplemented by other activities such as applied research, planned training and educational programmes.

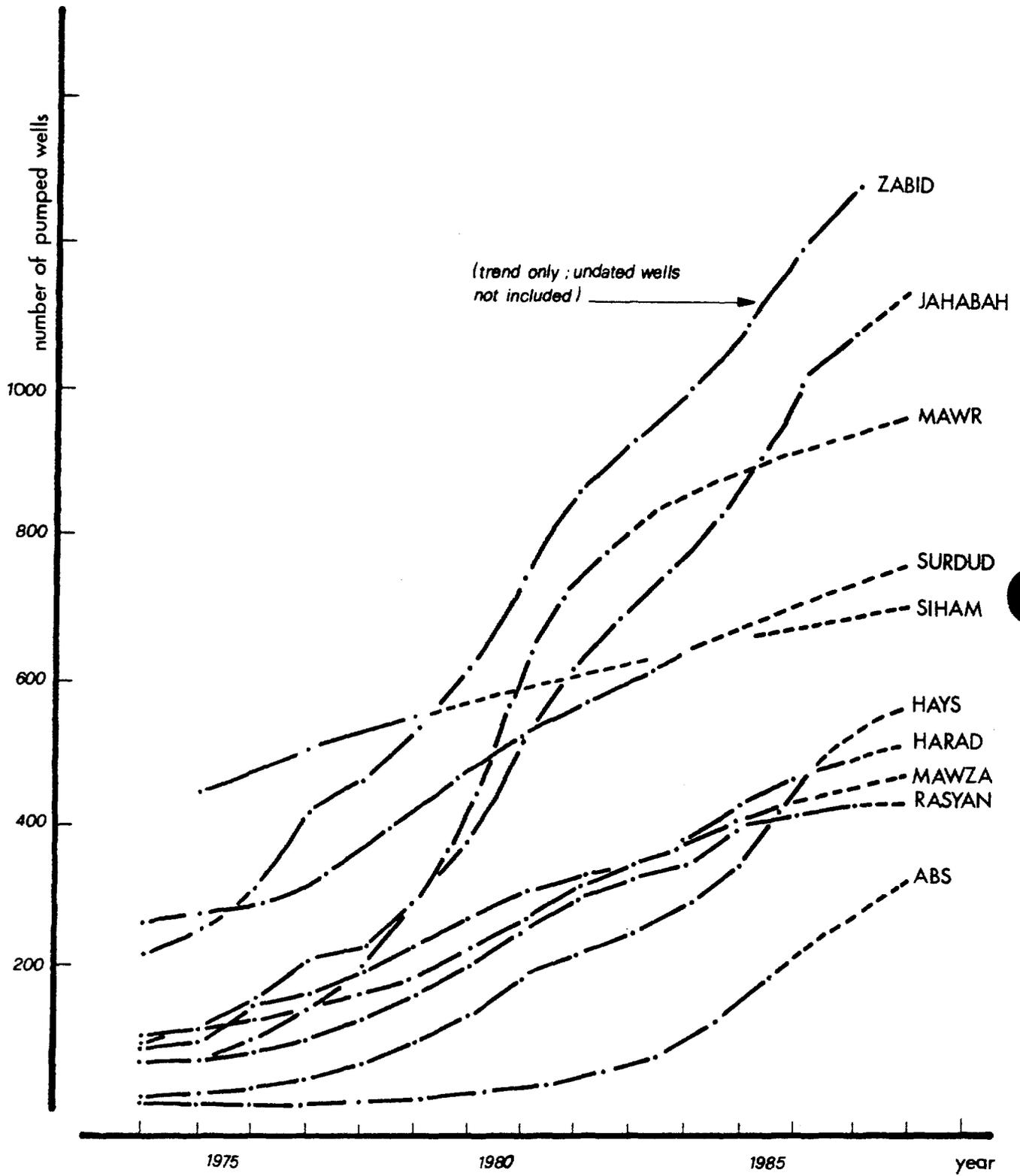
#### Aquifer Sustainability

6.53 The current rates of groundwater abstraction are not sustainable in many areas of the country. Figure 1 depicts the rapid expansion of wells in Tihama where current estimates by TDA suggest that there are now some 11 000 wells irrigating about 100 000 ha. Similar expansion has occurred in Lahej, Abyan and Shabwa, in the South. It is estimated that water levels in the major aquifers are now receding between one and seven metres annually. Continuous water level declines had necessitated the deepening of wells, thereby placing additional financial burden on farmers.

6.54 A declining water table, apart from creating conditions of uncertainty and scarcity, increases the risk of salt intrusion. This risk is already real in some localities (e.g. northern and south western coastal areas, Beihan) and threatens the livelihood of a large proportion of well irrigation farmers.

6.55 The overdevelopment and exploitation of groundwater require immediate and decisive action. If groundwater resources and the benefits that accrue from their use are valued, then restrictions on further developments in critical areas must be imposed. The policy of groundwater management is a nationwide issue that has definitely to face scarcity of water resources, water rights, local considerations and last, but not least, competition between different uses. But, the long-term perspective can no longer be considered an unaffordable luxury. It is therefore necessary, in addition to the regulatory measures referred to in a previous section of this annex, to design and implement a master plan for the development of groundwater resources and the rationalisation of their

FIGURE 6.1 - INCREASE IN NUMBER OF PUMPED WELLS  
IN TIHAMA



exploitation. Furthermore, in the context of groundwater irrigation, improved farm irrigation techniques should be considered in any future developments.

### C. Rural Water Supply Schemes

6.56 At present, only some 17% of the rural population in Yemen has access to safe drinking water. Supplies are inadequate. Water shortage is widespread and springs, shallow wells and cisterns are often polluted. Hence, during the last two decades much attention has been given to the supply of safe drinking water to the rural areas by drilling wells and installing water facilities. Several donor countries, international institutions and United Nations specialized agencies are actively involved in supporting this sector.

6.57 Experience in the country has demonstrated that beneficiary communities are able to participate in the financing of water supply schemes. An important and positive feature of the experience of the LCCDs, in the North, is that projects are implemented in response to village requests, consequently village contribution to development cost in cash or in kind has been significant and that operation and maintenance of completed projects become a village responsibility.

#### Performance

6.58 In addition to the programmes carried out by other sector agencies, three major IFAD co-financed rural agricultural development projects in the North have included a component aiming at expanding water supply services to specific rural areas. These projects are:

1. Tihama Development Project III (Wadi Mawr).
2. Southern Upland Rural Development Project (SURDP II).
3. Central Highlands Agricultural Development Project (CHADP I).

6.59 The number of schemes and the total benefitting population in each project area are given in Table 6.2 below:

Table 6.2: Water Distribution Schemes and Total Benefitting Population by Projects

Project	Number of Schemes	Total Population
Wadi Mawr <u>a/</u>	71	31 380
SURDP II <u>b/</u>	104	443 620 <u>d/</u>
CHADP I <u>c/</u>	15	35 000
	190	510 000

Source: Compiled from PCRs and Project's Records.

a/ With assistance of KFW.

b/ With assistance of the SDC.

c/ With assistance of IDA/IFAD.

d/ This does not include a population of 88 400 served by 20 schemes of SURDP I completed in SURDP II.

6.60 The enthusiasm of villagers for water improvements has given publicity to the projects, thus, facilitating the implementation of other components. However, in all projects, rural water supply schemes are currently facing serious difficulties which have resulted in an important number of non-operating ones depriving a sizeable portion of the population from access to safe drinking water. These difficulties, as described below, are related to the scarcity of water resources, social conflicts, "inappropriate" technological choices and poor maintenance.

#### Scarcity of Water Resources

6.61 The provision of potable water supplies in the projects' areas had to face declines in water table and deterioration of water quality. In Wadi Mawr, for example, the development of village water supplies has been limited to small, individual abstraction from deep wells shallowly penetrating the fresher upper levels of groundwater. But the prevailing drought, coupled with the uncontrolled expansion of irrigation wells, has resulted in a drop of the water table, thus reducing the yield of the wells and often drying them up completely. A recent survey by TDA shows that 35 schemes out of the 71 constructed (49%) are not operating because of water quantity problems and 22 wells (31%) are suffering from salinity (EC 2 000 micro-S/cm.). A similar situation exists in SURDP II where, out of 104 schemes constructed, the wells of 14 schemes (13%) have dried up and in 14 schemes (13%) the yield of the water source is not sufficient to meet the needs of beneficiaries.

6.62 Water supply schemes are very vulnerable to competition especially with irrigation for scarce water resources. Therefore, planning of water use is paramount. The sustainability of the water resource base requires that regulations be promulgated to set up priority for domestic use of water, to create restricted zones in areas where aquifers are in depletion and to impose a minimum distance between wells in order to avoid interferences.

#### Social Conflicts

6.63 Territoriality is, in Yemen, one of the key issues of how water sources can be used and reallocated, whether for irrigation or water supply, with zealous protection of rights to water usage. There are many instances, especially in the mountains, where individuals or groups did not allow development of drinking water supplies from sources located on privately owned lands to supply adjacent settlements or sometimes even their own village or hamlet. As an example, in Bani Mattar in the Central Highlands, the development of one tubewell on a privately owned land as determined by the hydrogeological study<sup>1/</sup> proved controversial for two main reasons. Firstly, one of the criteria used in selecting the beneficiary villages was based on the size of population, led to this absurd situation where the hamlets in the vicinity of the tubewells could not be served. Secondly, farmers, justifiably, fear the negative impact of the tubewell on the spring from which they use to irrigate their lands and hence they claim priority for using the tubewell water for irrigation as well. This has created serious social tensions between the spring and other mountain dwellers selected by the project which seriously threatens the completion of the scheme. There is a clear lesson here for those

---

<sup>1/</sup> This study was financed by IDA's Project Preparation Facility to ascertain sources of water.

impatient to develop schemes that if the farmers are being asked to give up perceived water rights, implementation may require substantive guid pro quo. Therefore, the actual prospects to develop new water schemes should be assessed through an in-depth social investigation.

### The Choice of Technology

6.64 A situation of non-operating schemes because of inappropriate choice of pump technology has occurred in Wadi Mawr. There, 44 schemes (62%) developed for small villages (population 100-400) were equipped with hand pumps. All these schemes were rejected by the beneficiaries who could not admit to get a lower "confort" than those for which engine driven pumps were installed. Indeed, despite apparent relatively simple conditions in these villages, the villagers are well acquainted with the operation, maintenance and repairs of portable generating sets used to provide electricity for light and even television sets and refrigerators. Furthermore, beneficiaries argue that the drawing and carrying of water is traditionally a task for women and small children who cannot operate hand pumps. Actually all the schemes have water tanks that could be periodically filled by men-operators specifically hired to operate the pumps. But, the hand pumps installed are also tough to operate by a single man.

6.65 In order to avoid this kind of situation the overall project target should be achieved through a phased development, anticipating a slow start, with a learning period rather than the approach adopted where all the water schemes were constructed by a single turn-key contract. What is needed is to design few schemes, see them in operation, discuss their strengths and weaknesses before they become a standard design. The advantage of phased development include the possibility of correcting problems with the initial design and the ability to spend much more time talking to local people before commitment is made. Proposals should be presented, discussed and compromised on with beneficiaries and their support and commitment is made. Negotiated designing is very possible in Yemen given the experiences of the LCCDs. Furthermore, the repayment of some portion of the construction costs of the schemes should be regarded as a pre-condition for any project involvement. Indeed, only if the beneficiaries are accountable for some portion of these costs can they be expected to moderate their demands for project assistance. This will definitely ensure their participation in the operation and continuity of the service.

### Maintenance

6.66 The policy adopted is that after completion, water supply schemes are handed over by the project to LCCDs for operation and maintenance. The village committee which is in charge of these duties collect every month from each family fees to cover the cost of an operator and day-to-day operational and maintenance costs. This policy has been implemented with various degrees of success. In Wadi Mawr, for example, before each village water supply is commissioned, an agreement is concluded between the village representatives, the local government authorities and TDA. In accordance with this agreement, undertakings to operate and maintain the water supply facilities are given by the village representatives. TDA's role will be confined to monitoring the performance of the installations and providing technical assistance on operation and maintenance at the village level. But available data

indicate that out of a total of 27 motorized schemes, 17 have gone out of operation because of maintenance problems. The major problems are:

- water charges that are fixed on an ad hoc basis to YR 15-20 per family do not adequately cover the maintenance and operating costs;
- lack of spare parts;
- severe shortage of trained and experienced local community staff either at the level of the LCCD or in the village itself; and
- insufficient technical backstopping from TDA.

6.67 The situation in SURDP II looks much better. About 50% of the schemes are in operation - 36 schemes can be considered as well managed and well operated. These schemes have active water committees, and are financed by beneficiaries' contributions and currently they do not face technical problems. The 14 remaining schemes operate without technical difficulties but unfortunately do not have similar water committees and structure and some of them are operated by the army or by a sheikh.

6.68 Recently the Water Supply Unit of the project has completed a survey of the schemes indicating their problems. Furthermore, guidelines on how to calculate water charges were developed in order to secure adequate revenue to the schemes which would cover all the operation and maintenance expenses as well as the cost of required investments to improve their services. Training sessions are being organized to present these guidelines to water committees. This experience warrants consideration by the other projects.

#### D. Roads

##### Achievements

6.69 Roads play an important role in economic growth by opening up inaccessible remote areas for future development. There is empirical evidence in various parts of the world that development of rural roads not only results in decrease in transportation costs and efficient movement of commodities but also leads to such production activities which hitherto were impossible or impracticable. The roads also stimulate production of high value crops and perishables such as fruits and vegetables.

6.70 Provision for constructing feeder roads were included in three projects. They are:

- (a) Tihama Development Project III (Wadi Mawr);
- (b) Wadi Beihan Agricultural Development Project; and
- (c) Central Highlands Agricultural Development Project.

6.71 In Wadi Mawr, project access roads were provided to link the major villages and to give them easy access to Hodeidah/Jizan Highway. The road network consists of an enveloping ring around the periphery of the spate irrigation areas where most of the centres of population and markets are located; with spurs to larger villages which are not conveniently located near the ring road. In addition, the western end of the project road system was connected to Alluayah, giving access to this important administrative centre on the coast. The road connecting Marrass and Alluayah through Jebel el Milh now constitutes a spine road approximately 70 km in length with a surfaced width of 7.0 m. Other roads in the system total 63 km and are generally of 4.5 m surfaced width.

6.72 Road construction comprises an embankment of compact, selected earth, surfaced with 150 mm of compacted graded gravel. Cross drainage is nominal except where the route crosses the flood plain where protection is provided by "drift" flood crossings and groynes.

6.73 Gravel roads require routine day-to-day maintenance which is not adequately carried out by TDA due to lack of resources (personnel, equipment, machinery and funds). As a result, a number of feeder roads are rapidly deteriorating under heavy traffic. Therefore, it is suggested that arrangements be made to turn over all the roads with heavy traffic to the highway authority.

6.74 In Wadi Beiham, a 16 km feeder road connecting Nuqub to Usylan was built. There was a change in its alignment and length and it was upgraded to an asphalt road instead of a gravel road in order to be integrated in the Waset Beiham highway system. The road has provided access to the important centres of population and agriculture in the area and has facilitated the supply of agricultural inputs and marketing of produce.

6.75 In the Central Highlands Rural Development Project there is a feeder road component financed in parallel by AFESD which included two rural roads. The rural road in Dhamar Governorate, with a total length of 28 km has been completed, whereas the work in the other one, with a total length of 23.8 km in Sana'a Governorate has been interrupted for almost two years after the construction of only 7 km due to conflicts with the contractor.

## VII. AGRICULTURAL RESEARCH AND EXTENSION

### A. Background

#### (1) Research

7.01 Organized agricultural research in the North started in 1973 with UNDP/FAO assistance (1975-78) which established a research station at Taiz and initiated research on main crops in the Southern Uplands. Research activities in Tihama started at Zabid in 1974 under the World Bank Tihama I Project. Limited research activities were also carried out as part of rural development projects with bilateral assistance such as the British project at Risaba (near Dhamar), the Dutch project at Radaa (in Al-Baida), the German project at Amran (in Saada), the American sorghum project at Sana'a and the Chinese project at Al-Batina (in Saada). Coordination of agricultural research on a national level became feasible only after the formation in 1983 of the Agricultural Research Authority (ARA) supported by the Agricultural Research and Development Project (ARDP) jointly funded by the Government, IDA, IFAD and Italy.

7.02 In the South, agricultural research on cotton was started under British rule at Al-Kod in 1955. The research effort was directed to improvement of cotton production in Abyan delta. After independence, research activities were expanded to cover other crops and another research centre was established at Seiyun in Hadramowt. Both centres were functioning under the Department of Research and Extension of the Ministry of Agriculture and support was provided by successive UNDP/FAO projects.

7.03 After unification in 1990, responsibilities for agricultural research were combined with the coordination of extension service at the national level under the former ARA which has been renamed Agricultural Research and Extension Authority (AREA), with headquarters at Dhamar and research centres in each of the five main agro-ecological regions, viz. Surdud and Al-Kod in the Coastal Plains; Taiz in the Southern Uplands; Dhamar in the Central Highlands; Al-Boun in the Northern Region and Seiyun and Marib in the Eastern Region.

#### (2) Extension

7.04 There is no national extension service in the country. In the North, the nucleus for an Extension Department in the Ministry of Agriculture was started in 1980 and developed into a General Directorate of Agriculture, Extension and Training. However, it remained small and understaffed until it was absorbed in AREA after unification. Extension activities were implemented mainly under the Regional Development Authorities (RDA's): Tihama Development Authority (TDA); Southern Uplands Rural Development Unit (SURDU); Central Highlands Agricultural Development Project (CHADP); Eastern Region Agricultural Development Project (ERADP) and Northern Region Agricultural Development Authority (NARDA). In areas not covered by RDA's, extension services, albeit on a limited scale, are provided by the Agricultural Offices in the Governorates.

7.05 In the South, the extension service started in 1975 as part of the research stations at Al-Kod and Seiyun under the Directorate of Research and Extension (DRE) of the Ministry of Agriculture and Agrarian Reform (MAAR). Activities were expanded after the establishment of the Agricultural Training and Extension Centre at Giar with FAO/UNDP assistance. Extension service was also provided under rural development projects in the main agricultural areas of Wadi Hadramowt, Wadi Tuban, Wadi Abyan and Wadi Beihan with external help. However, the service was fragmented and there was no unified approach. In 1986, the administrative responsibility for extension was transferred to the Agricultural Departments in the Governorates and the technical supervision was left under DRE. A World Bank project provided support for both research and extension during the period 1986-90. After unification in 1990, DRE became part of AREA.

#### B. Development of Improved Technical Packages

7.06 Of the 11 IFAD-financed projects in Yemen, only one, the Agricultural Research and Development Project (ARDP - Loan 105) was a research project. It was initiated by the World Bank and was co-financed by IDA (US \$6 million), IFAD (US\$ 5.8 million), Italy (US\$ 8.9 million) and the Government (US \$11.7 million). IFAD loan was approved in 1982 with an initial duration of 5 years which was further extended by 3 years. The IFAD loan contributed to the financing of civil works (US \$1.6 million) and recruitment of experts (US \$4.2 million).

7.07 Overall, the project contributed significantly to the strengthening of the research capacity in the country in terms of infrastructure, equipment and technical assistance. During project implementation (1983-91), much progress has been made in the identification of improved varieties and suitable cultural practices. The cereal varieties released so far are listed in Table 7.1. Recommended cultural practices (sowing date, plant population, fertilizer rates and plant protection measures) for each of the released varieties are also available. In addition, several other varieties appeared promising and are due for release soon (Table 7.2). Nucleus seeds of the released varieties have been handed over to the Seed Multiplication Project for further multiplication and distribution.

7.08 Research on a large number of vegetables, including potato, tomato, onion and okra, led to the release of several varieties. Research recommendations on how to grow these varieties have also been produced. However, with the exception of potato seed, which is being produced in the country with Dutch assistance, and seed of the onion variety Pusa Red, which is being produced by the Seed Multiplication Project, there is no organized vegetable seed production in the country. Thus, farmers have either to produce their own seed or depend on imported vegetable seeds which are not necessarily of the recommended varieties and often their viability is very low.

7.09 Research emphasis has been on crops under well irrigation. Even though <sup>1/</sup>rainfed agriculture constitutes about 70% of the cultivated area, <sup>1/</sup>packages for rainfed agriculture are rare. Also, recommendations for production under spate irrigation are scarce. Despite

---

<sup>1/</sup> This figure applies to a normal rainfall year.

Table 7.1: List of Improved Cereal Varieties Released by ARA

Crop	Released Variety	Yield (mt/ha)	% Increase Over Local Variety	Recommended Area <u>a/</u>
Sorghum	Qadasi	3.9	139	SU
	Saba	4.1	146	SU
	Janad	4.1	146	SU
Maize	Taiz-1	4.0	63	SU
	Taiz-2	5.0	100	SU & CH
	Tihama-1	5.7		T
Wheat	Sonalika	3.7	147	MR
	Mareb-1	5.1	240	HR
Barley	Arivat	3.5	108	MR

a/ SU=Southern Uplands; CH=Central Highlands; T=Tihama; MR=Medium rainfall areas; HR=High rainfall areas.

Source: Abstracted from Status Report - ARA-UTFN/YEM/011 by P. Nath, Dhamar 1990

Table 7.2. Promising Cereal Varieties Recommended for Release

Crop	Promising Variety	Yield (mt/ha)	% Increase Over Local Variety	Recommended Area <u>a/</u>
Sorghum	Tajarib	3.0	200	MR
	SEPON	3.6	260	T
Maize	Sete Lagoas 7728	6.6	94	T
Millet	W.C.	5.3	53	T & SU
Wheat	Mokhtar	6.3	313	CH & SU
	AZIZ	6.1	306	CH

a/ MR=Medium rainfall areas; T=Tihama; SU=Southern Uplands; CH=Central Highlands.

Source: Abstracted from Status Report - ARA-UTFN/YEM/011 by P. Nath, Dhamar 1990.

the scarcity of irrigation water in the country, applied research on the efficient use of water is limited. A recent study at Surdud on water requirements of two maize varieties indicated that the introduced variety Sete Lagoas 7728 was slightly lower than Tihama I in yield per unit area but was much higher in yield per unit of water. This kind of research is important to identify varieties with high water-use efficiency.

7.10 Some varieties of tropical fruits (guava, mango, papaya, banana, citrus) and temperate fruits (apple, peaches, pears, cherries and prunes) were introduced and found promising. Recommendations for orchard management practices have been issued.

7.11 One of the major research contributions was the development of control measures against the banana fruit spot disease that almost stopped banana growing in the early eighties. Another notable crop protection contribution was the control of termites in cotton by seed treatment instead of by soil treatment, thereby reducing the cost appreciably. However, the recommended insecticide, aldarine, is no longer available as its production has been banned internationally due to its health hazards.

7.12 Although animal production constitutes an important source of supplementary food and income to farmers, research studies on the animal subsector are yet very limited. Some studies on local sheep, goats, ranges, fodders and animal nutrition have been initiated, but more in-depth studies are needed.

7.13 One of the main issues that warrants due attention is the adoption of a farming systems approach in research. The approach followed hitherto has been largely a commodity approach. No doubt improvement of commodities is important, but it has to be done in the context of existing farming systems. The farming system approach involves an understanding of the prevailing farming systems, identification of major constraints from the farmers' point-of-view and generation of cost effective solutions, tested and verified under farmers' conditions.

#### C. Dissemination of Improved Technical Packages

7.14 Agricultural extension was a prominent component in seven of the eleven projects co-financed by IFAD in Yemen, namely: TDA III, SURDP II, SRADP, CHADP, ASSP, WBADP and ERADP.

7.15 In Wadi Mawr (TDA III), the extension programme covered sorghum, millet, maize, cotton, sesame, onion, watermelon and sweet melon. However, the extension service is complaining that some of the currently recommended packages are not suitable for Wadi Mawr and that there are no appropriate packages for some of the important crops in the area, notably sorghum and sesame. The local sorghums grown in Wadi Mawr are dual purpose (grain-cum-fodder) types characterized by ability to ratoon and produce several cuts even under spate irrigation. Higher-yielding grain sorghum varieties (Alad, Gadam-el-Hamam and SEPON) have been identified at Zabid, but have not been accepted by farmers due to deterioration of grain quality under Tihama's hot, humid conditions. Crosses between local and introduced types have been made at Zabid to improve grain yield and forage quality, but the selections from these crosses have not yet been evaluated under farmers' conditions. The area under sesame in Wadi Mawr decreased in recent years because of heavy attack by the pod borer and the lack of a cost-effective control measure.

7.16 The mission visited a demonstration plot on a farmer's field where the improved maize variety Tihama II was planted under well irrigation with the recommended package of fertilizer, plant population and pest control. The estimated yield was about 6 t/ha, indicating the potential of the crop. However, maize in Wadi Mawr is grown only for green cobs on less than 200 ha. Moreover, seeds of Tihama II are not multiplied by the Seed Multiplication Project because the demand is low. Also, inputs of fertilizers and pesticides are not readily available in the market.

7.17 In another demonstration plot, the improved variety Dukhn Tihama was seen to be doing very well under irrigation. However, farmers in Wadi Mawr usually do not grow millet under well irrigation but in rainfed areas because of its drought tolerance. Unfortunately, there is no recommended variety at present for rainfed areas.

7.18 In the Southern Uplands, the extension service advised farmers on the use of better seeds, application of more fertilizers and use of better pest control measures. Emphasis was on packages for maize, wheat, vegetables and supply of fruit seedlings. For sorghum under high rainfall on the terraces of Ibb, recommendations extended were fertilizers and seed treatment against the smut disease. In the medium rainfall area, with or without supplementary irrigation, the improved variety Tajarib is being promoted and is well received by farmers. One farmer informed the mission that last season he planted his whole field (one hectare) with Tajarib under irrigation and obtained about 4.4 t whereas the local variety yielded about 3 t under similar conditions. His crop was so good that it was purchased by the Seed Multiplication Project for distribution as seed.

7.19 In the Central Highlands, recommended technical packages are available for wheat, barley, maize and important vegetables under irrigation in the mountain plains are being demonstrated. Recommendations for tropical fruits and practices for coffee improvement are also being extended in the Wadi floors. Farmers visited confirmed their interest in improved seeds of potato and wheat, and fertilizers but indicated difficulties in getting these inputs. They would like to purchase these inputs at the extension centre, rather than incur high transportation costs to obtain the same from distant markets.

7.20 The extension service in Wadi Beihan promoted the improvement of wheat, barley, sesame, potato, tomato, onion, garlic, oranges and alfalfa. During the project implementation, there was close cooperation with the research centres at Seiyun and Al-Kod. Gradually, Beihan became one of the main onion and garlic growing areas in South Yemen.

7.21 The Agricultural Support Services Project covered 13 cooperatives in the three governorates of Lehj, Abyan and Shabwa. The crops grown in the area included tomatoes, potatoes, onion, maize, sorghum, pepper, sesame, cotton, wheat, tobacco and fodder crops. The extension service provided technical guidance on optimum use of production inputs and varieties on the basis of recommendations developed at the Al-Kod Research Centre. Farmers were also encouraged to increase the area under fruit trees and were taught improved methods of horticulture.

7.22 Extension activities in the East Regional Agricultural Development Project are just starting. The main crops grown in the project area are tomatoes, sorghum, millet, sesame and tobacco. Linkages with the research centres are weak and still informal. A few demonstrations were carried

81

out on the basis of one message per crop, e.g. fertilizers on sesame and new varieties of groundnuts. A nursery has been established at Maifaa and is propagating improved trees and distributing them to farmers. Another nursery is under construction at Al-Fuwa. For the extension service to be effective, there is need for strong linkages with research. However, at present there are no funds to promote these linkages. Considering the remoteness of the area, there is an urgent need for allocating funds to permit travel of research staff to project areas to conduct joint verification trials and for extension staff to visit research centres to seek advice on farmers' problems faced in the field and to keep abreast of new developments in research.

7.23 The extension approach adopted by most of the projects is the training and visit system (T&V) modified to suit local conditions. This approach involves systematic training of the extension agent combined with frequent visits by him to farmers' fields. Each extension agent selects yearly, a group of contact farmers, varying from 8 to 32, whom he visits more or less on a regular basis. The agent spends about four days per week in visits, one day in office work and one day in meetings and in-service training. In his activities, the extension agent is supported by Subject Matter Specialists (SMSs). The number of SMSs varies with projects being 29 in SRADP, 8 in Wadi Mawr and only 5 in Beihan. The specializations usually covered include field crops, horticulture, crop protection, animal production and mechanisation, in addition to extension. Recently, women extensionists have been recruited and trained to extend not only home economic messages to housewives, but also improved agricultural technical packages to women farmers.

7.24 The main method used for technology dissemination is field demonstration. Other extension methods such as meetings, audio visuals, field days were also used but less frequently. In contrast to other projects, ASSP distributed a large number (38 000) of leaflets containing simple information on 20 crops produced in collaboration with Al-Kod Research Centre.

7.25 No doubt, the T&V approach has administrative advantages including clear line of authority and better personnel management. However, most of the extension effort is concentrated on a limited number of contact farmers and the number of farmers directly reached is small. What is even more serious for IFAD target groups is that the selected contact farmers are usually big farmers having easily accessible farms with wells and other facilities. All the demonstration fields visited by the mission were on such farms. Furthermore, as the system requires a large number of staff and transport facilities, it would be difficult to sustain after the end of the project. A case in point is the extension service in Beihan which functioned effectively during project implementation, but was adversely affected at the end of the project due to lack of adequate financial resources and technical support.

7.26 A widely used indicator for measuring effectiveness of extension is the number of farmers contacted. For example, it has been stated in the PCRs that the number of farmers contacted was 18 700 in SURDP II and 2 000 in Tihama III (Wadi Mawr). However, the real test for the success of the extension service lies in the continued adoption of the extended packages. Adoption rate is, therefore, a better indicator than number of farmers contacted for measuring the effectiveness of the extension system. Unfortunately, data on adoption rates is not available. The

mission was told that a survey has been undertaken in Wadi Mawr to study adoption rates, but the analysis of the data is yet to be completed.

D. Impact on Farmers' Productivity and Cropping Patterns

Productivity

7.27 Quantitative data on impact of improved technical packages disseminated by extension service on beneficiaries are meagre. However, some data are available on yield levels before and after projects in PCR's. In the Yemen context, it can be reasonably assumed that increased yields would increase farmers' incomes and contribute to poverty alleviation. However, one drawback of the yield levels reported in most of the PCR's is that the method used in obtaining yield estimates was not specified.

7.28 Tihama. Estimates of crop yields at appraisal and completion in Wadi Mawr are given in Table 7.3. As stated in Tihama III PCR, these estimates were based on past investigations and available crop statistics and interviews with farmers. The yield estimates for 1988 were higher than those at the base year for all crops under spate as well as under well irrigation. The indication is that the project had an impact on productivity because of increased irrigation supplies, better land preparation by using tractors, plant protection measures, fertilizer application under well irrigation and use of improved varieties of some crops, particularly maize, cotton and vegetables. However, the projected yields in SAR were not attained and appeared unrealistic under the prevailing conditions. The situation did not change much in 1991. Improved varieties for the main crops, sorghum and millet, are still unavailable and there is a shortage of fertilizers and pesticides. Furthermore, farmers consider that fertility material brought by the flood is sufficient and there is no need for chemical fertilizers under spate irrigation. Limited research findings point to the contrary but there is need for more investigations in this area, including cost/benefit analysis.

Table 7.3. Crop Yields at Base Year, Appraisal and Completion in Wadi Mawr

	Yields (kg/ha)			Actual 1988	% Increase of Actual Over Base
	Base Year (1978)	Projected Without Project	With Project		
<u>SPATE IRRIGATION</u>					
Sorghum white	973	973	1 529	1 300	33.6
Sorghum white ratoon	487	487	765	650	33.5
Sorghum red	626	626	1 390	1 100	75.7
Millet	584	584	1 112	650	11.3
Maize	973	973	2 691	1 800	85.0
Cotton	973	973	2 363	1 100	13.0
Sesame	695	695	1 168	1 000	43.9
Onion	-	-	15 290	11 000	N.A.
Water melon	5 560	5 560	13 066	11 000	97.8
Sweet melon	45 004	5 004	12 510	10 000	99.8
<u>WELL IRRIGATION</u>					
Sorghum white	1 112	1 112	1 807	1 500	34.9
Sor. white ratoon	556	556	904	650	16.9
Sorghum red	834	834	-	1 300	55.9
Maize	1 112	1 112	3 197	2 200	97.8
Cotton	1 251	1 251	2 710	1 600	27.9
Sesame	695	695	1 251	1 100	58.3
Tomato	11 815	11 815	24 742	15 000	27.0
Onion	8 340	8 340	18 070	10 000	19.9
Water melon	6 950	6 950	14 455	9 000	29.5
Sweet melon	5 560	5 560	13 900	8 000	43.9

Source: TDA III PCR.

7.29 Southern Uplands. Yield estimates based on the findings of a farm survey conducted by SURDP II during 1985-86 were given in PCR with appraised yields for Year 4 of the project (Table 7.4). However, no information was given on the methodology used in the survey for obtaining yield estimates. From the data in Table 7.4, it is evident that yields of almost all crops in the project area, under irrigation as well as under rainfed conditions, have exceeded not only yields outside the project area, but even the projected yields. The use of fertilizers, coupled with good control of pests, contributed to the realized increases in yields. Some crops, particularly wheat, maize and potatoes, have also benefited from use of new improved varieties.

Table 7.4: Appraised and Actual Crop Yields With and Without Project in SURDP II

Crop	Yield (kg/ha)				% Increase in Yields of (4) over (2)
	Without Project		With Project		
	Appraised (1)	Actual (2)	Appraised (3)	Actual (4)	
<u>Low Rainfall</u>					
Sorghum	0.72	0.80	0.75	1.30	62.5
Barley	0.41	0.41	0.43	0.55	34.1
<u>High Rainfall</u>					
Sorghum	1.60	1.40	1.90	2.20	57.1
Maize	1.15	1.20	1.60	1.60	33.3
Wheat	0.99	1.00	1.10	1.20	20.0
Barley	0.83	.60	0.84	1.10	83.3
Potatoes	8.80	9.00	10.00	11.40	26.6
Alfalfa	21.60	23.00	22.00	35.00	43.4
<u>Irrigated</u>					
Maize	2.30	2.00	2.80	2.80	21.7
Wheat	-	1.30	-	1.70	30.8
Potatoes	11.00	11.10	12.00	16.00	45.5
Pulses	1.28	1.20	1.40	1.50	17.2
Vegetables	9.20	8.40	10.50	15.10	64.1
Alfalfa	63.00	45.00	80.00	65.00	3.2
Fruits	4.50	5.50	5.00	10.70	137.8
Coffee	0.41	0.50 <sup>a/</sup>	0.42	1.50 <sup>a/</sup>	300.0

Source: SURDP II PCR

<sup>a/</sup> Unhusked beans

7.30 Beihan. As presented in Table 7.5, substantial increases in yields were also achieved in Beihan, particularly for wheat (94%), barley (100%), onions (125%) and summer vegetables (200%). The increases were realized through introduction and adoption of new varieties and improved production practices. The mission was impressed by the performance of the improved varieties of wheat and barley in farmers' fields even after the end of the project.

Table 7.5: Area Cultivated, Yield and Production at Appraisal and Completion of Wadi Beihan Project

Well Irrigated Area	<u>At Project Appraisal</u>			<u>At Project Completion</u>			% Yield Increase
	Area (ha)	Yield (mt/ha)	Production (mt)	Area (ha)	Yield (mt/ha)	Production (mt)	
Wheat, high yield variety	75	1.8	135	400	3.5	1 400	94.4
Wheat	2 256	1.1	2 482	900	2.0	1 800	81.8
Barley	223	1.4	312	916	2.8	2 565	100.0
Sesame	1 447	0.5	723	830	0.8	664	60.0
Sorghum & Millet	372	1.0	372	72	1.5	108	50.0
Potatoes	48	8.0	384	120	13.0	1 560	62.5
Onions	96	8.0	768	327	18.0	5 886	125.0
Garlic	-	-	-	62	8.0	496	-
Summer vegetables	10	10.0	100	270	30.0	8 100	200.0
Alfalfa (green)	320	60.0	19 200	630	80.0	50 400	33.3
Citrus	73	10.0	500	110	13.0	1 430	30.0
Straw and stover	-	-	9 100	-	-	26 000	-

Source: Abstracted from Wadi Beihan PCR.

#### Cropping Patterns

7.31 The availability of water throughout the year, and the degree of water control possible, have definitely enhanced the diversifications of the cropping systems in the groundwater irrigated areas. Although cereal grains, particularly sorghum, still remains the dominant crop due to their low risk and subsistence value, generally, there is a tendency for increased production of vegetables and fruits.

7.32 Increases in cropping intensities vary from one situation to another. It would appear that, in terms of allocating resources, farmers are facing significant constraints in the following areas:

- the trade-off between providing for subsistence requirements of the extended farm household and being fully responsive to commercial opportunities and market forces;
- inadequate knowledge of crop production techniques and potential on the one hand, and real market possibilities on the other; and
- financial constraints on the re-orientation of the farm enterprise in the face of new opportunities.

E. Impact of Production Increase on Farmers Income<sup>1/</sup>

7.33 The project impact on farm incomes in the cooperatives supported by ASSP is shown in Table 7.6. The data in this table are based on field enquiries on a sample of 189 farmers in five cooperatives conducted in 1981/82 before the project and in 1983/84 with the project. It was planned to conduct another survey in 1986 but this was not feasible because of the 1986 disturbances in the country which interrupted project activities. From the data in Table 9, it can be seen that the project had a positive impact on farmer incomes under well irrigation. Under spate irrigation, the farm incomes in 1983/84 were lower than in 1981/82 because of the catastrophic floods of 1982 and the drought in 1983. The percentage increase in income under well irrigation varied from 12 to 77% in the different cooperatives. This increase in income resulted from the shift to growing of commercial crops (vegetables and fruits) as well as increase in productivity due to application of fertilizers, pesticides and upgrading of farmers' skills in growing the new crops.

Table 7.6: Estimates of Farm Incomes Before and with the ASSP

Average Farm Income (YD)

Cooperative	Before Project 1981/1982			With Project 1983/1984			% of Change in income		
	Well Irrig	Spate Irrig	Total Irrig	Well Irrig	Spate Irrig	Total Irrig	Well Irrig	Spate Irrig	Total Irrig
Al Musaymir	725	481	1 206	1 209	125	1 333	77	-74	11
Giar	1 159	312	1 471	1 853	89	1 942	60	-71	32
Mukeiras	2 294	233	2 527	2 655	138	2 793	16	-41	11
Loudar	1 579	214	1 793	2 097	58	2 983	33	-73	20
Al-Saeed	2 661	762	3 423	2 978	500	2 983	12	-99	-13
Average	1 460	358	1 818	1 971	95	2 066	35	-73	4

Source: ASSP, PCR.

<sup>1/</sup> In this section, the case of ASSP project is first presented for illustration, and followed by some more general considerations on project impact on farmers income in Yemen.

7.34 Besides increased yields, the extension activities in the different projects helped in the diversification of cropping pattern by promoting expansion of vegetable and fruit production. By growing these high value cash crops, the farmers would increase their income. Furthermore, increased consumption of fruits and vegetables would improve nutritional standards of farmers and their families.

7.35 Effect of Price Policies. Net income from increased crop yields depends on the prices of inputs and outputs. Government policies have a marked influence in this respect. Free market prices in the North, coupled with the ban on fruits and vegetable imports in 1984, boosted the production of these crops with marked benefits to farmers. On the other hand, scarcity of foreign currencies, accentuated by the Gulf war, led to shortages in fertilizers, pesticides, machinery and spare parts with sharp rises in their prices and consequently in the cost of production.

7.36 In the South, there was price control on inputs and outputs and farmers were producing at some profit. After unification, free market prices were introduced, cooperatives stopped supplying inputs and PCVFM ceased purchase of produce. Prices of imports rose, and those of vegetables dropped, particularly in remote areas, due to competition and lack of marketing channels with adverse effects on producers. Consequently, farmers cut down their production. The mission was informed by a group of farmers in Beihan that, two years ago, they planted two acres of onion plus five acres of potato, whereas this year (1991) they grew onions, potatoes and water melon in only two acres. In place of the field cash crops, they expanded areas under traditional food crops and fodder crops, particularly alfalfa. Until new marketing channels are developed, farmers are reverting to a kind of subsistence farming to secure their own food, sell surplus of traditional food crops in local markets and feed alfalfa to the animals to produce milk for their families. The case illustrates the influence of marketing policies and opportunities on the cropping pattern and farmers' incomes, at least in the short run.

#### F. Impact on Institutional Development

##### (1) Research

##### Infrastructure

7.37 Marked progress has been made in building the infrastructure for research. The organization is now operating five well-established regional research centres at Dhamar, Surdud, Taiz, Al-Kod and Seiyun. IFAD has contributed to the civil works of the Surdud and Dhamar research centres and the Headquarter Service Unit at Dhamar including offices, laboratories, Central Library and Documentation Centre. However, infrastructure for the new research centres at Al-Boun in the Northern Region, and Marib in the Eastern Region, which were not concerned with IFAD projects, are rudimentary and need re-building almost from scratch.

7.38 Houses at Dhamar and Surdud, constructed with an Italian grant, have not been completed on time. This created considerable inconvenience for the staff and is adversely affecting their morale and performance. Furthermore, despite the fact that salaries of the research staff are comparable to, if not slightly higher than University staff salaries, AREA is losing some of its highly trained staff to the University of Sana'a, mainly because of the housing facilities offered by the University.

7.39 Research farms have been developed at Surdud and Dhamar and those at Al-Kod and Seiyum are well-established. However, the small research farms at Taiz and Ibb in the Southern Uplands are inadequate and do not represent the areas they are supposed to serve. Thus, there is need to develop new research farms in the Southern Uplands as well as for the new Centres at Marib and Al-Boun.

#### Human Resource Development

7.40 Remarkable progress has been achieved in staff development for research in Yemen. At present, AREA has 217 research scientists (29 having a PhD, 77 M.Sc's and 110 B.Sc's) and 164 technicians (see Table 7.7). There are more research workers than technicians which is unusual in research organizations. Also there is an imbalance in staff distribution; some of the centres, particularly the new ones, are grossly understaffed whereas Al-Kod is relatively overstaffed. Staff at Al-Kod are not willing to move to other centres because of lack of housing facilities. There is a need to make a thorough review of the staffing situation to identify deficiencies, assess requirements and plan future training accordingly.

Table 7.7: Research Staff at Different Research Centres of AREA in 1991

	PhD	M.Sc.	B.Sc.	Technicians	Labourers
Headquarters	7	8	11	11	2
Surdud	1	5	12	15	27
Taiz	2	7	7	7	47
Dhamar	2	3	14	5	65
Marib	2	-	-	4	2
Al-Boun	1	2	5	3	10
Al-Kod	13	38	35	71	22
Seiyun	-	13	19	43	106
Animal Breeds Imp. Centre	1	1	7	5	60
<b>Total</b>	<b>29</b>	<b>77</b>	<b>110</b>	<b>164</b>	<b>239</b>

Source: Abstracted from Organization of Research and Extension in AREA. Paper (in Arabic) by A. O. Mukred, presented to the National Workshop on the Status of Scientific Research and Development, Dhamar 1991.

7.41 A thorough review of past research in the North was undertaken by ARA in 1986 and an attempt was made to set research priorities. After formation of AREA, field surveys were undertaken by joint teams of research and extension staff and meetings were held with producers to identify the prevailing farming systems, crops grown and main production constraints in each region. Research priorities were set on the basis of

the findings of the field surveys and mid-term and annual programmes were set accordingly. Such an approach has contributed significantly to the institutional development of research and extension and the expansion of their capacity to reach farmers.

(2) Extension

Infrastructure

7.42 Marked progress has been achieved in the development of the extension service in Yemen over the past two decades. Physical and institutional infrastructure have been established, staff have been recruited and trained, and farmers have been contacted. IFAD-financed projects contributed significantly to these developments. For example, 81 centres and 8 blocks were constructed in SURDP II; 11 centres in Wadi Mawr; 10 in Beihan; and 29 centres and 2 blocks in the CHADP. However, no extension centres were built under ASSP<sup>1/</sup> and none are planned under ERADP. Activities in ERADP are just starting and the extension agents met by the mission are already complaining about lack of housing. In other areas, the extension centres proved useful in encouraging the extension agents to remain near the farming community they are serving, as well as focal points for farmers seeking extension advice.

Human Resource Development

7.43 As there was a shortage of trained extension agents, the early projects initiated pre-service training programmes of about nine months duration conducted at Taiz, Zabid and Radaa in the North and at Giar in the South. Most of the trainees had only six to nine years of formal education. However, new graduates of Agricultural Secondary Schools at Surdud, Ibb and Sana'a are available for recruitment as extension agents. Already half of the field extension agents at Wadi Mawr have been replaced with secondary school graduates. Also, the number of graduates from the Faculties of Agriculture of Sana'a and Aden Universities is increasing, in addition to graduates of agriculture from universities abroad.

7.44 In addition to pre-service training, in-service training is provided by SMSs and is a characteristic feature of the T&V approach. It is anticipated that the National Agricultural Training Centre which has been transferred to AREA would help, in collaboration with the extension staff at AREA headquarters, in developing suitable curricula for upgrading the level of extension agents as well as conducting training courses for them.

(3) Research-Extension, Institutional Linkages

7.45 Some progress has been made in strengthening research linkages with extension, universities and international research centres, but more effort is needed in this respect. Where strong links were maintained between research and extension, good results were obtained. For example, under Tihama I, the two services were closely associated and produced good results in Wadi Zabid. After transfer of research to ARA in 1983, research lost the logistic support it used to get from TDA, its activities diminished and its contacts with extension weakened. As a result, the research/extension impact in Wadi Mawr was less impressive than that in

---

<sup>1/</sup> The cooperatives infrastructure was used by the project to support extension activities.

Wadi Zabid. Also, during project implementation in Wadi Beihan, close cooperation was maintained with research centres at Al-Kod and Seiyun, with positive results. After project termination, linkages weakened due to inadequate funds and lack of transportation.

7.46 In the past, research/extension links were informal. Recently, formal linkages between research and extension have been established through the formation of AREA that provides coordination at the national level. At the regional level, Research/Extension Technical Committees (RETC) have been set up to address the problems in specific regions as follows:

<u>Region</u>	<u>Research Centre</u>	<u>Extension Service</u>
Tihama	Surdud	TDA
Southern Tihama	Al-Kod	Lehj and Abyan Governorates
Central Highlands	Dhamar	CHADP
Northern Region	Al-Boun	NRADA
Eastern Region	Seiyun and Marib	Hadramowt, Shabwa, Governorates & ERDA.

7.47 A Coordinating Unit has been established at each research centre. The RETC started functioning and regular meetings are held to discuss research and extension programmes as well as problems that arise during the season. Also, joint field activities are undertaken. In Tihama, some of the Subject Matter Specialists of TDA are assisting in research at Surdud in areas not adequately covered by the limited number of research staff.

7.48 Cooperation with the Faculties of Agriculture at the Universities of Sana'a and Aden involves engagement of some university teachers in research and some research staff in teaching. Some of the highly trained research staff have joined the University for various reasons. In view of the limited number of highly trained scientists, every effort should be made to encourage the University staff to participate in applied research. The Dean of the Faculty of Agriculture of Sana'a University, and his colleagues, confirmed to the mission their interest and willingness to maintain and strengthen their cooperation with AREA, both in fields of research and extension.

7.49 AREA has good contacts with some of the International Agricultural Research Centres and is cooperating with ICRISAT on sorghum and millet research; with ICARDA on wheat, barley and grain legumes; with CIMMYT on maize and wheat and with ACSAD on fodders. These contacts should be maintained and expanded to include other centres like IITA on cowpea, and the Asian Vegetable Research and Development Centre (AVRDC) on vegetables. Cooperation with AVRDC is of particular importance for the introduction of tomato varieties resistant to the leaf curl disease which has become very devastating on the widely-grown Roma VF tomato variety. At AVRDC, there is an active programme for breeding tomato varieties resistant to leaf curl.

### VIII. AGRICULTURAL CREDIT

8.01 Nine out of 11 projects in the portfolio included a credit item. IFAD contributed to the financing of credit in four projects. Its intervention in credit amounted to about US\$ 30.3 million which represents 35% of the fund's total commitment in Yemen.

8.02 There is a marked difference between the projects of the ex-Northern and Southern Yemen in the magnitude and forms of intervention of IFAD in the field of agricultural credit. North Yemen, with its liberal development policy and market regulated economy, created credit institutions which were able to attract foreign financing for the purpose of agricultural development. Hence, the fact that IFAD credit financing is mainly concentrated in the northern governorates: the Southern Uplands Rural Development Project (SURDP II - 1980) where the credit component amounted to US\$ 9.9 million and the recently approved Agricultural Credit Project (ACP-1990) with about US\$ 15 million, both account for 82% of IFAD financing of credit activities.

8.03 In the South, priority was given to the public sector in general, and the state controlled cooperative sector in particular. Credit institutions were not developed as the National bank could deal with the relatively small number of operators concerned. Financial resources were channelled through the structure of public administration. There was no credit component per se in the concerned projects, but some credit lines were made available for the purchase of farm inputs and light irrigation equipment. These credit lines amounted to only 2% of total project cost for the Agricultural Support Services Project (ASSP) and 12% in Wadi Beihan Agricultural Development Project (WBADP) which gave more importance to reaching individual farmers.

8.04 Given the patterns of IFAD intervention in this field, SURDP II represented the major source of experience to be tapped: it is located in the Northern part of the country, accounts for 33% of total IFAD commitment in credit, and lends itself to the evaluation of performance as it has been completed. While the other projects were also considered, none of them could provide an equivalent opportunity for the present evaluation. A special mention must be made of ACP in which IFAD is very much involved but which performance cannot yet be evaluated: this project is interesting in that it attempted to introduce some specific measures of targeting along with IFAD's most recent views in this matter. This aspect is treated in Chapter IX of this report.

#### A. Credit Institutional Framework

8.05 The structure of formal credit institutions in the South was composite. It involved central government and projects as sources of finance, the National Bank of Yemen (NBY) for administering the distribution of credit, marketing corporations and agricultural production cooperatives for the nomination and approval of eligible beneficiaries. Credit was provided in kind as agricultural input supply. As such, it was the responsibility of public corporations and cooperatives to avail these basic means of production for producers as part of the central plan. Production inputs were either purchased from central government or corporations budgetary resources or most often from

foreign-funded development projects. This complex system of credit and input supply completely collapsed on unification. Moreover, borrowers refrained from paying back their loans, and NBY is the institution which suffered most.

8.06 In contrast, formal credit in the North was provided by CACB and its precursors<sup>1/</sup>, which continued to expand and opened new branches in rural areas with the assistance of funds from projects such as ACP and SURDP II. It has spread since unification to the Southern governorates as well, whereas the agricultural credit activities of all other institutions previously operating there were terminated.

8.07 The share of formal credit in Yemen is very low; estimated at 0.4 and 10% for the North and South, respectively. Furthermore, it is concentrated in the irrigated sector. Informal credit sources composed of merchants, household savings, remittances from family members abroad and borrowing from extended family institutions and rural solidarity are more important than the formal ones. These finances were utilised to acquire capital installations (such as pumps, irrigation systems, poultry sheds and equipment, etc.) as well as to introduce new technologies.

8.08 The cost of credit was and still is very low at 10-9% and 7%, respectively, and in fact negative compared to inflation rates of 12% in 1984 and about 30% in 1991. Given this low cost, competition for this formal credit could be tense, particularly in cases where scarce imported inputs are involved. The implication is that, under such circumstances, credit institutions should be extremely motivated and should operate with clear guidelines before credit could reach the poor and the powerless.

8.09 The Cooperative Agricultural Credit Bank (CACB). CACB remains the only formal institution specialised in the provision of rural credit. CACB capital amounting to YR 300 million is jointly subscribed by the Government (83%) and the Local Councils for Cooperative Development (LCCDs, 17%). CACB has a board of directors, appointed by a Presidential decree and normally composed of representatives of concerned ministries (MAWR, MFW, MOF, etc.) and of LCCDs, in addition to the Director General and his deputy. The credit bank has been operating only in the North, but after unification (1990), it has expanded its operation to the Southern governorates as a sole proprietor of this service.

8.10 CACB acquired the legal rights to undertake all banking and credit operations, not only in agriculture but also in all services related to rural, fisheries and cooperative movement development. The Bank could finance a maximum of 75% of project costs. The financing, more often than not, is in kind in the form of imported inputs.

8.11 CACB charged 9 and 10% per annum on short and medium term loans respectively, for the period 1982-1989. In 1990, the service charge was reduced to 7% for both short and medium term. Compared to inflation rates of about 30%, this represents a hefty direct subsidy to borrowers. Surprisingly, reduction was done not only at a time of higher inflation, but also at a time when the cost of administering loans were increasing

---

<sup>1/</sup> CACB was created in 1982 by the merging of the former Agricultural Credit Bank (ACB) and the Agricultural Cooperative Fund (ACF).

sharply. Cost per loan increased from YR 5 000 in 1984 to YR 12 600 in 1989, a rise of 168%. Coupled with this, data on the Bank operations reveal that loans are on the decline. The nominal loan values decreased from approximately YR 197 million in 1985 to approximately YR 160 million in 1989, i.e. a decrease of about 19%, in nominal terms. With the increase in cost of lending, the decrease in returns to capital and the decrease in bank operations, the sustainability of CACB is becoming increasingly in jeopardy. In fact, CACB is running large deficits since 1988 to the magnitude of YR 5.1 million, YR 4.9 million, and YR 3.6 million for the years 1988, 1989 and 1990, respectively. The total accumulated losses amounted to YR 11.6 million in 1990 which is about 5% of capital and reserves at market cost and about 25% at fixed cost. This has been the case, even though CACB attempted to enhance viability by diversifying operations to include trading in agricultural input imports and distribution.

8.12 The lending procedures are complex and require extensive legal documentation, in addition to both a collateral and a guarantor. The evaluation mission roughly estimated the cost of borrowing to be on average between 5 and 10% of total loan value. It is even higher for small farmers, and could reach 18% of the loan value.<sup>1/</sup> These factors generally reduce the farmers propensity to borrow, and particularly small farmers.

#### B. Typology of Agricultural Credit

8.13 An examination of IFAD-cofinanced projects with credit components revealed three types of agricultural credit. These include project-provided credit, supervised credit, and general line of credit.

8.14 Project-provided Credit was used in the South where agricultural credit was provided by the concerned administration directly to the beneficiary after necessary certification by the cooperative. Cooperatives would also oversee the distribution and supervise the collection of repayments. The credit distribution was undertaken by Project Management for ASSP and by MFW for Third Fisheries and by NBY for WBADP and ERADP.<sup>2/</sup> The major problem in the cases of ASSP and Third Fisheries projects was the weak accounting and monitoring of credit. While in the case of WBADP and ERADP, the NBY involvement helped overcome these problems, at least partially.

8.15 This type of credit was characterised by:

- (a) a tendency to use available resources without ensuring their efficient allocation. For example, credits in ASSP were used extensively for groundwater irrigation, but in 1987, 14.2% of artesian wells and 42% of boreholes were not functioning; and
- (b) low recovery rates of loans which amounted to 66% for ASSP and 43% for WBADP, though this should be taken with great precaution because of the collapse of the credit system in the South after unification.

---

<sup>1/</sup> Over and above the direct lending cost.

<sup>2/</sup> With the unification, NBY has disappeared and CACB has now taken over as far as ERADP is concerned.

8.16 Supervised Credit has been applied in all development projects in Northern governorates and especially in SURDP II which was an IFAD-financed component. Project management would normally determine the purpose for which funds would be used, and the ceilings that apply. CACB through the branch offices would administer loan applications and undertake the evaluation with the assistance of agricultural extension and other technical departments. On approval, CACB would provide the loan and later collect the repayments. Credit would usually be handled on the same principles and procedures as other bank loans. In return, CACB would receive infrastructural, institutional and logistical support from the concerned project (SURDP II, ACP). In contrast to project-provided credit, supervised credit avails the services of a qualified credit institution and at the same time ensures that the borrower feels the responsibility for the credit, and the efficient allocation of these resources.

8.17 The Conditional Line of Credit has been adopted for the ACP, which is cofinanced by IFAD and AFESD. The credit is scheduled for disbursement in five years time in a project area, which includes at this stage the Tihama Coastal Plain, Central Highlands and Southern Uplands. The project attempted to focus on IFAD target groups by strengthening CACB and by increasing credit resources. Indeed, there has been a general provision for special attention to small farmers and fishermen needs, together with ceilings on loan amounts in addition to some restrictions on the purposes of loans. However, many difficulties were encountered by project designers to translate these orientations in eligibility criteria and lending modalities which effectively target the poor (see Chapter IX). Consequently, credit has been provided to farmers on the normal CACB guidelines and procedures.

### C. Performance of Credit Components

8.18 The evaluation of the credit components was constrained by the lack of data especially in the Southern governorates, where there was no specialised credit institution. The monitoring and evaluation departments were either lacking or with limited capacities, being established only recently.

8.19 Credit Activities in the Southern Governorates. Credit was provided primarily to cooperative societies in agriculture and fisheries. For the period 1982-1989 total credit to agricultural cooperatives amounted to YD 3.4 million, of which 27% were bank facilities, 39% were obtained from agricultural services corporations and 34% from agricultural projects. For the fisheries subsector, total credit amounted to YD 2.1 million, of which 40% were provided by MFW, 22% by IDA and 20% by WFP. As far as fisheries are concerned, the credit especially from official sources (MFW) and from WFP, was treated more or less as a direct subsidy, a grant to the fishermen cooperatives.

8.20 Regarding recovery rates, in the case of the ASSP, these were estimated at 66% in 1987. In comparison, NBY estimates the recovery rates for Wadi Beihan to be about 44% only. The lower performance for WBADP vis-à-vis ASSP could be explained by the nature of the two projects. One reason is that WBADP is located in a remote, and used to be quite inaccessible, area. Second reason, credit funds were used primarily for capital installation with relatively longer gestation

periods to yield returns and hence a reduced capacity for repayment in the short-run. In contrast, ASSP credits were primarily used for input supply such as fertilisers and were disseminated even to established well-to-do farmers. In general, ASSP credit was distributed in high agricultural potential areas, which are in close proximity to the markets.

8.21 In the Northern Governorates SURDP II credit component is financed by IFAD. CACB statistics recorded 3 553 loans with a total value of YR 78 million. Of these, medium-term credits constituted about 86% of total loans value; distributed to the different agricultural activities as follows:

	%
Irrigation	46
Agricultural Equipment	36
Horticulture	9
Poultry	<u>9</u>
Total	100

The short-term credits were only about 14% of the total, out of which 76% were used for hiring seasonal labour and 10% for fertilisers and improved seeds.

8.22 The rates of recovery of credit financed by SURDP II were notably low and decreasing over time. The evolution of recovery rates during the project life is indicated in Table 8.1 below:

Table 8.1: SURDP II: Credit Recovery Rates

Year	% Rate of Recovery (of Capital)
1984	69
1985	61
1986	69
1987	56
1988	50
1989	61

Source: CACB records.

8.23 Before the project, in 1979, repayment of loans was very high, respectively 98% and 99% as recorded by the appraisal report (p.12). The reasons generally put forward to explain this declining trend of recovery rates are :

- the combined impact of drought years and of the decline of remittances on farmers capacity of repayment; and
- bank management errors in screening request for credit.

102

8.24 Not much evidence is available in support of these explanations; while the mission had clear evidence that credit beneficiaries were among the wealthiest farmers investing in irrigation, as evidenced later on in this Chapter. Management errors cannot be excluded, of course, but they need to be analysed in the light of the policy and operational context of the concerned institution.

8.25 A more obvious conclusion for this mission, is that the project (SURDUP II) itself had a negative impact on the credit bank's financial position. The reasons of this situation can be traced back to the project design stage.

#### D. Credit Sustainability and Project Design

8.26 In most cases, the institutional sustainability of the credit component was a non-issue, particularly in the southern governorates and for earlier projects. In the case of SURDUP II credit component, in which IFAD has been significantly involved, the issue was not ignored by project designers, but they did not consider it feasible to tackle the problem at design stage without jeopardizing the concept of the project or delaying its approval. This is well illustrated by the following extract from SURDUP II appraisal report (p.28): "...YAR has a long tradition of negative interest rates... The effect of negative interest rates on the financial position of ACB<sup>1/</sup> will need to be monitored. An assurance was obtained during negotiations that interest rates charged by ACB will be reviewed by the Government..."

8.27 Monitoring the issue meant in practice discarding it. With the benefit of insight from actual experience, it is clear that the appraisal mission made an unrealistic assumption about what could change in future in the policy environment. Instead it should have reconsidered the project design to make it fit with the prevailing and well established policies. An alternative to a credit component could have been, for example, a strengthened input supply scheme selling for cash at adequate prices.

8.28 It would be unfair and misleading to retain design teams as the unique responsible of this state of affairs. For all parties involved, what was really essential was to finance a range of development services and strengthen the institutions which supply them. The Government was not keen to reconsider its policy of subsidized supply of credit, the credit bank was willing to maximise its foreign exchange resources, and the lending institutions had lending targets to achieve against the costs incurred for the project formulation.

8.29 The case is interesting for the purpose of the evaluation, in that it strongly suggests that unless a desirable development objective fits with the chief interest of at least one party actively involved in the project, there will be objectively little prospect for achieving the desired result.

---

<sup>1/</sup> ACB: Agricultural Credit Bank, later on denominated CACB.

### E. Beneficiaries Characteristics

8.30 In the Southern governorates, ASSP provided credit<sup>1/</sup> for 14 agricultural cooperatives which had 12 000 members, but those who actually received credit-financed items were 400 members i.e. 3.4%. In WBADP, about 80 private farmers in addition to the cooperatives and the state farms benefitted from the credit facilities. Thirteen fisheries cooperatives received credit from the various fisheries development cooperatives including IFAD-cofinanced Third Fisheries Project.

8.31 In general, the cooperative members are small farmers whose farm sizes average 4 feddans (less than 2 ha); and with estimated annual income equivalent to US\$ 100. However, the crucial question relates to the access to credit facilities from among the members: given the very low number actually served, it was not likely that the poorest would have received credit unless they would specifically be given a fair chance of competition.

8.32 ASSP provided assistance in the form of input supply to limited numbers of beneficiaries, certified by cooperatives. Cooperatives were found to be a vehicle and source of political power vulnerable to manipulation. When the country unified in 1990, cooperatives lost their legitimacy and subsequently collapsed. It is not likely that the Government or NBY would recover its debts, especially with the original land owners regaining their property which was expropriated in early 1970s.

8.33 In the Northern Governorates, the evaluation team, with the assistance of the local M&E expert, analysed a random sample of 130 farmers constituting 4% of a total number of 3 553 loans provided by CACB under SURDP II credit component financed by IFAD. Firstly, the analysis revealed that all beneficiaries were owner-occupiers. This, to a large extent, is a reflection of the collateral as a requisite for loan processing. Thus, tenants and sharecroppers, let alone farm labourers, who are the poorest of the poor, are not likely to be reached. Secondly, according to the SAR of ACP, CACB provided only 55 loans to women heads of households in North Yemen in 1989. They were almost entirely from Tihama Coastal area (38 in Zabid, 9 in Hodeida and 5 in Bit-al-Faquih), only 3 in Sana'a and none in SURDP II area (Taiz and Ibb). This, however, does not preclude that women may have benefitted, but the social order, would not allow them to deal directly with financial matters and out-doors institutions.

8.34 The eligibility criteria for credit did not include the size of holdings as an indicator for small farmers. It is generally argued that most farmers in Yemen would meet this criteria automatically. Then, presumably applicants would more or less give an accurate account of their holdings i.e. they would not deliberately attempt to reduce the size of their holdings to meet a specific criterion. In fact, the area of the total land-owned as well as the area of the project for which the credit would be used were provided. Analyses revealed that about half the sample farmers utilised credit for projects which command areas short of their total land. Project area ranged between 70% and 40% of total land.

---

<sup>1/</sup> As mentioned earlier, the project did not have a credit component as such (lack of specialised institution in rural credit). It financed the purchase of agricultural inputs and machinery to cooperatives which had to reimburse the loans.

104

8.35 Even though size of holdings was - and still is - a non-issue in credit provision, yet analyses revealed that over 40% of the recipients owned farms with sizes below 2 ha and 68.4% below 4 ha; and only 10% have farms of 10 ha or more (Table 8.2, Figure 8.1). Thus, in terms of size of holding the credit proceeds had been more or less invested on small farms.

Table 8.2: Credit Beneficiaries Sample Distribution by Farm Size

Farm Size	Number Beneficiaries	%
0-1 ha	15	11.5
1-2 ha	38	29.2
2-4 ha	36	27.7
4-8 ha	24	18.5
8-10 ha	4	3.1
greater than 10 ha	13	<u>10.0</u>
		100.0

Source: CACB, Credit beneficiaries Sample - SURDP II

8.36 The analysis of the income structure of credit beneficiaries revealed (Table 8.3), that the average total annual income of the recipients is approximately YR 55 000 of which about YR 38 000 (about 67.1%) is derived from agriculture. The remaining income is mainly from "other" sources, basically remittances, constituting about 27.8% while livestock is 3.3% and tractor hiring is 1.8%. Since in Yemen, females are responsible for animal keeping within the household, the low share of livestock in household income is a further indicator that women shares of these credit facilities are likely to be low as well.

Table 8.3: SURDP II - Credit Beneficiaries Sample  
Percentage Distribution by  
Annual Income Source

Source of Income	Annual Income (YR/year)	%
Agriculture (Crops)	36 846	67.1
Livestock	1 810	3.3
Tractor Hiring	982	1.8
Other Sources	15 252	27.8
Total Annual Income	54 890	100.0

Source: CACB Credit Beneficiaries Sample - SURDP II

105

# YEMEN - ANALYSIS OF CREDIT BENEFICIARIES SAMPLE

SURDUP II (LOAN 46-YA)

FIGURE 8.1 CREDIT BENEFICIARIES BY FARM SIZE

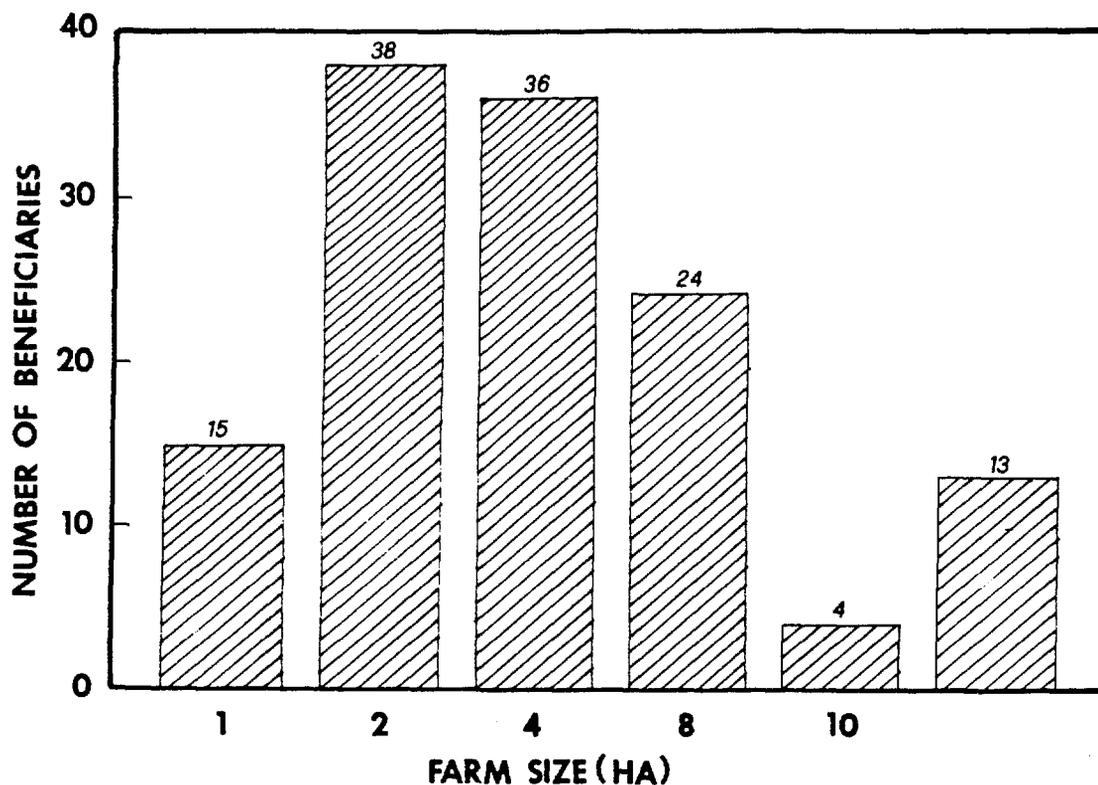
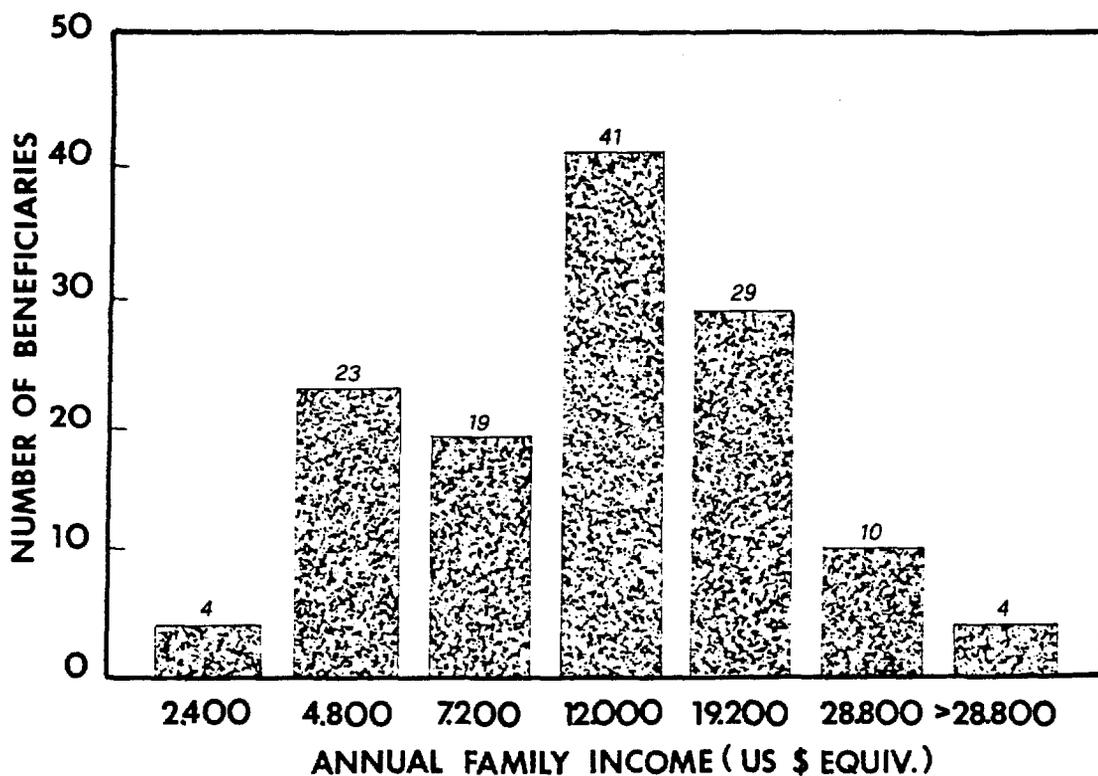


FIGURE 8.2 CREDIT BENEFICIARIES BY FAMILY INCOME



8.37 The distribution of beneficiaries revealed that all farmers fall within a relatively high income group. The per capita income computed in dollar terms at an average official exchange rate of YR 5.0 = US\$ 1.0 and an average household size of six (see Table 8.4 and notes) ranged between US\$ 400 and 4 800. The only group which had per capita income less than the per capita GNP (which ranged between US\$ 560 in 1981 and US\$ 690 in 1984) constituted about 3% of the sample. Furthermore, since 67% of income was drawn from agriculture, all recipients, with the exception of about 20.8% (the first two income strata), had per capita agricultural incomes considerably higher than the per capita GNP. This analysis confirms unequivocally the concerns voiced repeatedly by the supervision missions that credit had not been channelled to the small farmers.

Table 8.4: SURDP II - Credit Beneficiaries Sample  
Number and Percentage Distribution  
of Beneficiaries by Income Strata

<u>Income Strata</u>		<u>Number of sample</u> <u>Beneficiaries</u>	<u>%</u>	<u>Per Capita</u> <u>US\$</u>
<u>YR</u> <u>(1)</u>	<u>US\$</u> <u>(2)<sub>a/</sub></u>			
0-12 000	0-2 400	4	3.1	400
12 001-24 000	2 401-4 800	23	17.7	800
24 001-36 000	4 801-7 200	19	14.6	1 200
36 001-60 000	7 201-12 000	41	31.5	2 000
60 001-96 000	12 001-19 200	29	22.3	3 200
96 001-1 44 000	19 201-28 800	10	7.7	4 800
greater than 1 44 000	greater than 28 800	4	3.1	4 800
<b>Total:</b>		130	100.0	

Source: CACB: Analysis of Credit Beneficiaries Sample SURDP II.

a/ Column 2 is obtained by dividing column 1 by YR 5 = US\$ 1.0, which is the Official Exchange Rate (OER) for the period (1981-1984) during which, the sample indicates, most of the loans were granted to beneficiaries.

b/ To obtain per capita income strata the average household size is assumed to be six.

8.38 This is reinforced by three related findings. Firstly, as it was indicated earlier, all beneficiaries are owner-occupiers. Secondly, the sample analysis, as depicted in Table 8.5, revealed that most of the funds were used for irrigation works (61.7%) and land improvements (19%). Investments in recurrent expenditure: land preparation, maintenance of equipment, input supply and others accounted for less than 20%. Thirdly, this is further supported by the statistics that 80% of the loans were long- and medium-term and only 20% were short-term.

Table 8.5: SURDP II (YR-46)  
Credit Beneficiaries Sample Analysis  
Percentage Distribution of Loan Value by Purpose"

Purpose	%
1. Irrigation works and well deepening	61.7
2. Land improvement <sup>a/</sup>	19.0
3. Land preparation	3.2
4. Mechanical equipment and spare parts	8.4
5. Input supply	5.3
6. Others <sup>b/</sup>	<u>2.4</u>
TOTAL	100.0

Source: CACB - SURDP II Sample of Credit Beneficiaries

<sup>a/</sup> Land improvement represents improvements and maintenance of land terraces.

<sup>b/</sup> "Others" include poultry.

## IX. POVERTY ALLEVIATION IMPACT

### A. Introduction

9.01 In this Chapter, an attempt is made to evaluate to what extent, and through which mechanisms, the projects have reached and benefitted the poor in general and the poorest in particular. Project performance is first put into perspective by highlighting the general patterns of poverty incidence as well as the processes and structural factors involved. Conclusions are subsequently drawn on how IFAD could in future, increase the poverty focus of its programme.

9.02 The assessment of projects' contribution to poverty alleviation has clearly to take into consideration that while IFAD approaches for reaching the poor have evolved or have been more clearly defined during the period under study, this was not the case as far as the Government was concerned. Nevertheless, it is equally necessary to conduct the assessment in terms of current IFAD policies and priorities if it is to come with meaningful suggestions for a continuing progress towards IFAD's goals.

### B. Methodological Aspects

#### Conceptual Issues

9.03 Often, the poor have been defined with reference to a statistical measure of poverty. They are those whose income is below an officially defined poverty line, those who spend virtually all their income on food and yet cannot afford adequate caloric intake. The usual working definitions of the poor are essentially negative: the poor are sick, malnourished, illiterate, inarticulate, powerless, unorganized, isolated and have little to trade with the outside world.

9.04 The above macro indicators are useful for policy makers to know how many are the poor and possibly to monitor the progress of poverty alleviation at macro level. They are of no help in understanding the causes and dynamics of poverty and cannot therefore be relied upon for designing poverty alleviation strategies and programmes.

9.05 Poverty as a social reality is far more complex than the above criteria would suggest. Low or even absence of social status characterizes the poor as a result of their inability to cater by themselves for their fundamental needs. IFAD target groups are typically tied by a multitude of relationships to other individual or groups who are themselves not members of the defined target group. For poor and marginalized households, the dominant element of their survival strategies will often be their ties to richer households in a client/patron relationship.

9.06 Poverty then appears to be a generic word which designates heterogeneous realities both historically and geographically; there are actually several forms and degrees of poverty separated by social, economical and even biological thresholds. The vagueness and all-encompassing nature of the poverty concept makes it truly difficult to operationalize the goal of poverty alleviation. The issue is compounded by the incommensurate difference of scale between the poverty phenomenon and IFAD intervention.

9.07 In brief, the perceived complications of measuring poverty actually attest to the difficulty to operationalise poverty alleviation interventions. Hence, the need for IFAD to delineate intermediate concepts which can more directly inspire its operations.

#### Data Availability

9.08 Parallel to these conceptual issues, there are also several methodological constraints which pertain to the reliability and availability of information specifically relevant to the purpose of the present investigation:

- (a) Design missions, until very recently, did not rely on in-depth diagnosis studies. Lack of specificity in identifying benefits accruing to the target groups in project design documents, emphasis put on rates of achievements of physical targets in project completion reports (when available), in addition to the weakness of the Monitoring and Evaluation Units are the main causes of this state of affairs;
- (b) There is little reliable statistical data on the project areas as practically no baseline surveys were completed for the projects under review (more recent projects, particularly those in the pipeline have undertaken socio-economic studies). Socio-economic indicators, when available from national statistics, ignore the poor as a category and present data in a form which is too aggregated to fit the purpose of the study; and
- (c) Project performance indicators do not provide information on the distribution of project benefits among various categories of beneficiaries. All too often it is explicitly or implicitly assumed that the whole population has benefitted from a given intervention, which may not be the case, or that those who were exposed to project interventions did benefit which may not be true.

9.09 Under these theoretical-cum-practical limitations, it is extremely difficult to provide a comprehensive answer to the broad question of IFAD contribution to poverty alleviation in Yemen.

9.10 In this context, the team made use of data pertaining to projects delivery to form a judgement on the overall effectiveness of the projects in reaching their targets, including the poor. Furthermore, the analysis of the spatial distribution of the projects proved to be fairly instructive as an indicator of the prevailing pattern of the social distribution of projects benefits.

9.11 It also proved relatively simple to characterize situations where infrastructure construction were involved. The effect of investments like roads, small dams, water supply schemes, etc., on the landscape is often manifest. The people's awareness of such projects makes it easier to gather views from the population of surrounding villages and identify convergence or divergence of opinion within the target population in this regard.

9.12 Similarly, the assessment of credit operations was facilitated by the fact that monetary flows are better documented. In addition, the mission could, with the help of the CACB's staff, analyze a sample of credit customers files.

### C. Incidence of Rural Poverty

9.13 Notwithstanding the limitations, and in the case of Yemen, the scarcity of conventional indicators of poverty incidence, there is little doubt that poverty has broadly regressed in Yemen during the last two to three decades:

Table 9.1: Development Indicators

Indicator	Initial Year Value	Final Year Value
POPULATION 1960/1990	5.2 Millions	11.7 Millions
GNP PER CAP. 1972/1988	US\$ 70	US\$ 620
CALORY INTAKE 61/88	1961 cal/head/year	1985 cal/head/year
LIFE EXPECTANCY INDEX 1960/1990 (developed countries=100)	53 %	69 %
ENERGY CONSUMED 70/86 (Kg coal equiv./person)	19 (North) 258 (South)	190 (North) 675 (South)

Sources: UNDP, FAO, WORLD BANK, USDA

9.14 Progress made is remarkable, particularly in view of the rapid population growth. This evolution has turned Yemen from one of the poorest countries in the world into a lower middle income nation.

9.15 Global progress does not guarantee, however, that growth dividends have been reasonably well distributed or that pre-existing inequalities have been reduced.

9.16 The proportion of the population who still live in absolute poverty and lacks access to basic social services is difficult to estimate: in the North, information on income, income distribution and access to basic services is scarce and/or unreliable, while in the South it is more available with emphasis put on the public and cooperative sectors, but not necessarily more reliable than in the North, except for social services. As a matter of fact, the estimate of national income itself suffers from serious shortcomings such as an underestimation of the contribution of services to the national income.

9.17 Keeping the above in mind, the rural population below poverty line has been estimated in 1988 to be 2.1 million for both former South and North Yemen<sup>1/</sup> which is about 20% of the total population. In the short period, poverty incidence estimates are obviously sensitive to the fluctuations of the country's annual income.

<sup>1/</sup> Source: UNDP

9.18 The 1978 Agricultural Census of the former North Yemen indicates that 40% of the farming households have access to only 8% of the cultivated land. The share of small farmers (i.e. farmers with less than one hectare of operational holding) was estimated in 1980 to be 58% and 11% of the holdings and cultivated land, respectively. This gives an idea of the extent to which land ownership is concentrated, but hardly provides a measure of poverty: not all small farmers are poor, depending on the productivity of their land, availability of capital and the level and structure of their income. Conversely, those who live in the rural areas but have no access to land are not accounted for.

9.19 Statistics on the population of wage earners provide a proxy for those who are landless or have limited access to land: the 1975 Population and Household Census in North Yemen estimated this category to represent 24% of the total active population in agriculture. Tenants represented 11% of total number of holders (in 1978), but people which are partially sharecroppers represent another 40% of the total.

9.20 Former South Yemen displayed a similar picture, although it is believed that the disparities in land ownership were reduced by land reform. By 1983, transfers of land ownership would have concerned some 135 000 acres, involving some 40 000 cooperative farmers and about 5 600 state farm wage workers. However, a lower agricultural potential than in the North, and the stagnation of the agricultural sector due to policies heavily biased in favor of the public and controlled cooperatives sectors, have both had adverse effects on poverty alleviation. The distribution of land ownership in the predominant private sector is not known.

9.21 Depending then on the criteria utilized and on the more or less broad definition of poverty that it implies, the poor represent from 20 to 60% of the rural population of Yemen. This wide interval of estimate is fully consistent with the remark made earlier that there are several levels of poverty.

#### D. Poverty and Economic Change

9.22 The removal of political constraints to trade and investment since the conclusion of the civil war (1970) was the most important single factor behind the unprecedented expansion witnessed by the country. Joining its efforts with a host of local self-help organizations, the Government<sup>1/</sup> embarked, during the 1970s, upon an ambitious programme of extending basic services to the rural areas. Public and private capital was spent on roads, ports, airports and vehicles. The net effect has been a phenomenal expansion of the national distribution network for a wide range of commodities.

9.23 This great change could not have been possible without the petroleum-based economic boom in Saudi Arabia and neighbouring countries, especially since 1973. These labour-starved economies have offered jobs at high wages to both skilled and unskilled workers. Hundreds of thousands young rural Yemeni men have responded and sent their wages back home. Formerly, the degree of annual rainfall could mean starvation or

---

<sup>1/</sup> In this Chapter, the word "Government" refers to either the Government of unified Yemen or to the Government of both former North and South Yemen, depending on the context. For all statements which apply exclusively to one of the former countries, the attribution is clearly indicated.

2

life. For the last two decades or so, wage remittances have converted Yemen into a trading centre with extended possibilities for citizens to make money from marketing ventures.

9.24 Agriculture as well has been touched by the entrepreneurial movement which primarily concerned the commerce, transport and construction sectors. However, it is difficult to assess the proportion of the farmers who invested in technical innovations and rapidly commercialized their agriculture. There is no evidence that a majority of them would have followed such a trend. In fact, there is evidence that the growth rate of agricultural output lags far behind the country's overall economic growth rate. The agricultural sector development seems to have suffered from competition with imported commodities and from severe labour shortage due to migration. As far as the former South Yemen is concerned, an additional reason is found in development policies which constrained private initiative and investment.

#### Marginalisation of Food Producers

9.25 The rapid and externally-induced development of the market economy, especially in North Yemen, has unevenly altered the traditional system of production for domestic use, consisting of grain and animal production supplemented by small scale cultivation of vegetables, beans and fruits. Understanding what are the incentives and constraints for the various categories of farmers, of their integration to the market is therefore of utmost importance in understanding the dynamics of poverty and, consequently, in designing meaningful poverty alleviation programmes. This is very much so in light of the technologically-based and commercially-oriented nature of most agricultural development projects in Yemen.

9.26 Farmers enjoying freedom of access to land, reliable water and sufficient labour resources (extended family, bound labour) were able to invest in technological innovations, particularly in well irrigation which allow year round cultivation. This category is certainly growing crops specifically for market sale. These are qat<sup>1/</sup>, fruits and vegetables, and fodder which are the few items protected from imported items competition. With its low water and labour requirements, qat has emerged as the most significant sale crop, far more profitable than any of the other perishables. The typical evolution is illustrated by farmers who gradually converted from sorghum to vegetables before deciding pragmatically to invest in qat production.

9.27 However, most of the productive land in Yemen is still devoted to cereals. Presumably, only a modest fraction of the cereal harvest ever reaches the market. The factors which seem to contribute to the vitality and resilience of the traditional system include:

- (a) Limited access to irrigated land for a majority of households: in rainfed areas and where qat production is not possible there is apparently no other competitive alternative to the traditional production system;
- (b) High value of livestock and animal products including hides; traditional agriculture is made profitable through animal production;

---

<sup>1/</sup> qat: a tree, whose leaves when chewed, provide a mild narcotic effect.

- (c) Households have low seasonal monetary incomes; as a result, family-produced grain and fodder secure the household's subsistence. The fact that cereals and livestock traditional production can be carried out without any significant cash expenditure is significant to many households. Low monetary incomes also explain the fact that the products of the traditional domestic economy are still accepted as media of payments within the rural communities; and
- (d) Spreading household activities minimizes the risks. If farm production fails to provide the necessary goods, off-farm activities would hopefully make for it. Moreover, cash earnings from agriculture, especially in marginal areas, are considerably less than what can be made in the trade, transport and construction sectors or through employment abroad. As a result, household production for use supplemented by cash income from a non-agricultural job or investment is often the best adaptation to the prevailing economic situation, as it maximises income while minimizing the risks.

9.28 The domestic grain and livestock system thus appears to be fairly resistant to transformation. This resistance does not stem from some unwillingness to innovate but rather from the reaction of the households to the market structure and signals. The permanence of the traditional system is also related to some social factors among which two are particularly relevant: land tenure and women social status (see sections E & F below).

#### People's Perception of Poverty

9.29 During its field investigation the mission tried to capture the population's general perception of poverty which can be summarized in the following set of criteria; a poor individual or household:

- (a) does not own land, is a wage earner on the local market;
- (b) owns a small acreage under rainfed farming;
- (c) has no irrigation means and no access to irrigated land through share-cropping;
- (d) does not own livestock or other assets;
- (e) has no access to migrant remittances;
- (f) pawns his land to relatives to obtain cash; and
- (g) is indebted due to borrowing in years of bad harvest.

9.30 Some additional features on the poor's pattern of consumption were also collected: the poor have low quality houses, comprising one or two rooms only with no utilities. Their meals consist basically of tea with bread or porridge with dry fish. Fuel wood is their only source of energy.

9.31 The population perception of poverty appears to be fairly consistent with what was suggested to the mission from the analysis of the factors of economic change. Wage workers in the local market with no access to land whether through ownership or tenancy are at the bottom of the social ladder. Next to it come the small holders who are mainly dependent on rainfall for securing their livelihood and who can become rapidly indebted in case of crop failures. This reference made by the population to the indebtedness of the poorest, questions the relevance of the strategy that aim at helping this category through increased access to credit. A relatively wealthier sub-group of the small farmers is represented by those who have access to irrigated land through sharecropping agreements, in addition to their own rainfed land holding.

#### E. Access to Land and Water Resources

##### Spate Irrigated Areas

9.32 Though wadi agriculture is more productive than the rainfed agriculture, it has to face the problem of the unpredictability of the size and timing of the floods. Neither the traditional system nor the modern one can thoroughly control this variation.

9.33 In the traditional system with temporary diversion structures the distribution of water between up-stream and down-stream off-takes depends entirely on the size of the floods. With modern permanent diversion structures it is theoretically possible to rationalize to some extent the use of the floods through the implementation of a water distribution plan at the level of the whole of the command area.

9.34 The distribution of water among the farmers who irrigate from the same off-take is socially controlled. At any time there are more lands than can be irrigated. Water management and network repairs are entrusted to a water master ("wakil") who often is primarily responsible to the dominant land owning family in a given sector. Although the water in the channel is not actually owned, the channels are the property of the owners of the land lying along them. Labour for the maintenance of the channel is provided by the tenant or by the landowners on the land they cultivate directly. The water master bears all expenses beyond the labour, particularly the cost of building materials and of their transportation.

9.35 The position and financial responsibility of the water master varies a lot from one irrigation sector to another. Water masters are remunerated from the crop. Their revenue usually equals the "zakat" (religious income tax): 1 "qadah" out of every 24 or roughly 4% of the value of the crop; higher remunerations up to 8% are also reported depending on water master's social position, recognized performance and financial contribution.

9.36 This description of the traditional system shows the social importance given to the water masters, which stems from the strategic dimension of their managerial and regulatory role. Water masters are socially accountable to the whole community of farmers and more particularly to the more influential: they are well entrenched in the community, their interests identify with the community's interest since they bear their share of the risks and benefits. Their situation is in sharp contrast with that of the Government water guards wherever they substituted the traditional water masters: the former are ill paid civil

servants, accountable to the Administration's Management, not to the communities. Yet they cannot ignore the influence of local leading families. In brief, the difference of status and type of work attached to the water management function is well reflected in the terminology used: water masters for the traditional system, water guards for the modern government-owned one.

#### Access to Groundwater Resources

9.37 Aquifers in the alluvial plains are relatively well developed and their recharge originates predominantly from the wadis (floods) and from irrigation return flows. In the highlands, the potential of groundwater reservoirs is much more limited.

9.38 Groundwater is used under a regime of open access, i.e. every land owner is entitled to dig a well on his land. Thus, under customary and Islamic laws, extraction of groundwater is at the owner's discretion. However, the groundwater system remains common property and continued use of a newly dug well is prohibited if it proves to be detrimental to an already established well. Attempts to control groundwater extraction rates made by Government were so far ineffective.

9.39 Groundwater resources mobilization has witnessed an exponential development over the past 20 years under the combined effect of private and public investments. Finance for private investments are often derived from the remittances of family members working abroad. Access to groundwater has also been facilitated by Government through installation of tube wells, deepening and rehabilitation of existing wells in addition to the provision of credit for the purchase of more efficient water lifting devices (pumps). As a result, the area irrigated from wells has increased from about 45 000 ha in the early 1970s to some 230 000 ha at present.

9.40 Farmers irrigating from the same well share the costs of operation and maintenance of the pump. Each farmer is typically entitled to one day of irrigation per feddan and he has to provide the fuel required for pumping. Repair costs are shared on the basis of the areas held by each farmers. In other cases, the supply of water forms part of a tripartite sharecropping agreement between the land owner, the tenant and the well/pump owner (see paragraph 9.47 below).

9.41 In brief, the popularity of groundwater irrigation has a lot to do with its relatively easy and democratic conditions of access, year-round availability of water, and its low requirements of social organization for operation and maintenance of the irrigation system. On the other hand, it necessitate strong government institutions to enforce water resource conservation regulations. Compared with spate irrigation, it is more capital-intensive and implies the adoption of market-oriented cropping patterns which can provide the monetary resources for the operation of the system.

#### Land Tenure and Farmers Strategies in Rainfed Areas

9.42 Although there are some sizeable holdings on rainfed lands ("barr"), the dominant pattern is that most village families own some land in the vicinity of their village. In view of the lower level of concentration of land ownership than in irrigated areas, and of the unreliability of rainfall, there is much less land cultivated under sharecropping arrangements ("shirk"). The common "shirk" agreement is that the costs as well as the crop are shared equally between the owner and the tenant.

9.43 The family provides the bulk of the labour requirement. Hired labour is used at ploughing and sowing time as it is essential to complete these operations as soon as possible after the rains. Harvest is the other period where hired labour is used. To cope with the risks of bad rainfall years cultivators adopt several strategies including cultivating a small piece of land in the spate or well irrigated area (sharecropping), off-farm employment, livestock raising and wage earning on large land holdings.

9.44 All farmers who need to diversify are not able to do so. In particular there are several screens that restrict access to irrigated land through sharecropping, particularly in the case of spate irrigation. Many of the plots offered for sharecropping are large enough to require the tenant to hire labour at times of peak requirements. Land owners naturally choose established families, who will be able to provide the bulk of the work, hire labourers, and provide support to the landowner in other domains as well. Kinship relations, proximity and long established relationships with the owner are important factors which influence access to land through sharecropping. There is also some kind of down payment to be made in order to obtain the "shirk", which in certain cases make the attribution process look like an auction one. Incidentally it is worth noting that although tenants belong to a relatively poor group of farmers, many of them are still better off than the farmers on marginal land with no access to irrigated land through sharecropping.

#### Sharecropping and Technological Innovation

9.45 The size and tenure of farm holdings naturally exert a powerful incidence on farmers living standards. Much of the best lands in valley floors and in depressions in the highlands enjoying good rainfall are concentrated in the hands of traditional leaders and influential families whose primary business interest lies in commerce, finance or other non-agricultural activities. While this fact has an obvious relation with poverty incidence and income distribution, it is however not clear to what extent land tenure is really an impediment to small-scale investment in agriculture. It has been often argued that large land owners have a minor interest in agricultural intensification. Available data does not support this thesis; as a matter of fact there is extensive evidence of the contrary wherever the land has a real potential for intensification through irrigation and/or when market prices are conducive to intensification (e.g. qat).

9.46 On the terraced mountains and in the dry lands, where ownership distribution is more equitable, prospects for smallholder cash cropping are limited by the productive potential and by intense land fragmentation. Together with the lack of cost-effective technologies, these factors are likely to be the real constraints to productivity increase rather than land tenure contracts.

9.47 Large land holdings are usually parcelled out under sharecropping arrangements which bind labour to the land at a low/affordable cost. It has been reported that land owners tend to resist changes in productive techniques for fear of a parallel change in tenure and production relations. While this cases do occur, there are also numerous cases of tenants taking the initiative of renting water from a third party: a separate contract is made with the pump owner stipulating pipe installation responsibility, frequency of pumping and shares of the crop. If a landowner with tenants arranges to bring his land under mechanical irrigation, his share of the crop will include the remuneration of each factor, namely land and water.

9.48 Under these provisions for sharecropping which remunerate separately each factor of production, the tenant, the land owner and the water supplier have a common interest in maximizing the output per unit of land and therefore in introducing the modifications to the cropping patterns and crop husbandary practices that would achieve this objective.

9.49 Wage labour has been scarce, in fact relatively scarcer than capital or technology. Moreover skills and knowledge of appropriate innovative technology cannot be easily hired. The evolution of the labour market has definitely increased the bargaining power of the tenants who could obtain a better remuneration for their work.<sup>1/</sup>

9.50 Furthermore, land ownership is often fragmented between many inheritors who find it difficult to come to an agreement regarding their respective contributions and share of the benefits. Sharecropping is in this case the way to keep the integrity of the original farm and distribute some income to the land owners.

9.51 The above findings contradict the common idea that tenants are not inclined to invest in a land they farm but do not own. Sharecropping is often seen as a reminiscence of a feudal system. In the Yemen of today, this may still be the case in specific contexts (such as in Wadi Mawr in the Tihama region), but the reality is that not only land but also labour and, more importantly water, is scarce. These factors are not usually concentrated in the same hands; thus the imperative need for the owner of a given production factor to cooperate with the owners of the remaining factors and negotiate his share of the final output.

9.52 The view which put forward sharecropping as a cause of agriculture stagnation fails to recognize that sharecropping reflects an adaptation of the rural community to the fragmentation of agrarian structures with control over strategic production factors being exercised by a multiplicity of independent operators. In this context, a sharecropping agreement is just a remarkably flexible legal instrument which organizes the association of production factors and the sharing of risks and benefits among stakeholders. Whether this is appropriate from a developmental standpoint must be analysed by reference to a specific context; sharecropping in itself does not necessarily involve exploitation of the tenant by the landowner or forbid any technological innovation.

#### F. Gender Considerations

9.53 The question regarding women is also a very complex one. Traditional production relationships rely on a partnership between men and women: neither men nor women separate their own ownership or interests from those of the household. Within the domestic economy women have strength based on their management of animal production. In the market, women are at a disadvantage as the men are specialized in activities involving contacts with the outside world. What the women lack is apparently the opportunity to accumulate capital for investment outside the primary production sector.

---

<sup>1/</sup> The labour market might soon become less favourable to the tenants, depending on the evolution of the region's political and economic situation.

9.54 Commercial agriculture development and considerable male outmigration have amplified the above dichotomy. For some time rural development analysts have commonly accepted the hypothesis that with the absence of men from farms, women would be assuming tasks and responsibilities formerly undertaken by men

9.55 This is a far reaching conclusion which remains to be substantiated. As the 1988 Special Programming Mission put it (p.87) "... women are already fully employed in subsistence activities, by contrast with the seasonal underemployment of men. Secondly, there are still strong cultural conceptions of sexual division of labour...For instance ploughing is only rarely undertaken by women. Thirdly, men who do migrate, very rarely leave their wives alone with children: wives of migrants normally live with other adult men and women in extended households. Fourthly, it is considered more likely that women, if necessary, would use remittances from absent males to hire labour for male tasks...rather than do it themselves. Finally, as families become more affluent, ... the tendency is for women to become less, not more, involved in agricultural production."

9.56 In light of their predominant contribution in the domestic economy It should not be assumed that the traditional role of women in decision making is marginal.<sup>1/</sup> Unless facts are brought in support of views, generalization from partial observations can only add to the confusion and perhaps lead to irrelevant strategies of intervention.

9.57 What remains true is that a series of factors discriminate against women employment in the modern sectors of the economy,<sup>2/</sup> and have excluded them from social benefits, thus contributing to their marginalization in the building of the new Yemeni society. These factors include cultural heritage, political and historical contexts in addition to the prevailing patterns of family structure. It should however be kept in mind that women are active in the domestic/traditional economy also because the entire household has a definite interest in its preservation in the current economic context (see paragraph 9.28). Unfortunately, the livestock/cereal subsector in which women are at strength is also the one which is most suffering from unfair international competition, limited resource potential and which moreover has had a low priority on the agenda of development planners both national and international.

---

<sup>1/</sup> In the Southern Uplands, involvement of women in farm decision-making was found to vary significantly with age, socio-economic status and geographic location of the village and particularly, the extent to which the village relied on agriculture.

<sup>2/</sup> The social and cultural restrictions to women's activities mostly apply to the rich, not to the poor women. It is shameful for women of the big houses to go to the valley to farm or to the market to trade, but not for the poor, whose family is not in a position to support them.

Rural Women Agricultural Programmes<sup>1/</sup>

9.58 Social, and cultural attitudes to increased participation of women in development activities vary throughout the country. Constraints in this respect appear to be the least in the southern governorates and in the Tihama, and strongest in the Central and Northern highlands. Women in the eastern part of the northern governorates appear to have the greatest degree of independence.

9.59 While rural women agricultural programmes have supported either a narrow set or a multiplicity of activities to increase women's productivity, most managers have chosen to concentrate their activities in home economics, health or non-formal education. Fewer programmes have focused on agriculture-related activities and animal production.

9.60 In general, some noticeable progress has been made in some villages to improve general living conditions of women. Progress was made in appointing female counterparts a few of them with appropriate qualifications in line with the scarce availability of female university graduates with agricultural backgrounds. Some programmes also succeeded in reaching the more conservative areas. Another indication of progress is the innovative measures undertaken by some programmes to surmount difficulties. Cooperating with an LCCD to hire a vehicle for extension agents and providing the guarantee for a farmer to purchase a sewing machine on credit are examples.

9.61 Dynamic leadership, well trained minimal staff and focus on few services appear to be key factors of success in this field. However, despite the above modest achievements, many constraints have been found to limit the benefits of these projects to rural women.

9.62 Extension activities did not seem to have made the desired impact on the majority of women served in project areas. The limited success achieved in this field is mainly due to the continued lack of adequate training programmes, well trained extension agents, sufficient transport facilities, demonstration equipment and appropriate facilities. Further, there has been no effective monitoring and evaluation of rural women programmes. There is also no major effort to coordinate the progress with activities undertaken by crucial ministries such as education and health.

9.63 According to the conclusions of the roundtable on women's programmes (June 1990) the agricultural extension services are not attractive to women farmers as they often do not provide new farming activities or technologies tailored to their needs. Even though health and non-formal education were the main activities in most programme areas, these two services are not attracting the target group, that is the older women who carry the bulk of farming and non-farming activities.

---

<sup>1/</sup> The main references used in this section are:

- (a) "Rural Women in Bank-financed Agricultural Projects - Republic of Yemen". World Bank, Agricultural Operations Division (EM3). Supervision Report by Nural Abdulhadi - 1990.
- (b) "Women and Agriculture Development in Yemen". World Bank Review Mission - June/July 1991 by Monira Y. Fouad.

9.64 Animal production-related activities, when focussed, were considered successful while agricultural credit was recognized as an important dimension to extension services.

G. Targetting the Poor: A Brief Retrospective

9.65 By the very nature of IFAD's mandate, the targetting issue is closely linked to that of poverty alleviation. There seems to have been two clear phases concerning the incorporation of targetting in project design:

- (a) An early phase (1979-1984) where the country as a whole was targetted on the grounds that it was one of the low income, food deficit countries. Projects were designed essentially to contribute to the development of various agricultural sub-sectors. During this phase, the focus was on institution development, provision of basic inputs/needs and building of infrastructure. This approach assumed that any benefits generated by a project will benefit the general rural population including poor farmers; and
- (b) A phase (1987-1992) during which projects targetted specific groups who are impoverished for reasons pertaining to social structures, natural resources endowment, economic and Government policy related factors, etc. During this phase, constraints to effective targetting started to emerge as this issue gained gradually more importance within IFAD and was consequently more fully addressed by Special Programming Missions and project formulation teams.

9.66 An illustration of the first approach is given in the President's report on Tihama Development Project III (Wadi Mawr), 1979, p. 19 "...The project would contribute to the national objective of gaining economic independence, depending as it does on importation of much of its food supply. It would at the same time raise the income, nutrition and living standards of the population within its area of influence who are mainly among the rural poor..."

9.67 This approach clearly reflected the need IFAD management had at that time to start operations in the most pragmatic way, although they were aware of the shortcomings of this strategy. Paragraph 68 of the same report reads "... At the same time, the large landowners under existing sharecropping practice will benefit, an outcome now regarded as unavoidable if development is to proceed". One should note that the criteria of land ownership, size of holdings, production relationships and annual income derived from farming were already applied for the classification of farmers, but that there was no formal targetting of the poorest for reasons pertaining to the perceived lack of feasibility of a more accurate targetting. Later in this phase, more emphasis was put on groups of extremely low incomes: in 1984, the President's Report on the Central Highlands Agricultural Development Project stated "... The beneficiaries are part of the poverty target group whose income is estimated at about US\$ 150."

9.68 As far as the second phase - or generation of projects - is concerned, the President's Report of the Southern Regional Agricultural Development Project (1987) stated: " Approximately 75% of the target group has a per capita income lower than the poverty line of US\$ 178. More specifically, the rural women's programme would involve 10000 families... As a first priority, the rural women's programme would target adult women managing rainfed farms of one hectare or less." IFAD contribution to the project was in fact allocated to the women development component of the project.

9.69 To examine more accurately the targetting instrumentalities used in project design and form a judgement on their comparative merits and effectiveness in channeling project benefits to the intended beneficiaries it is necessary to review a sample of projects. Five projects have been selected in this respect:

- (a) Projects of the First Generation: Tihama Development Project III (loan 13-YA, approved in 1979 for ex-North Yemen) and Wadi Beihan Agricultural Development Project (loan 68-YD approved in 1981 for erstwhile South Yemen). The Southern Upland Rural Development Project II (46-YA, 1980) is also particularly relevant to the analysis of the targetting issue involved in this category of projects. This analysis is done in greater detail in Chapter VIII of this report (Agricultural Credit) and for this reason will not be repeated here. The latter will however be taken into account in the conclusions of this Chapter; and
- (b) Projects of the Second Generation: Southern Regional Agricultural Development Project (loan 202-YA; 1987) and Agricultural Credit Project (loan 253-YA; 1990). Both projects present interesting points of comparison with the first category of projects while their concept fits better with the new situation created by the country's unification than the projects of the same category approved for the erstwhile South Yemen.

#### H. Tihama Development Project (Phase III)

##### Target Area Characteristics<sup>1/</sup>

9.70 Population: The region with its highly productive agriculture and crowded markets, is a centre for a larger population than just the residents within its boundaries. It is therefore not just the residents of Mawr, but all the population concerned who has been affected by changes in the economy of the wadi as a result of project intervention. The most striking movement of population is the seasonal migration of labour from the mountain foothills and from the surrounding areas of the Tihama plain.

---

<sup>1/</sup> The following sections draw heavily from the "Socio-economy of Northern Tihama (Mawr) - anonymous, undated (1974?), registered in the Tihama Development Library, Call No. 405/39.

9.71 Social Ranking System and Poors' Occupational Specialities: Traditionally, a man's social rank was determined by its ascribed status. The revolution did away with many privileges and stigma which were attached to the respective traditional statuses. The resident population can be classified in 3 broad groups: large landowning families, tribesmen with right to the land, landless either recently established workers coming from other regions of Yemen or descendants of former slaves. This latter group members possess no land and few animals.

9.72 The social status of the landless is primarily determined by the virtual impossibility in such an ordered agricultural society of acquiring capital without at least some start from inheritance. Many work as threshers. A few are supervisors or managers ("wakil") for landowners. Other occupations include working in rope making, petty trading, and smiting. Domestic services in Mawr or Saudi Arabia allowed some women to acquire house and some security.

9.73 Land use: The main division in land use and agricultural productivity is that between lands flooded by the wadi and lands where agriculture depends on rains alone. Within these broad categories there are differences between up-stream and down-stream lands, with respect to the damages the floods can bring to the network which bear directly on the cost of maintenance of the irrigation network. The amount, duration and frequency of the spate flow received, and the relative proportion of rocks/silts deposited by floods vary considerably as well. In rainfed lands the annual rainfall which decreases sharply from east to west is the most important factor of differentiation of land potential.

9.74 Land tenure: Mawr is characterized by the existence of large landholdings which are split into family farms and worked by sharecroppers rather than operated as estates. About half of the area as a whole and about 70% in the spate area are sharecropped (SAR, World Bank-1979). While ownership in the wadi lands is concentrated in relatively few hands, ownership of the rainfed lands is distributed more evenly among the tribesmen.

#### Socio-political Organization: Historical Background

9.75 Very large holdings were the rewards for political control of the region. The area of Mawr has long been ruled by a succession of local political and/or religious leaders, who were effectively independent but commonly petitioned and received nominal recognition from the Imam of Sana'a. Accession to power, was usually accompanied by the acquisition of great properties.

9.76 Irrigation systems by diversion of spate are very old in South Arabia, but the current network has been constructed or repaired during the 19th and early 20th century. Major developments, extensions and reparations of the barrages and distribution network have been organized under the aegis of the successive rulers. It is not known how exactly the labour force for major improvements was mobilized and, more particularly, what degree of coercion was applied for the purpose. Nevertheless, if major irrigation development was the work of the rulers, it is then likely that it was also the basis of their appropriation of great land holdings.

9.77 This period of wadi-centred government came to an end with the 1962 revolution. A new tribal leadership arose consisting mainly of tribe leaders and long established landowning families other than the ex ruling family of Al Haig. In the 1970 constitution, this leadership was drawn into the central government as member of the Senate ("majlis al-shura").

9.78 With republican support, the new leadership began to tighten the lines of its control, and, as has been the case with previous leadership, to accumulate land holdings.

9.79 Tribal leaders and influential families enjoyed until recently a significant degree of autonomy based on their control of tribal lines of command and on concentration of land and water resources. In return, they were responsible for the smooth functioning of the local economy, particularly in the maintenance and operation of the irrigation systems.

9.80 In the late seventies and early 1980's officials representing the central administration in Tihama begun to seek a measure of control over this process and therefore stood at a certain distance from tribal leadership ("Al qaba-il"). The developing administration structure (Tihama Development Authority-TDA), which acquired virtually total legal powers to control the wadi beds and major diversion structure, started to compete with local political leaders for the control of local government affairs.

#### Project Targetting of the Beneficiaries

9.81 The project main objective was to increase agricultural production by making efficient use of spate flows and helping recharge the aquifer; The project had also some secondary objectives such as improving the health of the rural poor by providing potable water supply. The design therefore targetted primarily the farmers who cultivate land in the flooded area which are also those with the highest potential and where land ownership is most concentrated.

9.82 However, the project was to benefit sharecroppers, as well. Appraisal report estimated the number of direct beneficiaries to be 6 200 resident households (43 500 people), including 3 100 sharecroppers families and 1 300 landless workers as well as 1 800 landowning families. No calculation was made as to the relative share of the expected benefits these various group would be obtaining.

9.83 An additional 1 400 families not engaged in farming would benefit from roads, water supply and the expected increase of the general economic activity. Total project beneficiaries was expected to be 53000 comprising 7600 households. Of the 53 000 beneficiaries, about 55% were estimated to have incomes less than US\$ 130 which is the country's relative poverty level.

9.84 Designers recognized that the project will benefit "also" large landowners, an outcome considered unavoidable since a radical change of land tenure could not be expected. A project to exploit the potential of the wadi was considered the only means of improving the welfare of the people of wadi mawr. The alternative was seen to be either do a project which will also benefit the wealthier, or deprive the area of development investments. In doing so, the appraisal team:

- (a) assumed that rainfed areas had no significant scope for improvement;
- (b) did not recognize that the best time for negotiating a possible improvement in the patterns of surplus distribution was before, not after, the investment is made; and
- (c) thought only a radical change of land tenure (not identified) could solve the problem.

#### Project Impact

9.85 Food Production Increase: Cropped area under spate fell from 15 000 ha before the project to 14 100 ha in 1988 against the projected 18 000 ha at full development. This was due to change in cropping patterns and more diversion of water in the upper part of the wadi. Areas under well development increased in the same period from 2 500 to over 4 600 ha slightly above the target of 4 000 ha.

9.86 Available data indicates that yields have increased significantly but remained lower than projections. This was partly due to lack of foreign exchange and to the slow/low adoption of promoted technical packages. On the impact on food production there were diverging views between TDA and the World Bank staff on the extent to which the observed evolution of the production would be imputable to the project. Also the reliability of quantitative data is particularly crucial in this matter. Keeping the above in mind, the TDA estimate was that the annual net increase of grain was about 6000 tons of grains ( 30% increase over the base year figure) and 23000 tons of fruits and vegetables that is more than seven times the volume produced before the project.

9.87 Regardless of the degree of confidence which can be attributed to those figures, they unequivocally indicate that fruits and vegetables production developed much more than grains.

9.88 Reduction of Poverty: the contribution of the project to National Income growth and overall reduction of poverty can be approached through the calculation of the ex-post economic rate of return: under more plausible assumptions than those retained by TDA , the IRR varied between 4.5 and 9.5% and was estimated to be 6% under the most likely scenario. This is well below the appraisal projection of 16%: sophisticated permanent diversion structures of the type built in Wadi Mawr are not economically justified.

9.89 The project made a significant contribution to the improvement of the population's living conditions as it built 71 of the 103 village water supply schemes planned at appraisal. However, hand-operated pumps were often rejected by the population (see Chapter VI).

9.90 As far as the project effect on income distribution is concerned, land and water rights largely dictate and indicate the beneficiaries of agricultural development. According to the appraisal report Wadi Mawr is characterized by a skewed distribution of land ownership: about 40% of the families are landless, 75% of the landowners have less than 12% of the

125

land and 4% of the owners control 68% of the land. Taking into account the fact that large landholding were not represented in the sample survey,<sup>1/</sup> the appraisal mission estimated the proportion of the land controlled by large landowners to be as high as 80%.

9.91 Moreover, successful pressure from influential local leaders during project construction has resulted in the scheme benefiting a minority of farmers. Indeed a 1990 study on the water distribution in wadi Mawr revealed that one upper canal which commands 950 hectares used 100% of the available base flow in 1988 and 1989, whereas according to the water allocation plan, the base flow was expected to be distributed among ten other secondary canals serving 4 800 ha. Similarly 39% of total flow (i.e. base and spate flow) was diverted by the same canal, which is about six times its allocated share. (see Chapter VI).

9.92 Extension services trained 82 village leaders who in turn presumably reached 2 000 farmers, but tenants could not have access to credit for lack of collateral. Actual adoption by the farmers was reported to be slow. Efforts are on-going to make the extension service more effective, and to intensify field demonstrations to convince farmers of the benefits of the improved packages and practices, but there is little thought given to the relevance of the packages to their needs nor is it apparently considered an issue to rely exclusively on community leaders to disseminate the messages and provide feed back.

9.93 While there is little doubt that the project had an apparent positive impact on the regional economy, its final outcome has been more on the side of a transfer of income than an increase of the national income. This transfer of income is three fold:

- (a) transfer from the country to the region (IRR is below the opportunity cost of capital);
- (b) transfer between households within the region (project effect on income distribution); and
- (c) transfer from the future generations to the present one (unsustainable use of underground water resources).

#### Lessons

9.94 On the Usefulness of Socio-economic Studies: As early as 1974, clear warnings were given on most of these issues by the socio-economic study mentioned above. In the light of actual results, the study's conclusions strikingly stand as a prophecy (pp.57-58): "until planners have better information on the present irrigation system, it may be premature to assert that the ... increase in agricultural production can be most economically obtained by investment in technically superior irrigation works". As far as irrigation management is concerned the report stated: "... if the proposed feasibility study is devoted entirely to questions of technical feasibility ... it will postpone the problems of drawing up ordered regulations for irrigation administration and of identifying the appropriate figures to enforce them". The political implications of the undertaking were in addition clearly spelled out: "those undertaking any change in the irrigation system will have to face the task of coming to terms with the masters and morals of the old system."

---

<sup>1/</sup> Survey conducted by the World Bank in view of the project appraisal.

9.95 The project should have relied on local cooperation and experience, particularly for the operation and maintenance of a complex, socially controlled irrigation system. It has failed to do so because it was, with the benefit of insight, the instrument used by the central government and its local administration to expand its political control in the area at the expenses of traditional leaders. The result of this competition was the reduced sustainability of the system, low recovery rates and even more inequitable distribution of water, as some influential leaders were able to obtain on the ground additional privileges (water rights) at the expenses of other leaders and of the general population.

9.96 Because technology is not socially neutral, the problem decision makers in the concerned international financing institutions have to face is whether and how socio-political considerations will be formally and positively taken into account in the process of project formulation. There is obviously no readily available answer to the question, yet ignoring the socio-political issues involved in technical design may lead to results which are at the opposite end of the intended purpose.

#### I. Beihan Agricultural Development Project

##### Target Area and Social Differentiation

9.97 Targetting was area-based. The selection of beihan area was due to its strategic importance: it was a border area which did not previously benefit from State interventions; it represented 15% of the total well irrigated land of South Yemen, thus its potential contribution to achieving the objectives of Government social and economic development plan.

9.98 Project area was classified according to land suitability for irrigation:

- (a) fully suitable: 4 800 ha (28% of total area);
- (b) moderately suitable: 2 300 ha (16% of total area); and
- (c) unsuitable: 9 090 ha (56% of total area).

9.99 Available water resources are not even adequate to irrigate the first category. There was at appraisal (1981) 822 wells irrigating 3550 ha (of which 2300 ha within the wadi beihan) that is 21% of the total area and 50% of land suitable for irrigation; spate irrigation concerned another 1 000 ha.

9.100 No analysis is provided in the project document regarding the patterns of poverty. Access to water through mechanical water lifting devices seems to be a major factor of differentiation. Accumulation of capital through workers migration abroad or trade seems to be the primary wealth creation process. Therefore the contribution of the project to poverty alleviation would presumably be proportional to its effectiveness in the mobilization of additional water resources and/or in improving the efficiency of irrigation.

9.101 According to the SAR, small individual farmers represented the majority of the farmers population; they numbered 3300; most irrigated farms sizes varied between 1 and 1.5 ha. Individual farmers cultivated 60% of the land; four cooperatives covered 30% of the land and two state farms shared the remaining 10% (table 9.2).

Table 9.2: Distribution of cultivated and irrigated land by type of farms

	INDIVIDUAL FARMERS	COOPERATIVES	STATE FARM
No households (hh)	3 300	744	100
Irrigated area (ha)	2 600	800	150
Tot. cultivated area (ha)	10 000	5 000	630
Irrigated (%)	26	16	23
Irrigated area per household	0.8 ha	1 ha	1.5 ha

The Benefits and their Distribution

9.102 Expected benefits included increased production and farm income, improved nutrition of the rural poor, diversification of production, improved access to important population centres and as a result improved marketing of agricultural produce and input supply. These were largely achieved and in many cases the set targets were exceeded:

- (a) Spate irrigation works benefitted a total of 1 750 ha in Beihan and 760 ha in Wadi Ain;
- (b) On farm works concerned 1 100 ha, 150 ha in excess of target. Improvements included PVC pipe irrigation systems, land levelling and cost of materials up to project site. The main beneficiaries are cooperatives farmers (889 ha) and state farms (112 ha). In line with Government policies at that time, individual farmers have only marginally benefitted (70 ha). The operation had an impact on 158 wells out of 834. Benefits on improved wells include a 20% increase of the irrigated area, and a reduction of daily pumping hours from 11 to 8 hours, thus reducing pumping cost and maintenance accordingly. Farmers were not keen on land levelling because it removed top-soil;
- (c) Erosion Control: even though the project reached its targets, more works were needed. Project management encouraged its engineers to work closely with the traditional structures in order to mutually benefit from the respective knowledge;

- (d) Well Improvement: 30 pumping sets were sold to cooperative farmers (medium term credit). Total area covered was 250 ha (26% of target) mainly on state farms;
- (e) Extension: no service was provided prior to the project. Activities spread over a wide range including crop demonstration plots, provision of inputs, training of farmers, marketing services such as crop maturity certification, introduction of new machinery and implements. In contrast to crop extension, veterinary services were not effective due to inadequate staffing. To the extent veterinary services are more relevant to the landless farmers, the project activities which faced more problems are those who service the poor;
- (f) Fertilizers and Chemicals: their utilization increased steadily from practically nothing to 800 tons in 1988. Fertilizers are primarily used by farmers for vegetable crops, which have the highest returns. The Public corporation for Agricultural services opened a branch at Beihan in 1986 to ensure continuing supply of inputs after project completion. In 1988 (project completion year), the PCAS supplied YD worth 17 175 of inputs and continued in the following years to supply between YD 21 000 and 25 000. Since October 1991, the PCAS changed its policy and delivered its inputs through the network of the fuel cooperative of Beihan which has a comprehensive network of selling points all through the area; and
- (g) Agricultural Credit: total loans (medium & short term) amounted to YD 578 000 short of the target of YD of 1 240 000. This situation was attributed to a combination of factors including, a lower cost of fertilizers and pumping sets; the fact that some inputs procured by other sources (vegetable seeds); components partially implemented (orchards establishment and land levelling); some expenditure items were also shifted from credit to local expenditures (well deepening, seedlings) during the course of implementation. The unification of South and North Yemen demolished state marketing companies and ended Government control on the cooperatives which caused them to withhold payments of outstanding loans. Actual recovery of loans (short and medium term) amounted to 20% out of a total of YD 500 000.

9.103 It is difficult to measure the specific impact of the project as private initiatives have contributed a lot in irrigation development thanks to the flow of expatriate workers remittances. The general feeling is that project interventions boosted an existing trend of irrigation development. the actual evolution of the production in the project area is described below (see also Table 9.3).

YEMEN : WADI BEHDAN AGRICULTURAL DEVELOPMENT PROJECT

TABLE 9.3: CROPPED ARRAS, YIELDS AND PRODUCTIONS

WELL IRRIGATED CROPS	BASE YEAR (SAR 1980)			TARGET YEAR 8 (SAR)			EXPECTED % INCREASE			ACTUAL AT COMPLETION (1988)			ACTUAL % INCREASE		ACHIEVEMENTS % TARGET		
	Area ha	Yield ton/ha	Output ton	Area ha	Yield ton/ha	Output ton	Area %	Yield %	Output %	Area ha	Yield ton/ha	Output ton	Area %	Output %	Area %	Yield %	Output %
WHEAT HIGH YIELD VAR.	75	1.8	135	1574	2.3	3620	1999%	28%	2582%	400	3.5	1400	433%	937%	25%	152%	39%
WHEAT LOCAL VARIETY	2256	1.1	2481.6	537	1.5	806	-76%	36%	-68%	900	2	1800	-60%	-27%	168%	133%	223%
BARLEY	223	1.4	312.2	43	1.6	69	-81%	14%	-78%	916	2.8	2565	311%	722%	2130%	175%	3728%
SORGHUM, MILLET	372	1	372	106	1.5	159	-72%	50%	-57%	72	1.5	108	-81%	-71%	68%	100%	68%
SUBTOTAL CEREALS	2926	1.1	3301	2260	2.1	4654	-23%	83%	41%	2288	2.6	5873	-22%	78%	101%	125%	126%
SESAME	1447	0.5	723.5	1157	0.8	926	-20%	60%	28%	830	0.8	664	-43%	-8%	72%	100%	72%
POTATORS	48	8	384	255	13	3315	431%	63%	763%	120	13	1560	150%	306%	47%	100%	47%
ONIONS, GARLIC	96	8	768	145	12	1740	51%	50%	127%	389	16	6224	305%	710%	268%	133%	358%
SUMMER VEGETABLES	10	10	100	64	15	960	540%	50%	860%	270	30	8100	2600%	8000%	422%	200%	844%
SUBTOTAL VEGETABLES	154	8.1	1252	464	13.0	6015	201%	59%	380%	779	20	15884	406%	1169%	168%	157%	264%
FODDER (ALFA ALFA)	320	60	19200	536	80	42880	68%	33%	123%	630	80	50400	97%	163%	118%	100%	118%
CITRUS	73	10	730	202	14	2828	177%	40%	287%	110	13	1430	51%	96%	54%	93%	51%
TOTAL WELL IRRIG. CROPS	4920			4619						4637							
TOTAL PHYSICAL AREA	3500			3500						3400							
CROPPING INTENSITY	141%			132%						136%							
SPATE IRRIGATED SORGHUM	1000	3.5	3500	1300	3.7	4810	30%	6%	37%	1400	4	5600	40%	60%	108%	108%	116%

Source: Draft Project Completion Report - 1988

9.104 Areas cultivated in vegetables which were expected to double, actually increased by five times as a result of an increase of the number of wells from 822 to 1 127 between 1980 and 1988. This has caused a continuous lowering of the water table. Cereals' share decreased from about 60% to 49%, as expected. However, the substitution of local varieties of wheat by high yielding varieties of wheat did not take place, while barley developed tremendously (four times the initial cultivated area), following probably the general trend of fodder crops.

9.105 Production targets were largely met for all groups of crops: cereal production which was to increase by 41% actually raised by more than 50%; vegetables production reached 9.5 times the initial years production instead of the 380% increase expected. For fodder and spate irrigated sorghum, the output achieved is slightly higher than the target set.

9.106 These results were achieved mainly through yield increases and modification of cropping patterns. Cropping intensity was not increased in the process and remained in the range of 135%.

9.107 It is of great importance to note that the tremendous increase in cash crops was accompanied by an increase in staple crop supply albeit less spectacular. Cereal production amounted to 11 500 tons (well and spate irrigation) in 1988 as against 6 800 tons in 1980. During the same period the population increased from 44 000 to 54 000. The current level of cereals production apparently covers the theoretical needs of the resident population. The increase of fodder crops resulted in a net increase of 15 000 heads of sheep and goats (over 50 000 heads in 1979). This makes an additional positive contribution to the improvement of the population's nutritional state and income.

9.108 The economic impact of the project can be measured by the internal rate of return over a period of 20 years which is estimated at project completion to be 29% as compared with the appraisal estimate of 24%. This positive appreciation of performance should however be tempered by the recognized unsustainability of the present rate of exploitation of underground water resources.

9.109 Individual farmers (79% of direct beneficiaries and 70% of irrigated land) contributed to 55% of the vegetables crops marketed through official channels, meanwhile cooperative farmers (18% of direct beneficiaries) supplied 41% of the production. State farms accounted for 4% of the production. Given on one hand, the pattern of development of well irrigation which is boosted by the investment of income from remittances, and on the other, the reduced control of the State on individual farmers production, it is likely that individual farmers real production was higher than what shows up in the official marketing statistics. Also, prices obtained by individual farmers are likely to be higher as well than those offered by the state controlled channels. On the other side, cooperative farmers had priority access to inputs and extension services in addition to better conditions of credit for on-farm investments.

9.110 In conclusion, the project has had a positive impact on agricultural production and farmers income. Cooperative farmers and state farms have been de facto targetted by Government services in accordance with the established government priorities at that time. Individual farmers which represent about 80% of the population have pursued on their own resources a parallel market driven autonomous development path. Despite an effective monitoring of the watertable level, the Government and the project could not limit the rapid growth of private investment in underground water resource mobilization, the fact which jeopardizes the benefits acquired so far. Even though the general population in the project area was among the poorest of the country, it is unlikely that the poorest farmers who had access neither to project services, nor to expatriate workers remittances, would have significantly benefitted from the project. The project did not address in its design the landless and pastoralists specific needs. While the general level of income in the project area has undoubtedly increased, it is equally certain that income distribution inequality has increased as well. The project had a share in both results.

#### Lessons

9.111 Individual farmers have considerably contributed to the remarkable evolution witnessed in the project area. This contribution should be better recognised in future project design and implementation. Projects should seek to combine the experience and knowledge of both the administration and traditional organizational structures. In this case such cooperation was sometimes sought by administrative structures faced with financial and logistical problems and yielded good results. In future, seeking beneficiaries participation should become a systematic attitude, regardless of the financial considerations.

9.112 Sustainable project achievements depend on a strong institutional framework which is still lacking at the end of the project: budgetary resources for continuing operation of support services; water legislation to protect resources from overexploitation; appointment of heads of administrations with a good development background.

9.113 Just like in Wadi Mawr, Beihan's experience illustrates the fact that increased access to strategic natural resource contribute to their overexploitation. Hence, the issue which has to be faced of the priority to be set between the equity objective and the objective of ensuring a sustainable exploitation of natural resources. In the past, access to strategic resources was limited and regulated through the political control of the general population by influential families, and through limited access to capital resources and technology. The combination of the demographic explosion, reduced political control<sup>1/</sup> and access of a large proportion of the population to capital resources have led to overexploitation of the water resources.

---

<sup>1/</sup> Recently-created administrative structures could not so far impose at the local level effective regulations for resource use and distribution in substitution of the traditional control exerted by local political leaders based on their appropriation of a large share of these resources and control of tribal lines of command.

## J. The Southern Regional Agricultural Development Project

### The Southern Uplands Area

9.114 The region has a rural population of about 2.0 million inhabitants corresponding to about 270,000 families. About 200 000 of these families are involved, to various degrees, in agriculture, and are distributed over some 5 000 villages and hamlets. It is estimated that one household in three has a male family member outside the region. In cases in which this member was the head of the household and no other adult male remained in the family, the full responsibility of farming as well as the household has been assumed by the women.

9.115 Agriculture in Taiz and IBB Governorates is almost entirely based on privately owned holdings which represent about 83% of cultivable land. More than half of the holdings are less than 1.0 ha in size.

9.116 According to MAF census, 64% of production units are totally owner-occupied and 22% are in a system of mixed ownership and crop sharing. Only 14% are totally sharecropper-occupied, mostly in larger units with irrigation. In cases where crop sharing prevails, the landowner, well-owner and sharecropper divide the gross income at 25%, 25% and 50%, respectively. Traditionally, the provision of labour, traction and all inputs other than water has been the responsibility of the sharecropper.

### Earlier Experience with SURDP's Women Extension Programme

9.117 Recognizing the need to improve rural living standards, SURDP initiated in 1978, special services for rural women development as part of the extension programme. These services, supported by SURDP I and II, emphasized literacy programmes which gradually shifted towards home economics and later on, towards agriculture.

9.118 The women's programme faced severe problems of staff turnover, mainly attributed to long distance commuting and reluctance of the families of the extensionists, who were from urban origin, to allow them to work away from home. Out of a total of 50 extension centres established by the programme since 1978, only two were active in 1985. The number of female extension agents decreased during the same period from 60 to 7 only. Average length of service had been less than two years.

9.119 Young urban females were not enthusiastic about rural work. More time was taken up in commuting than in teaching. They regarded the work as a brief transitional period between completing one level of studies and going on to higher studies or getting married.

9.120 Delivering extension to women proved more difficult than delivering extension to men, due to problems of women's limited mobility. Village women cannot travel to rural or roadside towns where extension centres are located. Each male extension agent is equipped with a motorcycle. Female extension workers could not ride bicycles or motorcycles and they did not drive. To be mobile, they needed vehicles and drivers, but were generally unwilling to ride alone with a driver. A supervisor always rode with them in the past. When she left, many extensionists resigned.

9.121 In the absence of female agriculture extension agents and because of the existing cultural traditions which restrain male extension agents from directly contacting female farmers, the impact of the service on the women and their effectiveness in agriculture has been small.

IFAD's Approach to Targetting of the Rural Women

9.122 Given such constraints IFAD took the view that it was necessary to move beyond women's programmes within agricultural projects to a free-standing women's project. Consequently, in 1985/86, it identified and formulated the Southern Uplands Rural Pioneer Women Development Project.

9.123 The priority target group was defined as the women actively involved in agricultural decision-making on small farms, especially in the poorest villages.

9.124 Involvement in decision making was found to vary significantly with age. Practically all women over 25, whose families work land holdings under 1 hectare have some role in agricultural decision-making.

9.125 Poor villages can also easily be distinguished from better-off villages by the lack of visible signs of remittance wealth such as new houses, television sets, electricity and dependence on improved water sources. Dependency on rainfed agriculture and the absence of qat growing or off-farm work are also important characteristics of poor villages.

9.126 A rapid rural appraisal concerning women in different categories (by age, socio-economic status and marital status), identified the following pattern of preferences with respect to the type of assistance available to them:

- (a) Women actively involved in farm decision-making (over age 25) favored assistance in agriculture and water supply improvement;
- (b) Other women with dependents to support ranked first acquiring skills for income generating activities (sewing); and
- (c) Younger women as well as better-off women gave preference to literacy, health, child care (home economics in general) and showed little interest in agriculture.

9.127 The best way of targetting assistance to women actively involved in small farm decision-making was therefore to focus primarily on agriculture. Two other factors were considered crucial: the location of the centres and the place where meetings are held.

9.128 The selection of the location of the women extension centres was to be decided on the basis of the findings of a baseline survey and with the assistance of village leaders according to the following criteria: (a) high male migration; (b) significant role for women in agriculture; (c) remoteness from major towns; and (d) presence of poor and landless women.

Insufficient Political Support for a Self-contained Women's Project

9.129 At the moment of appraisal of the Southern Upland Rural Pioneer Women Development Project, in May 1986, the Central Planning Office (CPO) requested that the project be reduced to a modest component of the Southern Regional Agricultural Development Project which was being appraised simultaneously by the World Bank. The CPO requested also that the use of expatriates be minimal and that recurrent costs to Government be kept at a low level.

9.130 Two arguments were put forward to justify this last minute change of position. Firstly, the CPO feared that the Assembly would not approve two projects for the same area. Secondly, as the project was of a pilot nature, it should start small to consolidate its aims, namely shifting from home economics to agriculture and moving from city to village oriented action.

9.131 Fearing that the inclusion of a mere women component in SRADP would dilute the issues that need to be addressed, IFAD staff attempted to bring the CPO to adhere to its initial position. Despite the official support of the Minister of Agriculture and Fisheries, these efforts remained unsuccessful.

9.132 Total project costs were consequently reduced to US\$ 2.3 million from an original level of 7.1 million. The component consisted mainly of civil works (US\$ 1.2 million), the purchase of vehicles (US\$ 0.3 million), and the provision of technical assistance (122 staff months) as well as of training abroad (56 staff months) for a total of US\$ 0.8 million. The original project most innovative features i.e. the support to Local Development Associations, credit for women, and the financing of the entire staffing of the female extension service were dropped in the process.

9.133 Experience to date concerning the implementation of SRADP, as reflected in supervision reports, indicates that the rural women's component continues to suffer from the unfavorable conditions under which it has to operate: delays in the construction programme, absence of a strong female leadership, inflexible training programme, lack of equipment and shortage of vehicles had led to low morale, inability to attract and retain new extension agents, and deterioration in the quality of extension services.

Lessons

9.134 Despite the very modest implementation results obtained, the SRADP's experience is rich in lessons for the future. Firstly, the project proved that it is feasible from an operational point of view to target the rural women in an effective way based on practical criteria which are target group and area-specific. Targetting of poor villages, the focus on agriculture in extension sessions, and the location of extension services infrastructure in the project area are powerful instruments in this respect.

9.135 A second lesson is that, rapid rural appraisals focused on the target group and conducted by sociologists or socio-economists can be instrumental in shaping the project so as to respond to the needs of the target group provided these studies are conducted very early in the project cycle.

121

9.136 Thirdly, there are institutional, budgetary and political limitations to the adoption of separate women development projects, though experience to date strongly suggests that this might be the most efficient way of targetting the rural women in Yemen. As a result, one should not expect too much to be achieved, too quickly.

9.137 Fourthly, it is not enough to design good projects. IFAD must also build political commitment to ensure that these projects would be given a fair chance to perform and would not be systematically the victims of budget cuts and other similar constraints. What kind of activities IFAD should consider within and outside the project formulation process to ensure political support to its endeavors, remains an open question.

9.138 Furthermore, the fact that the original project was discarded in favour of a bigger project sponsored by a larger financing institution raises the general issue of the coordination with other agencies and of the possibility for IFAD to conduct an autonomous programme reflecting its specificity.

9.139 Since, IFAD staff had rightly identified the potential consequences of the changes imposed by the Government, a decision of withdrawal from a project which was no longer interesting for IFAD could have been envisaged. No doubt, the decision was a difficult one to take, in view of the amount of time and resources which had already been spent, and of the implicit commitment to finance the project which usually builds-up in the project formulation process.

#### K. Agricultural Credit Project

9.140 This project avails an opportunity to discuss more in-depth, the potential and constraints pertaining to a range of targetting instrumentalities. Though the following analysis applies primarily to credit activities, it can be extrapolated to other types of intervention to the extent they rely on similar targetting tools.

9.141 As per project appraisal report, the target group is broadly defined as the farmers, males and females, who live in the Tihama and in the Highlands. The number of families to benefit directly from the project amount to about 13 100 or 65 000 people, which is only 1.5% of the total population in these regions. Although most of the farmers in the target area cultivate less than 1 ha, this small percentage of direct beneficiaries makes it particularly difficult to reach the poorest or even the poor, unless some specific targetting measures are taken.

9.142 The fact that the approved project does not seem to be especially targetted, is indeed in sharp contrast with the efforts made by successive missions to operationalize the orientations put forward by the 1988 Special Programming Mission with respect to targetting. This gives an idea of the magnitude of the constraints that those missions were faced with, and leads to the conclusion that such projects cannot be properly targetted. Most of the following analysis is built on a review of the successive project formulation steps and of their outcome from the identification of the project to its approval.

136

### Eligibility Criteria

9.143 The General Identification Mission (1988) tentatively defined eligibility criteria of CACB borrowers who would receive loans derived from IFAD supplied resources. Eligible borrowers included all households generating incomes at or below US\$ 150 per capita (subsistence level) and households that were most in need of credit in absence of off-farm employment. This general target was further sub-divided in groups defined by the type and ceilings of the productive assets owned (land irrigated and rainfed, livestock, fishing boat). In addition, particularly vulnerable groups were targetted: landless farmers, female headed households, semi-nomadic farmers etc

9.144 The qualification criteria proposed were based on restrictive physical limits on assets owned/shared. These were considered too restrictive by Government and CACB officials who found them extremely difficult to incorporate in the Bank's current loan administration system.

9.145 Many practical difficulties were also found to hamper the application of these criteria in the lending process. Firstly, the definition of the target groups was seen to be ambiguous or inappropriate in the case of the proposed land size ceilings which did not take into account the wide variation of lands potential within each of the two categories considered i.e. irrigated and rainfed land. The second reason pertains to the reliability and accuracy of the information on incomes and assets as it is provided by the customers. Thirdly, the cost of verification of such declarations, was simply too high for the bank.

9.146 The Bank was also concerned that the above criteria were not based on financial indicators derived from the present CACB's loan administration system. The bank did not maintain a data base to identify loan disbursements according to size of holding. The potential inclusion of a parallel stream of information regarding land and livestock within the existing overburdened manual loan administration system was seen to be prohibitively expensive. Clearly the processing of this type of information implied an extensive reorganization of the Bank including the up-grading of the Bank's standard operating procedures as well as the intensive training of its staff on a large scale.

### Ceilings on Loan Values

9.147 Ceilings were fixed by type and purpose of loans such as to restrict actual loan sizes so that as a general rule only small sub-loans of a level acceptable to IFAD would qualify for subsequent reimbursement from IFAD loan.

9.148 Although the principle of loan ceilings by type and purpose of loan was acceptable to the Bank, there has been wide disparity between the ceilings implied by the financial models proposed by IFAD missions and the Bank's management own proposals.

9.149 The political feasibility of tight ceilings that could effectively ensure that only the poorer strata of the society could qualify as borrower was a major constraint though not the only one. Quite understandably, the Bank also wanted to maximize its profits from the loan. Therefore, the discussions on loan ceilings were of a nature which was not essentially technical, but involved important stakes both on the side of the Government and of IFAD.

9.150 A project formulation mission, with its usual open mandate with respect to the project concept but tight time constraints for completing the formulation, would tend to compromise on the project concept and objectives, if need be. This judgement is supported by the following quotation of the 1989 follow-up identification report (p.9) " In the course of subsequent discussions, it became apparent that potential existed for redefining considerable numbers of high value individual loans as de facto group loans".

9.151 This was a clear statement that the smaller farmers would benefit indirectly, and an illustration of the typical trickle down approach that IFAD had rejected in the past. As a matter of fact the final project was approved with broadly defined loan ceilings: US\$ 23 000 for fishermen, US\$ 20 000 for irrigation improvement, US\$ 15 000 for farm machinery, US\$ 10 000 for planting of fruit trees, US\$ 7 000 for livestock production and US\$ 3 000 for seasonal loans with the additional provision that no borrower would receive total loans exceeding US\$ 25 000.

#### Group Lending

9.152 The above observations prompt the question of the real potential of lending to legally registered groups as a means of reaching the poor. Local Councils for Cooperative Development were found to act almost entirely as Local Government structures. As far as agricultural cooperatives are concerned, none of them was found to be operational in the North. Cooperatives in the South were effectively involved in IFAD projects with some success. They nevertheless suffered from state controls and did not survive the unification process.

9.153 Fisheries cooperatives in the North operate as mutual insurance societies in which membership is composed of boat operators,<sup>1/</sup> which are not essentially in the target group. In the erstwhile South Yemen, the Government nationalized all the fishing boats and formed 13 cooperatives. The system was presumably in favor of poor fishermen who had no capital to purchase boats and fishing gears and who lived in remote fishing villages. But the cooperatives became in fact chronic loss centers due to the recognized problems attached with this type of cooperatives where the fishermen are not owners of the boats and are not free to market their production according to their best interests.

9.154 Using informal groups such as those promoted by extension services might be more promising despite the differing mandates of the extension and credit services. For CACB, credit should be made available only to those who can repay. Extension services are potentially more concerned with reaching the target group. This mission is not aware of any significant attempt made so far to test the actual potential of this formula.

9.155 The joint liability group is a loan security system used where the mortgage of assets presents problem. Security is maintained due to social pressures. As such this system has not been used for credit operations so far in Yemen. As the group is formed by the borrowers themselves without external interference, it is very difficult in practice to ensure that the group is a genuine one and not merely a convenient way for influential individuals to obtain credit at concessional terms.

---

<sup>1/</sup> The crew is within the IFAD target group, but does not enjoy membership of these societies.

### Purposes of Loans

9.156 This is a very flexible instrumentality for targetting, which is being used increasingly by IFAD in Yemen and elsewhere. In ACP, IFAD proceeds can only be used for seasonal loans in addition to loans for small livestock production which benefit more the small farmers and the women.

9.157 As far as women are concerned, it is not quite clear how they would benefit directly from the credit made available for livestock development, since representative borrower lending is commonly in operation at CACB. Earmarking credit for livestock development might not be sufficient if it is not supported by a set of measures aiming at making credit physically more accessible to women.

9.158 Restrictions to loan purposes appear to be a practical instrumentality to reduce leakages to the non target groups, but its efficiency can only be revealed to the extent financial models suitable for the target group are developed. Otherwise, there are limits to the restrictions that can be applied without jeopardizing the justification of the credit package as a whole.

### Loan Appraisal and Security

9.159 The latest version of CACB's lending policies and regulations advocates flexibility with respect to loan security requirement in dealing with small farmers. However, it still requires two guarantors for loans not exceeding US\$ 2 000, and/or land and farm machinery mortgage. These securities are rather restrictive. Group lending is not mentioned as a possible collateral.

9.160 There has not been, to the best of this mission knowledge, any attempt to favor access of the poor through a real relaxation of loan securities. This might appear to be an area where progress should be made in future, though it is likely that resistance to change would be strong from the part of the concerned credit institution.

9.161 The value of the proposed investment is used as a screening criteria in the loan assessment process but it has no role in securing loans. ACP adopted measures aiming at expediting the loan application and review process which are expected to contribute to improving farmers access to credit. Among these measures, particular reference is made to increasing the mobility and improving the training of loan officers. The effectiveness of these measures will have to be followed during the course of project implementation before conclusions can be drawn on their contribution to making credit more accessible to the target group.

### Lessons

9.162 IFAD should generally pursue and further enlarge its dialogue with the Government in view of establishing effective targetting instrumentalities to ensure that project resources are primarily channeled to the poor.

9.163 Effective targetting is very demanding on national institutions managerial capacity. As a general guiding principle, an appropriate balance should be kept between IFAD requirements in terms of targetting and its contribution to the strengthening of the concerned institutions.

Besides setting rigid targetting criteria built in the design of the projects, IFAD and the Government can avail themselves of various alternative targetting approaches which could equally serve the purpose while fitting better with the institutional constraints.

9.164 In the short/medium term, designing suitable credit packages which are particularly attractive to the rural poor seems to be the most promising way of channeling credit resources to the poor. Because the poor have virtually no access to the best soil and water resources, these packages should be focused on income raising activities including a wide range of farm activities such as livestock development, bee keeping and rainfed agriculture, which are particularly relevant to IFAD target groups.

9.165 Wherever targetting instrumentalities are difficult to operate, it might be more effective to agree with the concerned institutions on a target for the actual distribution of project benefits between core target groups and the general population of the project area. In such cases, the implementing institutions should be let free to define the more appropriate way of achieving the objective but IFAD would disburse the funds earmarked by installments in proportion of loans actually delivered to its target group and up to a maximum to be defined at project formulation.

9.166 The rationale of this approach is to provide a real incentive for performance to the concerned institutions and gradually enforce the idea that targetting the poor indeed means good business. To determine the levels of the successive installments, a reliable and mutually acceptable periodic loan performance evaluation system should also be agreed upon between the Government and IFAD. This approach can only be implemented if IFAD and the Government are prepared to shift, if need be, some resources from poorer performing project and/or users to more effective ones. The mission believes this innovative approach should be piloted in next projects. Obviously, it would require from IFAD more flexibility in its management of its country portfolio of projects but that might just be the price IFAD has to pay for achieving its specific objectives.

9.167 It is a common observation that low interest rates actually impinge on small farmers access to credit. Since access to credit is more important for the target group than low interest rates on loans, increasing interest rates can be an effective way of targetting at a low administrative cost: higher interest rates would improve the financial position of the credit institutions and make it possible to cover the extra costs incurred to reach the poor. At the same time it would reduce the attractiveness of credit to the wealthiest members of the society who are usually the first beneficiaries of subsidized credit. This would leave more room for the small farmers and other target groups to benefit from available resources, without formally excluding the well off farmers. As small farmers would usually get small loans to be repaid over relatively short periods, the incidence of interest rates increase would be proportionately reduced.

9.168 Because the interest rate issue is a very sensitive one, it is not expected that progress could be achieved quickly. Nevertheless, IFAD should give appropriate attention to the interest rate problem, seek support for its views from within the Government itself and from the other concerned financing agencies, and make progress on this matter a condition for increased cooperation with the credit institution.

L. Conclusions

9.169 Starting from an apparently simple and straightforward question on the contribution of IFAD supported projects to the reduction of poverty, it appeared to the mission that there is no simple and global answer to what is in fact a very complex and multifaceted issue in which IFAD intervention is but a modest element.

9.170 While it was possible to reach some understanding of how the various projects interacted with their environment, it was often difficult to distinguish the specific contribution of the project to what had happened in the project area. In addition there was, in the mission's opinion, no satisfactory yardstick against which to measure achievements unless the design objectives are taken as an absolute reference. This mission does not favour such an approach in that it assumes that the desired state of the world is the yardstick to judge what is happening in the real one. In any case, project objectives were not stated in terms of poverty reduction.

9.171 Nevertheless the relevance of the question stands by itself and provides an interesting reading grid for IFAD's rich experience, the outcome of which is summarized in the Report's concluding Chapter.

12/1

## X. CONCLUSIONS AND RECOMMENDATIONS

10.01 This country portfolio evaluation attempted to draw lessons from experience that would improve future project design and implementation.

10.02 In doing so, particular attention has been paid to the identification of the practical ways and means which would promote the specific priorities and concerns of the Fund.

10.03 The mission had obviously to take into account the policy and institutional framework of project design and implementation. Accordingly, it fully recognises that IFAD objectives can be achieved only by a continuous policy dialogue with the Government.

10.04 It is hoped that the following findings and recommendations would form an acceptable starting point for the enhancement of such a dialogue and would ultimately take shape in future projects design. The Mission would recommend, as a contribution to this process, that a discussion of the present evaluation be held with Yemeni authorities and other development partners of IFAD, during a workshop to be organised in the country itself.

10.05 For ease of reference, the conclusions and recommendations pertaining to each field of investigation are presented together. A more synthetic presentation of the Mission's recommendations is given in the Executive Summary.

### A. IFAD Programme

10.06 IFAD financed a total of 11 projects in Yemen starting in 1979 in the North and 1980 in the South. The early commencement of IFAD operation in Yemen was primarily facilitated by the then impoverished status of the country, readily satisfying the condition of the poorest of the poor.

10.07 Programming started in Yemen relatively recently: 1984 for the South and 1987 for the North. However, the early participation of IFAD in development-financing in Yemen was facilitated by the presence of projects well prepared by internationally reputed donors such as the World Bank. Hence IDA cofinanced eight of the 11 projects which IFAD financed in Yemen.

10.08 The share of IFAD amounted to about 25% of the total cost of the projects, with a lower percentage contribution in the North. Eight of these projects were initiated by other donors.

10.09 IFAD-financed projects dealt with a wide range of projects and agro-ecological zones, particularly: the establishment and rehabilitation of rural infrastructure; the development and dissemination of technical packages; institution-building.

10.10 The types of intervention financed by IFAD in Yemen are generally consistent with its mandate to increase food production, especially in the poorest countries. The programme appears to respond to and be driven by

142

well-established Government priorities and policies. The latter emphasised crop intensification in the best endowed area and institutional capacity-building. Government orientations themselves stemmed to a large extent from the fact that well-endowed areas presented the best investment opportunities and prospects for a quick increase of national production. Furthermore, well-endowed areas were definitely lacking infrastructures and agricultural support services, and it would have been difficult for the Government to consider another order of priority.

10.11 This policy was actively supported by major external donors. For IFAD which needed to rapidly become operational after its creation, the pragmatic choice (and indeed its unique entry point) was to support this strategy through co-financing agreements based on projects developed by these donors, particularly IDA.

10.12 In the former South Yemen, the same determining factors were operating (i.e. Government policy, major donors programmes), albeit in a different context: which apparently gave more latitude to IFAD for developing an independent programme. Cooperatives were the unique rural institutions available and were actively supported by the Government in that they embodied its policy of land redistribution, and modernisation of agriculture in a context of a centrally-planned economy. Hence, IFAD supported extensively the cooperatives and marginally addressed individual farmers needs when possible.

#### B. Implementation Performance

10.13 Disbursements were generally low in the first three years of project life due to slow start in project implementation. One reason for the slow start is attributed to the lack of sufficient technical and socio-economic data on the project area and/or to inadequate design of major physical facilities. It is noticed that disbursements on civil structures commence late and linger on to achieve settlements of contracts at the end. Technical assistance is committed very early in the project life, whereas training is usually undertaken last.

10.14 Physically, the projects made substantial contributions in irrigation structures, water supply schemes, agricultural research, extension, fisheries and credit infrastructures, and rural roads. Yet, some of these structures are incomplete or non-operational for various reasons, including contractual disputes, social conflicts, radical changes in policy environment, lack of operating funds, and lack of sustainability in institutional or environmental aspects.

10.15 Loan covenants for IFAD co-financed projects are linked to those of the co-financiers, since the effectiveness of the loan agreement is contingent on the total financing package; yet these have not been problematic with respect to the effectiveness of loan agreements. The more acute problem is the longer period taken for the ratification of agreements. The real challenge for IFAD relates to the enforcement of those covenants which are designed such that project benefits would reach specific target groups.

10.16 Complications in procurement, withdrawal application and customs clearance procedures have contributed significantly implementation delays. Counterpart funding was problematic due to budgetary constraints, inflationary pressures and a redundant labour force, which is at the same time not of adequate quality. In relation to these issues,

the mission supports the recommendations of the Country Implementation Review (CIR) undertaken by IDA in July 1991. In addition, it is recommended that IFAD undertake, possibly in connection with its major co-financiers, an in-depth review of the country's procurement practices and procedures which would come up with concrete proposals for improvement in this field.

10.17 Supervision of most projects was found adequate in terms of providing early signals on major problems - including those of IFAD. The Government's response was often slow or even lacking in some cases.

### C. Project Performance Ranking

10.18 The evaluation team, in the light of its investigations and visits to all projects, attempted to rank projects by order of their overall performance. Eight projects which were either already completed or nearing completion were examined. Ten criteria were selected to reflect the conceptual soundness of projects; nine criteria for institutional and managerial issues, and eight criteria to assess how projects react to the general environment. For each criteria a scale of four is applied, in which the zero represents either problem-free grade or non-applicable and three represents very serious problems (Table 10.1). The table does not add new findings inasmuch as it summarises the observations contained in the report. It aims basically at providing the reader with a sense of the intensity of the problems and of their relative importance.

10.19 According to this approach, among IFAD-financed projects, the Agricultural Research Development Project (ARDP) ranked first, followed by the Wadi Beihan Agricultural Development Project (WBADP) and the Tihama Development Project (TDP III). As expected, the Central Highlands Agricultural Development Project (CHADP) scored the least. The two IFAD target-oriented projects, SURDP II (credit) and SRADP (women) did not do well because they failed to reach their targets. The latter project's objectives were definitely difficult to achieve in the prevailing social context. The impact of institutions and natural resources sustainability on the grades was mitigated by the fact that it applies across the board.

10.20 The three most successful projects are not, obviously, devoid of significant problems, particularly for Tihama III project, which had a negative impact on the income distribution. Also, there is a wide variation within each project in the performances of individual components. In particular, the components which built on existing market trends and farmers interest seemed to be particularly effective.

10.21 The projects which ranked first pertain to quite different types of projects, are located both in the Southern and Northern Governorates, and operated under various organisational arrangements. Therefore these factors (project type, location, project organisation) do not seem to account for the observed variation of performance.

10.22 The evaluation mission could identify three factors of success which are common to these projects, to the exclusion of others:

- (a) Strength and Continuity of Leadership: In all cases, project managers were capable and stayed in post for all or most of the project life duration;

Table 10.1: Classification of problems encountered by projects in Yemen

	TITHAMA 13-YA	SURDP 46-YA	ASSP 60-YD	BEIHAN 68-YD	RESEARCH 105-YA	FISH III 106-YD	CRADP 156-YA	SRADP 202-YA	ALL PROJECTS	PROBLEM INCIDENCE
<b>CONCEPTUAL ( 10 criteria )</b>										
Incorporation of lessons learnt	0	0	0	0	0	1	2	1	4	1.6%
Project area too wide	0	1	2	0	1	3	2	1	10	4.1%
Targeting	2	3	2	1	1	0	1	0	10	4.1%
Problem analysis	0	2	2	0	0	3	1	1	9	3.7%
Project purpose	2	2	2	2	0	0	1	2	11	4.5%
Assessment of institutions capacities	1	1	3	1	1	2	3	1	13	5.3%
Organisational structure	0	2	0	0	0	2	2	2	8	3.3%
Technology	2	1	0	1	0	3	1	1	9	3.7%
Engineering	0	0	1	1	0	0	1	1	4	1.6%
Subtotal project conception:	7	12	12	6	3	14	14	10	78	32.0%
<b>INSTITUTIONAL AND MANAGERIAL ( 9 criteria )</b>										
Lack of autonomy of project structure	0	2	0	0	1	0	2	2	7	2.9%
Management performance, capability	0	2	0	0	1	1	3	2	9	3.7%
Staffing	1	2	1	0	1	0	3	2	10	4.1%
Monitoring	2	3	3	2	0	2	3	3	18	7.4%
Technical assistance	0	0	0	0	0	0	2	1	3	1.2%
Recurrent budget	1	1	0	0	1	1	3	2	9	3.7%
Procurement	1	2	1	0	2	2	3	3	14	5.7%
Cofinancing	0	0	0	0	2	2	0	0	4	1.6%
contribution to institution capacity building	0	1	2	2	0	2	3	2	12	4.9%
Subtotal institution & management	5	13	7	4	8	10	22	17	86	35.2%
<b>GENERAL PROJECT ENVIRONMENT ( 8 criteria )</b>										
<b>A: MARKETS</b>										
Inputs availability	1	1	2	1	0	1	1	1	8	3.3%
Markets	0	0	2	2	0	3	0	0	7	2.9%
Distorted price structure	1	1	2	2	0	3	1	1	11	4.5%
<b>B: SOCIAL AND POLITICAL</b>										
Access to land/water/capital resources	3	2	2	1	0	0	2	2	12	4.9%
Benefit distribution	3	2	1	0	2	1	1	0	10	4.1%
Government commitment, policy	0	1	0	0	0	0	1	1	3	1.2%
<b>C: NATURAL ENVIRONMENT</b>										
Competition between alternative uses of resources	2	3	2	2	0	0	3	3	15	6.1%
Sustainability of natural resource use	2	2	2	2	0	0	2	2	12	4.9%
Subtotal general project environment (A+B+C)	12	12	13	10	2	8	11	10	78	32.0%
TOTAL PROBLEM INCIDENCE SCORE BY PROJECT (OUT OF 81)	24	37	32	20	13	32	47	37	242	99.2%
PROBLEM INCIDENCE BY PROJECT ( PERCENT )	30%	46%	40%	25%	16%	40%	58%	46%	37%	
PROJECT RANK	3	6	4	2	1	4	8	6		

Note : problem severity score:

Problem free (or not applicable): 0; slight: 1; significant: 2; very serious: 3;

12

- (b) Sharp Focus: Since successful projects were those which were focussed either on a relatively small number of beneficiaries (not exceeding 60 000 people) or on a specific type of activity (e.g. research) in various environments; and
- (c) Extensive Management Support Component: The share of institutional support in total project costs seems to be critical. In Tihama, it is obvious that good implementation results obtained are due to extensive and continuing institutional support. In Beihan, a small area-based agricultural development project implemented in a very remote area, project management costs cumulated to 39% of total costs. The research project was entirely an institution capacity-building project.

10.23 These findings, though not particularly surprising, should be given some thought and perhaps encourage IFAD to be generous in the provision of incentives and funds for project management, while focussing project objectives on its central target group/area/theme. Obviously, this should be done in a way which does not overburden Government budget after project completion.

#### D. Typology of Problems Encountered

10.24 If the above lessons stem from project achievements, there are quite a few ones which can be derived from failures and insufficiencies.

10.25 Table 10.1 shows that the conceptual soundness of the projects was most frequently affected by the lack of a proper assessment of the implementing institutions capacities.

10.26 Multiplicity of project purposes, wide areas and insufficient targetting were found to be the other significant contributing factors. These findings appear to be quite consistent with the previous ones derived from project successes.

10.27 As far as institutional and managerial factors are concerned, ineffective monitoring, procurement difficulties and lack of attention given to staff training and accumulation of experience were found to be significantly hampering project execution and also the sustainability of achievements.

10.28 Skewed land and water ownership distribution structure, limited resource base, unfavourable market price signals and/or Government policy changes are the structural and policy factors which have significantly impinged on the overall performance of the projects.

#### E: Targetting the Poor

##### Dynamics of Poverty

10.29 Notwithstanding the remarkable growth in national income witnessed during the last two decades, Yemen suffers from endemic poverty caused by a poor resource base, and population pressure. Concentration of ownership of strategic natural resources compounds the problem.

10.30 The decrease in poverty which occurred in Yemen in the last decades is essentially dependant on external factors and to a much lesser extent on productivity gains in agriculture. As a result the

146

achievements obtained in poverty alleviation are fragile and may be shortlived because of the combined action of international friction (which reduces expatriate job opportunities and the amount of aid available), internal population growth, productivity stagnation and last, but not least, the introduction of labour-saving technology, particularly in the low lands.

10.31 Market structures and signals are not conducive to the intensification of the still dominant traditional food system (grain and livestock production for domestic use). In many places with tight ecological constraints and high population density, this form of land use appears to be the only suitable system of production, particularly in rainfed areas. For this reason, it deserves more attention from policy makers.

10.32 Policy induced processes are also involved in the dynamics of poverty in Yemen, through exchange rate, trade and price policies. These favored imported cereals as against national production, as well as the rapid development of capital intensive, labour saving technologies.

10.33 The irrigated sector has been protected by these policies as well as by public expenditures policy which purposefully concentrated on the areas with the highest natural potential.

10.34 Who are the poor? These are the landless, small holders cultivating under rainfed conditions (with the exception of qat growers), and the households who do not have access to migrant remittances.<sup>1/</sup> The poor are also to be found in all locations where Government development programmes have been minimal or inexistent.

10.35 Though households belonging to broadly defined groups such as "tenants" or "rural women" are most likely to be poor, they are not necessarily part of the poorest strata of the Yemeni rural society: all depends on their status vis-à-vis the other criteria viz., the access to irrigated land, remittances, markets, social services, etc.

#### Approaches to poverty alleviation

10.36 So far, poverty alleviation has been considered as an ultimate goal in Yemen's development strategy but no targets for poverty alleviation have been set, such as for the national food self sufficiency objective. The latter remains the priority objective of the Government's agricultural development policy. This applies equally to both the North and the South Yemen, despite their sharply contrasted economic systems and macro economic policy orientations. Projects were therefore primarily expected to contribute to economic growth: they were designed to increase agricultural output and raise general incomes but did not have a poverty alleviation focus per se. This is not to say that they did not have an effect on the state of rural poverty.

---

<sup>1/</sup> Depending on the evolution of the regional situation, this criteria may become less significant. However, there will still be a difference between households who had access to remittances and transformed their living condition and production systems and the others.

10.37 IFAD should be credited for having over time developed and incorporated into its project designs a set of approaches and instrumentalities aiming at reaching the target groups it is most concerned with, including rural women. These efforts were not always effective in reaching the poor due to tough social, political and institutional constraints. Also, in view of the lack of previous experience in this field, making targetting objectives operational is, by necessity, a trial and error process which cannot be expected to quickly yield positive results.

10.38 In the light of actual experience, there is no single best instrumentality for targetting the poor. The real lesson is that targetting is very demanding in terms of involvement from IFAD staff in all stages of the project cycle and in terms of national institutions' managerial capacity.

10.39 Having said this, there are promising approaches of targetting that should be given priority in future:

- (a) Designing suitable technical and credit packages which are particularly attractive to resource poor farmers. This implies in particular, that more importance should be given to adaptive research for rainfed agriculture and livestock development.
- (b) Targetting broad categories of households does not appear to be in Yemen neither practical nor cost effective, while targetting poor villages is best suited to the country's social structure. In addition, poor villages are to be found in all governorates and districts, the fact which gives IFAD maximum flexibility in its negotiations with the Government, for the selection of the projects to be financed.
- (c) Often good targetting can be obtained through simple site specific criteria, and by considering at an early stage of project design what the preferences of the target group are so they can be built into project design. Simple decisions such as the geographical location of project financed infrastructures can greatly affect the capacity of the project services to reach the poor.
- (d) There is potentially a lot to be gained through making targetting of the poor a profitable business for the implementing agencies, particularly in the field of rural credit. Some suggestions has been put forward by the mission in this regard. However, their implementation involves more flexibility in the management of the country portfolio of projects (see Chapter IX, paras 9.165 to 9.168).

#### Constraints to Targetting

10.40 Too much was expected from rural women's development programmes that had to function under socially unfavorable conditions. These conditions, among others, include limited number of Yemeni women available to manage programmes, difficulty in identifying Arabic speaking female experts and the scarcity of qualified women for training as extension agents. Limited progress in these programmes could also be attributed to a lack of local funds.

10.41 Certain types of projects are simply unsuitable for targetting according to IFAD's criteria. Experience confirms that the injection of productive capital, where ownership of strategic natural resources is concentrated, primarily benefits the wealthiest and increases social inequality.

10.42 It is therefore recommended to carefully select project areas so as to avoid projects aiming at increasing agricultural productivity in areas where land and water ownership is shared unevenly. The mission acknowledges that this might be a difficult recommendation to follow: since land ownership is often concentrated in areas of highest potential, it may exclude too many of the few investment opportunities available in the agricultural sector. In these cases, and pending any other alternative, IFAD should focus to an even greater extent its projects on specific poverty alleviation targets.

10.43 Credit lines, even when they are made conditional, do not lend themselves easily to proper targetting and should therefore be avoided as well, pending some policy adjustments.

10.44 Political commitment to the equity objective has not been sufficient; and the trickle down approach to poverty alleviation is still popular within the administrative structures. IFAD's project impact has been constrained by the absence of national institutions with a poverty alleviation focus.

#### Recommendations and outstanding issues

10.45 Projects whose purpose is to improve the productivity of the traditional grain-livestock food system are naturally targetted towards the poor in Yemen. Therefore, project concepts should be built around the problem of technology generation and dissemination for those food systems. For these efforts to be effective, there is a need to reconsider the low priority ranking given to the livestock/cereal sub-sector by development planners, both national and international.

10.46 The handling of poverty alleviation and targetting issues needs to be more consistent through the project cycle. This entails:

- (a) conducting more systematic socio-economic surveys which provide a basic understanding of the processes involved in poverty alleviation in the project area and lead to an operational definition of the target group;
- (b) ensuring that the findings of such studies will actually be taken into consideration in project design. Poverty alleviation should become an operationally identifiable objective supported by project activities, not just an ultimate goal of the project; and
- (c) spelling out clearly and in greater detail what share of project resources would benefit directly the target group and results expected. This implies setting targets.

10.47 The above is a prerequisite for strengthening project Monitoring and Evaluation Units in that it would provide them with a consistent and relevant format for organizing their own activities.

10.48 Poverty alleviation issues are not principally of a techno-economic nature. Experience strongly suggests that unless a desirable development objective fits with the chief interest of at least one party actively involved in the project, there will be little prospect for achieving the desired result.

10.49 For this reason, the mission believes it is an error to consider that socio-political issues are out of the scope of project analysis. In fact these issues are at the heart of the problem and therefore should be formally and positively considered in the process of project formulation and implementation. Ignoring them will often lead to results which are contrary to the original purpose. In this respect, IFAD should accordingly pursue and enlarge its policy dialogue with the Government.

#### F. Institution-building

10.50 In general, the contribution of projects to institution building is difficult to determine in exact terms. However, through projects over the last two decades, sizeable financial and technical resources were used to build organisational structures, at the regional and the national level. Progress towards realising the full benefits was masked by numerous problems. However, even the present barely efficient institutions for rural development represents real progress when compared with the previous absence of any institutional capacity at all (particularly in the Northern Governorates). The time has come now to consolidate previous achievements.

10.51 GOY and donors should attempt, at the project level, to define a clear role for management and technical assistance; draw effective programmes for training;<sup>1/</sup> and develop a serious attitude towards monitoring and evaluation. Real opportunities for local communities participation in project design should be availed so that realisation and sustainability of benefits is solicited and ensured.

10.52 At the regional level, the intermediate stage of semi-autonomous project implementation unit seems to be problematic. GOY should consider a swift action to legislate and harmonise regional development authorities which seems to be a more viable model. Currently, this model is only fully applied in TDA, though recently NORADA has been established.

10.53 The lack of resources to support central institutions has resulted in their lagging behind project-supported institutions. Indeed, central authorities have adopted various means of control that are seen as obstacles to institutional development at project level. Project assistance has been used to foster institutional development for national institutions such as CACB through the SURDP II and the ACP and AREA, through the ARDP, among others. It should be used similarly for the support of central government institutions. For such action to be rewarding, government should be encouraged to draw a comprehensive plan for national and regional institution building, and provide a reasonable counterpart financing to implement it.

---

<sup>1/</sup> Including training in financial management and project administration.

### G. Credit

10.54 CACB presently represents the only available rural credit institution in Yemen. Therefore, IFAD, in collaboration with other concerned donors, should continue to support it, taking into account lessons learnt to date.

10.55 The credit components in the projects reviewed did not generally receive adequate evaluation during project preparation and appraisal. Except for the recent ACP project, there is no evidence that the performance of either credit institutions or credit dissemination was carefully studied and incorporated into project design.

10.56 A plausible explanation would be that credit was used as a means to boost farmers' adoption of newly introduced technical packages. A second explanation would be lack of alternatives since there was only one agricultural credit institution in the North, and one financing institution in the South.<sup>1/</sup> Finally, it cannot be excluded that the pressure for a project to be launched was sometimes excessive and apparently prevented the project designers from seriously tackling the credit issue.

10.57 When credit was directly supplied by the projects, it lacked effectiveness and did not necessarily reach the intended target groups. Supervised credit (based on the traditional concept of credit granted by a specialised institution with loan appraisal done by extension and technical departments) were more effective. However, the target groups with whom IFAD is most concerned were not reached either. Analyses have shown in SURDP II that even though farm sizes of credit recipients are relatively small (which is not unexpected given landholding patterns in Yemen) the recipients were significantly high income groups.

10.58 There is not enough evidence that the subsequent credit project (ACP) had incorporated sufficient provisions to cater for these concerns. This apparently results from objective, institutional and practical constraints, but also from the type of project (a conditional line of credit).

10.59 Experience shows that policy changes are in fact difficult to bring about: it is particularly difficult for credit institutions to consider managing resources using methods which they may not have used before. Project design and decision-makers should become more aware of the precedence of established policies and institutional structures over project design. In any case, the feasibility of such policy changes should form part of the project feasibility study.

10.60 There is a continuous need for IFAD to link credit with the dissemination and adoption of technical packages designed to help its target groups. A case in point are the technical packages for rainfed farmers and improvements in livestock, including poultry, which are raised by women. A strong credit beneficiaries' monitoring and evaluation capacity should be established within the Cooperative Agricultural Credit Bank.<sup>2/</sup>

---

<sup>1/</sup> As from the reunification only one rural financing institution (CACB) has remained.

<sup>2/</sup> The recently established M&E unit should be continuously strengthened and supported, particularly during project supervision.

10.61 Projects should be designed to contribute to the long-term sustainability of the credit institution(s). Whenever this objective involves policy changes, the latter should be obtained before project effectiveness. As a matter of fact, project designers have often underestimated the difficulties involved in bringing about such changes.

#### H. Agricultural Research and Extension

10.62 IFAD-financed projects have contributed to the generation and dissemination of some improved technological packages that have been utilized by farmers. Relatively more success has been achieved with cash crops compared to traditional food crops, with irrigated compared to rainfed crops and with wheat and maize compared to sorghum and millet. Projects financed by other donors have contributed, as well.

10.63 Yemenis working abroad usually come back with new ideas and experience. The innovative private sector in Yemen is often ahead of research and extension in introducing and promoting new technology.

10.64 The achievements in terms of cropping patterns diversification and the penetration of commercial agriculture owe a lot to investments in irrigation and infrastructure. They are, however, very sensitive to market fluctuations. At present, the weakness of marketing structures has become a major limiting factor.

10.65 Research and extension should be directed towards solving the problems of farmers. With respect to small farmers, who are of special interest to IFAD, their needs rest on technical packages suitable for rainfed agriculture and increased returns to water, the latter being the most scarce resource.

10.66 A major problem facing the extension service and ultimately the producer is the limited flow of appropriate technical packages verified under local conditions. In view of this, IFAD should reorient its focus, which has been leaning heavily towards extension, to give more emphasis to adaptive research.

10.67 The organisation and implementation of field trials to test station research findings must be a joint cooperation between research and extension, with active farmer participation. This can bring into the research process a better participatory perspective on extension/research recommendations.

#### Research

10.68 Before the formation of ARA, research in the North was fragmented and lacked coordination. This resulted in some duplication of effort and prevented efficient utilization of the limited available resources. With the formation of ARA and, subsequently, AREA, the situation improved but the need for coordinated multidisciplinary research is still obvious.

10.69 In the past, research depended on expatriates, because of the low number of Yemeni scientists. Now, thanks to donors' (including IFAD) funding, the number of Yemeni research workers has increased, but more training is still needed to fill specialisation gaps. At the same time, failure to provide incentives and adequate housing to national researchers, which is currently experienced with the Italian grant to ARDP, leads either to their loss to other institutions and/or inefficiencies in the allocation of their time and efforts.

10.70 In view of the topography of the country, research has to cover a wide range of ecological regions. However, the number of research stations at present is limited. For example, a research station in the Central Highlands has been established only recently and the research activities in the Eastern and Northern Regions are still rudimentary. Also lack of suitable research farms, particularly in the Southern Uplands and the Central Highlands, has undoubtedly reduced the effectiveness of research. Equally important is on-farm research for the generation and verification of improved technology that is likely to be adopted by farmers. Inadequate operational funds have seriously hampered research activities and particularly on-farm trials.

#### Extension

10.71 There is evidence that farmers have adopted and adapted improved seed varieties and technologies when these were made available for them. There is also evidence that productivity of a number of crops has improved considerably not only due to research and extension messages, but also in response to initiatives by innovative private farmers.

10.72 In contrast to research, extension effectiveness has been constrained by the low education level of the extension agents. Most of the extension agents employed in the early projects had only nine years of formal education. Furthermore, low salaries and inadequate allowances do not encourage the extension agents to work in the field with enthusiasm and dedication and induce them to move to more remunerative jobs. So the extension service suffered from a high turnover. Even with IFAD and cofinanciers investments and support, logistic problems including inadequate means of transport and insufficient funds for maintenance and operation of cars and motorcycles continued to hamper the efficient delivery of technical packages and extension messages. These problems are more pronounced in CHADP and ERADP.

10.73 Even when technical packages are available, their adoption may be hindered by the lack of inputs. The mission noted that in many areas visited, the farmers were aware of the value of improved seeds and fertilizers, but they did not use them because either the inputs were not readily available or their costs were beyond their means. It cannot either be excluded that the use of improved inputs on food crops is not always financially profitable for the farmers.

#### I. Irrigation and Rural Infrastructure

10.74 Notwithstanding, the tremendous effort made by IFAD and other donors, the sustainability of institutions set up for the purpose of providing irrigation and rural infrastructure is a real concern in the face of a growing demand for the limited national budgetary and human resources.

10.75 The injection of capital aimed at increasing natural resources mobilization in ecologically fragile environments is harmful unless:

- (a) capital investment is primarily directed towards the conservation and efficient use of scarce natural resources, particularly underground water.
- (b) There are effective institutions able to enforce resource conservation regulations. In their absence an adequate proportion of the project investment should be allocated for this purpose and Central Government should allocate the necessary budgetary resources.

### Spate Irrigation Improvement

10.76 Yemen has benefitted from significant assistance to improve traditional irrigation systems.

10.77 The selection of the appropriate development concept for a spate irrigation system requires a very clear understanding and appreciation of traditional water rights and operating arrangements at the design stage to avoid disputes and misuse of the water by the upstream users.

10.78 The sustainability of what has been achieved so far is seriously threatened by the lack of adequate maintenance and the absence of recovery of costs, and of beneficiary participation.

10.79 As a general guiding principle, future interventions in spate irrigation, should favor low-cost diversion structures and avoid sophisticated technical solutions which prove to be economically unjustifiable and difficult to operate properly.

10.80 The most critical issue in future planning will be to achieve the optimal mix of government and local responsibilities for creating and sustaining irrigation facilities. In future developments, there should be a clear instrumental goal of creating spate irrigation projects that are self-reliant so far as routine operation and repairs are concerned.

10.81 Careful consideration needs to be given to the implementation process, such that if farmers can be productively involved in implementation, changes are more likely to be adopted and sustained. Hence, the importance that national technicians be trained in participatory design and implementation of irrigation projects.

### Groundwater Irrigation

10.82 Groundwater development programmes have been relatively successful. The reason for their success has been:

- Projects have played the role of facilitators by providing loans, design, and construction assistance. Once facilities are constructed they are turned over to farmers who operate and maintain them;
- Farmer interest;
- Adequate water supply;
- Market opportunity, and;
- Successful informal organisations developed by the farmers themselves.

10.83 Benefits from projects can be accelerated if technical assistance in on-farm water management and crop production continues to be provided to farmers.

10.84 Overexploitation of groundwater requires immediate and decisive regulatory measures and the development of a master plan for rationalisation of the exploitation of groundwater resources is highly recommended.

10.85 Since water is the major limiting factor to agricultural production development, future projects should focus their objectives on water resource conservation. Project strategies should be more holistic to take into account the relationships that exist, in a given ecological unit, between different systems of water resource mobilisation such as spate and well irrigation. Farmers should be encouraged to introduce water saving technologies.

#### Rural Water Supply

10.86 The enthusiasm of villagers for water supply improvements has given publicity to the projects, thus facilitating the implementation of other components. Therefore, it needs continuing support, especially where initiatives can strengthen and empower communities.

10.87 Water supply schemes are very vulnerable to competition for scarce water resources, especially from irrigation. Therefore, planning of water use is paramount. Regulations should be promulgated to create a priority system for access to drinking water, to create restricted zones in areas where aquifers are in depletion and to impose a minimum distance between wells to avoid interferences.

10.88 In the development of water supply schemes, the "turn-key" concept should be replaced by a phased approach that allows for more time to negotiate design alternatives with local people.

10.89 The actual potential for developing new water supply schemes, especially in mountainous areas, should be assessed through an in-depth social investigation in order to avoid social conflicts that may hamper the completion of the project.

10.90 Operating costs, including payment for pump attendant, fuel and maintenance, are entirely borne by beneficiary villagers through water charges which should be adequate to cover these costs. Guidelines should be prepared for this purpose and training should be provided to water committees.

#### Rural Roads

10.91 There is ample evidence that the rural roads component in the projects cofinanced by IFAD has increased accessibility of all beneficiaries to input and product markets; reduced the cost of transportation of merchandise and contributed effectively to the fruit and vegetable import-substitution policy adopted by the Government in 1984.

10.92 The overriding consideration in road construction, however, is the adequacy of maintenance. Since rural road specifications and standards of alignment are often inadequate to sustain the traffic build-up there is also a need for upgrading. Thus arrangements should be made to turnover those roads with heavier traffic to the competent authority.

YEMEN  
COUNTRY PORTFOLIO EVALUATION

ANNEXES

ANNEX I:	TERMS OF REFERENCE AND FIELD WORK PROGRAMME OF THE MISSION
ANNEX II:	ECONOMIC STRUCTURE
ANNEX III:	PROJECT PROFILE, Loan No. 013-YA
ANNEX IV:	PROJECT PROFILE, Loan No.: 046-YA
ANNEX V:	PROJECT PROFILE, Loan No.: 105-YA
ANNEX VI:	PROJECT PROFILE, Loan No.: 156 YA
ANNEX VII:	PROJECT PROFILE, Loan No.: 202-YA
ANNEX VIII:	PROJECT PROFILE, Loan No.: 253-YA
ANNEX IX:	PROJECT PROFILE, Loan No.: 060-YD
ANNEX X:	PROJECT PROFILE, Loan No.: 068-YD
ANNEX XI:	PROJECT PROFILE, Loan No.: 106-YD
ANNEX XII:	PROJECT PROFILE, Loan No.: 228-YD
ANNEX XIII:	PROJECT PROFILE, Loan No.: 269-YE
ANNEX XIV:	GENERAL BIBLIOGRAPHY
ANNEX XV:	LIST OF OFFICIALS MET

ANNEX I

YEMEN  
COUNTRY PORTFOLIO EVALUATION

TERMS OF REFERENCE AND  
FIELD WORK PROGRAMME OF THE MISSION

YEMEN COUNTRY PORTFOLIO EVALUATION

PHASE II - FIELD STUDY

TERMS OF REFERENCE

AGRONOMIST

A. Duties

As a member of IFAD's country portfolio evaluation mission and under the supervision of the mission leader, the Agronomist will be responsible for further analysing the issues identified during the last phase of the assessment (desk study) with particular reference to food and agricultural production. In this context, he will:

1. Assess the contribution of IFAD financed projects to the development and dissemination of appropriate agricultural technical packages.
2. On the basis of the above identify and document (data availability permitting) their effects on the beneficiaries including income, production, nutritional status and any other aspect that may be relevant.
3. Analyse on a comparative basis, the functioning and effectiveness of the research/extension activities in order to identify actual progress made and/or outstanding issues.
4. Further link the above observations with an analysis of project design (development approach, rationale, appropriateness of technical packages, delivery mechanisms, etc.) so as to draw conclusions and make recommendations of a general nature concerning future IFAD projects in Yemen.
5. Coordinate with the other team members and contribute to the team work, in accordance with the mission's framework as established by the mission leader and the concerned IFAD evaluation officer.
6. Produce by the end of the field trip, two up-dated project profiles concerning project loans 105-YA and 228-YD as described in the mission's framework.
7. Produce an annex to the mission's main report presenting your findings, conclusions and recommendations.

AGRONOMIST - cont'd

B. Time Schedule

Rome: 21 to 26 November 1991: Briefing and review of documentation/specific bibliography.

Yemen: 27 November to 23 December 1991: Fieldwork

Home: 24 December-28 December 1991: Start of report writing  
29 December-1 January 1992: Interruption of mission

Rome: 2 to 18 January 1992: Finalisation of consultant's report.

YEMEN COUNTRY PORTFOLIO EVALUATION

PHASE II - FIELD STUDY

TERMS OF REFERENCE

SOCIO-ECONOMIST

A. Duties

As a member of IFAD's country portfolio evaluation mission and under the supervision of the mission leader, the Socio-Economist will be responsible for further analysing the issues identified during the first phase of the assessment (desk study), in his general field of competence. In this context he will, more particularly, address the following issues:

1. The social control of, and access to, strategic national resources (land and water) with particular reference to IFAD target groups (smallholders, women, fishermen, etc.).
2. The role of women with reference to agricultural production relations and their integration in the main stream of IFAD project activities.
3. The beneficiaries' participation in project design and implementation, with particular emphasis on group formation and receiving mechanisms (in close cooperation with the institutions specialist).
4. Poverty: underprivileged groups profiles, regional and occupational variations, gender considerations.
5. Characterisation of IFAD target groups as per project design. Compare with findings regarding poverty in Yemen and draw conclusions about adequacy and/or relevance of target group definition.
6. Project beneficiaries: profile as compared with intended beneficiaries.
7. Poverty alleviation: on the basis of your findings and conclusions regarding the above points, elaborate a discussion framework regarding available options to IFAD for poverty alleviation (in close cooperation with the mission leader and IFAD evaluation officer).
8. Produce by the end of the field trip, two up-dated project profiles concerning loans 202-YA and 106-YD.
9. Produce an annex to the mission's main report presenting your findings, conclusions and recommendations.

SOCIO-ECONOMIST - cont'd

B. Time Schedule

Rome: 21 to 26 November 1991: Briefing and review of documentation/specific bibliography.

Yemen: 27 November to 23 December 1991: Fieldwork

Home: 24 December-28 December 1991: Start of report writing  
29 December-1 January 1992: Interruption of mission

Rome: 2 to 18 January 1992: Finalisation of consultant's report.

## YEMEN COUNTRY PORTFOLIO EVALUATION

## PHASE II - FIELD STUDY

## TERMS OF REFERENCE

IRRIGATION AND RURAL INFRASTRUCTURE SPECIALISTA. Duties

As a member of IFAD's country portfolio evaluation mission, and under the supervision of the mission leader, the Irrigation and Rural Infrastructure Specialist will be responsible for further analysing the issues identified during the first phase of the assessment (desk study), with particular reference to irrigation and rural infrastructure matters. In this respect, he will:

1. Make a general assessment regarding the effectiveness and major achievements of IFAD projects in these fields, including irrigation efficiency gains, production increase and their sustainability.
2. Identify the reasons behind the success or failure of specific components or operations based on your own observations in the field and on interviews with farmers and managers concerned.
3. Review, in close cooperation with the agronomist, the profitability at farm level of the proposed technical packages in connection with on-farm irrigation investments. Establish, as appropriate, farm and/or crop models based on case studies to be conducted during the field visits. Analyse, in close cooperation with the economist/mission leader the likely impact on profitability of the evolution of the market price structure (inputs/outputs).
4. On the basis of the above, review the design of the various projects' irrigation components with particular reference to the relevance of the proposed technical and managerial solutions. You will also assess the extent to which lessons from the successes and failures of earlier projects have been incorporated in the most recent ones. Special attention will be paid to the availability of basic/detailed data for project implementation.
5. Contribute to the identification of projects' beneficiaries and to the assessment of the effects of irrigation and infrastructure investments on food production increase and poverty alleviation in accordance with the mission's framework as established by the mission leader and the concerned IFAD evaluation officer.
6. Produce by the end of the field trip, two up-dated project profiles concerning project loans 13-YA and 68-YD.
7. Produce an annex to the mission's main report presenting your findings, conclusions and recommendations.

IRRIGATION AND RURAL INFRASTRUCTURE SPECIALIST - cont'd

B. Time Schedule

Rome: 21 to 26 November 1991: Briefing and review of documentation/specific bibliography.

Yemen: 27 November to 23 December 1991: Fieldwork

Home: 24 December-28 December 1991: Start of report writing  
29 December-1 January 1992: Interruption of mission

Rome: 2 to 18 January 1992: Finalisation of consultant's report.

YEMEN COUNTRY PORTFOLIO EVALUATION

PHASE II - FIELD STUDY

TERMS OF REFERENCE

INSTITUTIONS AND CREDIT SPECIALIST

A. Duties

As a member of IFAD's country portfolio evaluation mission and under the supervision of the mission leader, the Institutions and Credit Specialist will be responsible for further analysing the issues identified during the first phase of the assessment (desk study), with particular reference to the institutional framework. In this context, he will:

1. Assess the capacity of the institutions involved in IFAD projects to deliver the required services (with the exception of research and extension services which will be analysed by the agronomist).
2. Analyse, on a comparative basis, various project organisation and coordination arrangements in the light of the respective performance of the concerned projects. Draw conclusions regarding the integration of IFAD projects in government structures.
3. Determine the extent to which cooperatives and local development committees (LDCs) have been involved in project design and implementation. On the basis of your assessment of IFAD project experience with cooperatives and LDCs and of the latter's motivations and capacities, draw conclusions regarding the means and ways for further developing the population's involvement in project design and implementation through the existing rural institutions.
4. Evaluate the performance of various credit components financed by IFAD, including the identification of beneficiaries, and subsequently analyse the extent to which early experiences in this field have been integrated in the design of more recent projects.
5. Assess, in coordination with the other team members, the major effects of credit on beneficiaries' incomes and contribute to the team work in accordance with the mission's framework as established by the mission leader and the concerned IFAD evaluation officer.
6. Produce, by the end of the field trip, two up-dated project profiles concerning project loans 253-YA and 60-YD as described in the mission's framework.
7. Produce an annex to the mission's report presenting your findings, conclusions and recommendations.

INSTITUTIONS AND CREDIT SPECIALIST - cont'd

B. Time Schedule

Rome: 21 to 26 November 1991: Briefing and review of documentation/specific bibliography.

Yemen: 27 November to 23 December 1991: Fieldwork

Home: 24 December-28 December 1991: Start of report writing  
29 December-1 January 1992: Interruption of mission

Rome: 2 to 18 January 1992: Finalisation of consultant's report.

YEMEN COUNTRY PORTFOLIO EVALUATION

PHASE II - FIELD STUDY

TERMS OF REFERENCE

ECONOMIST, MISSION LEADER

A. Duties

As the Team Leader of IFAD's country portfolio evaluation mission in Yemen, he will be responsible, in close collaboration with the concerned IFAD evaluation officer, for further analysing the issues identified during the first phase of the assessment (desk study).

He will organise and coordinate the mission's work according to the established framework and have overall responsibility for the timely submission of the assessment report.

In addition, he will be directly responsible for the assessment of the macro-economic and policy context as well as of key issues pertaining to project programming, design and implementation as identified earlier.

By the end of the field trip he will present two up-dated project profiles for loans 46-YA and 269-YE. By 17 January 1992 he will complete an annex to the main report presenting his findings, conclusions and recommendations concerning the subject matters for which he is directly responsible.

By 31 January 1992 he will submit a full report synthetising the findings, conclusions and recommendations of the mission and drawing lessons from IFAD experience in Yemen for further project design.

B. Time Schedule

Yemen: 25 November - 23 December 1991: Fieldwork.

Break in Contract: 24 December - 1 January 1992.

Rome: 02-31 January 1992: Finalisation of annex and main report.

YEMEN COUNTRY PORTFOLIO EVALUATION  
FIELD WORK PROGRAMME OF THE MISSION<sup>1/</sup>

- Monday 25 Nov. 91 : Arrival mission leader
- Tuesday 26 Nov. : Sana'a. Various arrangements and information collection
- Wed 27 Nov. : Sana'a. Team gathering
- Thu 28 Nov. : Drive Sana'a-Hodeidah. Tihama Development Authority: Discussion of detailed programme (Wadi Mawr)
- Fri 29 Nov. : Hodeidah: Review of documentation.
- Sat 30 Nov to Mon 2 Dec : Hodeidah/Wadi Mawr area: visits to projects facilities, individual and group farmers interviews, visit to Zabid area.
- Tue 3 Dec : Drive: Zabid-Taiz. Meeting with SURDP and research branch to prepare field programme in the governorate
- Wed 4 to Fri 6 Dec : Taiz/IBB visits to 3 projects: SURDUP II, SARDAP, Agric. Research
- Sat 7 Dec : All team drive to Taiz-Aden except Agronomist who proceeds to Dhamar (AREA)
- Sun 8 Dec : Aden:  
- 9/11 am: Fisheries Ministry, discussion of detailed programme.  
- 11 am/1 pm: meeting with permanent secr. agriculture and heads of cooperatives, planning and monitoring and irrigation departments.
- Mon 9, Tue 10 Dec : Fisheries III/IV projects and Credit activities in ex-South Yemen (visits to Lahaj, Abyan, Fukum). Agronomist joins mission on 10 December
- Wed 11 Dec : Mission to fly Aden-Beihan, IFAD Eval. Officer leaves Yemen

---

<sup>1/</sup> The mission was composed of Messrs. Ait Kadi (Consultant, Irrigation and Rural Infrastructure), K. El Harizi (EM Evaluation Officer), M. O. Elsamani (Consultant, Sociologist), A.E. Kambal (Consultant, Research and Extension) and E.A.A. Zaki (Consultant, Mission leader). The mission leader and evaluation officer visited Yemen (Sana'a, Dhamar and Aden) early November to prepare for the mission field visit.

Fri 13 : Drive Beihan (Atag) except credit specialist who proceeds to Aden/Sana'a

Sat 14 Dec : Drive Ataq-Maifa'ah-Bir Ali (Third Fisheries Project)-Maifa'ah

Sun 15 Dec : Maifa'ah. Shugra (Third Fisheries Project)

Mon 16 Dec : Aden

Tue 17 Dec : Aden-Sana'a

Wed 18 to Fri 20 Dec : Sana'a/Central Highlands

Sat 21 : Wrap-up meeting

Sun 22 to Mon 23 Dec : Mission departure

ANNEX II

YEMEN  
COUNTRY PORTFOLIO EVALUATION  
ECONOMIC STRUCTURE

# Economic structure Yemen: the North

*Latest available figures*

Macroeconomic indicators	1986	1987	1988	1989	1990 <sup>a</sup>
GDP at current prices YR mn	38,389	43,559	63,345 <sup>a</sup>	86,400 <sup>a</sup>	118,154
Real GDP growth %	9.4	4.8	19.2 <sup>a</sup>	11.8 <sup>a</sup>	6.8
Consumer price inflation <sup>b</sup> %	29.3	21.8	22.0	22.0	22.0
Population <sup>c</sup> mn	9.27	9.55	9.83	10.13	12.92
Exports fob <sup>d</sup> \$ mn	16.1	48.2	447.0	606.0	807.0
Imports fob <sup>d</sup> \$ mn	796.6	1,189.4	1,309.4	1,282.7	2,021.0
Current account \$ mn	-125.3	-452.2	-694.3	-979.0	-1,010.0
Reserves excl gold \$ mn	431.7	539.5	285.1	279.2	...
Total external debt \$ mn	2,366	2,636	3,034	3,324	6,920
Exchange rate (av) YR per \$	9.639	10.342	9.772	9.760	12.020 <sup>e</sup>
August 23, 1991	YR12.223 per \$				

Origins of gross domestic product 1987 <sup>f</sup>		Components of gross domestic product 1988	
	% of total		% of total
Agriculture, forestry & fisheries	27.9	Personal consumption	80.2
Mining & quarrying	1.6	Government consumption	19.6
Manufacturing	11.1	Investment	12.2
Electricity & water	1.1	Exports of goods & services	16.1
Construction	3.3	Imports of goods & services	-28.6
Trade	11.9	GDP	100.0
Transport & communications	10.9		
Government & other services	24.3		
GDP incl others at producers' prices	100.0		

Principal exports 1988		Principal imports 1988 cif	
	\$ mn		\$ mn
Mineral fuels & lubricants	397.9	Food & beverages	460.8
Food & beverages & live animals	56.5	Manufactured goods	371.1
Raw materials	12.5	Mineral fuels & lubricants	197.3
Total incl others	471.5	Machinery & transport equipment	189.2
		Total incl others	1,384.0

Main destinations of exports 1989		Main origins of imports 1989	
	% of total		% of total
West Germany	28.7	Saudi Arabia	12.5
USA	25.9	France	5.9
Italy	12.3	Australia	5.1
Japan	9.8	USA	4.6
Singapore	5.9	West Germany	4.3

<sup>a</sup> Estimates. <sup>b</sup> Aggregates for unified Yemen. <sup>c</sup> Including Yemeni short-term migrants working abroad.

<sup>d</sup> Balance of payments basis. <sup>e</sup> Actual. <sup>f</sup> AFESD estimates.

# Economic structure Yemen: the South

*Latest available figures*

Macroeconomic indicators	1986	1987	1988	1989	1990 <sup>ab</sup>
GDP at producers' prices YD bn	0.40	0.43	0.44	0.45 <sup>c</sup>	118.2 <sup>d</sup>
Real GDP growth %	-23.1	1.9	2.9	1.9	6.8
Population mn	2.22	2.28	2.34	2.42	12.92
Exports fob <sup>e</sup> \$ mn	30.4	70.9	82.2	113.8	807.0
Imports fob <sup>e</sup> \$ mn	447.9	456.9	596.1	553.9	2,021.0
Current account \$ mn	-175.7	-129.7	-404.5	-416.6	-1,010
Reserves excl gold \$ mn	138.0	97.1	79.9	45.2	...
Total external debt \$ mn	1,733	1,936	2,240	2,505	6,920
Exchange rate (av) YD per \$	0.345	0.345	0.345	0.345	...
August 23, 1991	YD0.466 per \$				

## Origins of gross domestic product 1989<sup>f</sup>

	% of total
Agriculture & fisheries	14.1
Industry	9.5
Construction	11.8
Trade, hotels & restaurants	9.7
Transport & communications	11.0
Finance, insurance & real estate	1.0
Public services	29.6
Indirect taxes less subsidies	13.3
GDP at producers' prices	100.0

## Principal exports 1988

	\$ mn
Petroleum products	48.4
Food & beverages	22.6
Total incl others	82.2

## Principal imports 1988<sup>g</sup> cif

	\$ mn
Food & beverages	206.7
Machinery & transport equipment	137.5
Manufactured goods	131.2
Mineral fuels & lubricants	113.2
Total incl others	653.2

## Main destinations of exports 1989<sup>f</sup>

	% of total
West Germany	21.5
North Yemen	17.0
Italy	13.4
Japan	8.6
India	7.2

## Main origins of imports 1989<sup>f</sup>

	% of total
Ethiopia	5.7
UK	5.1
Denmark	4.6
Singapore	4.5
Saudi Arabia	4.5

<sup>a</sup> Estimates. <sup>b</sup> Aggregates for unified Yemen. <sup>c</sup> Denominated in Yemeni rials. <sup>d</sup> Balance of payments basis.

<sup>e</sup> Provisional. <sup>f</sup> Not including petroleum re-exported after processing. <sup>g</sup> Excluding trade with eastern bloc.

ANNEX III

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No. 013-YA

YEMEN COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE

1. IDENTIFICATION & STATUS

Project Title: Tihama Development Project III (Wadi Mawr) Cooperating Institution: IDA	Loan No.: 013 YA Status: Closed
--	------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	87.6	Approval: 26/03/79
Amount of IFAD Loan:	12.0	Agreement: 20/04/79
Borrower Contribution:	33.2	Effectiveness: 29/02/80
Co-financers:		Original Closing: 30/09/86
IDA	15.0	Extended Closing: 30/09/88
EEC	3.0	Closed: 30/09/88
ODA	3.2	
KFW	8.5	
KFAED	12.7	
Disbursement Status:	100%	

3. SUMMARY PROJECT DESCRIPTION

Project Area

The project concerns the development of a traditional agricultural area on the Tihama Coastal plain, that borders the Red Sea. It is centred on "Wadi Mawr" the largest of seven wadis that traverse the plain westwards from the Yemen highlands. It is the third wadi to be developed after wadi Zabid (Tihama I) and wadi Rima (Tihama II). The gross project area is 76 000 ha but only 26 000 ha are used in agriculture. Of a total population of 53 000, 43 500 are directly supported by agriculture and would be the primary beneficiaries under the project.

PROJECT PROFILE (cont'd)

Project Objectives

(i) provide appropriate irrigation works and infrastructure for the development area to substantially increase the agricultural production, (ii) strengthen agricultural support services such as extension and credit, (iii) provide roads to important centers of population and agriculture to facilitate the movement of agricultural produce and farm inputs, (iv) improve public health by providing potable water supply, (v) assist the Government to develop a regional applied agricultural research station of Surdud, and (vi) provide support to Tihama Development Authority for operating and maintaining the irrigation works.

Project Components

The project included: (i) irrigation works comprising (a) construction of a diversion dike and two diversion weirs and related facilities; (b) construction of feeder canals; (c) remodelling of existing irrigation canals; and installation of about 20 experimental tubewells; (ii) agricultural support services for extension, plant protection and animal health; (iii) short and medium term agricultural credit; (iv) establishment of the Surdud regional agricultural research station and crop production farm; (v) construction of project headquarters; (vi) construction of about 148 kms of gravel feeder roads; (vii) installation of water supply schemes for about 103 villages; and (viii) providing technical assistance in managerial, engineering and agricultural fields.

Organization and Management

The Tihama Development Authority (TDA), a semi-autonomous body established by Government in 1973 as a developmental agency for the Tihama plain, was responsible for project implementation. Like other projects under TDA, the Wadi Mawr project was headed by a project manager who was directly responsible to the Chairman. A consultancy firm was engaged under the project for assisting TDA in the design, procurement and construction surveillance of the work included in the project.

4. MAJOR EVENTS AND DECISIONS

<u>Dates</u>	<u>Events and Decisions</u>
March 1973-April 1978	Feasibility Study by Tipton and Kalmbach Inc.
February-March 1979	Project appraisal and negotiation of financing arrangements with IFAD, IDA and other donors.
December 1981	Contract awarded to Sir Mc. Donald and Partners consulting firm (MMP) for detailed design and construction of the project.
1985	A panel of three experts was appointed to review the design prepared by MMP. The panel

PROJECT PROFILE (cont'd)DatesEvents and Decisions

made recommendations to alter some of the design features of the diversion weir and the associated sediment control facilities.

September 1988

Extended closing date - the original closing date of the project was September 30, 1985, but due to delays three extension requests were made to financing authorities and were accordingly granted.

5. IMPLEMENTATION STATUS

The implementation of the project was impeded by 4 years including 2 years delay in start-up and 2 years in completion. The delay initially was due to the disagreement of one of the donors about the selection of consultants. The construction of civil works was delayed by non-availability of the technical and professional staff, delays in procurement of material due to import policies, shipment, port and custom clearance, difficulties regarding land acquisition, etc. Several design aspects of the project were changed during the course of the design as well as during the construction phase.

6. MAJOR ISSUES

- . Field investigations, engineering works and detailed design should be well advanced at the time of loan approval. Greater precision in project design can reduce uncertainties, delays and cost overruns.
- . Public spate irrigation schemes require a very clear understanding and appreciation of traditional water rights and operating arrangements at the planning stage. Farmers in downstream areas should not be deprived of what little rights they had to water without some compensation. Each specific decision about necessary infrastructure should be based on whether the proposed decision will enhance or impede the probability of achievement of the desired equity and associated operation and maintenance plan.
- . Regular and timely maintenance of the hydraulic structures and main canals in wadi Mawr is essential in order to keep the system in full operating condition and obtain maximum benefit from the significant investments made.
- . The annual O&M cost of the spate irrigation scheme should not be entirely dependent on budget allocations. Recovery of public spate irrigation costs by direct and/or indirect methods should cover total O&M costs plus as much as possible of capital costs taking into consideration the capacity of the beneficiaries to pay and the need for them to have adequate incentives to participate in the project. This requires a stronger commitment from the Government to cost recovery.

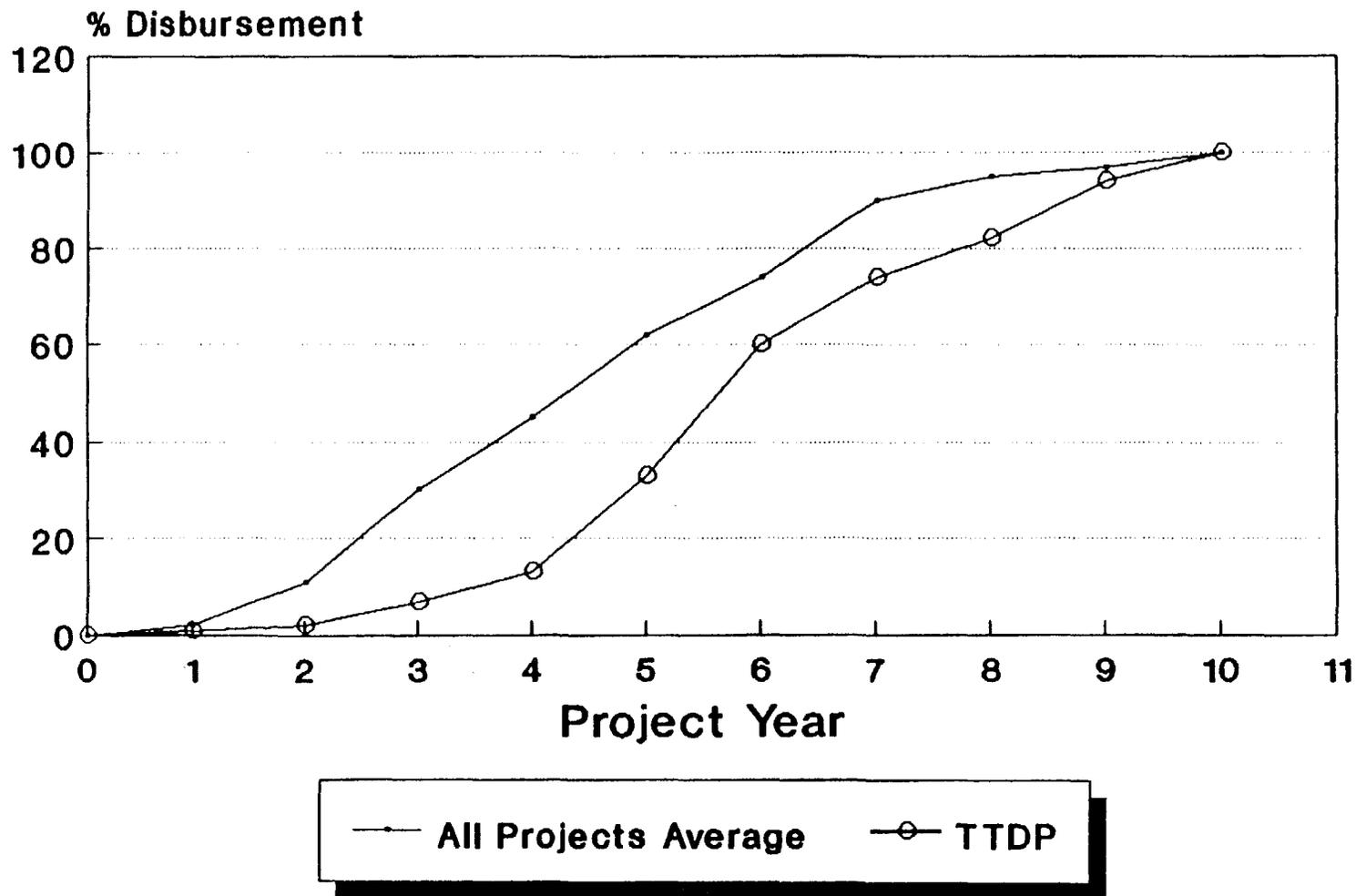
125

PROJECT PROFILE (cont'd)

- . The collection, analysis and distribution of water resources data should be strengthened. It is necessary to continue to accumulate and process stream hydrology time series and sediment load data as a basis for improved operation and maintenance of the system and there is an urgent need to monitor the behaviour of groundwater in space and time in order to control withdrawals.
- . The overdevelopment and exploitation of groundwater resources requires immediate and decisive action. Extensive withdrawal of groundwater represents a very serious threat to many village water supply schemes and to areas of permanent agriculture.
- . In the development of village water supply the overall project target should have been achieved through a phased development programme anticipating a slow start with a learning period rather than the approach adopted where all schemes were constructed by one turn-key contract. What is needed is to design a few schemes, see them in operation, and discuss their strengths and weaknesses before they become a standard design.

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements

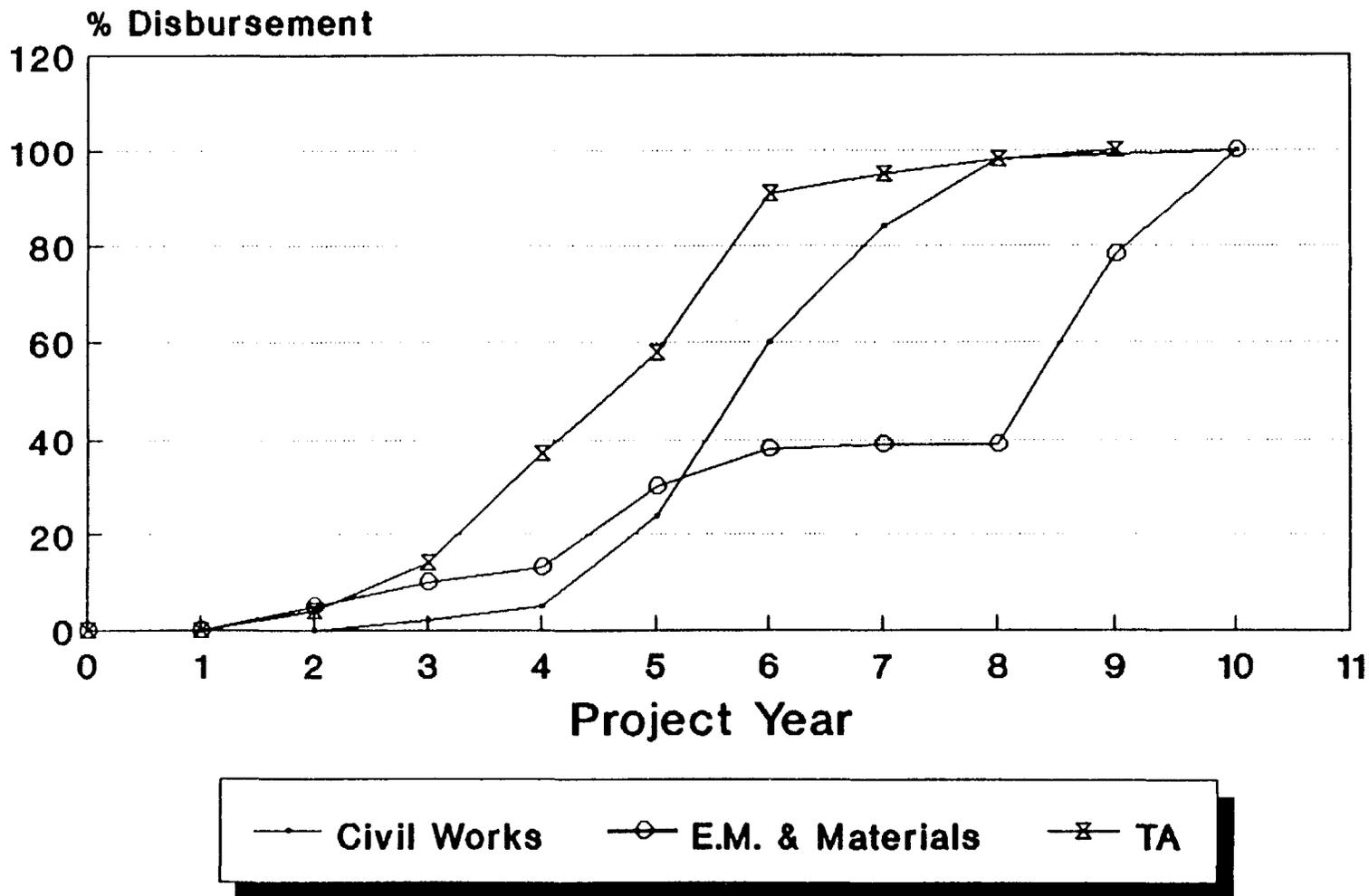


TTDP - Third Tihama Development Project

11

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



TTDP - Third Tihama Development Project

178

013- YA: Tihama III Agricultural Development Project  
List of Reports

1. Staff Appraisal Report, The World Bank, Report No. 2248-YAR, February 14, 1979.
2. President's Report, 12 February 1979.
3. Loan Agreement, April 20, 1979.
4. Aide-mémoire, IDA Supervision Mission (undated).
5. Monitoring and Evaluation of the Second Southern Uplands Rural Development Project and Tihama Development Project III, EM/Report Series No.35, January 1982.
6. Supervision Report, World Bank, May 6, 1988.
7. Project Completion Report, The World Bank, Report No. 9521, April 26 1991.
8. Operations and Maintenance Manual, Vol. 1-2, MMP 1987.
9. Water Distribution and Management, MMP, 1986.
10. Note of the Second Phase of the Village Water Supplies, MMP (1985).
11. Operations and Maintenance Manual, Vol. 2, Access Roads to Village Water Supplies, MMP.
12. Report of Hydrological Field Investigation (1988) MMP.
13. Inception Study Report (1982), MMP.
14. Wadi Mawr Feasibility Study, Tipton & Kalmbach.
15. Inception Report (1981) MMP
16. Technical Report for Field Services Wadi Mawr Project Tipton & Kalmbach (1985).
17. Livestock in Dhamar, Al Bayda Governorate and Tihama, Sana'a, Al Bar, Shatibi A. 1988.
18. Van der Gau 1989, The Water Resources of the Al Bayda and Dhamar Provinces and the Tihama Region TNO: DGU Delft, The Netherlands.
19. Van Lavineu A.P. 1988. Urban Environment of Al Bayda and Dhamar Governorates and Tihama.
20. Benhowt, C., et al, 1980. Water Policy in Yemen CID Report 052-1980-1.
21. DMU Consultants 1988. Tihama Basin Water Resources Study, Tihama Development Authority, DMU Amersfoort.

List of Reports (cont'd)

22. DMU Consultants 1983, Water Resources Study Tihama Coastal Plain (5 volumes).
23. Stone F. (ed. 1985) Studies of the Tihama. The report of the Tihama expedition in 1982.
24. UNDP, FAO, 1987 Spate Irrigation. Dec. 1987.
25. TDA, M&E Unit, Socio-economy of Northern Tihama (Wadi Mawr).

ANNEX IV

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 046-YA

YEMEN COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE

1. IDENTIFICATION & STATUS

Project Title: Southern Upland Rural Dev. Project Cooperating Institution: IDA	Loan No.: 046 YA Status: closed
--	------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	81.7	Approval: August 1980
Amount of IFAD Loan:	14.0	Agreement: September 1980
Borrower Contribution:	34.7	Effectiveness: 23 June 1981
Co-financers:		Original Closing: 31 Dec. 1985 (IFAD Loan Only)
- IDA	17.0	
- Abu Dhabi	10.0	
- Swiss Dev. Corporation	6.0	
Disbursement Status:	100%	

3. SUMMARY PROJECT DESCRIPTION

A. Project Area

The project would cover all of Taiz and Ibb governorates and extend over a geographical area of about 0.5 million ha. The agricultural area which would be covered by the project was estimated at about 86 000 ha, including 35 000 ha covered under SURDPI. The area has three microclimatic zones: (a) low rainfall (less than 500 mm) humid and hot areas adjacent to the coastal plain; (b) high rainfall area in the vicinity of Ibb (800-1 000 mm) with cooler weather; and (c) low rainfall (less than 500 mm), temperate eastward slopes.

B. Project Objectives

The project aims to:

182

PROJECT PROFILE (cont'd)

- (i) increase rural incomes and living standards by raising crop and livestock production of about 60 000 farm families; and
- (ii) improve the health of the rural poor by providing potable water supply and reducing the incidence of water-borne diseases.

C. Project Components

Project components include:

- (i) Extension and Social Services;
- (ii) Animal Production and Health Services;
- (iii) Agricultural Credit;
- (iv) Rural Water Supply;
- (v) Rural Roads;
- (vi) Bilharzia Control;
- (vii) Project Management and Engineering Services;
- (viii) Training; and
- (ix) Housing for Project and Agricultural Research Staff.

This last component was dropped subsequently during implementation, and part of the funds were used for ancillary needs of ARA.

D. Organization and Management

The Southern Upland Agricultural Development Unit (SURDU), would be responsible for the implementation of the project components, except the credit component, which would be implemented by the Agricultural Credit Bank (ACB). SURDU had undertaken the implementation of the preceding project and hence gained some experience. But, given the scarcity of managerial skills in Yemen, the project had to provide for expatriate staff in the fields of management, extension, engineering and health services.

SURDU functions and responsibilities had been expanded under the project to in effect become responsible for all agricultural activities in Taiz and Ibb governorates through the establishment of regional offices. The project also sought and secured delegation of authority for SURDU to operate on behalf of the MAF within the guidelines and policies of the government but otherwise independently of its existing departments, except for coordination as necessary.

4. MAJOR EVENTS AND DECISIONS

	Identification and Preparation (FAO/WB-CP), Appraisal (IDA)
1980-1981	Financing agreements concluded with respective financiers.
1985-1986	Two requests for expansion of closing dates of the IDA credit.

PROJECT PROFILE (cont'd)

- 1986 Negotiations between SURDU and ARA on handing over ARA office to SURDU failed. Consequently, a revision on ARA housing component was made and allocations reduced to meet only ancilliary needs of ARA.
- 1987 IDA credit was closed in June 1987, a delay of 18 months.

5. IMPLEMENTATION STATUS

The implementation of the project was completed one year and six months behind schedule. This was caused by a delay in the identification of well sites for the village water schemes and construction of some of the extension centres. The identification of well sites was problematic because once a property had been selected for well construction, the private owner would prefer to develop the scarce resource for his own use. A lengthy process of negotiations, including the LCCD, would have to be initiated before obtaining the consent of the owners. There were also some problems with the animal production component. But, in general, the project was implemented efficiently. In fact, the IFAD loan solely utilized for agricultural credit was disbursed in time and the delays were in other cofinancier components.

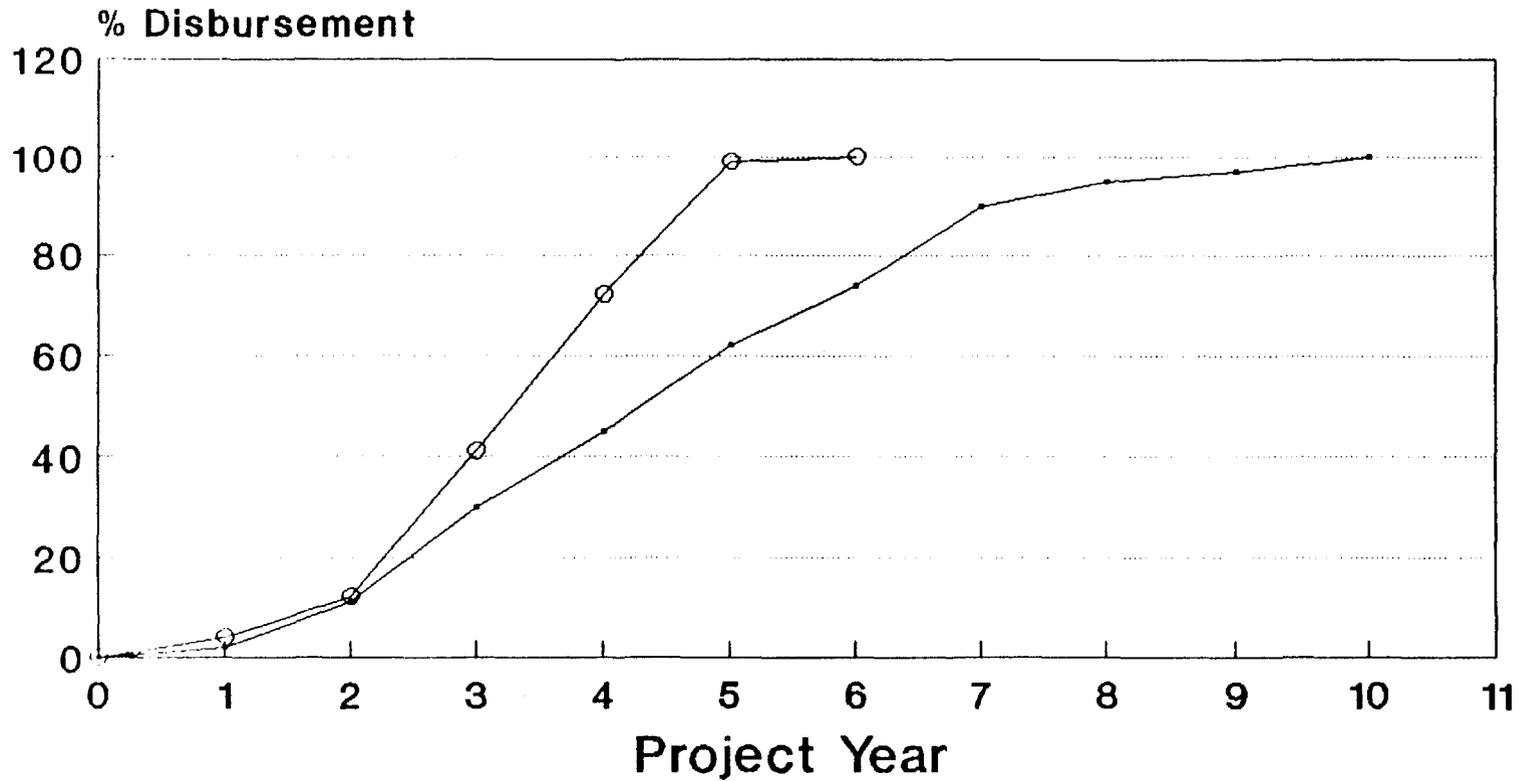
6. MAJOR ISSUES

There was scepticism regarding the extent to which agricultural credit had in fact reached an IFAD target group of small farmers. There was a lack of evidence that agricultural credit disbursements to farmers were based on criteria that would ensure the utilization by small farmers. To the contrary, most of the resources were devoted to medium- and long-term loans which would typically be utilized by larger farmers.

Originally, SURDU was visualized as a development agency which would hand over completed projects to the respective government authorities to run their activities. With successive foreign-funded projects, SURDU became a permanent organization in control of a large share of scarce managerial and financial resources. In the meantime the resource share of the regional agricultural authorities continued to shrink to a point where their viability was jeopardized. Subsequently, under SURDU II and SARDP, the regional branch offices were affiliated with the project management and their directors were appointed as deputies to the project managers. This prompted a bitter conflict over administrative authority, management control and budgetary resources. More significantly, however, would be the negative impact on the sustainability of completed projects.

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



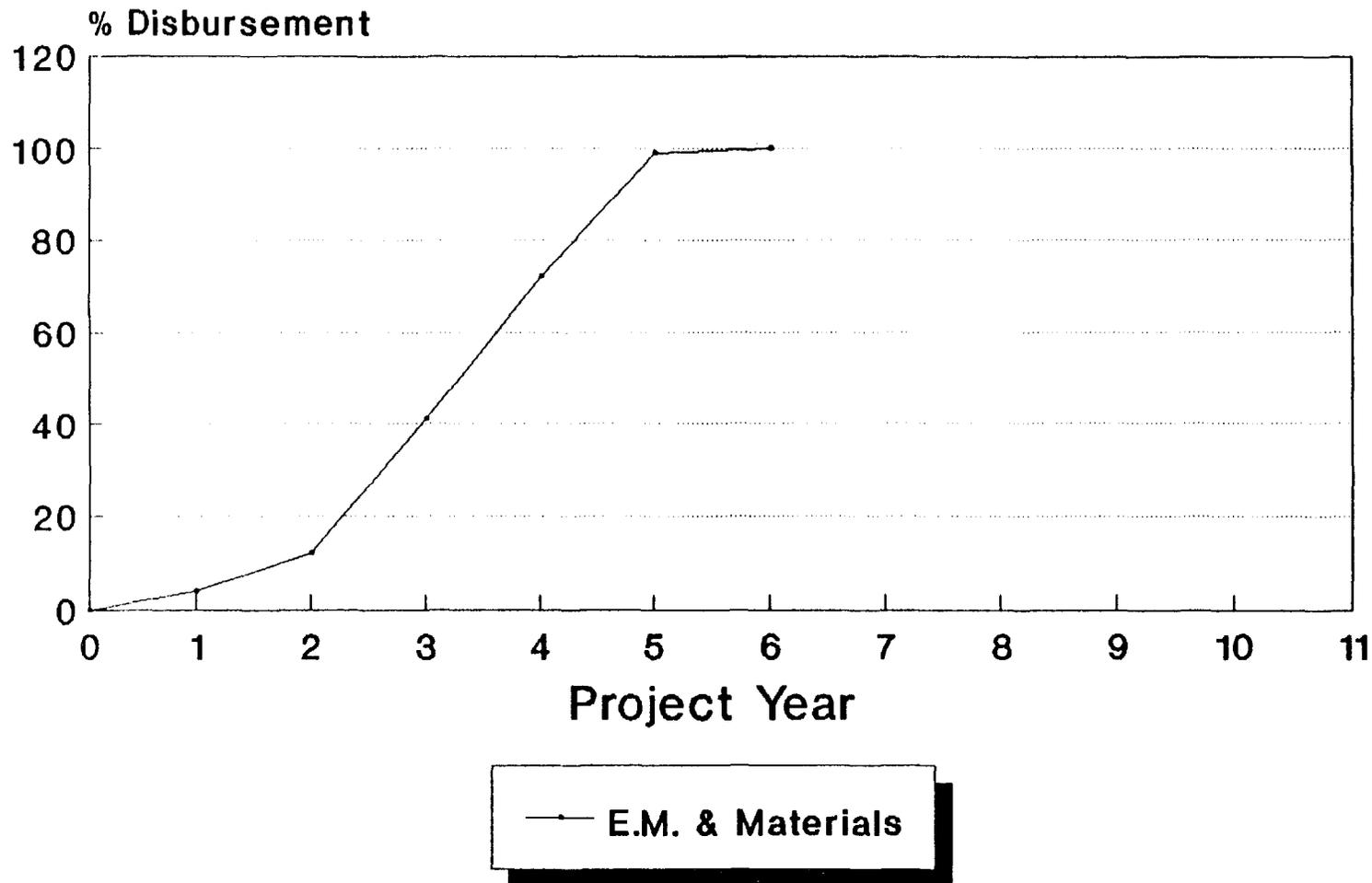
—●— All Projects Average    —○— SSURDP

SSURDP = Second Southern Uplands  
Rural Development Project

185

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



SSURDP - Second Southern Uplands  
Rural Development Project

Loan 046-YA, Southern Uplands Rural Development Project  
List of Reports

1. President's Report, 4 August 1980.
2. Staff Appraisal Report, Report No. 2921-YAR, The World Bank, August 20, 1980.
3. Loan Agreement, September 25, 1980.
4. Monitoring and Evaluation of the Second Southern Uplands Rural Development Project and Tihama Development Project III, EM/Report Series No. 35, January 1982.
5. Aide-mémoire, IDA Supervision Mission of the Agricultural and Administrative Aspects of Tihama Development Project and Southern Uplands Rural Development Project (undated).
6. Supervision Mission, December 12, 1985.
7. Supervision Mission, Aide mémoire, October 12, 1986.
8. Supervision Mission, November 21, 1986.
9. Supervision Mission, September 1989.
10. Project Completion Report, The World Bank, Report No. 8364, January 31, 1990.
11. Cooperative and Agricultural Credit Bank - Annual Reports Planning, Statistics and Monitoring Department.

ANNEX V

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 105-YA

YEMEN COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE

1. IDENTIFICATION STATUS

Project Title: Agricultural Research and Dev. Development Project Cooperating Institution: IDA	Loan No.: 105 YA Status: Closed
--	------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	32.4	Approval: 15.09.82
Amount of IFAD Loan:	5.8	Agreement: 15.12.82
Borrower Contribution:	11.7	Effectiveness: 01.12.83
Co-financers:		Original Closing: 30.06.88
- IDA	6.0	Extended Closing: 30.06.89
- Italy	8.9	30.06.90, 30.06.91, 31.12.91
Disbursement Status:	90%	

3. SUMMARY PROJECT DESCRIPTION

A. Project Area

The project area covers the three regions of the highest agricultural potential in YAR, namely: the Tropical Lowlands (Tihama), the Southern Uplands and the Central Highlands. Agriculture in the project area is conducted mostly on small, privately owned holdings, which represent about 82% of the cultivable land while religious trust land (Waqf) totals 15% and state lands 3%. Average farm size is only about 2.4 ha. The per capita income is about US\$ 200 per annum which is well below the per capita GNP of the country as a whole.

PROJECT PROFILE (cont'd)

B. Project Objectives

The main objectives of the project are to strengthen the research capacity in the three regions in terms of physical facilities, equipment and trained manpower and establish a viable research organization that would carry out research programmes geared towards increasing food production and raising the income of the rural people.

C. Project Components

The main project components are:

- (i) construction and development of three Regional Research Centres;
- (ii) construction of a Central Support Services Unit at the Central Highlands Centre;
- (iii) construction of two Extension Supervision Centres and nine Extension Centres in the Central Highlands Region;
- (iv) provision of vehicles, farm equipment, laboratory furniture and equipment and general furniture and equipment;
- (v) farm development;
- (vi) technical assistance including services of consulting firms, international staff and graduate degree training; and
- (vii) IFAD loan contributes to civil works for research (US\$ 1.6 million) and experts (US\$ 4.2 million).

D. Organization and Management

The project is executed by the Agricultural Research Authority (ARA) which is responsible for preparing the National Research Policy and coordinating all applied research in the country. ARA is governed by a Board of Directors chaired by the Minister of Agriculture. A Research Coordination Committee (RCC) consisting of the Director General of ARA, his deputies and the Directors of the Regional Research Centres would prepare the annual work plans and oversee the day-to-day operations. The National Research Council, composed of members of RRC plus the commodity coordinators and representatives of the extension service, will review and approve all research programmes, review training requirements and approve nominations for training.

4. MAJOR EVENTS AND DECISIONS

- |               |  |
|---------------|--|
| 1981          | Project preparation by a consulting firm and appraisal by IDA.   |
| April 1983    | Signature of Trust Fund Agreement (UTFN/YEM/011) with FAO for provision of experts, equipments and training. |
| December 1983 | Formation of the Agricultural Research Authority (ARA) under YAR Law No. 32.                                 |

PROJECT PROFILE (cont'd)

- January 1989      ARA headquarters moved from Taiz to Dhamar.
- May 1990          After unification, ARA's mandate was expanded to include coordination of extension service at the national level; accordingly, its name was changed to Agricultural Research and Extension Authority (AREA).

5. IMPLEMENTATION STATUS

The civil works financed by IDA and IFAD, including the regional research centres at Surdud and Dhamar ARA's headquarters, and the extension centres in the Central Highlands have been completed. However, due to bankruptcy of the Italian contractor, construction of residential and ancillary buildings financed by the Italian Government Loan has stopped, with about 50% of the work completed. The procurement of laboratory, library and office furniture for Dhamar and Surdud is almost complete. Seventeen long-term experts, two associate experts and thirteen short-term consultants served on the project. The training programme progressed satisfactorily, with 29 research staff completing their advanced degree training and 6 are undergoing similar training. A viable research organization has been established and has extended its research activities beyond the envisaged project areas to cover the five main agroecological regions in the country.

6. MAJOR ISSUES

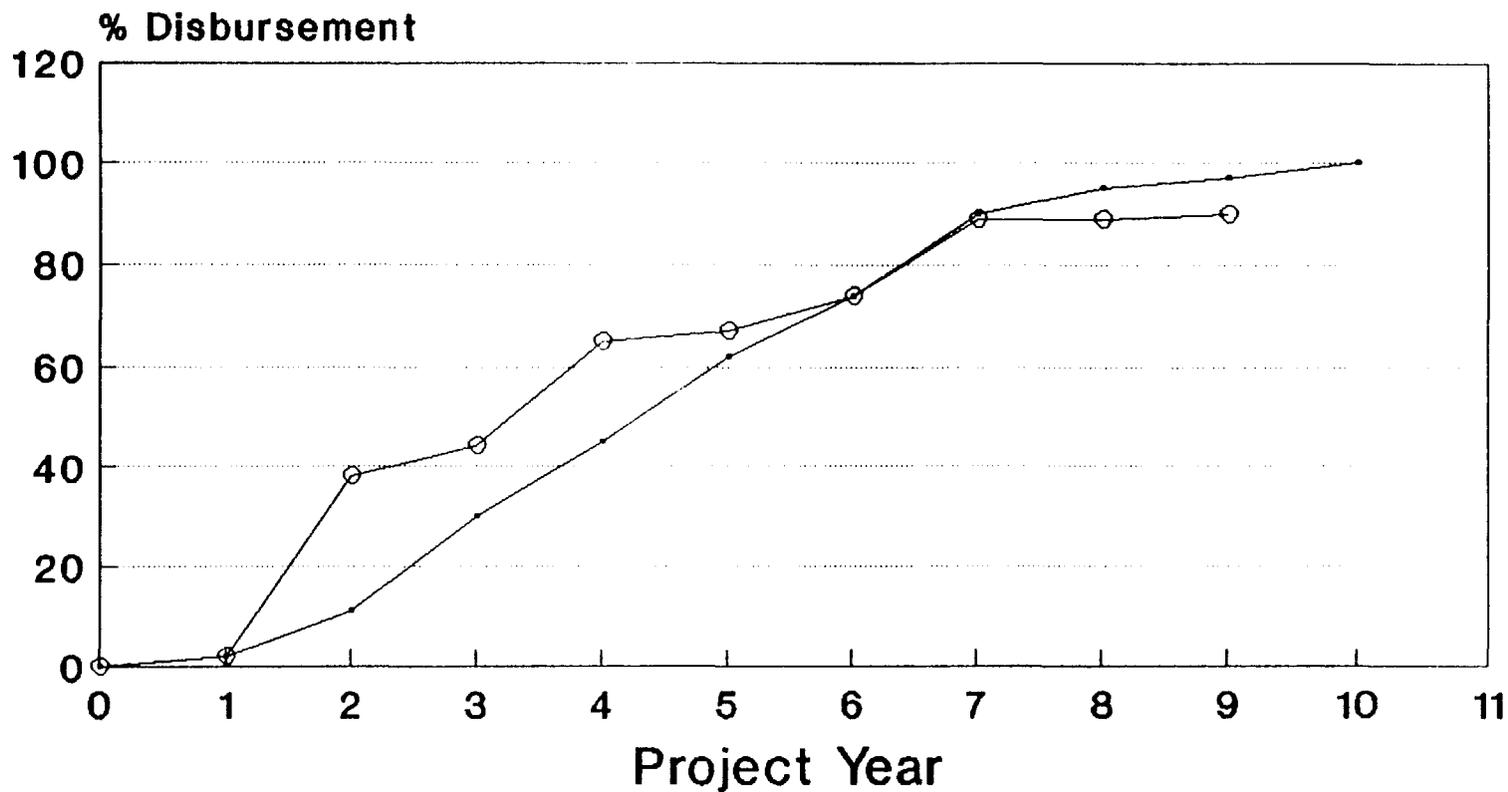
Delay in the completion of houses financed by the Italian loan is adversely affecting the performance of research staff at Dhamar and Surdud where the staff live in congested quarters without their families. AREA is likely to lose some of its highly qualified staff to the Faculty of Agriculture in Sana'a which provides adequate housing facilities. As the Italian Loan Agreement specifies that the houses should be constructed with Italian materials by Italian contractors, the issue of co-financiers and tied loans deserves special consideration in future projects.

Considering the importance of research/extension linkages, the establishment of AREA is a step in the right direction. However, there is a need to pursue this matter further to ensure that the interaction is reflected in the generation and dissemination of appropriate technological packages that are likely to be adopted by small farmers.

The research programmes in the past have concentrated on commodity development for irrigated areas. Considering the scarcity of water resources and the importance of rainfed areas, in future research programmes top priority should be accorded to rainfed agriculture and efficient water use.

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



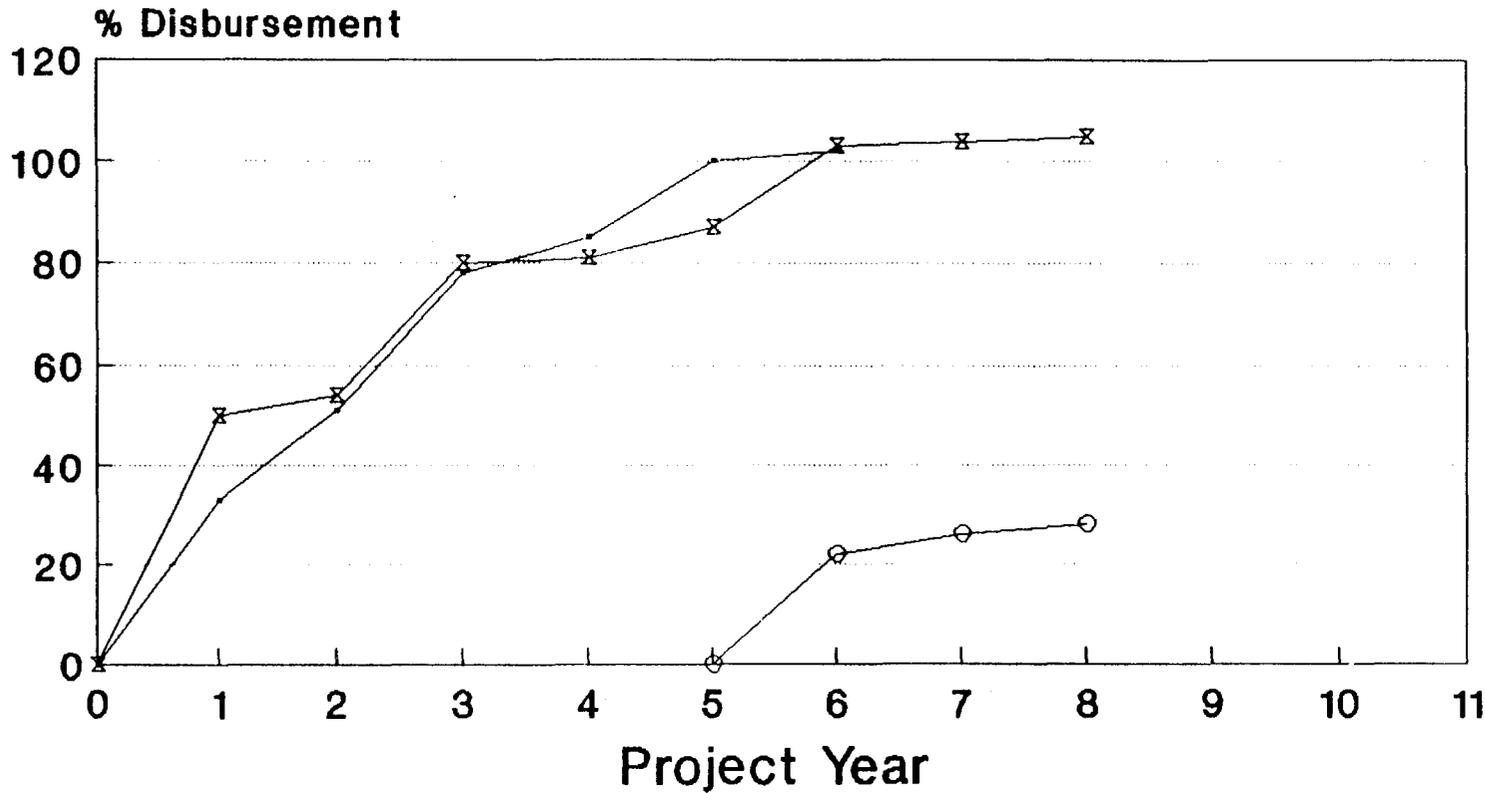
—●— All Projects Average    —○— AR&DP

AR&DP = Agricultural Research & Development Project

1997

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



AR&DP = Agricultural Research & Development Project

193

Loan 105-YA: Agricultural Research and Development Project  
List of Reports

1. Staff Appraisal Report No.3767a YAR, World Bank, May 1982.
2. President's Report, July 15, 1982.
3. Loan Agreement, December 15, 1982.
4. Implementation Status, May 1983.
5. Implementation Status, July 1984.
6. Implementation Status, July 1985.
7. Implementation Status, December 1986.
8. Implementation Status, December 1987.
9. Supervision Mission, November 1988.
10. Supervision Mission, September 1989.
11. Back to Office Report, April 1990.
12. Back to Office Report, September 1990.
13. ESCWA (1987) Yemen Arab Republic: Rural Development Strategy and Implementation: An Assessment and Review of Issues. Report of the ESCWA - FAO Mission.
14. ARA (1989) Progress Report, July-December 1989.
15. IFAD 1991 Yemen Country-Wide Assessment - Phase I Desk Study Discussion Paper.
16. IFAD's Assistance to the Republic of Yemen.
17. FAO (1991) Annual Report for the Republic of Yemen, July 1990-June 1991.
18. UNDP: First Unified Country Programme for the Republic of Yemen for the UNDP Fifth Programming Cycle.
19. World Bank (1981) Yemen Arab Republic Local Development Associations: A New Approach to Rural Development.
20. The World Bank (1991), Staff Appraisal Report: Agricultural Sector Management Support Project, Republic of Yemen.
21. ILO (1986) PCR Agricultural Support Services Project. PDY/81/A/IFAD.
22. The World Bank (1990) PCR SURDP II.

List of Reports (cont'd)

23. The World Bank, PCR Tihama III Wadi Mawr.
24. The World Bank, PCR Wadi Beihan I.
25. Prem Nath (1990): Status Report, Agricultural Research Authority, Dhanar.
26. Southern Uplands Research Station (1990), Annual Report of Research Activities in the Southern Uplands (in Arabic).
27. ARA (1989). 1988 Annual Report for Research on Grain Legumes and Industrial Crops (in Arabic), Dhamar.
28. ARA. 1989 Annual Report for Research on Cereals.
29. ARA (1990). Outlines of Research in the Five Agro-Ecological Regions of the Republic of Yemen, Dhamar.
30. Tihama Research Station (1991). Research Report for Season 1990/91 (in Arabic), Surdud.
31. MAWR (1991). Agricultural Statistics Year Book, Sana'a.
32. FAO (1991). FAO 1990 Production Year Book, Vol. 44, Rome.
33. FAO (1991). FAO 1990 Trade Year Book, Vol. 44, Rome.
34. IFAD (1989). Agricultural Research and Extension for Smallholder Farmers: A Review of IFAD's Experience 1978-88.
35. Faculty of Agriculture, Sana'a University (1988). Sana'a University Faculty of Agriculture Catalogue 1988-89.
36. Mukred, A.O. (1991). Structure and Organization of Research and Extension in AREA. Paper presented to the First National Workshop on Status of Scientific Research and its Development, Dhanar. (in Arabic).

ANNEX VI

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 156 YA

YEMEN COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE

1. IDENTIFICATION & STATUS

Project Title: Central Highlands Agricultural Development Project Cooperating Institution: IDA	Loan No.: 156 YA Status: on-going
---	--------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	20.0	Approval: 12 September 1984
Amount of IFAD Loan:	4.0	Agreement: 25 October 1984
Borrower Contribution:	7.0	Effectiveness: 2 May 1985
Co-financers:		Original Closing: 31 Dec. 1989
- IDA	8.0	Extended Closing: 31 Dec. 1992
- ODA	1.0	Closed: _____
Disbursement Status:	67.4%	

3. SUMMARY PROJECT DESCRIPTION

A. Project Area

The project area consists of five districts of the Sana'a Governorate (Bilad Arrus, Sanham, Bani Matar, Al Haymat al Dakhiliyah and Al Kharijiyah) and five of the Dhamar Governorate (Dhamar, Alhada, Ma'bar, Dawran, and Jabal Ash-Sharq). These districts have the best agricultural potential in terms of an estimated annual precipitation in excess of 450 mm on average and supply of irrigation water. Out of a total area of 120 000 ha for the ten districts, the project covers 16 000 ha of terraced rainfed land.

PROJECT PROFILE (cont'd)

B. Project Objectives

The project aims at:

- (i) increasing agricultural production;
- (ii) increasing farm incomes;
- (iii) improving rural infrastructure; and
- (iv) creating employment opportunities.

C. Project Components

The project included:

- (i) extension development, consisting of 21 extensions and 4 block centres and 20 staff houses; in addition to equipment, vehicles, staffing, technical assistance and training;
- (ii) rural water supply schemes, comprising 15 schemes to serve about 45 000 people;
- (iii) studies for the preparation of a follow-up project; and
- (iv) project administration, including both the project management team and the branch offices of MAF in Sana'a and Dhamar.

D. Organization and Management

The original organizational plan entrusted the MAF with the overall responsibility of the project implementation and designated a Project Management Team (PMT) headed by a project manager who would be directly responsible for the implementation of the project. The PMT for the Central Highland Agricultural Development Project (CHADP), subsequently evolved to a Regional Development Unit (RDU) similar to SURDU. Both branches of MAF in Sana'a and Dhamar were brought under the umbrella of CHADP and the directors of these branches were appointed as deputy-managers of CHADP. Due to internal conflicts, however, Sana'a branch was detached and joined with the Northern Agricultural Development Authority (NORADA). Present CHADP organizational set-up depends directly on MAF for approval of its operating budget and work programmes. The government is reconsidering the conversion of CHADP (and SURDU) to a Regional Development Authority (RDA) in line with other existing RDAs, the pioneer of which was TDA. This is likely to take place if the financing of a follow-up project of CHADP could be secured.

4. MAJOR EVENTS

1982-1984            Project Preparation (FAO/WB Cooperative Programme).  
                      Project Appraisal (IDA/IFAD).  
                      Project Agreements concluded by respective agencies.

PROJECT PROFILE (cont'd)

- April 1985 Project effectiveness delayed by seven months.
- October 1987 Mid-Term Review Mission concluded that even with the slow start "the main objectives are expected to be fulfilled without significant extension to the implementation period. Scheduled closing date: 12/31/1989".
- 1987-1988 Rural Roads contract approval delayed by one year between HTC and AFESD.
- 1987-1991 Land and Water Resources Study and Small Dam (Irrigation) Study commenced and whereas drafts submitted in September 1989 were not finalized until 1991.
- February 1990 FAO/IC prepared CHADP Phase II.
- April 1990 On failure of government to avail its share of foreign exchange (40%) for the water supply materials, IFAD/IDA agreed to finance the foreign component in full. Supervision Mission (June-July 1991) proposed a very tight procurement and implementation programme to complete the component before end of 1991.
- 1989-1990 Two extensions for closing date were granted.
- 1991 Request for further extension is currently under discussion by financiers.

5. IMPLEMENTATION STATUS

The project was confronted from the start with the problem of inadequate allocation of local counterpart funds, difficulties in recruiting expatriate and local extension staff, internal conflicts among the senior management staff and inordinate relationships with the central ministries. These problems contributed to a delay of more than two years and failure to complete the project products.

Of the 32 extension centres (21 financed under CHADP and 9 extension and 2 supervision centres financed under ARDP) and 4 blocks, the construction of 29 centres and 3 blocks has been completed. The remaining 3 centres have not progressed and one block is still in the process of being completed. However, a substantial number of these centres - about 16 - remained non-functional for various reasons, including failure to supply water and electricity, provide furniture, transport and operating expenses.

In the rural water supply schemes, the work started in all 15 schemes, but only the boreholes were completed. The pumps, accessories and pipes were not installed because the materials were received only recently and for their installation, the project would be in need of a third extension. Some of these schemes face

PROJECT PROFILE (cont'd)

conflicts on water rights among beneficiaries which so far could not be resolved even with the involvement of LCCDS.

The two studies on Land and Water Resources and Irrigation Development were commissioned in 1987, and drafts were submitted in 1989, but were not yet approved in their final form pending further geophysical investigation for the second study.

There is a feeder road component financed in parallel by AFESD, which included two rural roads. The rural road in Dhamar Governorate, with a total length of 28 km, has been completed, whereas the work in the other one, with a total length of 23 km in Sana'a Governorate has ceased for over two years after the construction of only 7 km due to conflicts with the contractor.

6. MAJOR ISSUES

The management organization of CHADP has been assigned the role of regional development and administration of agricultural activities, but without allocating adequate financial, personnel and expertise resources. Coupled with this are two additional adverse factors: the conflict with the agricultural directors in the governorates, especially Sana'a and a widespread territory with rough terrain which makes control and supervision extremely difficult. Furthermore, there is a risk that this regional development authority undertakes responsibility for implementation of components for which other specialized units within the government are better equipped.

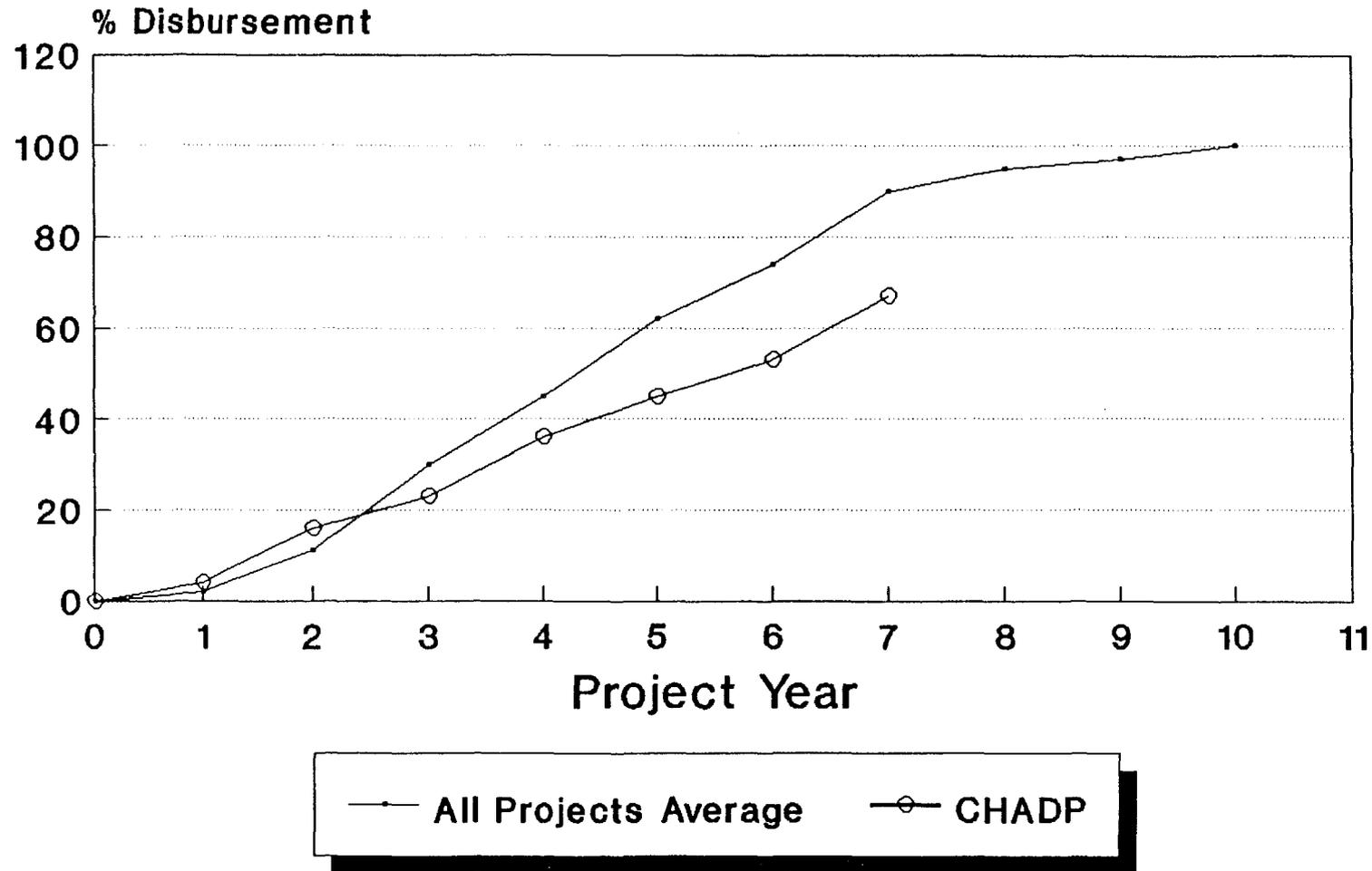
Though the project officials claim that beneficiaries' participation was secured, but for example in the implementation of the water supply components, there is evidence that there is at least a partial, but serious, failure in this process. Some water schemes are in jeopardy unless the conflict over water rights is satisfactorily resolved. Furthermore, the financial contribution of the beneficiaries in the water supply facility was reduced to non-significant levels because of failure to improve and commit beneficiaries from the beginning.

For all components which involve traditional rights and/or have social implications, there is a need for baseline surveys and socio-economic studies to be undertaken prior to implementation.

Sustainability of natural resources such as water, being the more scarce resource in Yemen, and of services should be accorded the proper weight. The project area witnesses serious depletion of the water resource, water table drop, springs drying up, exacerbated by prolonged droughts. Regarding services, the ambitious plan for expanding agricultural extension should take into consideration, in addition to the availability of research packages, the ability of the government to provide resources for operating and maintaining the system.

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements

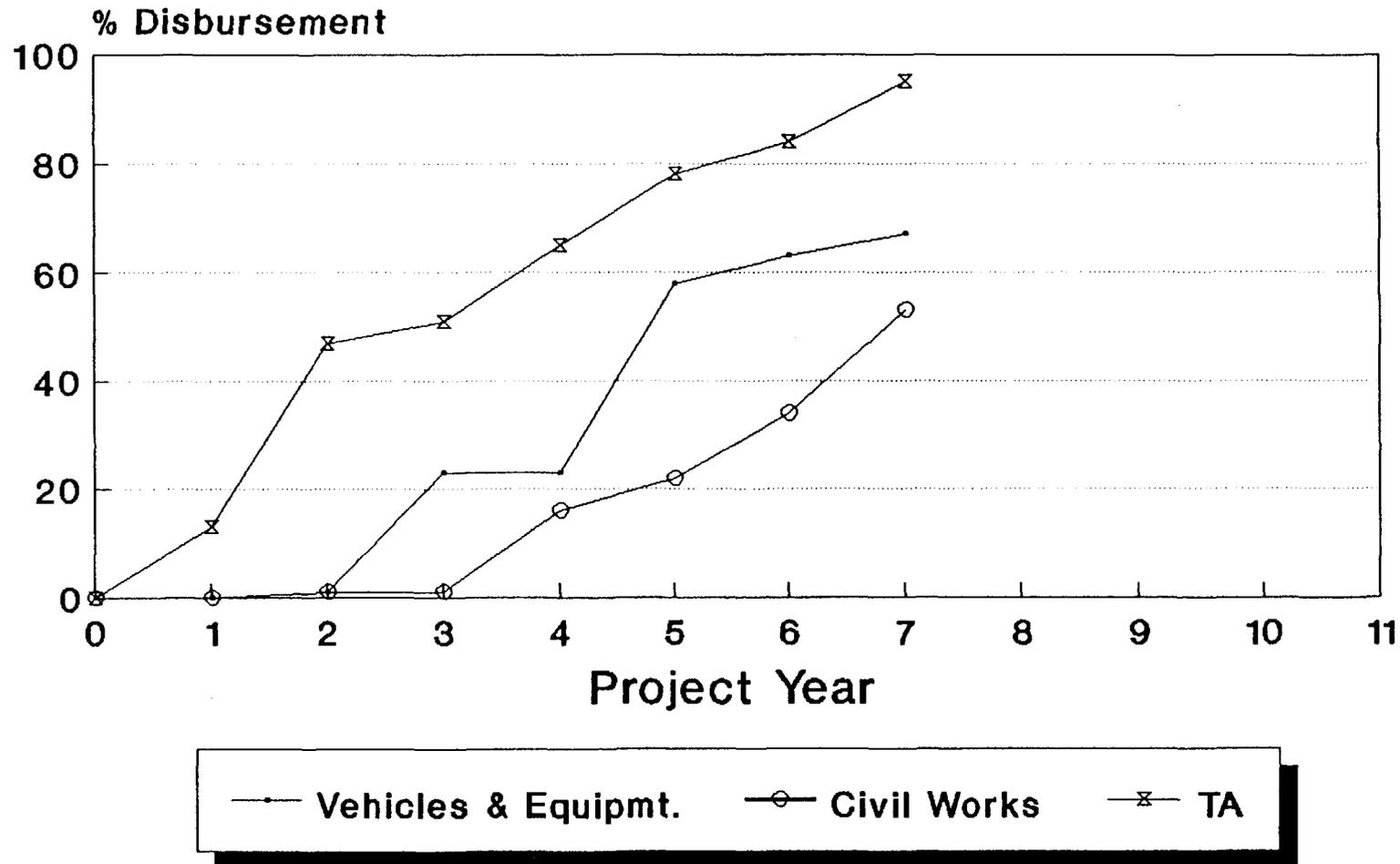


CHADP = Central Highlands Agricultural Development Project

201

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



CHADP - Central Highlands Agricultural  
Development Project

202

Loan 156-YA, Central Highlands Agricultural Development Project

1. Staff Appraisal Report, Report No. 4662-YAR, The World Bank, August 10, 1983.
2. President's Report, July 27, 1984.
3. Loan Agreement, October 25, 1984.
4. Aide-mémoire, IDA, October 24, 1987.
5. Mid-term Review Report, February 1988.
6. Supervision Mission, May 10, 1988.
7. Supervision Mission, November 30, 1988.
8. Supervision Mission, August 3, 1989.
9. Supervision Mission, September 1989.
10. Supervision Mission, February 7, 1990.
11. Supervision Mission, July 14, 1990.
12. Supervision Mission, December 4, 1990.
13. Supervision Mission, August 14, 1991.

ANNEX VII

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 202-YA

## YEMEN

## COUNTRY PORTFOLIO EVALUATION

Project Profile - Southern Regional Agricultural  
Development Project (SARDP)

## I. IDENTIFICATION &amp; STATUS

Project Title: Southern Regional Agricultural Dev. Project	Loan No.: 202 YA
Cooperating Institution: IDA	Status: Ongoing

## II. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	28.50	Approval: 29/04/87
Amount of IFAD Loan:	2.50	Agreement: March 1987
Borrower Contribution:	7.90	Effectiveness: June 1988
Co-financers:		Closing: 30 June 1994
- IDA	12.30	
- Swiss Dev. Cooperation	5.80	
Disbursement status (8/1991)	33.4%	

## III. SUMMARY PROJECT DESCRIPTION

A. Project Area

SRADP is implemented in Taiz and Ibb Governorates. The project area covers about 195 000 ha and comprises approximately 200 000 farm holdings. About 75% of the agricultural land is cultivated solely under rainfed conditions and about 25% is either totally or partially irrigated. The target group of the proposed project comprises approximately 120 000 farm families (672 000 people). More specifically, the rural women programme would involve about 8% of the farming population of the Taiz and Ibb governorates.

B. Project Objectives

The main objective of the project is to increase agricultural productivity and incomes of farmers through agricultural services, better utilization of land and agricultural resources and special assistance to women farmers. The project will also improve the health/nutrition standards of

rural families through the improved extension services to women. This would help improve agricultural production in the project area accompanied by improved living of the rural population.

C. Project Components

The project components could be listed under two groups, those financed by IDA and the SDC, and those financed by IFAD. Under the first there are: agriculture, extension service, three nursery development, provision of fertilizers, support to CACB, irrigation development, operation and maintenance (O&M) service, and technical assistance and training. The IFAD-financed component, Rural Development for Women, covers: extension services, home economics, rural information unit, monitoring and evaluation, and technical assistance and training.

D. Organization and Management

The project would be implemented over a six-year period. Responsibility for implementation rests with MAF, which had set up a Regional Development Authority (RDA) for running the project. RDA project manager and his support staff are charged with the responsibilities for managing the project. The project has two regional offices at Taiz and Ibb Governorates headed by Deputy Project Managers. The RDA carried out regional activities through agricultural and engineering departments to establish agricultural support, including agriculture extension and women extension.

IV. MAJOR EVENTS AND DECISIONS

---

Dates	Events and Decisions
December 1984	Project identification and carrying out a socio-economic study.
December 1985	Formulation by IFAD of a separate women's project. Project preparation by the FAO Investment Centre.
May 1986	Incorporation of IFAD Women's project proposal into project, and appraisal of project.

---

## V. IMPLEMENTATION STATUS

The project is making progress through extension packages to farmers in increasing agricultural productivity judged on the yield performance of 1989-1990. Linkage between research and project extension activities has been adequate. However, project activities are slowed down by many unnecessary delays in MAWR, causing difficulties in the recruitment of expatriate and local staff, and in project purchases. There are also internal administrative conflicts between the project management and the managers of the regional directorates of MAWR at Taiz and Ibb which need to be resolved. Project products included four completed extension centres: three under construction, whereas two await the identification of suitable locations. In addition, LCCDS donated two centres. The training centre has been completed and is in the process of being furnished. But to become fully operative they are in need of local funds. Fertilizer inputs were procured with the participation of LCCDS. Vehicle and motorcycle procurement which faced initial problems is currently being processed. In the irrigation field, two dam sites were selected and their design is underway.

## VI. ISSUES

The project management is frustrated by unnecessary delays in MAWR, either through inaction or unnecessary inquiries on staff appointments, budgetary clearances or procurement approvals. Part of the havoc is in the undefined task boundaries between the RDA and MAWR. While RDA is supposed to have financial and operational independence, in practice it is highly controlled by MAWR.

A similar management conflict arises at the regional level. While the targetted sustainability of project activities calls for strengthening the regional directorates of MAWR and creating the essential linkages with the other directorates of project-related activities in the governorates of Taiz and Ibb, through support services, the project is not progressing towards realizing this objective.

The Baseline Survey planned to be carried out at the start of the project was considerably delayed. It fell short of meeting one of the objectives behind conducting the survey, that is, using its results to design the women's programme; also some of the women extension centres were sited at places not included in the list recommended by the survey.

There is a delay in the operation of the women extension centres and the training centre, due to delays in the procurement of furniture and approval of support funds for training. A more comprehensive planning of a fewer centres completed and operated could have yielded better benefits than many centres built but not performing.

The M&E unit is preoccupied with desk reporting on project activities. For a better estimate of project impacts, M&E should shift its focus from assembling data from reports to field visits.

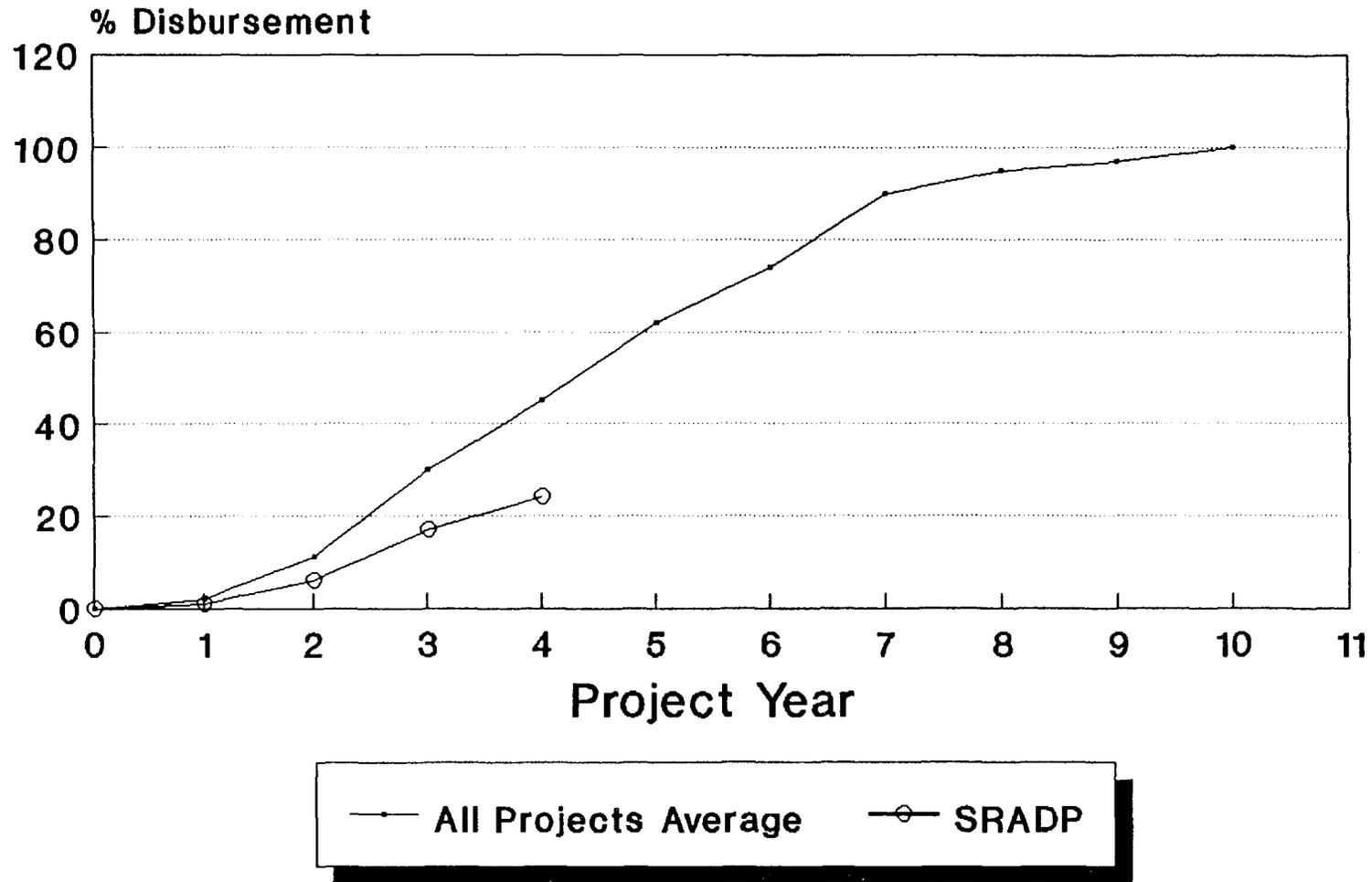
The Rural Women Development section is headed by an inexperienced young graduate. The two experienced Yemeni females in the section were appointed in assistant expert posts at special salary scales. The situation raises two problems: an expected poor management of the section, and a non-sustainability of programme activities, since the two experienced staff would leave the project once the high salary motivation

ceases to exist on the closing of the project.

The objective of the Rural Women Development programme of giving priority to agriculture extension activities and less emphasis to home economics during project lifetime is not yet realized. The home economics programmes are still overriding.

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements

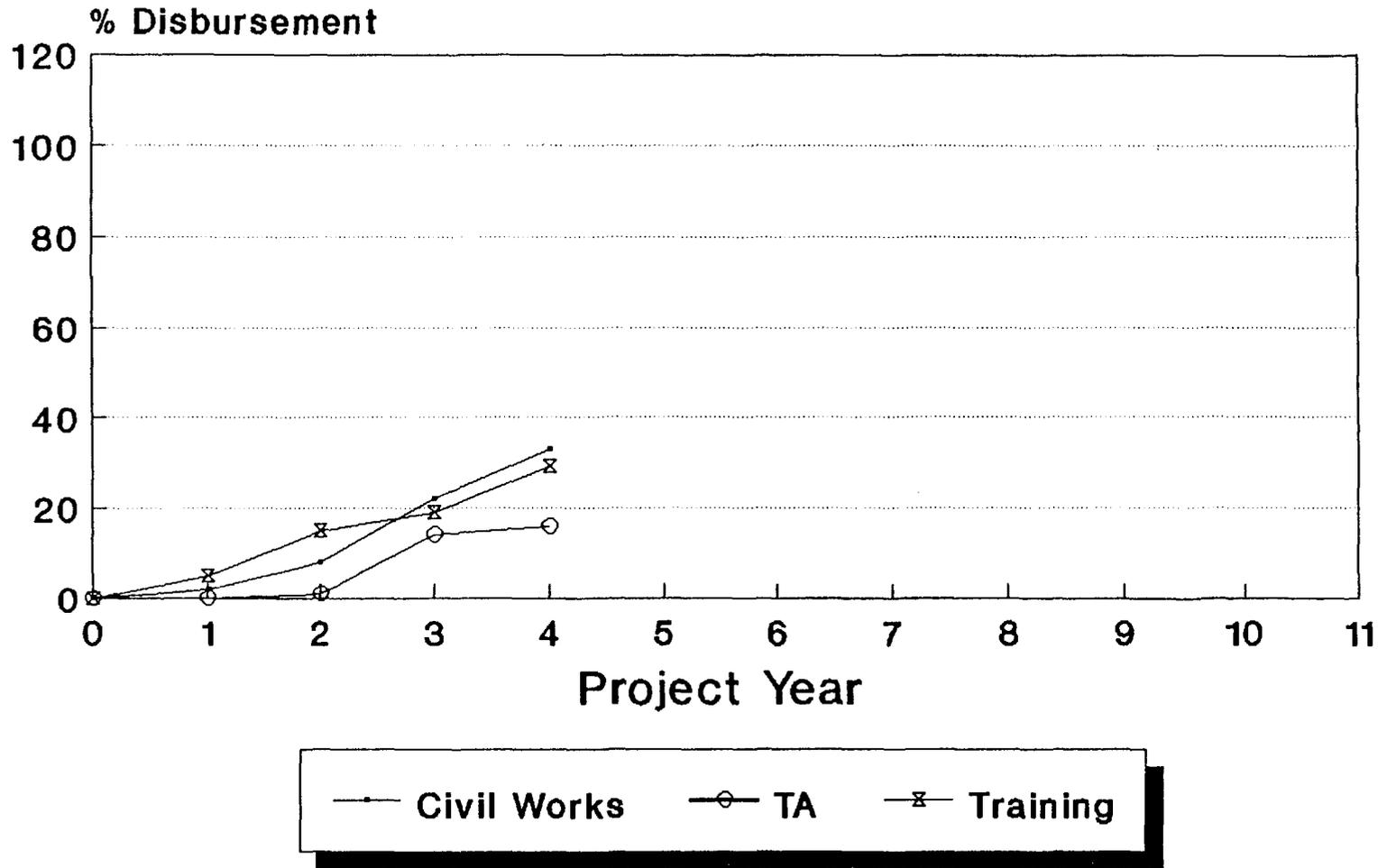


SRADP - Southern Regions Agricultural Development Project

289

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



SRADP - Southern Regions Agricultural Development Project

2/10

Loan 202-YA: Southern Regional Agricultural Development Project  
List of Reports

1. Staff Appraisal Report, The World Bank, September 19, 1986.
2. President's Report, March 27, 1987.
3. Loan Agreement, June 17, 1987.
4. Supervision Mission, July 19, 1989.
5. Supervision Mission, January 10, 1990.
6. Supervision Mission, July 16, 28, 1990.
7. Semi-annual Report, January/June 1991.
8. SRADP Annual Reports 1987-1990.
9. SRADP Quarterly Reports 1987-1991.

ANNEX VIII

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 253-YA

Monitoring &amp; Evaluation Division (EM)

DATE: 02/92

**PROJECT PROFILE****COUNTRY: YEMEN****1. IDENTIFICATION & STATUS**

**Project Title:** Agricultural Credit Project  
**Loan No.:** 253-YA

**Cooperating Institution:** Arab Fund for Economic and Social Development  
**Status:** Operational  
**Executing Agency:** The Cooperative and Agricultural Credit Bank (CACB)  
**Type of Project:** Credit  
**Type of Loan:** f

**2. PROJECT DATA**

	<u>US\$ million</u>		
<b>Total Project Costs:</b>	42.30	<b>DATES OF</b>	
<b>IFAD:</b>	15.00	<b>Approval:</b>	12.89
<b>Borrower Contribution:</b>		<b>Agreement:</b>	21.02.90
CACB	2.20	<b>Effectiveness:</b>	28.03.91
Beneficiaries	5.60	<b>Original Closing:</b>	30.12.97
<b>Cofinanciers:</b>		<b>Extended Closing 1:</b>	
AFESD	19.00	<b>Extended Closing 2:</b>	
<b>Loan Amount: SDR</b>	11.75		
<b>Disbursement Status: and</b>	<b>PY1 PY3 PY5</b>		
<b>(as of 31-12-91: 3%)</b>			

**3. SUMMARY PROJECT DESCRIPTION****Project Site & Area:**

The proposed project would operate at its early stages of implementation in the three regions of Yemen A.R. that have received assistance from IFAD and other donors in the areas of agricultural extension, research and other supporting services. The project area has a fairly well established network of infrastructure which provides the rural communities with their basic needs. The areas which the project would cover are: The Tropical Lowlands (Tihama), the Southern Uplands, the Central Highlands, and the Eastern Region. Ninety percent of the farm holdings are privately owned and are cultivated by the owners. About 58% of all farms are less than 1 ha, and 14% range between 1 and 2 ha. The rural women in the project area play an active role in agriculture. They are involved in many of the farm activities and have almost exclusive responsibility for the feeding and care of animals, especially sheep and goats. There are no barriers to women owning land or obtaining credit from CACB.

**Target Group:**

The total population in the project area is estimated at 4 million, of which 85% is engaged in agricultural and/or fisheries activities. The remainder is engaged in providing services to the rural communities. The project would directly benefit 15 465 farm and fishing families (77 325 people), and another 31 640 families (158 200 people) would benefit indirectly from project credit in the areas covered under previous IFAD loans. The per capita income of the beneficiaries in the Tihama is US\$ 100, Central Highlands US\$ 130 and the Southern Uplands US\$ 150. The per capita income of artisanal fishermen is US\$ 130. Thus the target group have a per capita income lower than the poverty line of US\$ 178 which is well below the country's per capita GNP of US\$ 590.

**Project Objectives:**

The proposed credit project would aim to increase CACB's lending capacity and improve its institutional, financial and managerial capabilities to extend loans to small farmers engaged in raising high value cash crops and livestock, as well as artisanal fishermen. Another objective of the project would be to encourage farmers to make more efficient use of the limited water resources. The project would provide CACB with foreign exchange to enable it to procure the necessary imported inputs to meet the needs of small farmers and fishermen. Credit would be in the form of seasonal, medium and long term loans. Funds would also be provided to procure farm machinery and improve the fishery fleet. Institutional support would be given to CACB in the form of buildings, equipment and TA and training.

**Estimated Benefits:**

The provision of credit to purchase seasonal farm inputs and water would increase production levels of high value crops. The provision of galvanized pipes and rehabilitation of old wells would increase the efficiency of water use. It would increase the amount of water available to meet crop needs and lead to an increase in the cropping area by 57% for vegetables and 93% for fruit trees. Credit for fisheries would support an estimated 7 000 fishing families to improve their only source of income. The improved fishing techniques would increase the fishermen's production by 150%, and their income from 75 to 200% depending on the size of boat. At full development, the income of 40 100 farm families (200 500 people) would increase yearly by 120% to 300% depending on crops grown and type of irrigation employed.

**Project Components:**

COMPONENTS	TOTAL AMOUNT (US\$ m)	IFAD	%
Seasonal Loans	5.11	4.07	80
Medium-term Loans	10.22	3.80	37
Long-term Loans	13.70	3.14	23
Institutn. support to CACB	4.28	0.86	20
BASE COST	33.29	11.87	36

Monitoring & Evaluation Division (EM)

**Organisation & Management:**

The project would be executed by the Department of Credit and Facilities within CACB. The head of the Credit and Facilities Department would be in charge of preparing detailed yearly work plans, overseeing staff recruitment and procurement, as well as monitoring project progress and report writing. In collaboration with CACB management, the Appraisal Mission prepared a booklet detailing its credit policies, lending criteria, procurement procedures and loan recovery. It would help borrowers to get acquainted with the types of CACB loans and the procedures to follow when applying for a loan. CACB's lending practices for medium and long-term credit for the purchase of fisheries and irrigation equipment constitute representative borrowing.

**Monitoring & Evaluation:**

The project would provide TA and equipment to strengthen the bank's M&E Unit. Responsibility for project M&E would be with the CACB Planning and project Evaluation Section. The Section consists of a head who is assisted by four staff. The section's M&E Unit would set objectives, specify indicators, and design formats for proper reporting of credit impact on borrowers and the degree of progress attained by the project. The project would conduct a socio-economic survey immediately after the loan is declared effective. The survey would determine the social factors that would have an effect on the degree of loan recovery and would also determine the degree of CACB linkage with ongoing rural development projects in meeting the needs of IFAD's target group. A Mid-term Review would be carried out in PY3 to deal with matters such as determining whether CACB operations should be extended to the Eastern Region and reviewing loan ceilings to determine the relevance of the IFAD target group.

---

4. **MAJOR EVENTS AND ISSUES PERTAINING TO DESIGN**

A TRC meeting on 16th August 1989 reviewed the Appraisal Report. Specific issues raised and to which the Committee recommended further information were: (i) Conformity with the desired IFAD target group; (ii) technical specifications and farm models for irrigation, land development, fruit trees, investment in tractors, livestock and fisheries; (iii) procurement procedures; (iv) Government trade policies with regard to CACB; (v) Technical Assistance; and (vi) past performance of CACB particularly in its arrears and the danger of a deteriorating capital structure. It was also recommended that IFAD disbursements should be made in annual instalments based on annual reviews of performance, particularly recovery rates which should be at least 80% of amounts disbursed.

---

5. **SUMMARY OF MAJOR EVENTS & DECISIONS DURING IMPLEMENTATION**

M&E specialist visits the project to assess the M&E Unit at the Cooperative and Agricultural credit Bank. December 1991

Delays in effectiveness caused by the reunification of Yemen. IFAD has internal discussions about its future strategy in the country. July 1990

265

6. PROJECT DELIVERY

KEY OUTPUTS	UNIT	QTY. PLANNED	QTY. ACHIEVED
Pump Procurement	No.	200	
Galvanized Pipe	km	200	
Land Development	ha	300	
Sheep Purchase	No.	8000	
Shade Houses	No.	150	
Fruit Tree Planting	ha	250	
Tractor Procurement	No.	225	
Trailer Procurement	NO.	50	
Thresher Procurement	No.	40	
Inboard Motors	No.	240	
Outboard Motors	No.	685	
CACB Civil Works	m <sup>2</sup>	4800	
Overseas Training	mm	30	

7. PERFORMANCE RATING

ACTIVITY	PY1	PY2	PY3	PY4	PY5	PY6	PY7
Overall Implementation							
Management Performance							
Procurement							
Project Finances							
M&E							

8. COMPLETION & EVALUATION - COMMENTS

9. OUTSTANDING ISSUES

10. SUPPORT/REVIEW MISSIONS

MISSION	DATE	COMPOSITION	TOPICS REVIEWED
M&E	09/91 (unspecified md)	M.Zghidi (Consultant) M&E Sp.	A thorough review of the M&E Unit was made and detailed plans were formulated for the socio-economic survey. Indicators regarding the credit delivery system and social factors that would impact on loan recovery were assessed.
Start up	25/04 - 02/05/91 (8md)	F.Ruwayha (IFAD) Project Controller S.Asmar (IFAD) Director PN J.Gicharu (IFAD) Loan Officer	The mission reviewed the major components of the project and in detailed discussed woth GOY: (a) The measures the Tihama Development Authority needs to take before commencing the socio-economic study. (b) the issues pertaining to the Eastern Regional Agricultural Development Project to accelerate project implementation.

217

11. DOCUMENTATION ON FILE

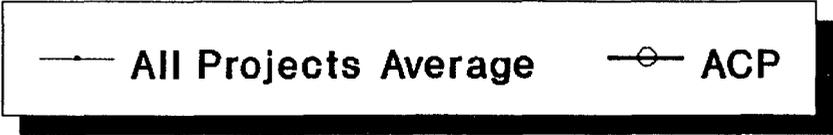
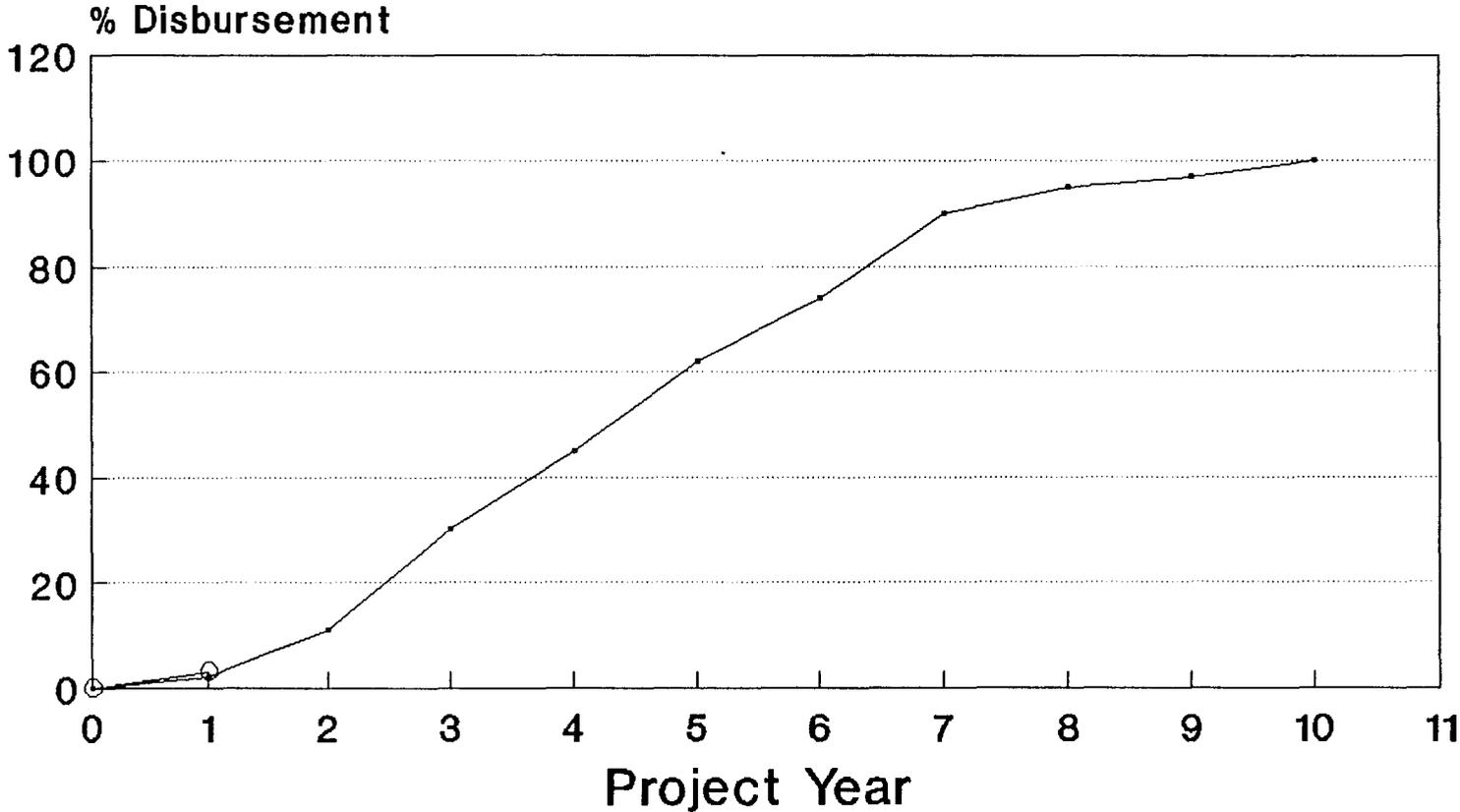
NAME	SOURCE	DATE	LOCATION
<b>DESIGN</b>			
Loan Agreement	IFAD	21 Feb 1990	EM
President's Report	IFAD	<b>5 - 8 December 1989</b>	EM
Appraisal Report	IFAD	<b>August 1989</b>	EM
<b>SUPERVISION</b>			
<b>COMPLETION</b>			
<b>SURVEYS &amp; STUDIES</b>			
1st Quarterly Report	CACB	10 Nov 1991	EM
<b>OTHER SOURCES OF INFORMATION</b>			

1/ Documents of particular importance outlined in bold.  
 2/ PC - Project controller's Office.

2/8

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



ACP = Agricultural Credit Project

219

Loan 253-YA: Agricultural Credit Project  
List of Reports

1. Project Brief, Appraisal Report, August 1989.
2. Staff Appraisal Report, September 1989.
3. President's Report, December 8, 1989.
4. Loan Agreement, February 21, 1990.

ANNEX IX

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 060-YD

Monitoring & Evaluation Division (EM)

DATE: 02/92

**PROJECT PROFILE**

**COUNTRY: YEMEN**

**1. IDENTIFICATION & STATUS**

**Project Title:** Agricultural Support Services Project.  
**Loan No.:** 060-YD

**Cooperating Institution:** Arab Fund for Economic and Social Development  
**Status:** Operational  
**Executing Agency:** Ministry of Agriculture and Agrarian Reform.  
**Type of Project:** Agricultural Development  
**Type of Loan:** e

**2. PROJECT DATA**

	<u>US\$ million</u>	<u>DATES OF</u>		
<b>Total Project Costs:</b>	14.60	<b>Approval:</b>	05.12.80	
<b>IFAD:</b>	9.80	<b>Agreement:</b>	11.12.80	
<b>Borrower Contribution:</b>	4.80	<b>Effectiveness:</b>	14.05.81	
<b>Cofinanciers:</b>		<b>Original Closing:</b>	30.06.86	
		<b>Extended Closing1:</b>	31.06.87	
<b>Loan Amount:</b>	SDR 7.70			
<b>Disbursement Status: and</b>	<b>PY1</b>	<b>PY3</b>	<b>PY5</b>	
<b>(as of 30.06.87) - 100%</b>	8%	88%	100%	

**3. SUMMARY PROJECT DESCRIPTION**

**Project Site & Area:**

The project area is located in four regions of the country, ( namely, Lehaj, Abyan Delata, Plateau and Shabwa), all of which are outside the command area of the major Wadi development programmes. There are fourteen agricultural cooperatives with 11 200 farm families (60 000 people) in the project area cultivating about 41 000 acres of which 31 000 are under spate irrigation and 10 000 using ground water. The rainfall in the area is erratic and ranges from negligible amounts to about 250mm per annum on the hills. The farming system is based on sorghum, millets, forage and cotton under spate irrigation, and wheat, maize, and vegetables under groundwater irrigation. The project area is the least developed agricultural area in the Republic and its inhabitants constitute one of the poorest segments of the rural population in the country.

**Target Group:**

No formal target group is described in the design of the project however the project would increase food production and improve living standards of 11 200 farm families. Without any means for employment outside agriculture, an average family of six

222

members has a present average per capita income of US\$ 120 to US\$ 190 which is substantially less than a comparable family in other rural parts of the country and about one third of the per capita GNP.

**Project Objectives:**

The project would aim at increasing agricultural production, farm incomes and standards of living of the rural population. Specifically, it would seek to overcome managerial and other constraints in the cooperative sector, which, so far, has not generated sufficient rewards to its large membership. The improvement of irrigation works, availability of inputs, an extension service to guide farmers, a more efficient cooperative management, the development of training facilities and the streamlining of existing institutional arrangements, would constitute the main approaches employed by the project to help resolve the developmental problems of the area. The components would include: (i) equipment for rehabilitating irrigation wells; (ii) provision for various farm machinery; (iii) provision of fertilizer and chemicals; (iv) establishment of an extension service; (v) in-service training for cooperative managers, extension staff, mechanics and supervisors; and (vi) project management support.

**Estimated Benefits:**

The major benefits would come in the incremental increases in crop production. It is estimated that the at full development (1990) there would be a 9 600 tons increase in cereals, 21 000 tons of vegetables, 300 tons of sesame seed oil, 71 000 tons of forage crops and 2 500 tons of cotton. This would allow the Government to reduce its food imports which include two-thirds of its cereal requirements. The project would directly benefit 11 200 farm families or approximately 60 000 farm families.

Farm budgets indicate that the project, on one farm model, would increase the average annual per capita income from US\$ 190 to US\$ 402 while another in another model the estimate is for an increase from US\$ 120 to US\$ 308. It is also expected that the project would provide gainful employment in agriculture and would generate enough jobs in trade and service industries to reduce migration to the towns and cities.

**Project Components:**

COMPONENTS	TOTAL AMOUNT (US\$ m)	IFAD	%
Irrigation Rehabilitatn.	4.14	-	-
Agric. Machinery	2.70	-	-
Farm Inputs	1.31	-	-
Training & Extension	0.26	-	-
Project Management	3.19	-	-
Contingencies	3.05	-	-
<b>TOTAL COSTS</b>	<b>14.65</b>	<b>9.8</b>	<b>67</b>

### Organisation & Management:

The project would be supervised and controlled by a specially constituted Coordinating Committee at the Ministry of Agriculture and Agrarian Reform. The Committee would be set up by a special Ministerial Decree and would be composed of the Directors of the Departments of Planning and Statistics, Irrigation and Mechanical Engineering, Cooperatives, and Extension and Research and would be headed by the Deputy Minister of Agriculture for Planning. The task of project implementation would be the responsibility of the Project Management Unit (PMU), to be established within the Department of Cooperatives.

All improvement of irrigation works would be carried out by PMU in cooperation with the Department of Irrigation and Mechanical Engineering. Framers themselves would carry out the lining of water courses and general well improvements. Well pumps would be provided to newly formed cooperatives of water users on credit terms. Farm machinery and implements would be provided for the cooperatives and be maintained by Machinery Renting Stations (MRS). Where MRS are insufficient, Mechanised Production Units (MPUs) would be organised in six cooperatives to provide farm machinery services to cooperatives. Fertilizer and plant protection chemicals would be handled by cooperatives for sale to farmers on seasonal credit. A revolving fund would be established in each cooperative. The 14 Cooperative Extension Supervisors and the 50 Extension Agents would be recruited, trained and assigned to the project area by the Director of Extension and Research.

### Monitoring & Evaluation:

A Monitoring and Evaluation Unit would be established in the Directorate of Planning and Statistics in the Ministry of Agriculture and Agrarian Reform. The project would provide six man-months of internationally recruited consultant to assist in the establishment of the Unit and to provide guidelines for its functions. The Unit would also initiate the concept of inter-sectoral planning and programming of development activities in the project area as well as other parts of the country. An agricultural economist from the University of Yemen would assist on a consultancy basis, in the field surveys for collecting baseline data and of training field personnel.

---

#### 4. MAJOR EVENTS AND ISSUES PERTAINING TO DESIGN

No TRC/PPRC issues were recorded.

---

#### 5. SUMMARY OF MAJOR EVENTS & DECISIONS DURING IMPLEMENTATION

The Government requests and is granted an extension to the closing date of the loan to 31.03.87 as approximately SDR 80 000 remains undisbursed due to civil disturbances. December 1986

The project is deemed to be a success in that it is demonstrating that the least developed regions of the country can play an active role in increasing agricultural potential.

Project implementation "satisfactory," however, some of the project's inputs (fertilizer, chemicals and cement) are not reaching the project area due, in part, to lack of transport and/or storage space. Extension component is suffering from a lack of qualified staff. July 1985

Drilling of 72% of the wells have been completed, 96% of the pipes imported have been delivered to the beneficiaries, and the potato store has been completed. However, only eight extension agents have been recruited. July 1985

Project implementation "progressing well" with many of the components in place. The seed potato cold storage facility of 250 ton capacity is increased to 1 000 ton of forced-air ventilation because the prevailing temperature is low enough to preclude the need for cooling. July 1984

Due to staff shortages, GOY is not able to recruit all 14 extension supervisors or all 50 extension agents. July 1984

As a result of local conditions, the number of wells to be developed is increased from 1 058 to 1 216, and the total length of open water channels to be lined is reduced from 765 km to about 150km, while another 200 km will use galvanised steel pipe. July 1984

Mid-term Evaluation raises a number of points. These are: (i) the overall good implementation of the project, (ii) doubt as to whether the project will reach many of the poorest farmers because of the lack of written criteria for establishing who are the poorest within the cooperatives, (iii) the adaptability of management, especially with regard to extension is a major strength of the project, (iv) M&E seems not to have become established and the concept has not taken root within project management, and (v) long term institutional strengthening of the project is being overlooked. March 1984

The old machinery repair programme which was started six months in advance is enhanced by the accelerated financing programme. May 1983

The project was delayed in its effectiveness by nearly six months, however, all tender documents for vehicles, equipment and fertilizers/chemicals have been completed, cooperatives already initiated and the work under the irrigation and extension components are "progressing well." May 1983

International TA team are recruited by International Labour Organisation (ILO). April 1983

225

6. **PROJECT DELIVERY**  
(as at project completion 31.03.87)

KEY OUTPUTS	UNIT	QTY. PLANNED	QTY. ACHIEVED
Rehabilitn. of Wells	No.	1 048	1 294
Pump Replacement	No.	80	88
Lining of Channels	km	150	72
Installatn. of pipes	km	200	200
Increase in irrigable area	acres	15 000	21 000
Machinery Training	No.	200	226
Overseas Training	mm	96	63
Tractors	No.	35	35
Farm Machinery	No.	195	180
Vehicles	No.	18	14
International TA	mm	268	350
Extension Supervisors	No.	14	7
Urea imports	tons	1 728	1 700
Triple supers imports	tons	702	700

7. **PERFORMANCE RATING**

ACTIVITY	PY1	PY2	PY3	PY4	PY5	PY6	PY7
Overall Implementation							
Management Performance							
Procurement							
Project Finances							
M&E							

8. **COMPLETION & EVALUATION - COMMENTS**

The project was deemed to be a success in that it demonstrated that the least developed regions of the country can play an active role in increasing agricultural potential. Specific project benefits included reduction in the time needed for irrigation, an increase in maize and wheat yields by 18% and 27% respectively, and an increase in farmers' income by 14% despite severe droughts. The income of farmers on well irrigated land attained a 35% increase in income. New crops were successfully introduced such as citrus and papaya and encouraged farmers to plant carrots, onions and other vegetables for the first time. It also led to a 29% increase in fruit and vegetable production, and an increase of 34% in fodder production. Severe drought limited wheat and sorghum production to increases of 18% and 13% respectively.

The project illustrated the importance of relying on irrigation from wells as a stable source of water to ensure higher productivity and income for farmers.

9. OUTSTANDING ISSUES

Can these successes be replicated in other countries with similar backgrounds?

**10. SUPERVISION/REVIEW MISSIONS**

**MISSION**

**DATE**

**COMPOSITION**

**TOPICS REVIEWED**

---

No mission as such were undertaken by IFAD. However the Project Controller visited the country on various occasions and on his return completed a brief back-to-office report which outlined the major activities and highlighted any problems hindering the performance of the project. These reports can be found in Registry.

228

11. DOCUMENTATION ON FILE

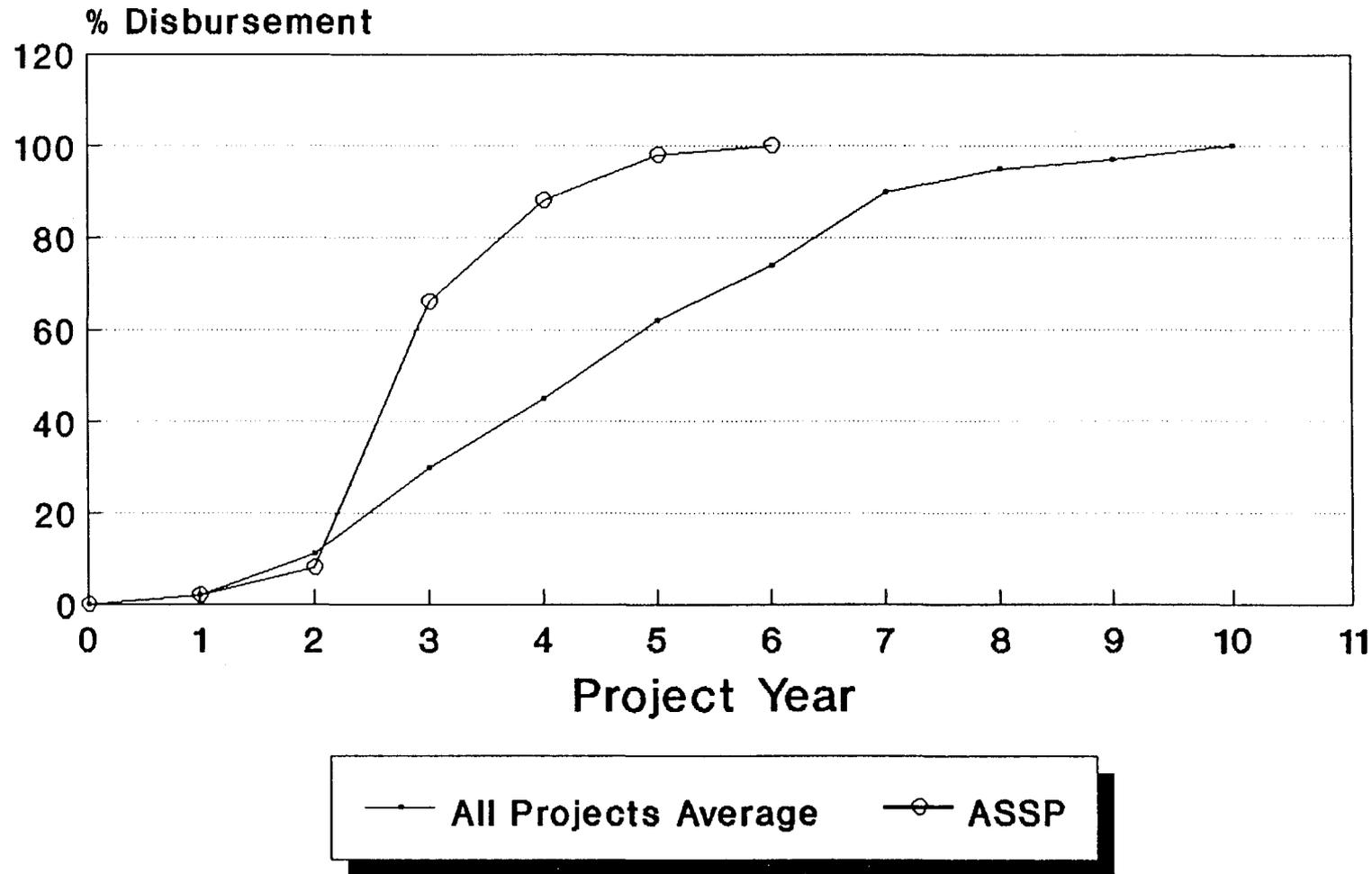
NAME	SOURCE	DATE	LOCATION
<b>DESIGN</b>			
Loan Agreement	IFAD	11 Dec 1980	EM
President's Report - 11th Session	IFAD	3 - 5 Dec 1980	EM
Appraisal Report	AFESD	Oct 1980	EM
ASSP Design Brief	unknown	undated	EM
Preparation Report	FAO	12 Jun 1980	REGISTRY
M&E Arrangements Report	IFAD	Dec 1981	REGISTRY
<b>SUPERVISION</b>			
Mid-term Evaluation Report	IFAD	Mar 1984	EM
Mid-term Evaluation Brief for Consultant & Suggested Format Implementation Report	IFAD	30 Jan 1984	EM
Progress report	IFAD	29 Jan - 4 Feb 1983	EM
Progress Report	ILO	Jul - Dec 1984	REGISTRY
Progress Report	ILO	Jan - Jun 1984	EM
Progress Report	ILO	Jan - Jun 1983	REGISTRY
<b>COMPLETION</b>			
Project Findings and Recommendations	ILO	1986	EM
<b>SURVEYS &amp; STUDIES</b>			
<b>OTHER SOURCES OF INFORMATION</b>			
Special Programming Mission to Yemen PDR - Brief	IFAD	28 Jan - 17 Feb 1984	EM

1/ Documents of particular importance outlined in bold.  
2/ PC - Project controller's Office.

229

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements

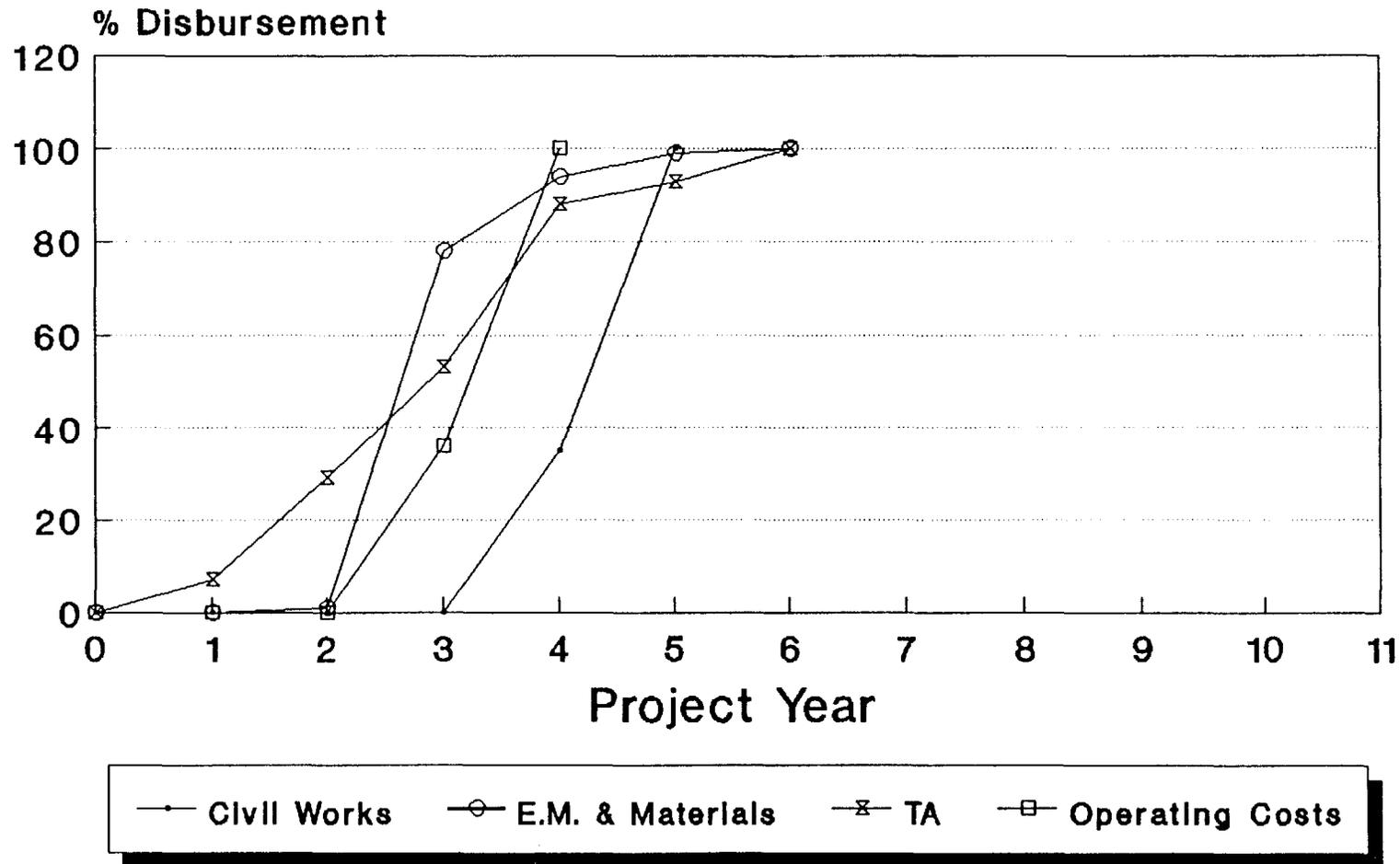


ASSP = Agricultural Support Services Project

230

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



ASSP - Agricultural Support Services Project

231

Loan 060-YD, Agricultural Support Services Project  
List of Reports

1. Appraisal Report, AFESD Report, October 1980.
2. Loan Agreement, December 11, 1980.
3. Arrangements for Monitoring and Evaluation of the Agricultural Support Services Project, December 1981.
4. Implementation Report, February 1983.
5. Mid-term Evaluation Report, March 1984.
6. Implementation Report, October 1985.
7. Project Findings and Recommendations, ILO, Geneva, 1986.

ANNEX X

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 068-YD

YEMEN COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE

1. IDENTIFICATION & STATUS

Project Title: Wadi Beihaan Agricultural Development Project Cooperating Institution: IDA	Loan No.: 068 YD Status: Closed
---	------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	18.1	Approval: 08/09/81
Amount of IFAD Loan:	6.0	Agreement: 24/09/81
Borrower Contribution:	4.1	Effectiveness: 16/04/82
Co-financers:		Original Closing: 31/12/87
IDA	8.0	Extended Closing: 31/12/88
		Closed: 31/12/88
Disbursement Status:	100%	

3. SUMMARY PROJECT DESCRIPTION

Project Area

The project area is located in the northwest of Shabwah Governorate. It covers the sub-governorate (Mudiryat) of Beihaan which comprises three districts Al-Ula, Usylan and Ain with a total population of 54 000. Wadi Beihaan and its tributaries cross the Beihaan and Nuqub districts and Wadi Ain passes through the Ain district. The total project area is estimated at 21 000 ha. About 5 000 ha are used for groundwater irrigation of which 3 550 ha are located within Wadi Beihaan's command and 1 5000 ha are within Wadi Ain's command.

PROJECT PROFILE (cont'd)

Project Objectives

The project objectives were to: (i) increase agricultural production and farm income in the project area; (ii) assess the surface and groundwater potential of the area; (iii) provide access to important centers of population and agriculture in the area; and (iv) improve nutrition of the rural poor in the project area.

Project Components

The project components include: (i) establishment of project management, engineering and agricultural extension services; (ii) provide farm inputs and facilitate their distribution in both Wadi Beihan and Wadi Ain; (iii) rehabilitate spate irrigation of Wadi Beihan and control erosion of its bank at vulnerable points; (iv) implement well improvement and on-farm works in Wadi Beihan; (v) provide equipment for the Machinery Rental Station (MRS) in Wadi Beihan and Ain; and (vi) conduct hydrometeorological studies in Wadi Beihan.

Organization and Management

The project was implemented by the Beihan Project Unit (BPU) under the supervision of the Department of Irrigation of the Ministry of Agriculture and Agrarian Reform. PBU was headed by a project manager and composed of six sections which are: engineering, agricultural extension, water resources, administration, account and procurement and administration.

4. MAJOR EVENTS AND DECISIONS

<u>Dates</u>	<u>Events and Decisions</u>
1977-1978	Feasibility Study by SOGREAH consulting firm.
July 27, 1981	A Development Credit Agreement between PDRY and IDA was signed under Credit Number 1145-YDR and a Loan Agreement between PDRY and IFAD under Loan Number 068-YD.
September 1981	Creation of the Beihan Project Unit and appointment of the project manager.
January 1982	Subsidiary Loan Agreement between Government and Natinal Bank of Yemen concerning the credit component was signed.
February 1982	A Technical Assistance Agreement was signed with FAO.

PROJECT PROFILE (cont'd)

<u>Dates</u>	<u>Events and Decisions</u>
March 1982	Devastating floods which fostered short term rehabilitation measures.
1983 - 1986	Three years of serious drought.

5. IMPLEMENTATION STATUS

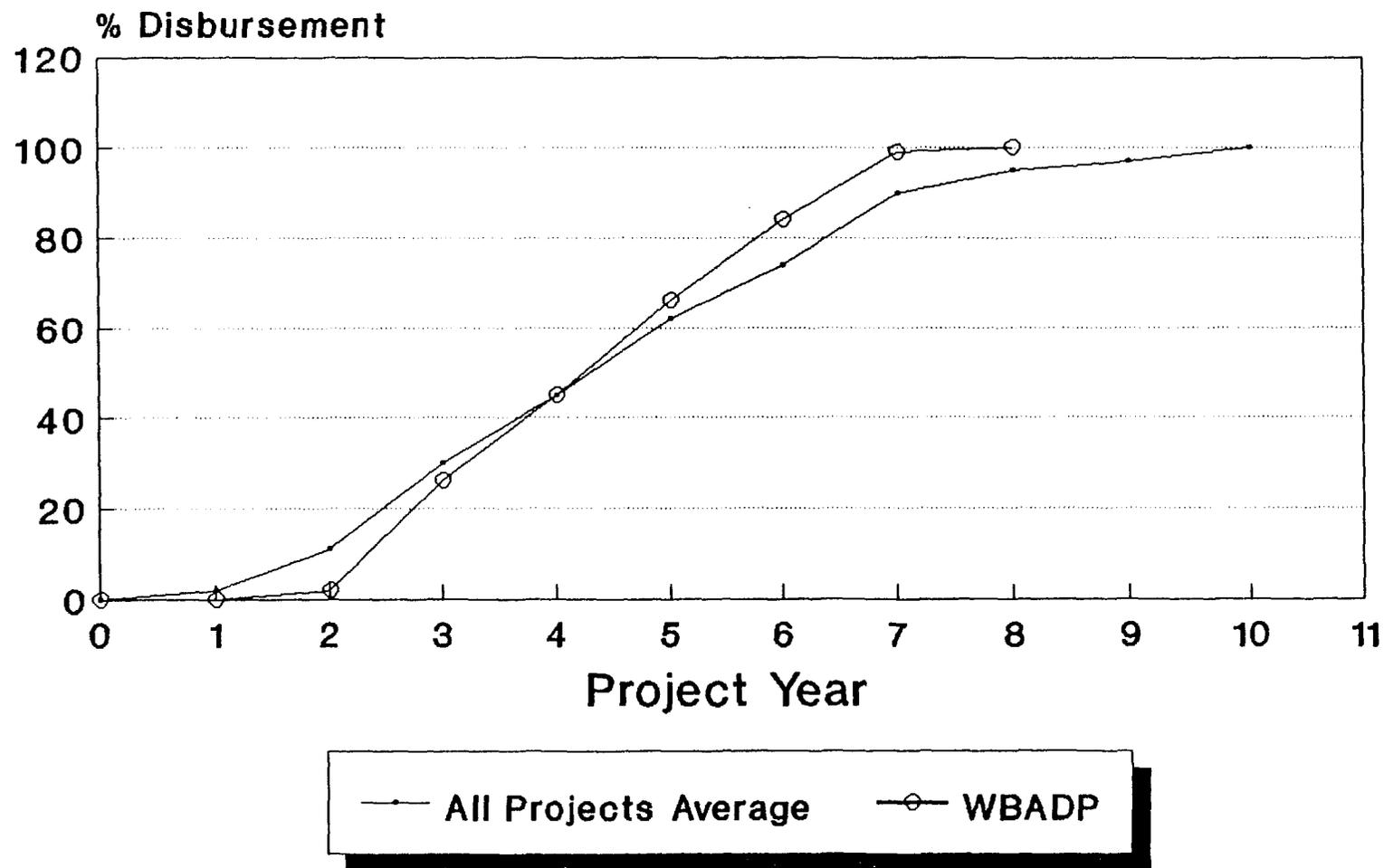
The project was completed one year behind schedule. This was caused mainly by the remoteness of the area and delay in the recruitment and retention of the expatriate and local staff due to lack of living facilities. Furthermore, the devastating floods of 1982, directed some efforts from the project works to relief measures needed by the population in the project area. The flood further increased the work quantities originally estimated at appraisal. Other changes during implementation included: dropping the deepening and lining of 88 wells due to more than anticipated drawdown of the aquifer; reduction of the length of the feeder road and its upgrading and the scope of on-farm irrigation systems improvements was limited to installing buried PVC pipe distribution systems.

6. MAJOR ISSUES

- . Post-construction conditions that the project wishes to see prevail should be given adequate attention at the planning stage. Early concerns with what the post-construction scenario should be will highlight the need to review design and implementation choices in the context of their impacts on this future scenario.
- . Continuing maintenance of Wadi works is essential to maintain the benefits of what has been done. The Operation and Maintenance Unit should get adequate budget and staff.
- . The overdevelopment and exploitation of groundwater resources requires immediate and decisive action to control withdrawals. A declining water table, apart from creating conditions of uncertainty and scarcity increases the risk of salt intrusion.
- . It is necessary to continue the development of a permanent system for collection of groundwater data (fluctuations of water quality) to be used in resource management.
- . Technical assistance in irrigation and crop production should continue to be provided to farmers in order to accelerate project benefits.

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements

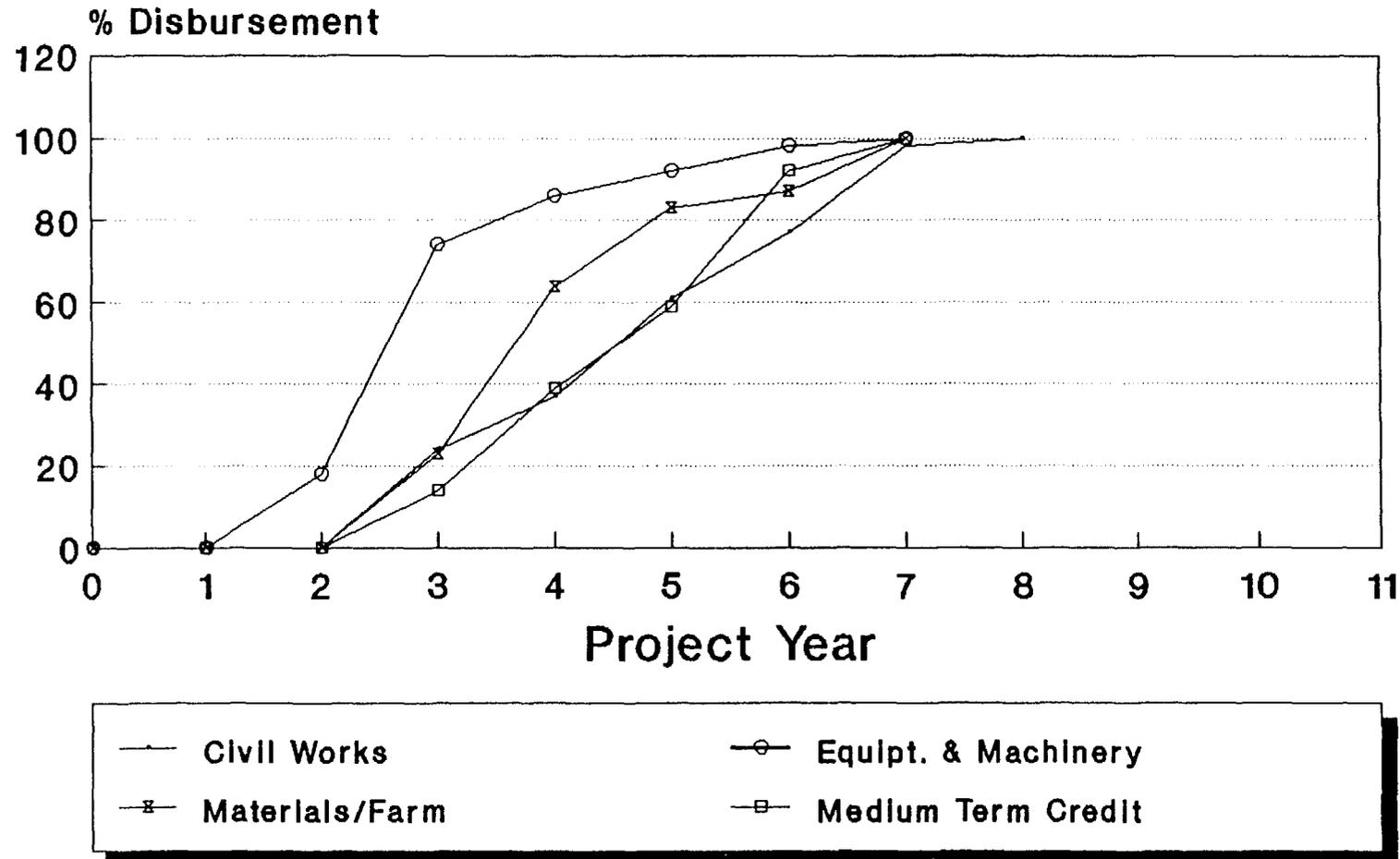


WBADP - Wadi Belhan Agricultural Development Project

237

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



WBADP - Wadi Belhan Agricultural  
Development Project

238

Wadi Beihan Agricultural Development Project  
List of Reports

1. Staff Appraisal Report, Report No. 3352-YDR, The World Bank, April 24, 1981.
2. President's Report, July 17, 1981.
3. Loan Agreement, September 24, 1981.
4. Arrangements for Monitoring and Evaluation of the Wadi Beihan Agricultural Development Project, December 1981.
5. Supervision Mission, June 1985.
6. Implementation Report, October 1985 (pp. 17-35).
7. Completion Report (Draft), IDA/IFAD, June 1989.
8. Implementation Report, August 1982.
9. PDRY. Ministry of Agriculture and Agrarian Reform. Wadi Beihan Project. SOGREA, Grenoble.  
  
Technical Report No.1. Soil and Land Classification, Oct. 1978.  
  
Technical Report No.2. Irrigation Techniques Survey, Oct. 1978.  
  
Technical Report No.3. Agronomic and Socio-economics Survey October 1978.  
  
Technical Report No.4. Water Resources Survey. (1) Main Report. (2) Appendices, Dec. 1978.
10. Wadi Beihan Irrigation Project (PDRY). Alternative 6. Barrage au Confluent Beihan-Hamad. Rapport de Mission d'Identification. Aug. 1979.
11. MAAR, PDRY, Wadi Beihan Irrigation Project. Technical Report No.3 "Agronomic and Socio-Economic Survey, Chapter 2, Main Socio-Economic Data. SOGREA Consulting Engineers, Grenoble, France, Oct. 1978.
12. MAAR, PDRY, Wadi Beihan Irrigation Project, Feasibility Study for Integrated Rural Development of the Middle Plateau areas, Interim Report Vol. I, Main Report 1987.

ANNEX XI

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 106-YD

## YEMEN

## COUNTRY PORTFOLIO EVALUATION

Project Profile - Third Fisheries Development Project

## I. IDENTIFICATION &amp; STATUS

Project Title: Third Fisheries Dev. Project Cooperating Institution: IDA	Loan No.: 106 YD Status: Closed
---	------------------------------------

## II. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	21.40	Approval: 15/9/82
Amount of IFAD Loan:	5.00	Agreement: 23/11/82
Borrower Contribution:	7.00	Effectiveness: 25/2/83
Co-financers:		Original Closing: June 88
- IDA	6.00	Extended Closing: June 89
- EEC	3.40	Closed: June 89
- AFESD	5.30	
Disbursement Status	100%	

## III. SUMMARY PROJECT DESCRIPTION

A. Project Area

The project consisted of two components: a training facility, the Fisheries Manpower Development Centre (FMDC) and the Fisheries Village Development Component (FVDC), of four fisheries cooperatives, comprising five villages.

The project's two distinct components were implemented in different parts of South Yemen. The FMDC was sited on Labour Island which is located within the Port of Aden. The four fisheries cooperatives, comprising five villages, were spread over a distance of 600 km, representing traditional fishermen communities.

B. Project Objectives

The project had the following two specific objectives:

- (i) to establish a specialized training facility to meet the manpower needs of the fisheries sector;

- (ii) to develop infrastructural facilities at four selected fisheries cooperatives to overcome the constraints in handling, storage, transportation and marketing of fish to help increase productivity in the traditional fisheries sub-sector.

The beneficiaries from the project constitute the five villages, with a total population of about 4 000, of whom about 700 are active fishermen. However, the proposed investment will in fact serve a larger number of fishermen than indicated by the size of village population, through the generation of commercial fishing activities.

#### C. Project Components

The first project component, the FMDC, encompassed the construction of a training facility with classrooms, workshops, laboratories, dormitory, recreation facilities, etc., to render: formal pre-service, specialized in-service and extension service training. The second project component, the village fishery development, was to consist of the construction of landing facilities like jetties and fish receiving stations, prefabricated ice plants and chill stores, net lofts, marine engineering workshops and cooperative offices at the five fishing villages of Fukum, Ras Imran, Ras-al-Ara, Shugra and Bir Ali. IFAD was originally funding the FMDC component, in 1987 when AFESD stepped in, IFAD was given the village development component.

#### D. Organization and Management

The MFW was responsible for project implementation. The Third Fisheries Project benefitted from an institution-building effort, a Project Implementation Unit (PIU), that was initiated and expanded under the Second Fisheries Project. Though the PIU seemed to have functioned well in the physical implementation of the project components, it is, however, an expatriate-run unit. In this respect the project failed to achieve any level of national institution building, and the current status at end of project, indicates clearly a lack of autonomy in project management; since at one end there are the village cooperatives, and at the other end there is the MFW, without an intermediary management set-up.

### IV. MAJOR EVENTS AND DECISIONS

Dates	Events and Decisions
September-October 1981	Appraisal mission findings for the Third Fisheries Development Project.
1982-1985	Three and a half years' delay in project implementation due to inordinate time taken to finalize the design of village facilities; finally resolved in 1985.

(Cont'd)

242

---

Dates	Events and Decisions
1986-1987	There had been delays in project implementation due to difficulties met with financing the project. Costs had gone up, Government had to locate funds to meet the additional costs. Problem was solved in October 1987 through AFESD agreeing to increase loan amount, in parallel financing from KD 1.00 million to KD 2.5 million. At the same time AFESD was allocated the FMDC component and IFAD shifted to co-finance with IDA the FVDC component.
January 1986	Serious civil unrest in PDRY contributing to delay in start-up of project.
June 1988	EEC funds (58 UDR) disbursed completely.
1989-1990	Delay in procurement of training vessel due to disagreement in number, type of vessel(s) and elaborate government procedures, and disagreement between IDA and AFESD on procurement procedure.
December 1989	IFAD Loan (106) and IDA credit (1274 YDR) disbursed completely.
February 1990	Village fisheries development (FVDC) facilities were taken over by the concerned fisheries cooperatives.
October 1990	FMDC started functioning from new premises.
August 1990-March 1991	AFESD fund closing date had been delayed from August 1990 to March 1991 due to the Gulf crisis.

---

#### V. IMPLEMENTATION STATUS

The project experienced a delay of almost five years from time of signing credit agreement to actual commencement of project activities. The causes of the delay were many: long time taken to finalize the engineering designs of the village facilities, underestimation of costs at appraisal, inordinate tendering procedures; slow appointment of consultants, problems of financing due to escalation of costs, the civil unrest in the PDRY, the delay in supply of equipment financed by AFESD and the delay in procurement of training vessels. Project is considered completed as of March 1991. The remaining major item of expenditure is the procurement of the training boat which has been cleared by the financier, AFESD. FMDC

was completed and started functioning in October 1990. The VDC were completed in February 1990 as well, but currently only two of them in Shugra and Ras-al-Ara are operating auction markets. Fukum and Ras-Amran are not functioning for various reasons such as the collapse of the cooperative marketing structures, over capitalization and lack of some critical services and inputs.

## VI. ISSUES

The delay in the implementation of the project due to disagreement over design of village fisheries development facilities between IDA and the Government, and also due to the rise in project costs, could have possibly been minimized had a "local situation study" been conducted on the appraisal report before the implementation of the project.

IFAD loan was initially allocated to finance the training facility, FMDC. By moving from the training component to the financing of the village fisheries development cooperatives, IFAD became more in focus of serving its mandate but this was achieved only because AFESD insisted to limit its finances to a consolidated component.

The change in the political situation and the resultant policy reorientation, from actually planned fisheries resources to liberalization of fish marketing, between the start and the end of the project, has caused a confusion in attaining some of the project objectives. This is most pronounced in the current status of the fisheries development facilities, with some of the cooperatives completely unfunctioning, pointing out clearly that project objectives are short of being met.

Project planning and implementation were top-down activities, with no involvement of beneficiaries, the cooperatives members, which resulted in wastage of the resources reflected in over-design of infrastructure, inclusion of unessential facilities, and unpreparedness of the beneficiaries to agree on the cost recovery schemes so far presented.

The non-involvement of beneficiaries presents itself once more in the handing over of the completed facilities to the cooperative communities without being given the essential training in management to run the facilities or to handle the marketing situation under the new conditions of the economy.

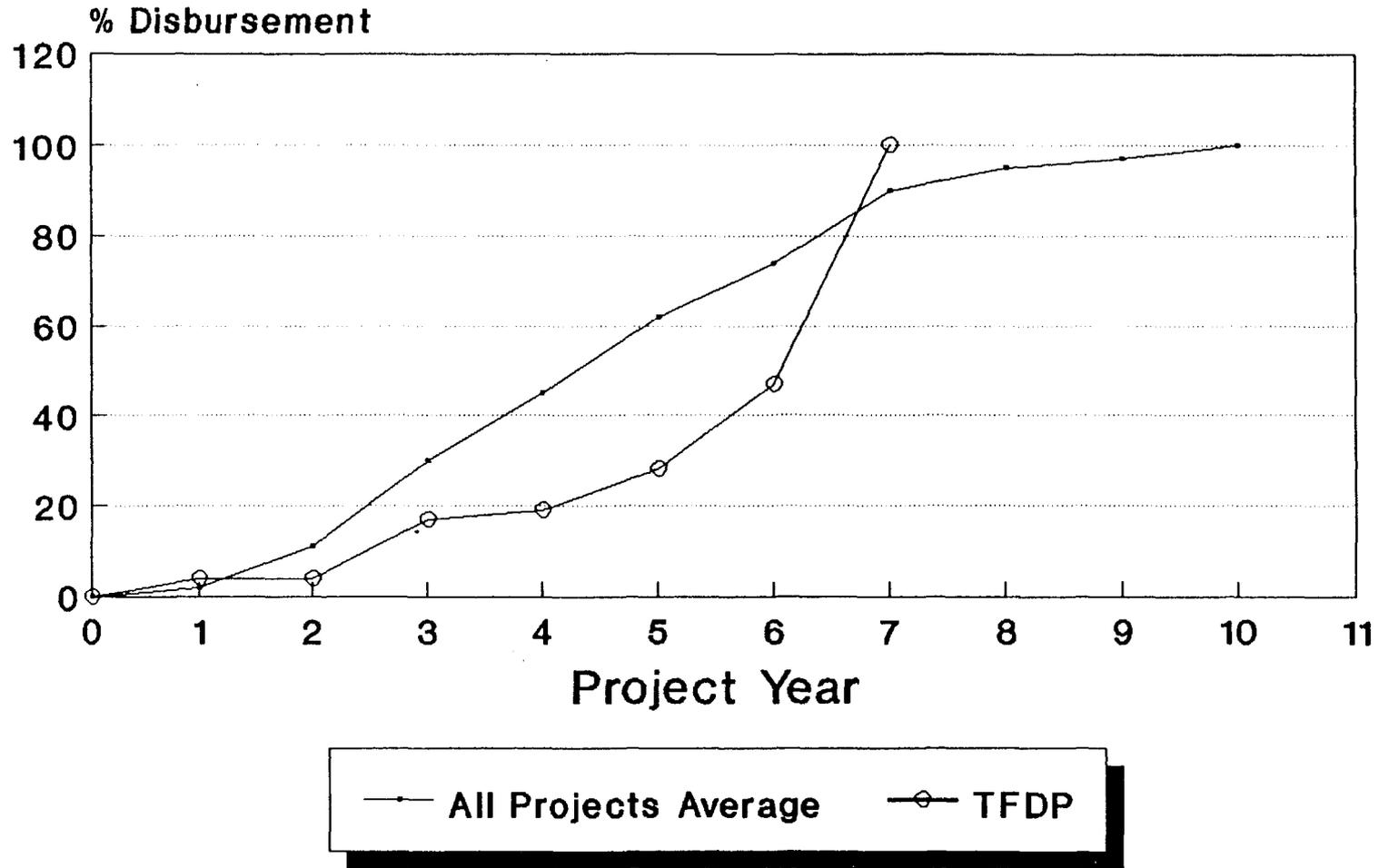
The project was founded on the economic considerations of increasing production, improving the marketing situation, achieving higher incomes for the beneficiaries plus related global benefits. Yet it ignored effecting any changes in the social conditions of the fishermen communities through catering for basic amenities to upgrade the standard of living of these communities.

The project sustainability is highly linked to meeting the requisites of necessary reorganization and financial readjustments on cooperative structure to enable effective management and handling of the new marketing situation, and the efficient maintenance of the cooperative infrastructural facilities.

244

# YEMEN COUNTRY-WIDE ASSESSMENT

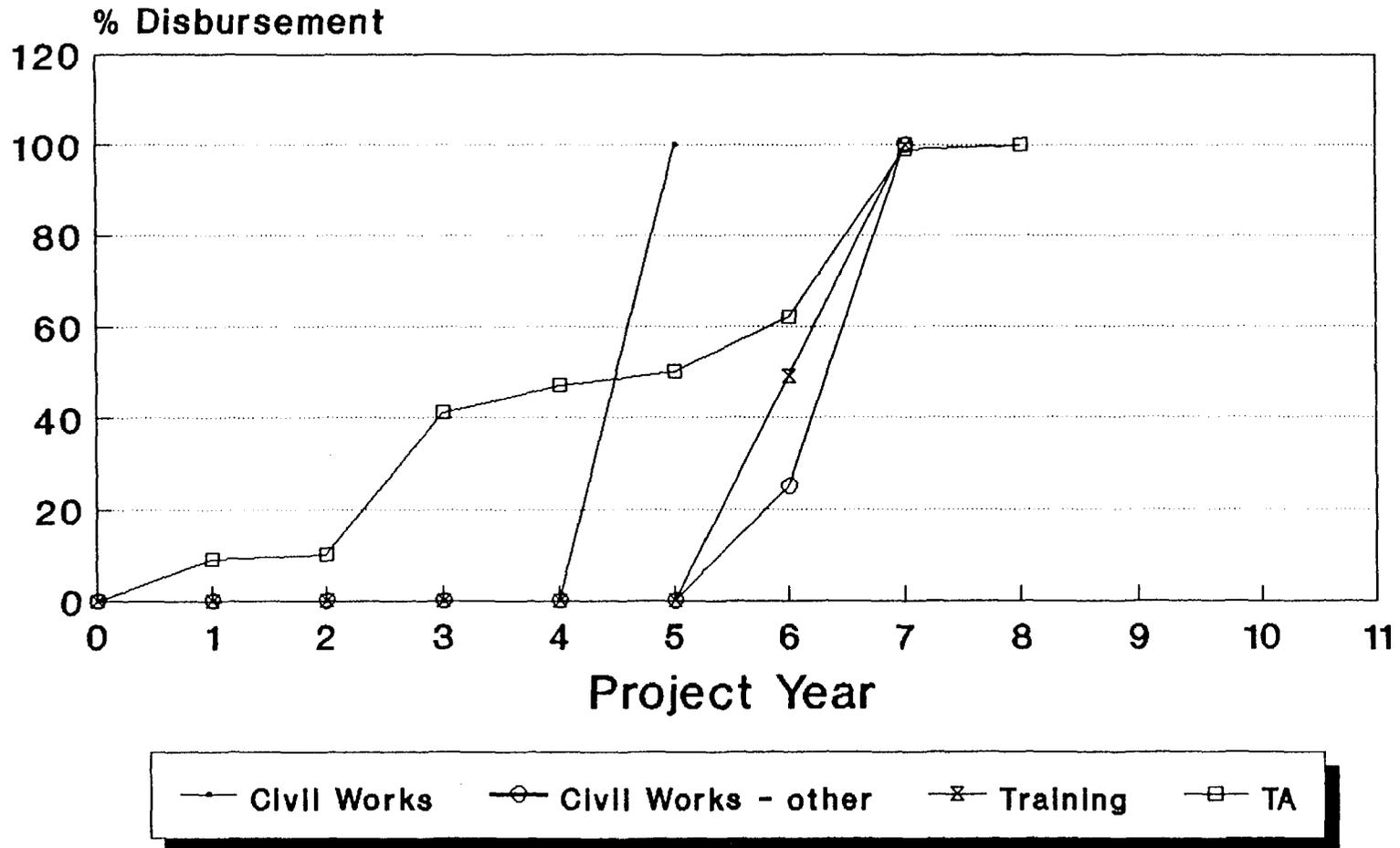
## IFAD Loans Disbursements



TFDP = Third Fisheries Development Project

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



TFDP = Third Fisheries Development Project

24/6

Loan 106-YD: Third Fisheries Development Project  
List of Reports

1. Staff Appraisal Report, Report No. 3806a-YDR, The World Bank, May 20, 1982.
2. President's Report, July 15, 1982.
3. Loan Agreement, November 23, 1982.
4. Implementation Report, October 1985
5. Supervision Mission, May 1986.
6. Supervision Mission, January 15, 1988.
7. Supervision Mission, July 25, 1988.
8. Supervision Mission, February 10, 1989.
9. Minutes of the Co-financiers Meeting, October 1987.
10. Amendment to the Development Credit Agreement, November 1988.
11. Fisheries Manpower Development Centre, MFW, 1990.

ANNEX XII

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 228-YD

## YEMEN

## COUNTRY PORTFOLIO EVALUATION

Project Profile - Eastern Regional Agricultural Development Project1. IDENTIFICATION & STATUS

Project Title: Eastern Regional Agricultural Development Project Cooperating Institution: AFESD	Loan No.: 228 YD Status: Ongoing
---	-------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	24.50	Approval: 15/09/88
Amount of IFAD Loan:	10.50	Agreement: 27/01/89
Borrower Contribution:	7.00	Effectiveness: 22/09/89
Co-financiers:		Original Closing: 31/12/95
- Islamic Dev. Bank Loan	6.00	
- UNDP Grant	0.50	
- WFP Grant	0.50	
Disbursement status	11.21%	

3. SUMMARY PROJECT DESCRIPTIONA. Project Area

The project would cover twelve cooperatives in four governorates, namely: Abyan, Shabwa, Hadramout and Al-Mahra. These cooperatives are widely separated and are isolated from markets, sources of inputs and government services. The population in the area is about 285 000 people. The climate in the area is hot and arid. Water supply is from spate, shallow and deep wells and springs. However, scarcity of irrigation water is a major constraint for agricultural development in the area. The major crops grown are cotton, sorghum and sesame in spate irrigated areas and vegetables, alfalfa, tobacco and some wheat in well-irrigated land. Most farmers own some sheep

PROJECT PROFILE (cont'd)

and goats, whereas for nomads moving through the area, livestock is the main source of income.

B. Project Objectives

The project's main objective is to make maximum use of resources to help small farmers improve land productivity, enhance the role of cooperatives and women in development and increase the number of trained national staff to ensure that project activities would be sustained beyond its life. The target groups consist of 5 100 farm families who are cooperative members and 1 500 who are not cooperative members. In addition, about 2 500 nomad families would benefit from the animal health services.

C. Project Components

The project consists of the following components:

- Irrigation Improvement and Flood Control;
- Agricultural Extension and Input Supply;
- Women's Development;
- Animal Health;
- Cooperative Development;
- Project Management Unit; and
- Technical Assistance and Training.

The IFAD loan covers all project components.

D. Organization and Management

The project would be executed by the Department of Cooperatives with participation of other departments entrusted to implement related project activities. Coordination would be achieved through a committee consisting of directors of concerned departments in addition to directors of agricultural departments in the four governorates and the Coordination Committee will be chaired by the Deputy Minister of Agriculture. Direct responsibility for coordination of day-to-day implementation activities has been assigned to a Project Management Unit (PMU).

4. MAJOR EVENTS AND DECISIONS

---

Dates	Events and Decisions
November 1986 - April 1987	Project identification and preparation by FAO Investment Centre
May 1988	Appraisal by a joint mission from IFAD and AFESD

---

(cont'd)

250

PROJECT PROFILE (cont'd)

Dates	Events and Decisions
May 1989	Agreement with ISDB
October 1989	Agreement with FAO to provide experts and equipments and with UNDP for technical assistance
May 1990	Unification of the two parts of Yemen with the introduction of new financial regulations and procedures
January 1991	A revised Project Implementation Plan has been proposed by the Project Management but has not yet been approved.

5. IMPLEMENTATION STATUS

Staff, though not enough, have been recruited for project management and several procurement contracts have been finalized. A survey of groundwater has been completed and a baseline socio-economic survey has been undertaken. Digging of wells by forced account instead of bidding has been approved. About 10 wells were constructed with one already utilized for irrigation while the others are awaiting pumps and accessories to be financed by CACB. Specification for drip irrigation have been made. Animal health and women components progressed well after the arrival of the FAO experts. A nursery has been constructed at Maifaa to raise fruit and vegetable seedlings, another one al-Fuwa is currently under construction.

6. MAJOR ISSUES

- (i) The project is assisting in the deepening of existing wells and the establishment of new ones and installation of pumps. This could easily lead to overexploitation of scarce groundwater and build up of salinity, particularly in the coastal areas. It is not yet clear what measures could be taken to avoid this problem;
- (ii) The project organization and management poses several problems worthy of some consideration. The project activities are spread over a wide area involving four governorates and twelve cooperatives. Several General Directorates of the Ministry of Agriculture in addition to the Agricultural Departments in the four governorates are involved in project implementation. This makes coordination rather cumbersome. Furthermore, the Governorate Departments of Agriculture are not adequately

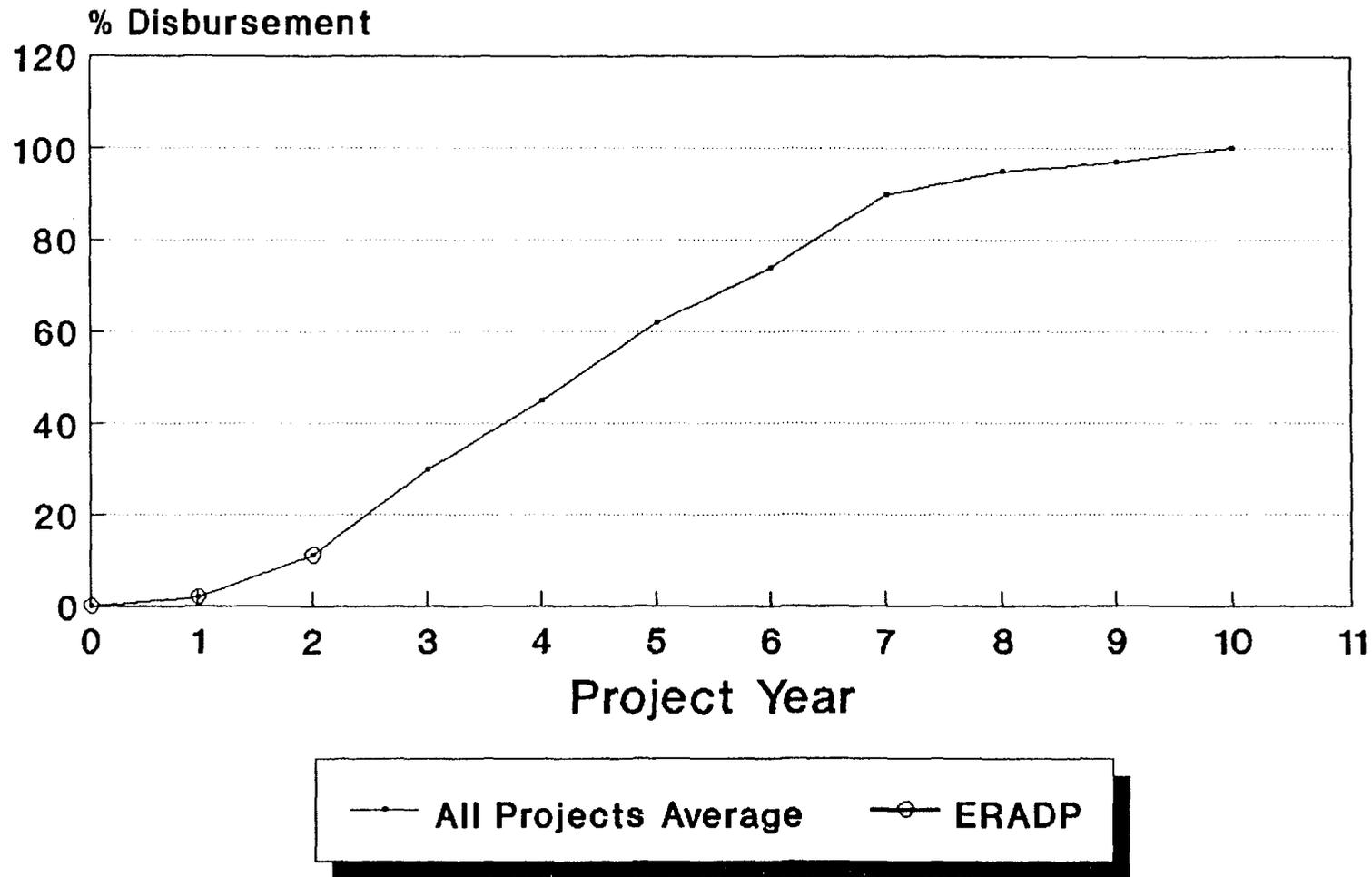
PROJECT PROFILE (cont'd)

staffed to carry out the implementation as envisaged at appraisal. As a consequence, the Project Management Unit which was supposed to have a coordinating role in implementation is gradually assuming the role of a Project Implementation Unit. What will be the fate of this unit at the end of the project, and how will the activities be sustained thereafter?

- (iii) One of the main objectives of the project was to enhance the role of cooperatives as the main agency for rural development. After unification, the effectiveness of cooperatives diminished considerably. Thus, there is a need to re-examine the role of cooperatives in project implementation and attainment of objectives;
- (iv) The staffing and recruitment budget allocated for extension (about YD 1 500 per year) is far below the requirements for an effective extension service. Furthermore, the research extension linkages are weak and should be formalized;
- (v) At appraisal, WFP was expected to participate in the irrigation improvement component with a grant of USD 500 000 in food rations. However, this grant has not yet materialised; and
- (vi) In view of all the above issues and the implementation problems facing this project, there seems to be a need to reconsider the design of the project to alleviate these problems and enhance implementation.

# YEMEN COUNTRY-WIDE ASSESSMENT

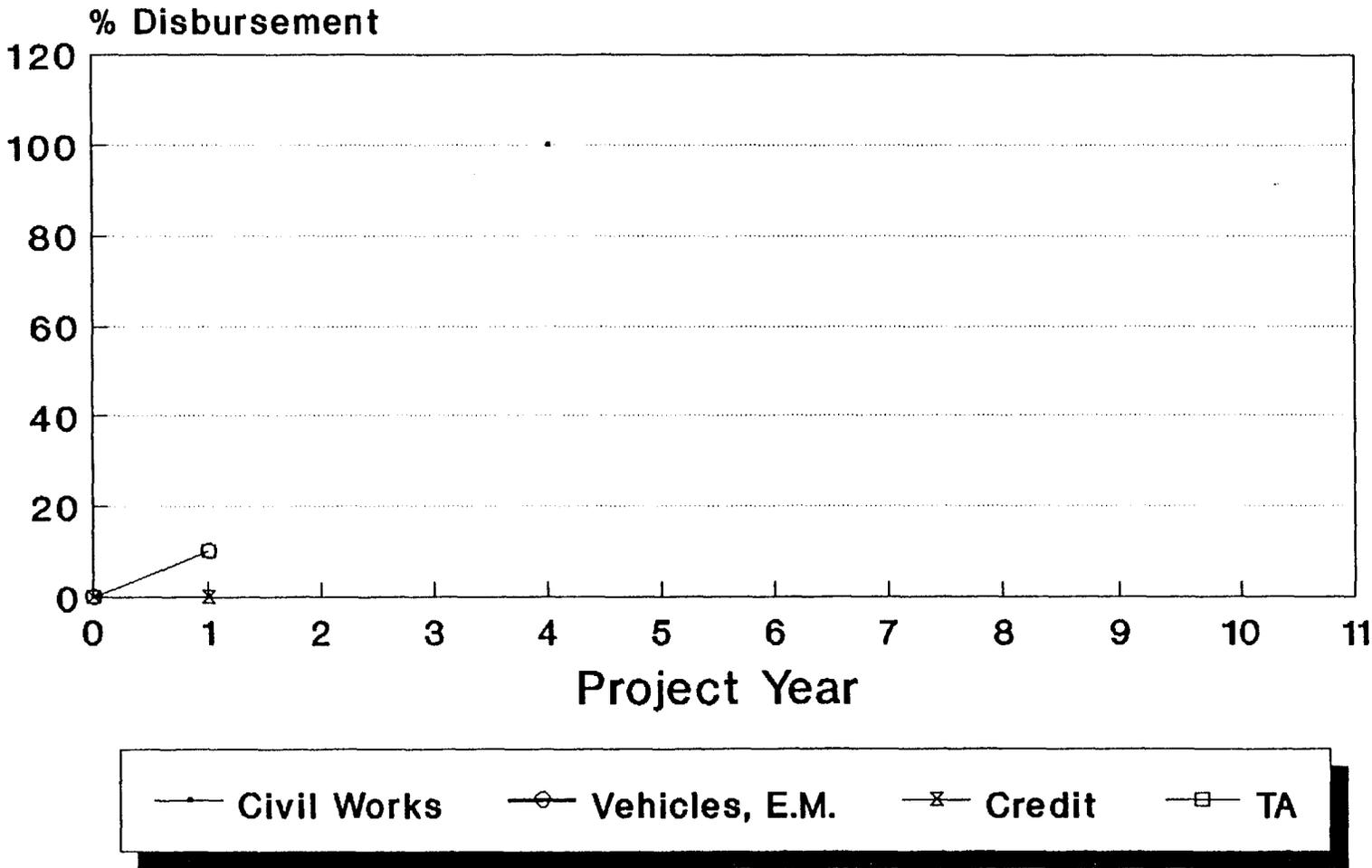
## IFAD Loans Disbursements



ERADP = Eastern Region Agricultural Development Project

# YEMEN COUNTRY-WIDE ASSESSMENT

## IFAD Loans Disbursements



ERADP - Eastern Region Agricultural Development Project

254

Loan 228-YD: Eastern Regional Agricultural Development Project  
List of Reports

1. Appraisal Report, July 1988.
2. President's Report, September 16, 1988.
3. Loan Agreement, January 27, 1989.

ANNEX XIII

YEMEN  
COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE  
Loan No.: 269-YE

## YEMEN COUNTRY PORTFOLIO EVALUATION

PROJECT PROFILE1. IDENTIFICATION & STATUS

Project Title: Fourth Fisheries Development Project Cooperating Institution: IDA	Loan No.:269-YE Status: Ongoing
---	------------------------------------

2. PROJECT DATA

	<u>US\$ Million</u>	<u>Dates of:</u>
Total Project Costs:	39.8	Approval: October 1990
Amount of IFAD Loan:	6.5	Agreement: April 1991
Borrower Contribution:	3.8	Effectiveness: 7 Aug 1992
Co-financers:	IDA 13.2	Original Closing: 31 Dec 1998
	EEC 16.3	Extended Closing: --
Disbursement Status:	00%	Closed: --

3. SUMMARY PROJECT DESCRIPTIONA. Project Area

The project is located in the Eastern Region of Yemem along the Gulf of Aden from Mukalla to Sayhut. The project will review five fishery cooperatives (Mukalla, Al Qarn, Quaseyr, Musainah and Sayhut) which comprise eleven villages connected by a recently built asphalt road, improving access to consumption centres. The coastal fishing grounds are rich, especially in dermesal and pelagic stocks.

B. Project Objectives

Project objectives include:

PROJECT PROFILE (cont'd)

- (i) increasing the country's fish production for local consumption and export;
- (ii) alleviating constraints to increased fish production, specifically on fish handling, collection and delivery to improve the efficiency of domestic fish marketing;
- (iii) encouraging policy changes in pricing, exports, credit and international reform of the National Corporation for Fish Marketing (NCFM);
- (iv) improving the Marine Science and Resources Research Institute (MSRRI), to enhance capacity for assessment and management of fish resources to avoid over-exploitation and to monitor marine pollution;
- (v) replacing the less efficient wooden fishing boats with glass reinforced plastic boats; and
- (vi) providing the wives of the fishermen with community sources and income generation activities.

C. Project Components

Project components include:

- (i) village and fish processing facilities which are composed of fish receiving sheds, ice plants, storage capacity, and a fleet of insulated trucks;
- (ii) a feeder road of about 21 km;
- (iii) staff accommodations;
- (iv) fishing vessels and gear;
- (v) support to CACB to provide credit for fishermen;
- (vi) support to MSRRI;
- (vii) institutional support to NCFM;
- (viii) training for senior and middle management cooperative staff, in addition to mechanics, technicians and fishermen; and
- (ix) women in development, an educational programme to improve the ability of rural women in fishing communities to learn new technologies, introduce new skills to improve their employment potential and income and establish a small clothing factory.

IFAD would finance:

- (i) the resale of outboard engines and spare parts and fishing gear; and
- (ii) the strengthening of the position of women in the fishing communities, including the rehabilitation of community development centres, implementation of adult education and vocational training programmes and creation of income earning opportunities and the provision of consultant services.

PROJECT PROFILE (cont'd)

D. Organisation and Management

The project implementation Unit (PIU) within MFW would be responsible for project implementation. Most likely the Third Fisheries Project PIU will continue to oversee the implementation of this project.

IV. IMPLEMENTATION STATUS

Credit and loan are not yet effective, but companies are invited to submit their offers for detailed designs of the civil works.

4. MAJOR EVENTS AND DECISIONS

- 1989 Project preparation (FAO/IC).
- 1990 Unification of South and North Yemen with implications on cooperatives, privatisation of fisheries' activities and liberalisation of fish trade. May need to consider redesigning the project altogether.
- 1991 Gulf crisis and the subsequent withdrawal of AFESD from the financing of the project and the stepping in of the EEC.
- 1991-  
1992 Financial agreements with IFAD and IDA, but project not yet effective, and awaiting restructuring of cooperatives, subsidiary agreement with CACB and parliamentary approval.
- 1991- Companies short-listed to carry out detailed design visited Yemen in November 1991 and are expected to submit their offers mid-December 1991.

6. MAJOR ISSUES

The project was not effective until 7.8.92.

List of Reports

1. Staff Appraisal Report, The World Bank, February 23, 1990.
2. President's Report, October 3, 1990.
3. Loan Agreement, April 2, 1991.
4. PPRC Minutes, April 3, 1990.

ANNEX XIV

YEMEN  
COUNTRY PORTFOLIO EVALUATION  
GENERAL BIBLIOGRAPHY

## GENERAL BIBLIOGRAPHY

1. Agreement Establishing the International Fund for Agricultural Development.
2. Report of the Special Programming Mission to PDYR, June 1985.
3. Special Programming Mission to PDYR.
4. Report of IFAD's Special Programming Mission to YAR (Draft), Report No. 0106-YA, July 1988.
5. IFAD Operations in Yemen, April 1990.
6. Review of On-going Projects and Suggestions for Streamlining Operations and Accelerating Credit Disbursements (5 pages), World Bank, July 1991.
7. The Economist Intelligence Unit, Country Profile, 1991/92.
8. An Economic and Development Study on the Republic of Yemen, IFAD Report No. 0279-YE, April 1991.
9. Summary of Project Implementation Performance of IFAD Projects in Yemen (10 pages), PU, September 1991.
10. Al-Babily, Y.Y., et al. Towards National Family Planning Strategy: The Republic of Yemen, Ministry of Planning and Economic Planning. Paper presented to "First National Population Policy Conference, Sana'a, Oct. 1990
2. MAWR - SRADP Field Study of the socio-economic conditions of rural women. Rural Women Development Section 1990.
3. FAO/MAWR General Authority for Agric. Research and Extension. Baseline Survey of Animal Fodder Production of Settled Farmers. Lahej, Abyan and Hadramowt Governorates, Aden, July 1991.
4. The Role of Culture and Information in Primary Health Care Working Paper - MAWR-TDA-Hodiedah, Dec. 17-22, 1988.
5. Yemeni Women Association - Basic Organization Document.
6. Presidential Decree on Local Administration No.52, 1991.
9. Carapico, S., Tutwiler, R.: American Institute for Yemeni Studies: Yemeni Agriculture and Economic Change: Case Studies of Two Highland Regions, Sana'a 1981.
10. Environment Profile (Yemen Arab Republic). DHV Consultants, February 1990.
11. Abdel Gawi Abdel Hafiz. Socio-Economic Report at the Districts Level. Oct. 1990. (Arabic).

12. Asma A. Ali et al. Women Component in Irrigated Agric. in Wadi Tubn, Lahej Governorate.
13. Ministry of Planning and Development Central Statistical Organization. National Population Strategy 1990-2000.
14. Ministry of Planning and Development Central Statistical Organization. Summaries of the Technical Papers presented at the First National Population Policy Conference Sana'a, Oct. 1991.
15. Abdulhadi Nural. Rural Women in Bank-Financed Agricultural Projects, Republic of Yemen (Supervision Report) Aug. 1990.
16. Abdel Rahim, SOAD. A Study of the Socio-Economic Impacts of the Rural Women in Development of the Livestock Sector in Southern Governorates. MAWR, General Research and Extension Admin./UNDP/FAO/PDY/86/012 June 1991.
17. Fouad, Monira Y. Women and Agricultural Development in Yemen. The World Bank Review Mission June/July 1991. Discussion Paper July 1991.
18. FAO/WB-CP. FAO/IC SRADP Preparation Report - April 1986.
19. First National Population Policy Conference Press Coverage, Oct. 1991.
20. Main Guidelines and Executive Plan for Yemeni Women Union during the Transitional Period (undated).
21. Ministry of Planning and Development, Statistical Yearbook, September 1991.
22. The World Bank, EMNA, Country Department III, Country Implementation Review, Republic of Yemen, May 1991.
23. Khalifa, Atef M.: Socio-economic Indicators of the Yemen Arab Republic, FAO 1983.
24. Yemen Arab Republic, Rural Development Strategy and Implementation: An Assessment and Review of Issues. United Nations Economic and Social Council. Joint ECSWA/FAO Division. Baghdad 1987.

ANNEX XV

YEMEN  
COUNTRY PORTFOLIO EVALUATION

LIST OF OFFICIALS MET

List of Officials Met

1. Ahmed Ali Muqbal Deputy Minister, MAWR
2. Muqbil M. Muqbil Principal Secretary, MAWR
3. Dr. Abdel Rahman Salih MAWR, Director of Agricultural Cooperatives
4. Abdel Malik Gasim El Thour Director General, Planning and Monitoring, MAWR.
5. Abdu Farei Manager, Wadi Mawr
6. Mohamed Ahmed Fareed Extension and Training Expert
7. Gaafar, A. Head of Agricultural Affairs
8. Musa Saeed Musa Associate Expert, Crop Protection, Wadi Mawr.
9. Mahmoud El Zaem Extension Expert
10. Yousef Mahyub El Mohaya Director Agricultural Affairs
11. Ali M.T. El Maqtari Head Animal Production
12. Abdel Galil Abdu Director, Tihama Research Station, SURDUD
13. Ali El Shuraie Research Coordinator, Head Field Crops
14. Dr. Ali El Thor Director, Southern Upland Research Station
15. Mr. Hamoud A. Abdalla Research Coordinator
16. Mr. Mohamed El Mesgagi Head Research/Extension Coordination Unit
17. Mr. Mohamed A. Saeed Head Sorghum, Maize and Millet Section
18. Dr. Abdel Wahed O. Mukred Director General
19. Mr. Abdel Rahman Sallam Deputy Director General
20. Dr. Ismael Muharram Asst. Director for Agri. Extension and Communication

Annex XV

Page 2

- |     |                              |   |
|-----|------------------------------|---|
| 21. | Mr. Mohi Eddin Al-Ghori      | Head of Field Crops                                       |
| 22. | Fadl Al Maflahi              | Director  |
| 23. | Tahir Mahyub                 | Head, Vegetables Section                                  |
| 24. | Dr. Ahmed Saeed El Zari      | Head Soils and Irrigation, Secretary<br>Research Teams    |
| 25. | Abdel Ghadir Salim El-qahili | Manager of a Cooperative in Beihan,<br>Shabwa Governorate |
| 26. | Yaslam Saeed Ba-Maeela       | Director of Extension in Shabwa<br>Province               |
| 27. | Omer Salim Ba-Mohaimoud      | Head Extension Service in Wadi Beihan                     |
| 28. | Mohamed Aydarus              | Ex Manager Beihan Development Project                     |
| 29. | Dirhim Abdu Nouman           | Governor Shabwa Province                                  |
| 30. | Amin Abdalla                 | SMS Crop Protection                                       |
| 31. | Abdel Aziz                   | SMS Field Crops   |
| 32. | Mohamed Salih Abu Bahs       | SMS Horticulture  |
| 33. | AbdelJalil M. Osman          | Extension Officer, Maifaa                                 |
| 34. | Baban                        | CTA FAO Project, ERADD, Maifaa                            |
| 35. | Amna Farah                   | FAO Expert, Women Development, ERADD,<br>Maifa            |
| 36. | Ali Mohamed Salih            | Extension Director, Abyan                                 |
| 37. | Dr. M. Amin                  | Manager, CHADP  |
| 38. | Tahir El Salihi              | Director Extension, Sana'a                                |
| 39. | Abdalla El Dihaili           | Head Animal Production                                    |
| 40. | Ismael El Rufaie             | M&E Expert  |
| 41. | Dr. Abdel Wali Al-Aghbari    | Dean Faculty of Agriculture,<br>University of Sana'a      |
| 42. | Dr. Abdel Rahman Bamalraf    | Soil and Water, University of Sana'a                      |
| 43. | Dr. Abdulla M.               | Plant Production, University of Sana'a                    |
| 44. | Dr. Mohamed Al-Zumair        | Plant Pathology, University of Sana'a                     |

- |     |                           |   |
|-----|---------------------------|---|
| 45. | Abdel Karim A. AlHaroni   | Director of Administration,<br>Agricultural Cooperatives                        |
| 46. | Ahmed Abdellah Haydn      | Deputy Director, Director of MRS,<br>Lahej                                      |
| 47. | Ghazi Nasser Mohammed     | Chairman, Agricultural & Rural<br>Development Authority,<br>Sana'a-Sada'a-Hajja |
| 48. | Ibrahim A. Gabbar Al Domi | Chairman, TDA, Hodeidah   |
| 49. | Hussein K. Amer           | CACB, Director General  |
| 50. | Ahmed A. Al Mudwahy       | CACB, Asst. Gen. Manager for Credit<br>Affairs                                  |
| 51. | Mohammed F. Ajjaj         | CACB, Manager Foreign Loan Dept.  |
| 52. | Ali M. Al Maktari         | CACB, Manager Foreign Loans   |
| 53. | Abdel Wahid O. Mukred     | Director, General, AREA   |
| 54. | Abedel Wahab Sharaf       | Permanent Secretary, MFR  |
| 55. | Seif El Nasr Mirgani      | Mechanical Engineer - General<br>Administration - TDA                           |
| 56. | M.M. Al Shaybani          | Water Section - TDA   |
| 57. | A.R. Abdel Mula           | Operation and Maintenance - TDA   |
| 58. | Najeeb A. Saddam          | Design and Construction - TDA   |
| 59. | Abdel Moemin Haza'a       | Director General - TDA  |
| 60. | Lutf L. Alansi            | Director General - SRADP  |
| 61. | Abdel Hamid Sharshar      | Monitoring & Evaluation - SRADP   |
| 62. | A.S. Al Boyadhi           | Monitoring & Evaluation - SRADP   |
| 63. | Abdel Rahman Tarmoum      | Director of Agri. Planning - Ministry<br>of Planning                            |
| 64. | Abdel Hafiz A. Ghalib     | Monitoring & Evaluation - MAWR  |