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ECONOMIC PERFORMANCE AND DEVELOPMENT OF STATE FARMS:  
A CASE STUDY OF THE MIDDLE AWASH COTTON PRODUCING STATE FARMS

A Thesis  
Presented to the  
School of Graduate Studies



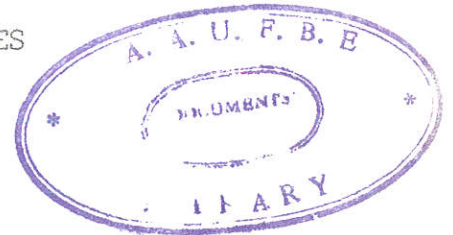
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A CASE STUDY OF THE MIDDLE AWASH COTTON PRODUCING STATE FARMS

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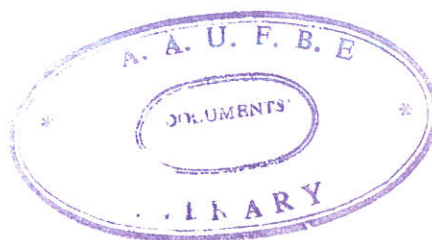


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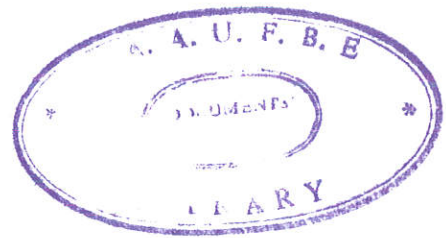
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ABSTRACT

This thesis reports on a case study of the Middle Awash Cotton producing farms conducted with the objective of assessing the economic performance of Ethiopia's state farms as well as identifying the factors affecting such performance. The financial rate of return of the farms as calculated in the study confirms the result of aggregative studies conducted earlier that state farms are heavy financial losers. However it is also the study's finding that the same farms have consistently generated net economic returns over the past seven years. This is expressive of the farms's contribution to the economy by meeting raw material requirements of domestic industries and engaging elements of the actively job seeking rural underemployed.

The contrast between the farms positive economic returns and their poor financial performance is mainly explained by market distortions due to the government pricing policy. It also indicates the conflicting nature of the objectives that the government wishes to attain through state farms.

It is a second finding of the study that inspite of the current pricing policy, the farms' financial as well as economic rate of return figures would have been higher than is the case at present with a more rational use of resources. The current farm management policy is one of excessive centralization and stands in the way of such rational use.

The findings of the study should not suggest that state farms understudy are necessarily be the least cost means of obtaining the benefits the farms are currently generating.

## CHAPTER ONE

### 1. INTRODUCTION

#### 1.1 Background and Problems

One of the outcomes of the 1975 Land Reform Proclamation in Ethiopia was the conversion of the pre-reform commercial farms scattered over various parts of the country into state Farms<sup>1</sup>. Subsequently, the Government paid greater attention to opening new State Farms and expanding the existing ones as an instrument of policy designed to: increase the supply of food to towns, raw materials to industries, increase agricultural exports, and to a lesser extent, create employment<sup>2</sup>.

The new policy was reflected in the elevation of the former State Farm Development Authority (SFDA) to the status of a Ministry and the channelling of the bulk of agricultural development resources to the farms under it. Although state farms today, occupy less than 5% of the total cultivated land in the country and produce nearly the same proportion of total agricultural output, they are by far the most favoured units of the Agricultural sector in terms of resource commitment by the government. They account for over 80% of total fertilizer consumption and agricultural machinery about 73% of improved seeds planted and four about 80 - 90% of Development Loans that have been made available to the Agricultural Sector<sup>3</sup>. All indications are that this is but the start of a trend planned for the future.

However, this massive commitment of resources has not been matched by adequate financial gains. It appears rather that most of the State Farms bear alarmingly heavy financial losses and have become

dependent on Central Government subsidies<sup>4</sup>. It is a well known fact that the resources committed to State Farms represent obvious diversion possibly from more cost effective development ventures such as peasant and cooperative farms. Today as a result of this, the economic viability of the State Farms in Ethiopia poses serious questions and bears a policy issue of national interest.

Indeed a study by Griffen and Hay (1985) found out that State Farms Perform badly not only in financial terms, but also in that of the generation of investible surplus, increasing urban food supply, and employment creation. The study attributed this to excessive central control. Administrative bottlenecks, inadequate feasibility studies in the opening up of farms and adverse pricing policies<sup>5</sup>. An earlier study (Hailyesus, 1982) also identified the lack of proper guidelines, excessive employment and problem in organization, planning and administration as major factors that explain the poor performance of the State Farms sub-sector<sup>6</sup>. Yet another recent multi-disciplinary macro-level study amplifies on a similar range of economic, management agronomic and technological problems faced by the sub-sector<sup>7</sup>.

There also seems to be a concensus among the studies just cited that Ethiopia's State Farms operate in the Pursuit of ill-defined and conflicting objectives. As enterprises farms are expected to be financially viable. On the other hand it is a repeatedly stated policy of the Government that the sector generate exportable surplus, contribute to the improvement in the food supply situation, create new employment opportunities and provide innovative and technical services to cooperative and settlement farms free of charge (COPWE, 1983). Financial viability

is not likely to be consistent with all items of such a long list. At the same time excessive centralization of planning which puts such key management variables, as manpower recruitment and deployment, choice of techniques, output mix and marketing beyond the reach of micro-level management, stands in the way of the least cost attainment of any of the objectives.

In view of the rather aggregative nature of the studies that have led to such an assesment of State Farms in Ethiopia, the broad objective of the study reported in this thesis was to verify conclusions of through an intensive case study.

#### 1.2 Specific Objectives of the Study

The specific objectives of the study were:

1. To review and analyse the policy currently pursued by the government regarding state farm management, production, employment, investment and marketing.
2. To examine the trend in the performance of the farms under study in the areas of:-
  - a) supply to industry;
  - b) employment creation;
  - c) foreign exchange earnings;
  - d) provision of technical services, and the
  - e) generation of surplus.
3. To assess and measure the performance of the farms from the point of view of resource use in areas (a) to (d) above;
4. To assess the specific policy problems manifested in the performance of the farms by separating

- policy factors affecting the performance described under objectives (2) and (3), from
  - factors other than policy frame work affecting the performance of farms.
5. To use results obtained with respect to objectives 1 to 4 as the basis for:-
- a) recommending measures aimed at achieving or maintaining of an acceptable standard of performance in State Farms under study,
  - b) making recommendations with respect to Government policy on State Farms and the latter occupy in overall agricultural development policy.

### 1.3 Significance of the Study:-

The results reported here are hoped to help provide the Government with a picture of the current status of the State Farms and contribute towards the formulation of new policy instruments that might be more effective in enhancing the contribution of the sub-sector. It is also hoped that the same results provide background to further and more extensive studies of Ethiopia's State Farms.

### 1.4 Method of the Study

The farms selected for the case study were the Middle Awash cotton-producing state farms; which accounted for about 55% of total supply of cotton production, and 15% of total permanent employees of State Farms in 1985.

From data on employment, output, farm sizes etc. were collected and summarized in the form of averages and ratios as a prelude to the use of

a) Cost-Benefit Analysis (CBA) to evaluate the rate of return performance of the farms both in financial and economic terms. b) Econometric Methods to examine farm resource use, and its relation to farm rate of return performance.

### 1.5 Sources of Data

1. The study involved the collection of data both from primary and secondary sources. Time series data used include those on (a) cost of machinery, tools, fertilizer, pesticide, insecticide, labour and farm overhead costs (b) Data on indirect costs i.e. costs of administration, selling, distribution, transport, depreciation, insurance, irrigation services etc. and (c) Yield level in quintals, cultivated area in hectares, wages and salaries.

The data have been collected from the following sources:

1. Ministry of State Farm - Planning and Finance Department.
  2. Awash Agricultural Development Corporation.
  3. Agricultural and Industrial Development Bank; and
  4. National Committee for Central Planning (ONCCP) and other related organization.
2. Primary data were also generated at farm level through interviews on the basis of structured questionnaire designed for the purpose of this study. The farm managers were interviewed personally to elicit information with regard to technology, yield level, marketing, processing costs, employment, labour recruitment at peak and slack seasons, labour turnover, norm establishment, pay system, incentives and activities of the farms. They were also requested to give their impressions about overall operation and problems

of the farms. Farm employees were interviewed to solicit information about farm sources of labour force, employment and working conditions.

#### 1.6 Organization of the Thesis

The main part of the thesis is divided into five chapters. Chapter II reviews current government policy in Ethiopia regarding the development of state farms with a brief account of the role and the problem of state farms in the socialist economies. Chapter III outlines the history of large-scale cotton production in Ethiopia with a look at other country experiences as background material. Chapter IV is a detailed account of the Middle Awash Agricultural Development Enterprise as the subject of our case study. Here the historical background, the present organizational setup, planning and decision process with respect to investment, employment and production are entertained.

Chapter V and VI constitute the analytical part of the thesis on which the conclusions and recommendations of Chapter VII are based. Chapter V assess the contribution of the Middle Awash farms to the output and employment policy objectives and relates farm rate of return performance to government pricing policy. Chapter VI examines the relationship between farm rate of return performance and management policy through the latter's effect on resource use at the farm level.

FOOTNOTE

1. Proclamation No. 3,1975, March 4, 1975.
2. Ministry of State Farms Development. Aims and Objectives of State Farms in Ethiopia. Addis Ababa, 1980, P.5.
3. ONCCP, Three Years Plan Preparation and Presentation (1978-1981 E.C.) Addis Ababa, 1978 E.C., P.9.
4. For Instance Total Losses Registered for Three Years (1978/79-1981/82) was about 193 million Birr.
5. See Griffen Keith and Roger Hay, Problems of Agricultural Development in Socialist Ethiopia: An Overview and Suggested Survey Journal of Peasant Studies. Vol. 13, No.1, 1985.
6. Haileyesus Abegaz, The Organization of State Farms in Ethiopia after Land Reform of 1975 (University of Holhein, unpublished Ph.D. Thesis) 1982.
7. See Ministry of State Farm Development, Sector Review Survey Vol. 1-5, Addis Ababa, 1986.

## CHAPTER TWO

### 2.0 Review of the Development of State Farms in Ethiopia

Underlying Ethiopia's current economic policies is the Government's declaration with ultimate goal of constructing a socialist economy on the basis of the historical experience of today's socialist countries. The Government's policy towards state farms in general and agricultural development in particular is therefore best understood in light of that experience. It seems therefore in order that a brief account of the role and problem of state farm in socialist economies preface our analysis of Government policies regarding state farms in Ethiopia.

### 2.1 The Role and Problems of State Farms in Socialist Economies

The basis for development of state farms in socialist countries is their agricultural development policy which is viewed within the context of marxist-Leninist theoretical framework of agrarian transformation. Owing to this large scale farms in those countries dominate the agricultural economy, in the form of Cooperatives and state farms. The latter differ from the former in that, they are owned and operated outrightly by the state, operating on the principles of cost accounting and hired wage labour like in manufacturing industries; while the former represents the pooled holdings of formerly independent peasant farms<sup>1</sup>.

The principle of establishing such large scale farming emanate partly from the requirement of the rational allocation of resources i.e., land, labour, and capital; and partly from ideological considerations to abolish rural exploitation with the ultimate objective of demonstrating the advantage of large scale farming and thereby, fostering growth of capital accumulation<sup>2</sup>.

On the outset, state farms were considered to be superior forms of socialist agricultural organization. Top priorities were accorded to develop the state farms in some countries, like the Soviet Union. The initial objective was to develop the state farm and to supplant the Cooperatives. However, this policy was a failure and later on, cooperatives were found to be an important institution that had to be developed along with the state farms.

One of the very principles of Socialist reorganization of agriculture is the transformation of traditional and fragmented small scale farming into modern agricultural production and the integration of the agrarian sector with the overall development of the national economy. The presumption is that the development of State and Cooperative farms would demonstrate to the peasants the advantage of large scale production over the economies of small scale peasant holdings<sup>3</sup>.

In comparison with cooperative farming the function of state farms is far more diversified and varies from demonstrative activities aimed at production efficiency and accumulation. In this way, state farms are presumed to be centres of innovation adoption of biological and technical improvements in the process of the transformation of traditional agriculture into modern large scale production. Moreover, state farms serve as an instrument of agricultural policy that can in some cases be used to regulate and stabilize prices of agricultural commodities<sup>4</sup>. They also insure the production and supply of crops and animal products that may not be economically produced by other institutions of agriculture.

They are supposed to promote domestic industries by providing them with raw materials and export supply especially in less developed countries. In this way they can initiate and promote the economic integration of agriculture with industries. In addition to such economic roles, other socio-economic functions are expected to be realized.

In line with this, state farms fulfill such socio-economic functions in the areas of employment creation, training well experienced personnel, and agricultural experts for the cooperatives. They serve as research and educational centres for universities and other academic institutions particularly in the U.S.S.R., and the GDR.

Such large scale farms also exist in the capitalist countries, but for different objectives. They mainly play commercial roles and are commercial farms. In LDCs large-scale farms have been organized during the colonial period mainly to initiate and spread mono-cultures serving the development of export oriented raw material production in the interest of the metropolitan economies. In some countries the commercial farms have been nationalized, after independence to operate as state farms. In Tanzania for instance, state farms which have been nationalized after independence were directed towards production of industrial export goods like sisal<sup>5</sup>. Such type of development has also been observed in other African countries such as Nigeria, Egypt, and the Sudan and has created heavy dependency on foreign markets for export earnings. In Cuba where large tracts of land were operated by local and/or foreign entrepreneurs, land was nationalized after independence and organized into state farms. Today they produce the largest portion of sugar cane and cotton which account for over 60% of the total cultivated land.

Thus, the role of state farms in the national economy may differ from country to country depending on the development pattern of the agricultural sector and the objective conditions. Different countries, thus may have different shares from the total agricultural sector. This trend is depicted below in the table.

Table 2.1 Number and Average Sizes of State Farms in Socialist Countries 1976/77

Country	No. of Farms	Average Size (Ha)	% Share of Cultivated Area of State Farm
U.S.S.R.	15747	19955	62.1
Czechoslovakia	305	4721	-
GDR	500	894	7.5
Poland	4941	571	20.3
Bulgaria	147	5531	16.8
Romania	364	5687	13.8
Hungary	176	4989	12.6

SOURCE:- K. . Michaelski "Possibilities and conditions for the introduction of state of cooperative large scale farming in developing countries, Journal of Tropical Agricultural Vetr. Science, Vol. 15 No.1,1977.

According to the above table, state farms in different countries have got different sizes and shares from the total agricultural land. In this regard the Soveit Union is on the top of the list with 62% share, and the GDR with the lowest share of only (7.5%).

In most of the cases, especially in the U.S.S.R. state farms are highly specialized agricultural institutions. There are specialized

state farms in such areas of poultry farms, horticultural production, cotton-producing farms, coffee production, sugar cane production etc. Such organization provides a favourable condition for creating an inciting system of administration and control of farms and give better assurance that the investment will more rationally be utilized.

However, in spite of considerable achievements the development of state farms in the U.S.S.R. and other socialist countries has not been free of problems. Apparently, these problems vary from country to country depending on various institutional and socio-economic factors. In the U.S.S.R. for instance oversized state farms were to a great extent responsible for the inefficiency of agricultural production in the mid 1960's. This manifested itself in problems of management and high cost of production. Due to inefficiency, the amount of labour needed to produce a unit of various farm products is irrationally high. The production costs on state farms were found to be higher than collective farms. For some products the difference is as high as 35-40%<sup>6</sup>. The nature of the difficulties as well as their manifestations differ from country to country. Accordingly, different countries have opted different policy measures reflecting their own objective conditions to alleviate the problems. The various kind of adjustments are related to the strategies by and through which the overalleconomy is to be restructured and developed depending on factor endowment and socio - cultural factor.

## 2.2 STATE FARMS IN ETHIOPIA

Agriculture is the dominant sector of the Ethiopian economy, presently accounting for 55% of the GDP, 90% of the export revenue and 85% of the total employment of the work force<sup>7</sup>. Besides satisfying most of the domestic food requirement, it provides substantial portion of the raw materials for domestic industries and exportable commodities.

Prior to the 1975 Land Reform Proclamation, various agricultural development policies and strategies were pursued by the then government of Ethiopia, with regard to developing private commercial farms and peasant farms. There were also very few state owned farms, whose long term objectives were not clearly defined and known<sup>8</sup>. These farms were either government sponsored settlement schemes or purely state owned farms with some agro - industries. The first of these types of farms were conceived at Awassa as settlement schemes for retired soldiers and school drop outs<sup>9</sup>. Later, these farms gave up their original objectives and were transferred to state owned enterprises. Similar farms were also established at ArbaMinch and Abadir under state domain. However, these schemes ended in failure since there was no sufficient capital to run them.

It was at this juncture, that the Government decided to abandon the whole scheme and instead consider pilot farms at Awassa and ArbaMinch. However, later with the assistance of the Yugoslavian Government some of these farms were turned into state owned farms. While others were converted into research centres, along with the introduction of important industrial cash crops. Parallel to this, there were highly mechanized commercial farms which were mainly engaged in

the production of cash crops. Among these were big sugar estates of Wonji and Metehara, the Tendaho and Tessenai cotton plantations, and the Elaberet and Ghinda farms are worth mentioning. The establishment of these farms together with the laws and regulations issued by the then government, encouraged and enabled foreign investors to infiltrate and cultivate the rural virgin land. The provision of duty free import of capital goods, the absence of restriction in the expatriation of profits, provisions of credits at lower interest rate and tax holidays were some of the incentive elements that were extended to private investors mainly foreigners to develop large scale commercial farms in any part of the country. This attempt was a common phenomenon in the late 60's and early 70's.

This tendency was later reversed with the on set of the revolution of 1974 which aimed at transforming the socio - economic life of the nation based on socialist ideology... Consequently, in March 1975, the new Government declared Public-ownership of Rural land which follows in essence socialist transformation of agriculture. The content of this nationalization measure as stated in the preamble of proclamation No. 31, 1975 is given as follows<sup>10</sup>.

As of the effective date of this proclamation any large scale commercial farms shall be allotted to tiller farms, the government shall administer such farms in any manner it deems fit and provide further that until the government decides upon the manner in which such farms shall have the responsibility to continue administering them.

Following this proclamation, large tracts of land formerly owned and managed by private entrepreneurs were immediately transferred into state sector and some to settlement farms. Shortly after the reform, the state farms were administered and managed by the X-Ministry of National Resource Development (MNRD) whose agricultural department was later merged with the ministry of agriculture and settlement. This was taken as the inception of state farms and the initial phase in the development of state farms. This phase was largely characterized by reorganization of the already existing farms scattered in different parts of the country. The reorganization guaranteed permanent employment to workers who were already working on the farms. Moreover, the loan that was taken by the ex-owners of the farms from credit institutions mainly AIDB was transferred as liabilities of the state farms.

Since, most of the nationalized farms were scattered over the different regions of the country the MNRD was confronted with several problems in administering and managing the farms. However, the problem was later felt by the Ministry of agriculture and settlement. As a result, on May 1978, an autonomous public authority known as state farm development authority (SFDA) was established by proclamation No. 142 of 1978. Under this proclamation, attempt has been made to define the regulations that govern state farm sectors and laid a framework with in which the state farms are supposed to function. It also facilitated the establishment of various agricultural development corporations and units. Consequently, six agricultural development corporations were established on regional basis. Accordingly, each corporation was authorized by law to exercise its autonomous

rights to administer and manage the state farms under its respective control. Nevertheless, they were constrained from executing their rights properly due to lack of clear cut policy and strategic directives. Thus, it was not effective in overcoming the already existing problems.

Owing to this, a year later in 1979, the State Farm Development Authority (SFDA) was elevated to a ministerial level by proclamation<sup>11</sup>. The new proclamation attaches broader functions to state farms and defines the responsibility of the Ministry of State Farm Development (MSFD). This phase is the second phase in the development of state farms and corresponds to the proclamation of the National Revolutionary Development Campaign.

Subsequently, the MSFD was authorized to make necessary changes independently by proclamation No. 179 of 1980. In due course the ministry has reduced the number of Agricultural Development corporation by amalgamating functionally similar corporations. Some of the stipulated functions of the predecessor authorities have been substantially reduced and changed. To this effect, the production of coffee which was under this same authority was transferred to the Ministry of Coffee and Tea Development. In the mean time a new intermediary technical institution i.e., the agricultural development enterprise was established with in the vicinity of each state farms, while the head offices of the agricultural corporations with large number of qualified staffs were made to remain in the capital<sup>12</sup>.

The major aim of this phase as was pointed out in the first and second year National Revolutionary Development Campaign was to increase food production and exportable agricultural products.

Depending on this aim, the MSFD continued restructuring the existing units (Corporations, enterprises and farms) and developing various manuals and systems of management. This led to drastic increase in number and size of state farms.

#### 2.2.1 Institutional Set - up of State Farms:

To achieve the various objectives of the MSFD, the Ministry is organized into various hierarchially structured order; namely the Ministry, the corporations, the enterprise and the farms in their descending order<sup>13</sup>.

The Ministry at the top of the management is a policy making body and a supervisory organ over corporations and enterprises. It also coordinates the activities of the corporations. The corporation is an intermediary organ that links the ministry with the enterprises. It has a supervisory power over enterprises. It has legal personality and thus can sue or can be sued. The general manager of the corporation is authorized to collect its sales proceeds, to borrow from banks and to make expenditures based on budgets approved by higher authorities.

The enterprise on the other hand is a regional technical coordinating unit. It is a supervisory body over farms in a given vicinity. It also links the activities of the farms with the corporation. The lowest organ in the structural hierarchy is the farm, which is a management and main operational entity at a particular location, It is usually taken as a cost centre where the main operational objectives are executed.

The entire corporation set up in the MSFD can also be viewed in terms of the concept of regionalized corporation, service supporting corporations and specialized corporation. The major conceptual framework of each of these is given as follows:

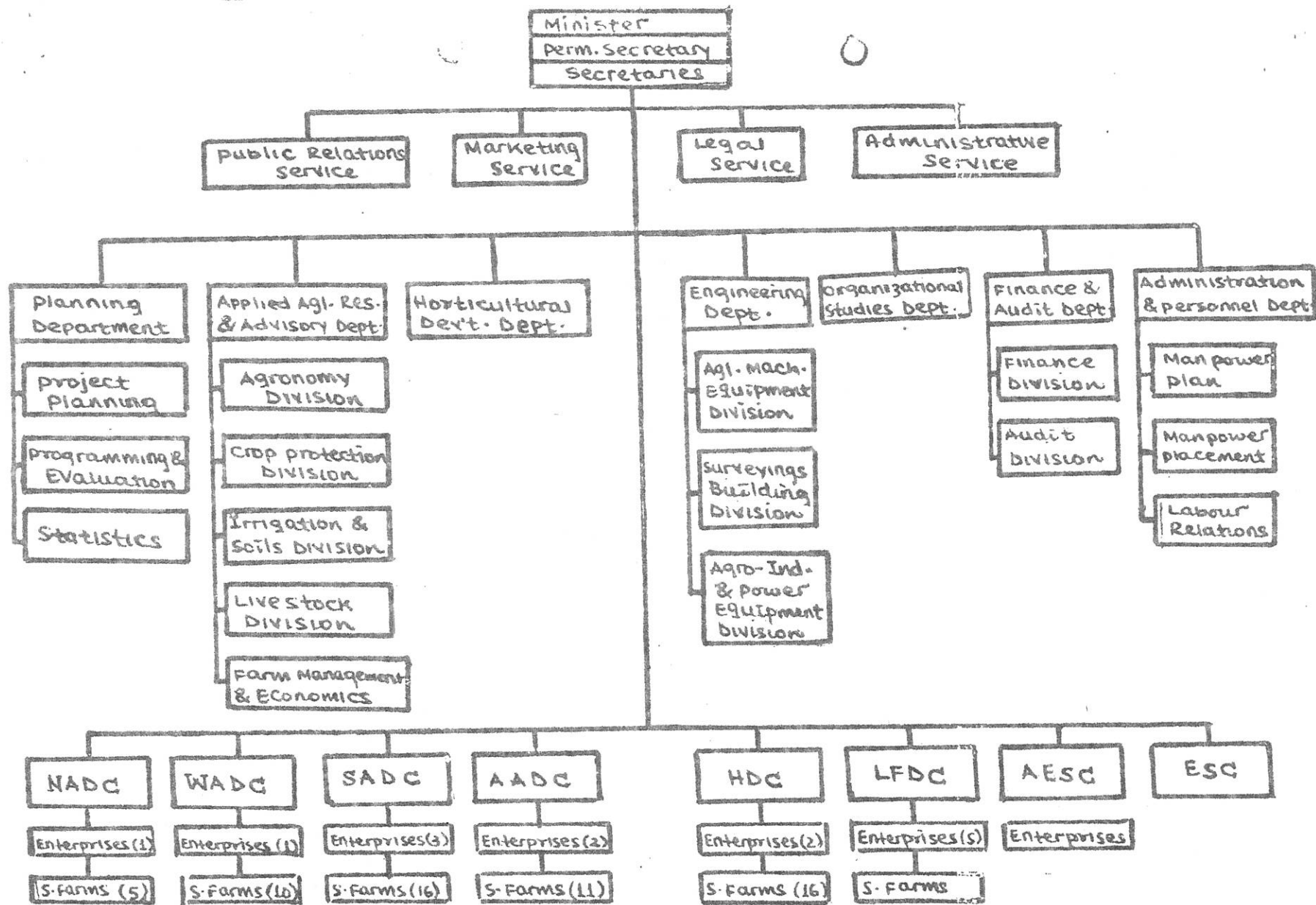
1. Regional corporations:- These are corporations which are organized in more than one administrative regions. They are mainly inclined towards production of cereals and a combination of others. Under this category comes the Southern Agricultural Development Corporation (SADC) and Northernwestern Agricultural Development Corporations (NWADC).
2. Specialized Corporation:- This category encompasses those corporations which are specialized in the production, processing and marketing of certain agricultural products<sup>14</sup>. It includes the livestock and fishery Development Corporation (LFDC), the Horticultural Development Corporation (HDC) and the Awash Agricultural Development Corporation (AADC).
3. The Service Supporting Corporation:- This category actually refers to service giving corporation. Included in this category actually refers to service giving corporation. Included in this category are the Agricultural Equipment and Technical Service Corporation (AESC) which is responsible to import and supply agricultural machinery, equipments and implements. The other service giving corporation is the Ethiopian Seed Corporation (ESC). This corporation is responsible for processing, quality control, seed multiplication and marketing of improved seed in the country. Today, the ministry with its departments and four service supporting units administers eight corporations

However, such organizational set up was not free of problem. The existence of numerous hierarchial tiers within the ministry pose serious management problems. Such tiers obviously create problems of decision making, accountability and resource allocation. Often the process of planning concerning farm units has to pass through such a hierarchy, risking delay in plan implementation.

#### 2.2.2 Objectives

Objectives are means of factorizing various policies with a view of accomplishing certain predetermined tasks. Accordingly tasks given to state farms were defined to reflect government's commitment to develop the sub-sector. The objectives of state farms are derived from the broader objectives of the agricultural sector and functionally related to it. The objectives were, however, subjected to various modifications and changed over the last decade. The initial objective in its broader context is given as summarized by Proclamation No. 142 of 1978 as follows:<sup>15</sup>

1. To achieve self reliance and liberate the country's economy from imperialist dependency inherited from the defunct feudo-capitalist order by exploiting its resources on large scale basis.
2. To overcome the problem of the shortage of those crops which are highly demanded by the population and which are difficult to produce on a large scale.
3. To make possible the study and exploitation of areas with vast agricultural development potential.



Source: MSFD, Organizational Studies Department

Note: Numbers in parenthesis indicate the current number of Enterprises and state Farms

Figure 1. A Schematic Representation of the Organization of the MSFD.

As Cohen Aptly pointed out the theme of these objectives was to provide a reliable surplus of food grains for urban areas and reflects the government's decision to move towards an integrated set of Socialist strategy.<sup>16</sup> However, these objectives were too general and failed to provide articulated policies and strategies to farm units at a micro level.

After the establishment of the MSFD in 1979, the objectives were slightly modified and broadened as follows:<sup>17</sup>

1. To organize crops, vegetables and fruit farms as well as fishery and livestock production;
2. To supply the industry with industrial crops and raw materials;
3. To grow crops for export and secure foreign exchange;
4. To organize and develop state farms serving as model project for farmers, producer cooperatives and speed up socialist transformation of Agriculture.

As can be inferred from above, the objectives of state farms were seen as a deriving force of economic growth by and through which the development of other agricultural sub-sectors hinge on state farms. In view of this, during the period 1978-80, the strategies were directed towards increasing food production and industrial raw material.<sup>18</sup> Latter, however, the objective of promoting Socialist transformation of agriculture was highly emphasised. In its 1983 policy declaration COPWE also repeatedly stressed the far reaching and very important objectives of state farms as to help speed up the socialist transformation of agriculture"... by introducing

better technology and organization, by supplying selected seeds in general by setting up an example.<sup>19</sup> From this it can be seen that state farms were viewed by the government as vehicles to Socialist transformation of agriculture in the rural areas.

However, as could be seen from the development of state farms, these objectives are too general and contradictory. For instance state farms were assigned to play a role in the production of raw materials for industries and food supply to the population, while in the mean time, they are expected to produce exportable agricultural products as a means of generating foreign exchange and to promote Socialist transformation of agriculture. These objectives however, are not functionally defined at farm level and are liable to mis-interpretation. In addition this makes it difficult to set economic criteria to evaluate the objectives.

### 2.2.3 Investment

In order to achieve the stated objectives the government favours the state farm sub-sector as compared with other sectors of agriculture in allocating resources in the form of capital, land, and labour.

Since most of the State farms do not have initial capital they demanded the committment of massive resources for financing the development of infrastructure, buildings, storage, feeder roads, water supply, power engines, clinics, garages, vehicles etc. To this effect, over 60% of the total capital outlay of the agricultural sector went to finance State farms. This share still continues to increase.

The pattern of investment as indicated in the table reveals that massive scarce resources (foreign exchange consuming) went to finance inputs such as chemical fertilizer, farm machiner, and equipment. For instance in 1981 alone State farms with just 4% of the cultivated land received 76% of the chemical fertilizer and 52% of improved seeds that was made available to the agricultural sector (See Table 2 ).

Table 2.2:- Actual Expenditure in Agriculture and the Share of State Farms (In million Birr)

Production Year	Total Agricultural Capital Expenditure	State Farms Share	Coffee & Tea Share	% age Share	
				State Farm	Coffee & Tea
1979	293.3	175.3	27	60	-
1980	507.6	334.0	53.6	66	5
1981	675.7	432.9	53.6	64	8
1982	713.8	424.6	47.7	59	7
1983	731.1	470.7	81.3	64	11
1984	389.6	261.0	26.2	67	7
1985	502.0	534.1	39.2	65	8

SOURCE:- Office of National Committee for Central Planning Ten-Year Perspective Plan and Six years Follow up and Evaluation Reports.

State farms have also been a highly mechanized ventures of the agricultural sector since their inception. The mechanization gained momentum particularly during the initial phase of Cultural and Development Campaign in 1979/80. To this end farm machinery wheeled tractors and implements of various models particularly from the GDR and Yugoslavia were imported in large quantity and indiscriminately

Table 2.3: Distribution of Improved Seeds and Fertilizers in Ethiopia (1977/78 - 1982/83)

USERS	1977/78		1978/79		1979/80		1980/81		1981/82		1982/83*	
	Impro- ved Seeds	Ferti- lizer	Impro- ved Seeds	Ferti- lizer	Impro- ved Seeds	Ferti- lizer	Impro- ved Seeds	Ferti- lizer	Impro- ved Seeds	Ferti- lizer	Impro- ved Seeds	Ferti- lizer
State Farms	20522	-	24067	105100	63608	334500	156478	355200	176256	382700	176253	339789
Settlement Program	4353	1277	5930	8190	7846	41900	8308	29046	9000	11152	9958	45624
Peasant Association	34810	318000	29161	385000	26844	412000	52834	292777	31700	26284	70770	459393
Producers Co- Operatives	-	-	-	-	-	-	1180	1461	3468	10832	8533	20583
Agricultural Research	-	-	-	380	380	380	-	400	-	472	-	983

SOURCE: NRDC and CPSC (Unpublished Data 1982)

\* Planned Budget

The share of state farms to the improved seeds and fertilizers in the years 1977/78-1982/83 is that 34% and 0%, 45% and 33.4% 64.7% and 34%, 78.7% and 52.6%, 80.1% and 55% and 65½% and 39½% respectively.

Table 2.4: List of Farms Machinery and Implements in State Farms of Ethiopia in 1985

Type of Machinery	CORPORATION				Total
	South	North-West	Awash	Horti-cultural	
1. Tractors	1404	973	554	234	3165
2. Slasher/Chopex	13	16	22	10	61
3. Sub - Soilers	71	27	12	1	111
4. Ploughs	741	343	295	124	1503
5. Discharrows	397	96	89	33	614
6. Cultivators	122	34	59	19	234
7. Levellers	39	9	33	31	112
8. Ridgers	48	10	55	21	134
9. Ditchers	29	4	17	16	66
10. Planters	81	131	162	32	406
11. Seed Dirlls	174	-	-	4	178
12. Fertilizer & Spreaders	150	13	15	16	194
13. Chemical Sprayers	92	17	-	6	115
14. Combine Harvestors	270	153	-	5	428
15. Shellors	24	9	4	3	40
16. Trailers	516	175	69	78	838

SOURCE: Questionnaires and Surveys, and MSFD; Towards a Strategy for the Dev't. of State Farms in Ethiopia: State Farm Sub-Sector Survey, 1986.

allocated to State farms. In 1985 the total farm machinery imported to the country under four corporations i.e. Southern, North Western, Awash and Horticultural Corporation numbered 3165. The majority of these farm machinery were concentrated in the Southern Agricultural Development Corporation. This Corporation received a lion's share i.e. 1404 or about 44% of farm machinery while the Awash Agricultural Development Corporation (major cotton-producer) received about 13% of the total (Table 3.4). Priorities in investment were given to the newly established farms.

#### 2.2.4 Sources of Investment

In Socialist countries, in the early phases, the main sources of finance for the development of State farms largely comes from the State budget. However, at the later stage banks and own funds account for the major source of finance. In Ethiopia too, more or less similar pattern of financing exists. The source of finance for the sub-sector is credit from Agricultural and Industrial Development Bank (AIDB), state capital and subsidies, external assistance in the form of grants or loans and to a lesser extent farm own funds. AIDB has always been giving credit priority to this sub-sector since its inception and remained to be the major source of finance. For instance out of the total loan of AIDB in 1979 and 1980 Birr 156,531,626 and Birr 150,239,441, 33% and 90% respectively, went to finance State farms. This can also be seen from the total loan approved and disbursed to this sub-sector. For instance, in the ten year period (1975/76 - 1985/86) a total of Birr 2.4 billion was approved and Birr

Table 2.5 MINISTRY OF STATE FARMS DEVELOPMENT  
ANNUAL & CUMULATIVE LOSSES BY ENTERPRISE  
(IN MILLION BIRR)

ORGANIZATION	BALANCE B.	1980/81		1981/82		1982/83		1983/84		1984/85	
		Annual	Cum.	Annual	Cum.	Annual	Cum.	Annual	Cum.	Annual	Cum.
<b>1. CROP HUSBANDRY</b>											
Arssi Agri.Dev. Ent.	(12.4)	1.6	(12.4)	(9.8)	(20.6)	(7.5)	(28.2)	(11.8)	(39.9)	(12.8)	(52.7)
Bale Agr. Dev. Ent.	3.4	(4.6)	(1.2)	(4.4)	(5.7)	(0.7)	(6.3)	(14.5)	(20.8)	(11.8)	(32.7)
Sidamo Agri.Dev. Ent.	(33.6)	(0.7)	(34.3)	(11.1)	(45.4)	(13.0)	(58.4)	(12.5)	(70.9)	(17.3)	(88.2)
Tendaho Agr.Dev.Ent.	-	3.6	3.6	(0.3)	(0.3)	(12.0)	(12.3)	(11.5)	(23.0)	(11.1)	(34.1)
Middle Awash Agr.Dev.Ent.	(19.3)	(4.8)	(24.0)	(1.8)	(29.9)	(1.1)	(34.4)	(2.2)	(37.0)	(4.2)	(37.0)
Wellega Agr. Dev. Ent.	(19.7)	(15.7)	(35.5)	(16.0)	(51.4)	(26.8)	(78.2)	(27.1)	(105.3)	(17.5)	(122.7)
Gojjam Gonder A.D.E.	(3.4)	(6.7)	(9.6)	(4.5)	(14.2)	(6.8)	(21.0)	(8.7)	(29.8)	(11.6)	(41.4)
Nura Era A.D.E.	(13.1)	(4.9)	(18.0)	(1.4)	(19.9)	(6.5)	(26.4)	(2.9)	(29.3)	(7.3)	(36.2)
Small Farms C.O.	(2.9)	(2.3)	(5.2)	(2.8)	(9.6)	(1.9)	(12.4)	(4.5)	(20.6)	(7.2)	(28.8)
Chefa Farm	(1.5)	(0.7)	(2.2)	(0.7)	(2.9)	(0.9)	(3.8)	(1.4)	(5.2)	(1.1)	(6.3)
Eritrea Enterprise	-	-	-	-	-	(0.8)	(4.0)	(0.2)	(3.7)	(0.9)	(4.6)
Sub-Total	(102.5)	(35.2)	(138.8)	(52.8)	(199.9)	(80.8)	(284.4)	(96.9)	(38.5)	(94.4)	(48.7)
<b>2. ANIMAL HUSBANDRY</b>											
Dairy Dev. Ent.	(5.2)	(2.4)	(7.6)	(3.3)	(10.9)	(2.5)	(14.0)	(2.6)	(16.5)	(2.7)	(19.2)
Poultry Dev. Ent.	(1.0)	(1.1)	(2.1)	(1.1)	(3.2)	(1.8)	(5.1)	(1.4)	(6.5)	(0.1)	(7.1)
Sub-Total	(6.2)	(3.5)	(9.7)	(4.4)	(14.1)	(4.3)	(19.1)	(4.0)	(23.0)	(2.8)	(26.3)
<b>3. AGRO-INDUSTRY</b>											
Meat Processing Plants	9.8	6.1	15.1	(0.1)	(13.4)	6.3	20.0	(3.4)	13.9	3.3	11.8
Food Processing Plants	-	(0.4)	(0.5)	(0.1)	(0.5)	-	-	0.2	0.2	-	-
Sub-Total	9.8	5.7	14.6	(0.2)	12.9	6.3	20.0	(3.2)	14.1	3.3	11.8
<b>4. SERVICES</b>											
Livestock Dev. & Mark E.	(2.3)	(1.0)	(3.3)	(2.0)	(5.3)	(3.3)	(8.6)	(5.3)	(13.9)	(8.5)	(22.4)
Eth. Fruit & Veg. " "	-	0.1	-	0.1	-	0.2	-	0.2	-	0.7	-
A.E.T.S.C.	-	2.4	-	(8.5)	(8.5)	-	(8.5)	(1.0)	(9.4)	-	(9.4)
Eth. Seed Corp.	-	0.1	-	(1.1)	(1.3)	(1.3)	(2.6)	(2.0)	(4.6)	(0.1)	(4.6)
Sub-Total	(2.3)	1.6	(3.3)	(11.5)	(15.1)	(4.4)	(19.7)	(8.1)	(27.9)	(7.7)	(36.4)
Total	(101.2)	(31.4)	(137.2)	(68.9)	(216.2)	(83.2)	(304.2)	(112.2)	(422.3)	(101.6)	(535.6)

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1.5 billion was disbursed. Of this the Southern Agricultural Development Corporation took the lion's share of the loan, followed by Awash Agriculture Development Corporation. This credit has been advanced without any restriction to meet both the fixed investment and working capital requirement of the farms on the basis of 9% and 9½% interest rate respectively. Although the loan policy of AIDB in practice emphasizes the financial, economic, and social viability of the project, this, however, can not be ascertained in the case of state farms, because loan to state farms were considered to be special cases from the bank's point of view.<sup>20</sup>

Another sources of finance is the state budget given in the form of recurrent budget, subsidies, and state capital or equity. Most often, budget is allocated by the government in the form of annual recurrent expenditure. The state also provides subsidy in the form of direct outlay for export oriented products such as cotton, live animals, poultry products, canned meat, vegetables and fruit. In regard to this, in 1984/85 budget year the government disbused a sum of Birr 19.5 million in the form of subsidies, state capital, or joint venture contribution.<sup>21</sup>

The other source is own fund generated by the farms. This is provided by proclamation No. 163/79 to be 10% of retained profit kept as a general reserve fund and depreciation allowance. However, this practice was impractical as far as most state farms are concerned, because they are loosing ventures. As a result they depend on the collection of sales proceeds as their own fund. Between the period 1980/81 and 1984/85 a total of 32.7 million Birr was own fund generated by the farms.<sup>22</sup>

External assistance, in the form of grants, short and long term loan, is often made available to import farm machinery, equipment, and spare parts. These were channelled through bilateral and multi-lateral agreements between AIDB and other financial institutions like the World Bank, EEC, IFAD and other similar institutions. Donations often made in the form of capital items from socialist countries add to the source of investment.

Despite such massive committment of financial resources the overwhelming majority of them show poor performance in terms of financial returns and thus shoulder heavy debt burden. For instance, the total cumulative financial losses incurred in five years (1980/81-1984/85) was Birr 535.6 million. Apparently the trend was much more accentuated in cereal crops producing enterprises. The subtotal as indicated in Table 2.5 for the period considered was 484.7 million Birr; this accounts for every 90% of the cumulative losses. Wellega and Sidamo Agricultural Enterprises have shown an annual increase in losses. The total cumulative losses registered under the two enterprises show Birr 122.7 million and 88.2 million respectively. The only exceptional enterprise with positive financial performance was the agro-industries (meat processing and food processing plants) that has shown a not positive balance of 11.8 million Birr.

As a result, state farms were unable to meet their financial obligation and are highly under capitalized with heavy interest committment to AIDB.

### 2.2.5 Land and Production

Land is an important factor of production in agriculture. It is one of the major national assets that the country has. In order to increase production, and to meet the intended objectives, the government allocated the hitherto unexploited land to the state farms, without restriction. The unprecedented expansion of cultivated land has been observed after 1978/79. For example from 1978/79-1979/80 the total cultivated land under state farms drastically increased from 6,000 to 141,000 ha as shown in table 2.6.

Of this, 107,000 ha of land was rainfed while the remaining balance was accounted by irrigated land. All in all, the amount of cultivated land showed an increase of 107% for rainfed area and 19% for irrigated area. The situation continued until 1981/82, but at a lower pace and was halted later, accompanied by a slight decline between 1982/83 and 1984/85.

Table 2.6:- Total Irrigated, Rainfed and Annual Rate of Expansion of Cultivated Holdings of State Farm ('000 ha)

Production Year	Total Cultivated Area		Irrigated		Rainfed	
	Area	Growth % age	Area	% age Growth	Area	% age Growth
1978/79	85	-	30	-	33	-
1979/80	141	107	34	13	107	182
1980/81	222	57	38	6	186	74
1981/82	226	2	36	-	190	2
1982/83	211	(7)	37	3	174	(8)
1983/84	187	(11)	39	5	148	(15)
1984/85	190	(2)	42	8	148	-
1985/86	210	11	46	10	164	11

SOURCE:- MSFD, State Farm Sub - Sector Review, 1986

The expansion in area since 1979/80 of course resulted in a corresponding increase of output. Between the period 1979/80 and 1981/82 the level of output has increased from 2575700 quintals to 3824100 quintals i.e., about 42%. As it could be observed from table 2.5 the area expansion was halted since 1981/82 with a corresponding decline in output. This trend indicates that the increase or the decrease in output as mainly attributable to the area expansion from productivity.

Several reasons could be forwarded for the declining trend in area and output. One obvious reason is directly related to policy problem of State farm. Most State farms initially established without feasibility studies. As a result they were confronted with several problems such as erratic rainfall, overflowing, salinity problems. In consequences, some farms were reduced or abandoned and some were transferred to settlement programmes.

The general features of production pattern also reflects the governments' priority of food grain production. Table 2.4 indicates this policy of the government. Of the total area cultivated during the 1983/84 production season about 70% was allocated for grain production' 17% for cotton and the remaining for horticultural and other crops. This share has been steadily increasing since 1979/80.

#### 2.2.6 Employment

The State farm sub-sector plays a considerable role in employment generation. The State farm employs different types of labour both skilled and unskilled; on permanent, contractual, or seasonal

Table 2.7: State Farm - Area and Production of Major Crops (Area in Thousand of Hectares and Production in '000 of Quintals)

		Cereals	Pulses	Industrial & Other Cash Crops	Oil Seeds	Others	Total
1975/76	1. Area	27.4	1.8	36.5	-	1.5	67.1
	2. Production	666.3	12.5	482.5	-	76.7	1238.0
1976/77	1. Area	14.8	1.1	36.0	0.3	1.2	53.4
	2. Production	329.5	6.8	619.6	2.0	83.7	1041.6
1977/78	1. Area	23.5	0.6	36.2	0.5	1.7	62.5
	2. Production	603.6	5.0	654.5	4.3	103.2	1370.6
1978/79	1. Area	30.3	0.8	34.3	0.8	1.6	67.8
	2. Production	823.4	4.4	600.1	4.3	74.0	1506.2
1979/80	1. Area	85.2	2.4	32.0	18.8	5.3	143.7
	2. Production	1620.9	10.5	610.6	46.3	272.7	2575.7
1980/81	1. Area	139.3	7.5	31.3	37.3	8.8	224.2
	2. Production	2460.0	23.7	715.2	78.5	265.5	3542.9
1981/82	1. Area	172.5	7.7	31.3	13.6	5.9	231.0
	2. Production	2776.1	22.6	695.8	32.7	296.9	3824.1
1982/83	1. Area	162.9	5.2	33.4	6.6	5.9	214.0
	2. Production	2533.6	20.1	553.2	8.7	295.7	3411.3
1983/84	1. Area	131.2	1.4	32.5	4.3	8.8	178.2
	2. Production	2003.8	4.3	549.2	17.3	261.8	2836.4

SOURCE: National Bank of Ethiopia, Annual Report 1984.

Notes: 1. Area in thousand of hectares.

2. Production in thousand of quintals.

basis. The permanent employees are relatively skilled once while the contractual and seasonal employees are mainly unskilled employed temporarily.

The main sources of skilled professional manpower are university graduates which are assigned to various units of the Ministry, while the major sources of seasonal labour force are peasant associations in different parts of the country and to a lesser extent the urban unemployed.

In 1979 out of the total public industrial employment of 181,000, the share of state farms stood 21,400 employees that represents about 12% of total public industrial employment. This share is indicated on table 2.8. This share remained nearly constant over the last seven years. However, the number of employees increased from 21,400 in 1971 to 35,000 in 1985.

Table 2.8:- Total Public Industrial Employment and the Share of State Farms ('000)

Production Year	Total employment	State Farms	Coffee & Tea	% age Share	
				State Farms	Coffee & Tea
1979	181.4	21.4	-	12	-
1980	222.9	26.8	8.0	12	2
1981	230.6	37.6	4.8	12	2
1982	253.4	97.7	7.0	11	3
1983	277.6	29.8	7.7	10	3
1984	300.2	31.0	7.9	10	3
1985	330.0	35.0	8.9	11	3

SOURCE:- ONCCP:- Evaluation Reports (1984/85 and 1985/86 plans) Statistical abstract, 1986 and state farm sub-sector review P. 361.

Currently state farms employ over 35.0 thousand permanent and 50,000 seasonal employees. However, the seasonal employment shows fluctuation as its source is not yet accurately determined.

Apparently, the majority of university graduates with higher qualification are assigned at the corporation and enterprise levels; while less qualified employees are assigned at farm level. The manpower deployment pattern reveals that the most experienced and knowledgeable staff are not at the level of production units.<sup>23</sup> Such tendencies, however, in many instances left the production units without adequate skilled manpower.

In addition to this, as professional and skilled employees get required experience, they usually have an opportunity to be transferred to one of the higher hierarchy in the organization. This is partly attributed to the defective remuneration system at farm level which has a pushing effect, in that, the further one moves away from production units the better is one paid. As a result annual flight of skilled technicians, professionals, etc. are most frequent problems of the farm units.

On the other hand, frequent shortage of seasonal labour force appears in all the state farms. The daily wage rate paid to seasonal labour force in many instances do not attract workers as compared with the purchasing power of the money received.

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## CHAPTER 3

### 3. LARGE-SCALE COTTON PRODUCTION: A LOOK AT COUNTRIES EXPERIENCE

#### 3.1 Other Countries Experience

Cotton is one of the industrial cash crops produced on large-scale farms. In the Soviet Union it is produced on specialized state and collective farms. Such large scale farms concentrated over a limited regions, mostly in sparsely populated areas of the Soviet Union. This is among other things dictated by the climatic condition of the region.

Between 1956-1963 the number of cotton-producing state farms in the USSR increased through the cultivation of more and more virgin land. Nevertheless, the average productivity has declined as indicated below.

Table 3.1:- Average Labour Expenditure for Collective and State Farms in Soviet

Crop Category	Labour Expenditure per center of product in manday 1956/57	Average 1980/81	Labour Expenditure for 1980/81 as % of 1956/57
<u>RAW COTTON</u>			
State Farms	5.35	5.35	109
Collective Farms	7.60	6.58	87
<u>SUGAR BEET</u>			
State Farms	0.40	0.41	102
Collective Farms	0.55	0.40	73

SOURCE:- Jerry Karz Production Costs and Price in Soviet Agriculture 1968.

The table shows the increase in labour expenditure in the cotton state farms. This implies a decline in productivity in the period under consideration.

Production costs have also increased nearly for all major crops produced by state farms (Table 1.3).

Table 3.2:- State Farm Production Costs for Selected Products/  
ton at Current Price (in Rubles)

Product	1954	1957	1958	1960	1963
Grain	50.8	43.2	43.2	41	50
Potatoes	41.8	48.5	56	n.a.	63
Seed Cotton	137.8	158.23	259	253	292
Sugar Beet	n.a.	17	18	21	23
Wool	n.a.	n.a.	1833	2900	3066

SOURCE:- Jerry Karcz Production Costs and Prices in Soviet Agriculture, 1968.

The major factors for increased cost of production are excessive centralization of management, oversizing of the farms, inefficient use of resources and unfavourable product prices.<sup>1</sup> In addition high labour fluctuation, due to poor working conditions and management have contributed to the increased cost of production. To allievate these problems, a shift in policy has been initiated since 1963. Consequently, over-sized farms were reduced; mechanization, establishment of agro - technics, and improvement of the workers skill with better incentive systems have been introduced. Electrification of the cotton farms has greatly increased. In consequence, productivity has improved considerably in nearly all the cotton farms the total production exceeded that of collective farms.<sup>2</sup>

Subsequently, towards the Mid 1970's, a new development which is the convergence of State and collective farms and economic management system was introduced. The objective of this is directed towards strengthening the overall agricultural material and technical base for efficient growth of the sector. It also aimed at promoting the growth of labour productivity on collective and state farms and their closer proximity with regard to resource utilization.<sup>3</sup> This management system opened up a new vista for adopting the positive features of either type of organization in both institutions.

Following the move, the lagging cotton farms improved their production efficiency and showed a better performance. In some farms it was indicated that on average the production increase was 4.5% between the period 1968-1979.<sup>4</sup>

As a result of this policy development cotton growing farms became important venues for efficient production of cotton in the Soviet Union. The share of the Soviet Union in cotton production has markedly increased.<sup>5</sup> The productivity per hectare was 28.05, 30.42 and 29.12/quintal for the year 1974 - 76, 1981, 1982 respectively. This figure places the USSR next to Israel where the highest productivity was registered to be 41.38 (see appendix VII). However, in terms of volume of production this is one of the lowest, whereas that of the USSR is among the highest. A larger proportion of cotton in the Soviet Union comes from its state farms. This accounts for about 60% of the total production.

Cotton production also exists on large-scale farms in LDCs. In Africa, it is one of the most important cash crops and is mainly

for export as a means of generating foreign exchange. The trend is indicated on table 3.3.

Table 3.3:- Major Industrial Crop Production in Africa Excluding South Africa (Thousand of Tons)

	Growth rate in %					
	1970	1978	1979	1980	1970-80	1970-1980
Cocoa	1115	902	1011	927	-8.31	-1.83
Coffee	1312	1032	1182	1157	-2.62	-1.30
Seed Cotton	3810	3308	3077	3188	3.54	-1.77
Sisal	586	179	175	332	36.58	-4.35
Tobacco	166	225	232	263	15.52	4.91

SOURCE:- ECA Survey of Economic and Social Conditions in Africa, 1984.

Remarkably, cotton production is the major amongst the industrial cash crops of Africa. The Sudan and Egypt are the leading producers and exporters of cotton in Africa.<sup>6</sup> In these countries cotton production takes place both in small scale peasant farms and large scale farms.

In the Sudan, most of the cotton production is concentrated in the Gezira scheme started by the British in 1926. Over 2 million acres of land is devoted to Gezira cotton production scheme. This accounts for over 80% of the total cotton production in the Sudan.

The management of the farms in Gezira scheme involves a number of participants' the scheme management, government bodies, tenant committees and growers associations. The management is responsible among other things for recruiting labour. About 75% of the seasonal labour force is often recruited by this committee. Representatives

of this committee would travel to principal labour supply areas to make contract and recruit labour.<sup>7</sup>

This feature shows that cotton production is more of a labour intensive activity. However, the seasonal labour fluctuates widely from year to year and shortage of seasonal labour force appears to be an outstanding problem of the Gezira scheme.<sup>8</sup> This problem is also common in Egypt.

Both in the Sudan and Egypt, the production of cotton fluctuates year after year. In the Sudan productivity plummeted from an average of 4-5 kantars/ feeden (107 kg/ha) in 1971/72 to only kantars per feeden (91 kg/ha) in 1980/81. Yields dropped for three successive years (1971/72-1973/74) and were attributed to a combination of factors which may be due to inefficiency in corporate services or later tractor operation in ploughing, seeding and weeding, in appropriate timing of pest control. The shortage of seasonal labour force in weeding and picking resulted in high cost of production in the Gezira farms. As a result, the total exports of cotton in 1980 was less than half of what it was in 1972/73.<sup>9</sup>

In order to ameliorate the situation the Sudanese Government has taken some policy measures in 1980. It abolished the joint account and profit sharing arrangement for cotton which dated from the inception of Gezira, and replaced it by a system of individual accounts whereby each government owned farms and each private tenants charged only the cost of services rendered by the government and the Gezira board. Cotton exports were also removed from the official to the parallel market to provide greater incentive to producers.

A price stabilization fund in the form of subsidy for cotton exports was established. Moreover, production of cotton was concentrated in a selected variety of short - staple length in view of increased world demand.<sup>10</sup>

This policy helped to boost production in the Sudan and recorded a substantial of 41.4% in 1981/82 after a considerable fall of productivity. In 1982 the productivity, per hectare stood 15.09 qu/ha.

Subsequently, in 1982, there was a policy revision which required the government to abolish export taxes from the Gezira scheme, lower the nominal exchange rate applied to cotton exports, announce producer prices ahead of harvesting time. The effect of this policy change boosted and doubled production especially between 1983 to 1985.<sup>11</sup>

The experience of different countries thus suggest the existence of different methods and organizations of cotton farms depending on institutional, and socio-economic factors of a particular country, which apt to influence the development of large scale cotton farms. In this context, the experience which was briefly reviewed here throws some light towards the understanding of the development efforts exerted in developing the cotton growing farms in these countries.

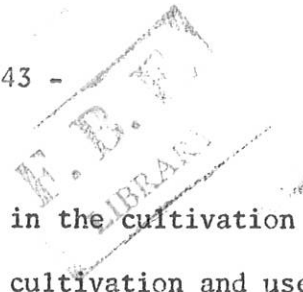
Several other issues are worth mentioning, however, the factors affecting and the magnitude of the problems may not equally appear in Ethiopia. Hence, furthering the study, the following section will present the development of the Ethiopian large-scale cotton-producing farms.

### 3.2 Large-Scale Cotton Production, in Ethiopia

Cotton in general is one of the world's most important cash crops. Immense benefits have been derived from this crop despite the growing competition from artificial man made fibre. It is also this crop that is believed to have introduced the African peasants more than any other crop, to a cash economy.<sup>12</sup>

In Ethiopia too, cotton was one of the many ancient plants which were bases of important cottage industries. The development of weaving and spinning were evolved as some of the oldest activities (probably as old as the history of agriculture) in the cotton production.

This is witnessed by the early historical accounts, documented in Ethiopia. The civilization which flourished during the 5<sup>th</sup> century B.C. on the Island of Merewe (between the Blue Nile and Atbara, in what is now the Suda) knew and used cotton for weaving.<sup>13</sup> The type of cotton grown was known to be the present day Asin cotton of the Sudan, race Soudanes. Even before the kingdom of Axum such type of cotton was believed to be widely known. It is presumed that the soudanese cotton of merewe spread to West African where it was commonly used before the appearance of cotton race G.herbeum.<sup>14</sup> The Soudanese then spread up to Atbara and Takeze and it is from this stock that the Soudanese cotton race of Ethiopia descends. Furthermore, the early first half of the 3<sup>rd</sup> century (325 to 350 A.D.) expedition sent by king Aezanos down to Tekeze and Merewe is described in an inscription found at Axum in which reference is made to stores of corn and cotton of the people of Merewe.<sup>15</sup> All these facts witness that Ethiopia



is a country with long tradition in the cultivation and use of cotton. It is this long tradition in the cultivation and use of cotton, that provided a fertile ground for the development of large scale cotton production and modern textile industry in the country.

Modern large scale cotton production in Ethiopia, however, begun in Eritrea at Tessenai Valley in 1930. In 1936, the Italians attempted to establish large scale commercial farms. Subsequently, they established five main cotton plantations with a complete ginnery in each regions.<sup>16</sup> These were identified by name of companies: Natural perio, cotone d'Ethiopia. Impresa, cottoneria Africa and Italiania. They were nearly sufficient to satisfy the demand for yarn mills in Italy. The activity, however, discontinued during the war.<sup>17</sup>

The work of cotton production again started afresh after 1952, with the help of FAO cotton experts. After two years in 1954 the work on cotton development was strengthened and discussed at a higher level between FAO experts and the former point IV of U.S.A. in collaboration with Ministry of Agriculture.<sup>18</sup> Subsequent, various suggestions and mechanisms were devised and as early as 1958 the Kobo - Alemata was selected as a project site to develop cotton as pioneering crops on large scale farms. However, due to water shortage the area was totally abandoned. Later, towards the end of 1950 and mid 1960s the establishment of a number of textile mills in the country necessitated to develop the Awash Valley by establishing the Awash Valley Authority (AVA).<sup>12</sup> This is another landmark in the drive towards developing modern cotton farming in Ethiopia.

Since then, due to the introduction of more selected and improved cotton varieties from America and Africa a marked increase both in quality and quantity of cotton produced has been made along with the area cultivated. Many foreign investors have taken part in developing cotton for commercial purposes. The laws and regulations that provide incentives were promulgated to attract investors to the Awash Valley. Following this, many feasibility studies were undertaken and Mitchell Cotts and Ambash private limited company took part in developing the lower Awash (Tendaho) and middle Awash respectively. For the purpose at hand, henceforth, we concentrate of the latter one.

FOOTNOTE

1. Jezzy Karcz, The Socialized Agriculture of the U.S.S.R., Plans and Performance (Stanford University, 1969). P. 122.
2. Ibid. P. 312.
3. Leylu U.E. Court, Recent Development in World Cotton and the Future Outlook, IMF Staff Paper Vol. XXIV, No. 2, 1977.
4. Sheptoko: The Convergence of Collective Farm and State Farm Economic Mechanism Problems of Economics Vol. XXIII. No.4.
5. Marine Lavigne Opcit. P. 75.
6. Sheptoko, Opcit. P. 75.
7. See Worl Bank, China Socialist Economic Development: The Economics Features of Agriculture, Industry and Transport. Washington D.C. 1983, P. 55.
8. Jay O'Brien, Formation of the Agricultural Labour force. Review of African Political Economy. Special Issue, No.26, 1983 P.75.
9. Ibid. P.15
10. Ibid. P.19.
11. ECA, Survey of Economic and Social Condition in Africa (1985-1986) Addis Ababa, 1987.
12. AN Prentice, Cotton With Special Reference to Africa 1972 P.6.
13. Imperial Ethiopian Government, Cotton in Ethiopia Addis Ababa 1960. P. 3.
14. Ibid. P.4.
15. Ibid. P.5
16. IBRD. Agricultural Sector Survey of Ethiopia Vol II, 1973, P.15.
17. Ibid. P. 25.
18. FAO, Report to Government of Ethiopia in Cotton Production. Rome 1965. P. 10.
19. IBRD, Opcit P. 15.

## CHAPTER FOUR

### 4. THE MIDDLE AWASH COTTON-PRODUCING STATE FARMS OF ETHIOPIA

The first farming enterprise in the Middle Awash was introduced in 1966 by the name of Ambash Private Limited Company.<sup>1</sup> Ambash was immediately followed by Algeta Private Comapny in 1967. A year after, in 1968, the Ex-Ethiopian Development Company which later became Sublele Private Limited Company was also established in Middle Awash. Later in 1972 Sublele was followed by another indigeneous Company known as Melkesedi estate share Company. Other small private farms like Dofen Bolhm also emerged towards the beginning of 1974.

At the time of nationalization in 1975, there were about 30 farms with a total cultivated area of 4665 hectars. Eventually, these farms like any other nationalized farms in the country were restructured and administered in the hands of the state. However, initially they were organized on regional basis under two distinct organizations viz the Middle Awash and Gewane Agricultural Development Corporation. For the second time in 1977 the farms which were administered by the Middle Awash Agricultural Development Corporation were divided into two farms i.e. Amibara-Angallel into Ambara and Angallel and Dofen and Bolhamo farms. The reorganization of the farms ended up with the establishment of the MSFD in 1979.

Consequently, the farms under the Middle Awash and the Gewane Agricultural Corporation were amalgamated on the basis of homogeneity with respect to ecological conditions, labour, technological inputs and others. Then, the Middle Awash Agricultural Development enterprise (MAADE) in the vicinity of Meddle Awash Valley was created by encompassing five distinct farms, viz. Melkewarer, Melkesedi, Dofen-Bolhamo, Amibara-Angallel and Gewane.

Among these five farms Melkewarer and Melkesedi were established after the Revolution and depend on Amibara irrigation project which is one of the most developed irrigation scheme in the country<sup>2</sup>.

Melkewarer state farm was established in 1960 when the scheme became fully operational, while Melkesedi state farm was started a bit later, in 1983.

The rest three farms, Amibara - Angallel, Gewane, and Dofen - Bolhamo were established before the Revolution mainly under foreign management.

All the farms under MAADE follow, like any other state farms, hierarchial organization of MSFD.

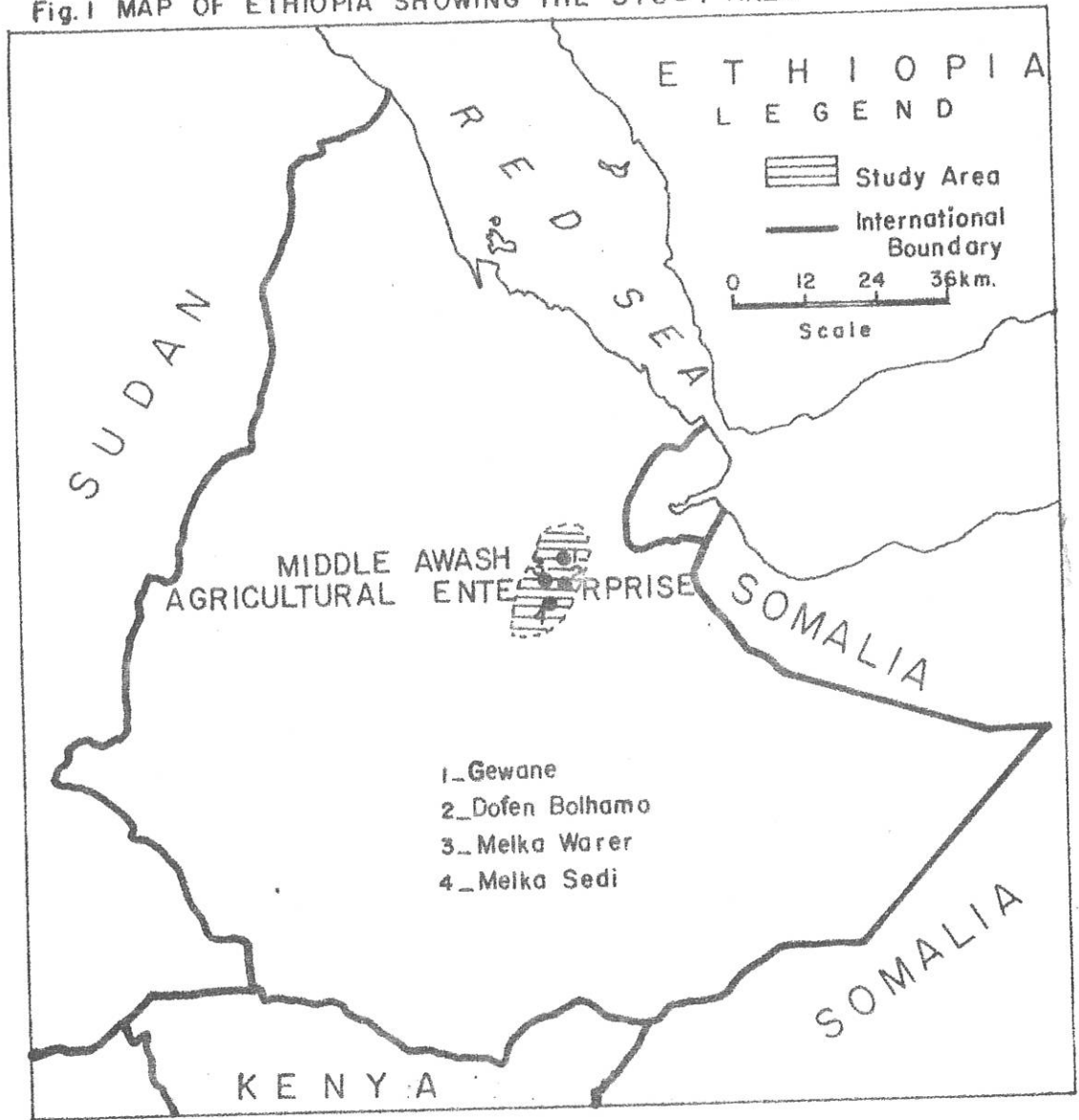
The Awash Agricultural Corporation is responsible for directing and coordinating the activities of the MAADE enterprise. It also acts as a link between the enterprise and the MSFD at a higher hierarchy. The enterprise as a regional coordinating and supervisory body administers all the five cotton growing farms. It controls and supervises execution of policies of MSFD at micro-level i.e. farm units.

Each farm at micro-level are composed of sections and units that are termed as cost centre of the farms. These are Administration, Accounting, Stores and Property, Technical, Agricultural Sections, and Data Collection services.

#### 4.1 Location of the Farms

The Middle Awash cotton - growing state farms are located along the East and West basin of the Awash river partly in Hararghe and partly in Shoa Administrative regions. The head office and its

Fig.1 MAP OF ETHIOPIA SHOWING THE STUDY AREA



various units are located at Melkasedi 266 km from Addis Ababa, on the left side of the Assab road. The transport net work is relatively well developed compared to other state farms in the country. The road net work which was formerly linked with Addis Ababa through Combolcha now passes through Nazareth. This network connects the area with industrial centres in Addis Ababa and Akaki, Dire Dawa and Dessie. Moreover, the country's main railway line, which provide an external link with Djoubti also passes along this line.

The distances and types of road are indicated below in the table 4.1. As can be seen from the table below, the type of road in and around Middle Awash is almost entirely asphalted. Thus the transport network combined with the favourable climatic condition of the area, stimulated the development of cotton production.

Table 4.1:- Transport Distance Asphalt/Gravel/

Farm Area	Destination	Distance		Total
		Asphalt	Gravel	
Melkasedi	A.A.	265	17	282
Melkawarer	A.A.	265	20	285
Amibara/Angallel	A.A.	265	24	280
Dofen-Bolhamo	A.A.	265	25	290
Gewane	Dubti	245	12	257

SOURCE:- Awash Agricultural Development Corporation Transport Division.

#### 4.2 Process of Planning

In principle plan preparation and excusion in MAADE cotton growing farms follow similar procedures of MSFD. Before 1979, the plan was prepared by the planning units of the ex-corporation without involving those who were directly concerned with implementation at

farm level. After the establishment of the MSFD however, the planning process more or less follows the existing hierarchical structure of the MSFD. On such account the planning process of MAADE starts at the "cost centre of each farms". This is done on the basis parameters developed and provided by the Awash Agricultural Development Corporation (AADC). These parameters are coefficients which serve to establish guidelines for manpower, cropping pattern, investment, raw materials, price etc. Based on these parameters each farm plans targets of production, manpower requirement, raw materials, financial requirement, and other important targets.

The plan so prepared then passes to MAADE. This process then goes from MAADE to AADC which acts as a link between the Ministry and the MAADE to facilitate the planning process.

The planning department of the Ministry in its own account coordinates the plans of the corporation and submits to the National Committee for central planning (ONCCP). ONCCP is the supreme planning Organ of the State, for final approval. Once the plan is approved its implementation is carried out through routine administration and often follow-ups and evaluation reports.

In the process of plan implementation a combination of both moral and material incentive systems are widely used to motivate and promote the creative capacity of employees, to create individual intra-farm and inter-farm competition, to safeguard efficient use and handling of machinery, tools and implements, and to enhance the workers productivity and ultimately, to fulfill plan targets.

In this connection three types of incentive methods are commonly adopted by the farms.

1. The first incentive method among other things includes extra payments for overfulfillment of a certain target in accordance with the norm established by the corporation. This kind of incentive is directly applied to technicians and tractor operators.
2. In addition to the incentive cited above, workers receive material and moral incentives. Distinguished workers from each farm are usually selected as 'Star Worker' and prizes (financial or material), certificates of merit and in some cases special promotions are awarded.
3. Group Incentives:- Employees as a group will gain salary increment often 3-5% of the increase in output if they overfulfill a certain predetermined target as provided by the planning organs. This method encourages collective or team work as it often depends on group achievement of higher targets.

#### 4.3 Resource Allocation

Cotton is one of the main cash crops in Ethiopia next to coffee. It is grown extensively in irrigated lowlands and the production generally requires heavy initial investment. To this end, much of scarce resources of the sub-sector in terms of capital, land and labour has been allocated. Capital outlay in the form of working capital and fixed investment have been increasingly allocated from time to time. The magnitude of capital allocated to MAADE is presented below in table 4.2.

Table 4.2:- Capital Expenditure to State Farms and Share of MAADE (In Millions)

Year	State Farms	MAADE	% age Share of MAADE
1981	432.9	18.5	5
1982	424.6	35.5	9
1983	470.7	46.7	10
1984	261.0	42.6	16

SOURCE:- National Committee for Central Planning and Awash Agricultural Development Corporation Planning and Programming Department.

As can be seen from the table above there was an increasing trend in the share of investment allocated to MAADE. For the period 1981-1985, on average about 390 million Birr was invested on State farms of which Birr 35 million accounted by MAADE. This accounts for over 10% of the total of the State farm sub-sector. Out of this a substantial portion was invested on the acquisition of heavy farm machinery, tractors and farm implements all of which consume foreign exchange. The type of farm machinery and the quantity is shown in table 4.3. As can be seen from the table, the number of farm machineries allocated to MAADE increased over the period of 1980/81-1985/86. During the initial period tractors and implements were allocated indiscriminately to all farms. Among these ZT and EMT models from the GDR and Yugoslavia respectively were allocated in larger numbers. However, these tractors and farm machineries do not suit the soil and climatic condition of the area and were susceptible to easy breakage particularly on the farms where virgin

Table 4.3:- MAADE - Level of Farm Mechanization (1980/81-1985/86)

Machinery	80/81	81/82	82/83	83/84	84/85	85/86	State Farms 85/86 As a Whole	% age Share of MAADE
1. Tractor	216	183	143	197	227	202	3165	6
2. Ploughs	86	109	83	96	96	103	1503	6
3. Disc Herrow	13	23	12	12	20	45	61	74
4. Slash/chape	48	46	39	39	16	45	614	3
5. Ridger	25	51	28	28	26	36	134	26
6. Levellers	33	31	39	39	32	32	112	32
7. Cultivators	57	65	43	43	47	52	234	22
8. Trailors	87	69	86	74	64	49	838	6
9. Ditchers	25	-	16	16	13	09	66	14
10. Planters	29	33	37	37	31	28	406	7
11. Sub-soilers	9	-	7	7	12	03	111	3
12. Chemical Sprayers	11	05	02	02	-	03	115	2

SOURCE:- AADC, Overall Performance Assesment (1972-78 E.C). in Amharic.

land was to be developed. In consequence a lot of problems emerged in the mechanization. Machinery management also became more complicated on the old farms where these tractors were introduced.

As a result, MSFD has taken measures towards the development of mechanized farming with Fiat Models of different horsepower in the area. Land is another important resource of the farm. Land with a favourable climatic condition which suits cotton production has been allocated to MAADE. The share of land located to the MAADE is indicated in table below.

Table 4.4:- Cultivated Area of MAADE Under Cotton Production  
(in hectars)

Year	State Farm	Awash Agri- cultural Development	MAADE	% Age Share of MAADE As Total of	
				State Farm	Awash Agri. Corporation
1980/81	29,950	20,486	4,567	15	35
1981/82	30,249	21,045	6,332	21	41
1982/83	30,643	23,373	7,940	26	43
1983/84	31,936	25,518	9,268	29	43
1984/85	31,637	27,626	11,169	35	49
1985/86	34,117	32,804	13,000	38	41
Average				27.3	42.8

SOURCE:- Calculated by the author from the data obtained  
Awash Agricultural Development Corporation.

As could be seen from the table above MAADE cotton farms hold a substantial portion of the total cultivated land available under cotton production. This accounts for about 27% of state farm and 40% of Corporation. The share has steadily increased over the period of seven years (See table 4.4.

Labour is another important factor of production that deserves attention for cotton production. The very nature of cotton production is any LDCs like Ethiopia requires massive labour force. Similarly State farms under MAADE, are not fully mechanized and some operations are left for labour.

Particularly such activities as cotton picking, weeding are left open to manual labour force. Thus the MAADE cotton-growing

Table 4.5: Comparison of Labour Force Allocation in MAADE Vis-a-vis AADC and State Farms

Year	State Farm		Awash Agricultural Dev. Corp. Permanent (3)	MAADE		Share of MAADE in % Age (6)		
	Permanent (1)	Seasonal (2)		Permanent (4)	Seasonal (5)	4/1	4/3	5/2
1980/81	32187	82463	9490	6783	13638	21	71	17
1981/82	37095	123756	11982	8395	18892	23	70	15
1982/83	37137	17656	10872	7303	19973	20	67	11
1983/84	42204	118226	10894	7406	25728	18	68	22
1984/85	46668	125078	10880	7171	28788	15	66	23
1985/86	43780	149315	18209	6532	24763	14	49	14
1986/87	44036	149315	12668	6893	n.a.	16	54	-

SOURCE: MSFD Awash Agricultural Development Corporation. Planning and Programming Dept.  
and the remaining were calculated by the author.

farms require both seasonal and permanent labour forces which increase along with area expansion. The total seasonal and permanent labour force allocated to MAADE is indicated in table 4.5.

According to this figure the share of MAADE is considerably high. This accounts for the 70% and 17% of this Corporations' and State farms' permanent labour force respectively. The number of seasonal labour force is substantially higher than permanent labour force. It implies that, the MAADE requires more seasonal labour force than the permanent labour force for the operation of the farms. As a result the sustained increase in seasonal labour force is observed between 1980/81-1984/85.

FOOTNOTE

1. MSFD, The History of the Middle Awash Agricultural Development Enterprise, 1975 E.C. (in Amharic). P. 2.
2. World Bank, Ethiopia: An Appraisal of the Revised Irrigation Project, Washington D.C., 1977, PP. 4.

## CHAPTER FIVE

### 5. MEASURING FARM PERFORMANCE

#### 5.1 Benefits From the MAADE Cotton Farms

##### 5.1.1 Output and Foreign Exchange Contribution

It is an explicit government policy that the country's cotton growing state farms meet the increasing demand for lint cotton and seed cotton by the domestic industries and, in the process, contribute to (a) the alleviation of the unemployment problem the country is facing; (b) the introduction and diffusion of innovation within the traditional agricultural sector and, (c) the hard currency reserve of the country through export or saving of foreign exchange.

Almost all the supply of lint and seed cotton to the domestic textile industries now comes from state farms. Of this supply an average of close to 75 percent is contributed by the Middle Awash Farms as shown in Table 5.1.

Table 5.1:- Supply of Lint Cotton and Cotton Seed by State Farm and the Share MAADE 1980-81 - 1985-86

Year	LINT COTTON			SEED COTTON		
	State Farms Volume ( '00 ton)	MAADE Volume ( '00 ton)	% age of MAADE as total of State Farms	State Farms	MAADE Volume ( '00 ton)	% Share
1980/81	221	145	65	401	308	75
1981/82	198	139	70	430	325	70
1982/83	206	172	80	343	283	80
1983/84	206	181	85	275	225	81
1984/85	196	163	80	451	406	82
1985/86	276	251	90	451	397	78
Average	217	175.2	75	458.6	324	78

SOURCE:- MSFD, Planning and Programming Department  
AADC, Planning and Programming Service.

This contributes over 50% of the output in the country's cotton production. It has also been observed that the MAADE cotton producing farms have always been attaining the output set by planning authorities to meet the raw material requirement of domestic industries and the policy objectives set by the government. The implication of this contribution in foreign exchange saving should be immediate.

Direct export by the farms at present is negligible. However, the cotton from these farms is hand picked and is as a result of a higher quality than imports of machine picked cotton from developed countries. There is therefore, ample possibility that the farms could join the export trade in the near future once domestic demand is met.

#### 5.1.2 Employment Contribution

Large-scale modern farming is among the most labour intensive activities in the non-traditional sector of the less developed countries. Its requirement of skilled manpower is among the lowest. Their rural location and the seasonal labour force requirement also places such farms in a position to employ the seasonally underemployed in their vicinity. It is in the light of such expectation that the employment contribution of the Middle Awash state farms should be assessed.

The Middle Awash cotton growing farms employ a large number of seasonal and permanent workers. This accounts for a quarter of the total work force engaged in state farms. The labour absorptive capacity, of the Middle Awash farms is also much higher than the average urban manufacturing establishment. This can be seen from

the Table 5.2, where the fixed assets requirement per person engaged is shown for the two cases.

Table 5.2:- Number of Persons Engaged and Value of Fixed Capital in Ethiopia's Manufacturing Industries and Middle Awash State Farms 1975/76 - 1980/81.

	Manufacturing *	Middle Awash** State Farm
Value of fixed asset in Birr '00	477,329	6,797
Number of persons engaged	69,692	21,404
Ratio of fixed asset to a number of person engaged	685	317.6

Note: \* Average for the years 1975/76-1981/82  
 \*\* Average for the years 1979/80-1983/84.

SOURCE: CSO, Statistical Abstract  
 Middle Awash Agricultural Development Enterprise, Planning &  
 Programming Service.

It appears from the table that for every unit of capital invested, more than twice the number of people employed in manufacturing industries are employed in the Middle Awash Cotton Farms. However, the comparison of state farms to manufacturing industries in those terms should not be pushed too far. As it has been indicated before, the majority of the employees of the MAADE are seasonal labourers. And the demand for seasonal labour by the enterprise is highly unstable with a coefficient of variation of 25 to 69 per farm as could be seen from Table 5.3. Demand reaches a peak during the cotton

Table 5.3:- Permanent Employment and Seasonal Employment in Middle Awash State Farms and Coefficient of Variation

Farm	Av. Annual Permanent	Av. Seasonal Employee	Seasonal Employee as % age of Total	Coefficient of Variation in Seasonal Employee
Amibara-Angallel	5081.2	449	2.0	32.49
Dofen - Bolhamo	1398.8	1664.4	54.3	26.2
Gewane	2373	1830	48.3	58.0
Melkawarer	726	2585	78.1	40.1

SOURCE:- Calculated from the data obtained from MAADE Planning Service.

picking season that runs roughly from September to early January during which about 60 percent of the total seasonally employed by the farms are engaged. The next seasons of peak demand is that of planting, irrigation and weeding running June through to August and accounting for the larger share of the remaining total demand for seasonal labour. Following each pick season is a slack season so that a group of seasonal workers cannot stay on a farm for more than three months at a stretch. From a point of view that attaches great weight to job security in the assessment of employment contribution, the performance of the farms relative to manufacturing establishments is therefore low. On the other hand the main advantage of state farms in relation to the employment problem lies in that the seasonality of demand for labour makes them particularly suited as instrument for alleviating rural

underemployment as distinguished that from open unemployment, state farms also contribute to reduce the push factor to the swelling of the urban unemployed through rural to urban migration while no such contribution can be made by the urban formal sector.

Major source of seasonal work force to the Middle Awash farm are the peasant associations. It is interesting to see that most of the seasonal work force of rural origins are not from the surrounding regions of Harar. Only few are from the nomadic Afar population of the area. Close to 60-70% percent of the work force of the farms rather comes from the far away regions of Kembata and Hadiya and Wolita Awraja known for their high population density. These are area which have the tradition of peasant farmers seasonal migration in search of employment.

Only during season exceptionally high shortage of manpower do the farms recruit from the major urban centres of Addis Ababa, Nazareth, Debre Zeit, Dessie, Kombolcha, Harar etc. The recruitment of the urban unemployed is always a last resort to farm managers because of a clear productivity differences of urban and rural labour force. In some cases it has been observed that in the cotton picking season the average rural worker picks upto 10 times than the average worker of urban origin. The cost of recruitment of urban labour force is also relatively expensive. Finally, it appears that the socio-economic background of urban recruits makes them a much less disciplined and responsible work force at the farms. Not much can therefore be expected from the Middle Awash farms in easing the urban unemployment through seasonal recruitment.

One may therefore argue, that the employment contribution of Middle Awash State farms is in the direction of absorbing the already activated seasonal labour force of small farming background and not in mobilizing the nomadic population or the urban unemployed around the farm areas and far away in towns. The direct impact on employment in their immediate vicinity or far away in urban areas at best may be an objective that can be attained in the long-run.

### 5.1.3 Innovation in Socio-Economic Life

Efforts have been made by the cotton farms to diffuse modern technology and thereby change the socio-economic life of the Afar nomadic people in their vicinity. Unfortunately the Afar nomadic people appear to be reluctant in accepting innovation. The full contribution of the farms in that respect can therefore be realised only a part of an integrated development effort designed to the life style of the Afar nomads. Nevertheless, the contribution of the farms to the adjoining settlement project, in terms of financial, material and technical services has been considerable. It also appears that due to the operation of the farms many settlers have come to realize the advantage of cotton production and the possible benefits.

The Banks, market development, road network and telecommunication that have come into existence in at farm sites have also changed the scene in the area for un-settlers. This has meant at least access of free health services and clean water supply to the local rural population.



## 5.2 Economic Efficiency of the Farms

It thus emerges that the Middle Awash Cotton farms apparently meeting all the objectives treat policy makers set to them. The primacy of output objectives or supplying raw materials to domestic industry over the others should perhaps be stressed here. In relation to the production objective the others are derivative in nature performance of the farms should therefore primarily be assessed in terms of that objective.

In assessing, the performance of the farms in terms of "output objective" the issue involved is, granted that the farms have met the output targets, at what cost to the economy have they managed to do so?. In other words, farm performance is a question of efficiency, in attaining the output objectives in terms of some resource cost.

The efficiency in question can be measured with various degree of sophistication. The crudest of all efficiency measures is the ratio of the value of current gross output to direct cost at current prices, direct cost" being understood to mean, labour, machinery and material input cost only. A value of this measure less than unity can be taken as an indicator of inefficiency while a value in excess of unity indicates efficiency. The value, of this indicator for four of the Middle Awash farms over the years 1980/81-1986/87 are shown in Table 5.4.

Table 5.4: Gross Value of Output/Direct Cost Efficiency Ratio of Middle Awash Farms, 1981/82-1986/87

	AMIBARA-ANGALLEL			DOFEN-BOLHAMO			MELKEWARER			GEWANE		
	Value of Direct* Output in Br.	Cost/ha in Br.	Efficien. Ratio	Value of Direct* Output in Br.	Cost/ha in Br.	Efficien. Ratio	Value of Direct* Output in Br.	Cost/ha in Br.	Efficien. Ratio	Value of Direct* Output in Br.	Cost/ha in Br.	Efficien. Ratio
1980/81	1922.58	1282.24	1.49	1651.63	977.18	1.69	-	-	-	-	-	-
1981/82	4459.27	1501.43	2.97	4041.40	1015.3	3.87	6152.20	1499.39	4.10	4838.00	1109.20	4.30
1982/83	4200.63	1429.62	2.93	3841.70	1263.08	3.04	4982.30	856.25	5.82	4453.40	330.95	3.34
1983/84	3033.00	1585.50	1.91	3077.60	1040.27	3.05	4134.70	1044.62	3.96	3803.60	537.35	2.47
1984/85	2546.36	1302.95	1.95	2695.30	1062.15	2.54	3132.98	720.50	4.35	3536.69	345.32	2.63
1985/86	3299.76	1195.65	2.75	2785.48	1120.09	2.49	4138.16	925.41	4.47	3622.68	1290.57	2.81
1986/87	3934.12	1628.68	2.42	4474.04	1359.53	3.29	3868.59	1262.29	3.00	5016.59	1562.68	3.21

SOURCE: Calculated from the data obtained from MAADE Planning & Programming Service.

\*Input cost includes labour, material (fertilizer, pesticide etc.) and machinery cost.

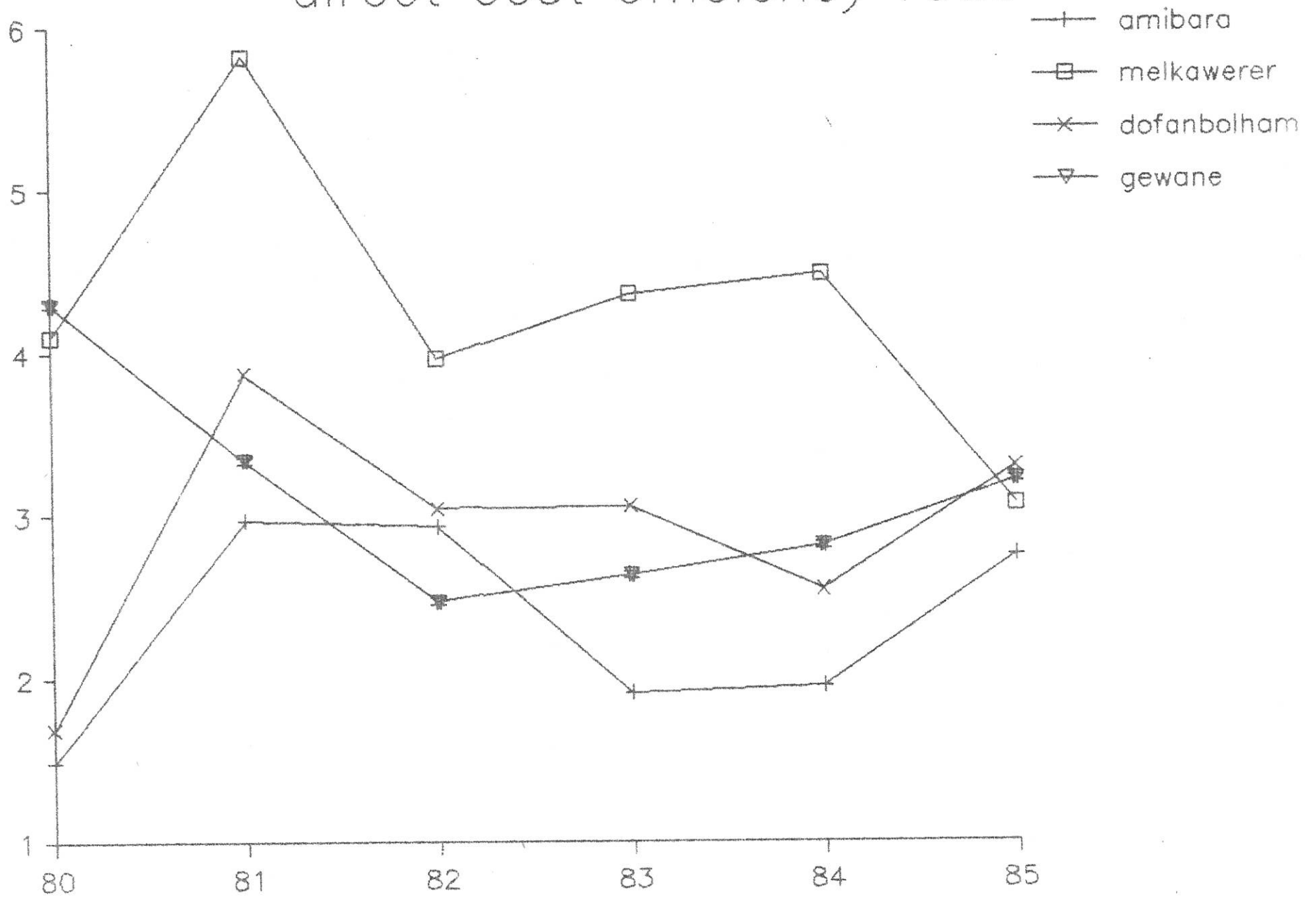
Table 5.5: Benefit/Cost Ratio Middle Awash Farms 1981/82 - 1986/87

	AMIBARA-ANGALLEL			DOFEN-BOLHAMO			MELKEWARER			GEWANE		
	Value of Output in Br.	Total Cost/ha in Br.	Efficien. Ratio	Value of Output in Br.	Total Cost/ha in Br.	Efficien. Ratio	Value of Output in Br.	Total Cost/ha in Br.	Efficien. Ratio	Value of Output in Br.	Total Cost/ha in Br.	Efficien. Ratio
1980/81	1922.58	3685.31	0.52	1651.63	2655.36	0.62	-	-	-	-	-	-
1981/82	4459.27	4714.28	0.95	4041.40	3773.78	1.07	6152.20	6142.48	1.00	4838.20	4643.87	1.04
1982/83	4200.63	4865.21	0.86	3841.70	4548.49	0.84	4982.30	2770.80	1.79	4453.10	5671.35	0.79
1983/84	3033.07	4766.55	0.64	3177.60	3127.56	1.02	4134.70	3127.56	1.32	3807.60	4621.80	0.84
1984/85	2546.38	4108.85	0.62	2695.30	3510.98	0.77	3132.98	2661.35	1.18	3536.69	4214.60	0.84
1985/86	3299.78	3380.29	0.98	2785.48	3299.70	0.84	4138.16	2560.90	1.62	3622.68	4076.33	0.88
1986/87	3934.12	4285.63	0.92	4474.04	3978.43	1.12	3868.59	3501.65	1.10	5016.59	5072.84	0.98

SOURCE: Calculated from the data obtained from MAADE Planning & Programming Service.

Fig III

# direct cost efficiency ratio



By this measure all the farms could be judged to have been efficient, in attaining their output objective over the entire period. However, this measure fails to take account of indirect costs which are understood to mean, administrative, setting and distribution, depreciation, interest, corporation overhead, enterprise overhead costs. Taking account of this would mean using the benefit/cost ratio at current market prices as over measure of efficiency. By this measure all but one of the farms have been inefficient for the entire period of study as shown in table 5.5. This result is confirmed by a full fledged financial cost-benefit analyses that takes into account all explicit farm costs i.e. investment and operating costs all valued at current market prices as is output.

In conducting the cost benefit analysis of each farm two basic investment criteria were employed. The present value of net benefits or net present worth (NPW) at the appropriate discount rate indicates whether the benefits generated vis-a-vis farm investment exceed the costs. A 10% discount rate was used as this is the rate given by the state planning organ and used by the government and international institutions in their investment analysis in Ethiopia.

The second criterion used the IRR. This measures the return over the life of a project to the resources committed to the project. The NPV is defined by the formula

$$NPV = \sum_{t=0}^n \frac{B_t - C_t}{(1+r)^t}$$

Where, B and C are total annual benefit and cost stream respectively

n = is the life of the project

r = is the discount rate, where in the case of IRR that reduced the stream of net returns associated with the project to a present value of zero.

NPV = net present value.

The IRR is the value of r that make the NPV zero.

Table 5.6 Summary of Financial Rate of Return

Sr		Actual Prices (Market Price)	
No.	Name of the Farm	NPV at 10% D.F.	IRR %
1.	Amibara-Angallel	-28,588,271	-54
2.	Dofen-Bolhamo	- 5,934,257	-47
3.	Gewane	-14,198,324	-44
4.	Melkawarer	- 2,065,149	6

SOURCE:- Calculated from the financial statement of MAADE

A summary of the financial cost benefit analysis conducted is given in table 5.6. According to the table all the farms suffered a cash deficit in a range of 2 to 29 million birr while all but one of the farms experienced for the same period negative internal rate of return of alarmingly large magnitudes (for the detailed of costs and benefits see Appendix).

However, the benefit/cost ratio and the internal rate of return (IRR) in financial analysis of the farm are good indicators of farm efficiency from the point of view of the economy, only if it can reasonably be assumed that the market prices of the farm fully reflect the cost to the society for the resources involved. As in

any LDCs, this is not the case in Ethiopia, prices of inputs and output being distorted. The distortion originates either from market failure or government intervention or both. The first task, commonly measuring farm efficiency from the social point of view therefore consists in the replacement of market prices of the output and factor inputs by efficiency (or shadow prices in the utilisation of cost and benefit. This requires in the a set of conversion factors. The set conversion factors used to obtain efficiency price from market prices in this study are provided in the appendix.

In Ethiopia estimates of national economic parameters and conversion factors for traded and non-traded goods have been developed and provided by the Development Project Study Authority (DPSA). To determine the magnitude of distortion in the economy affecting the farms, attempt has been made to work out the distortion coefficient for cotton using export parity price structure. The export price for cotton is given by the F.O.B. price structure. The export price for cotton is given by the F.O.B. price at the point of exit minus cost of handling insurance in land transport and other relevant charges. The direction and extent of price distortion for a ton of lint cotton at two market points can be measured using the following formulae.

$$\begin{aligned} 1) \text{ At farm gate (Dg)} &= \frac{P_g}{P_x - C_x - C_g} \\ 2) \text{ At F.C.B. (Dx)} &= P_g + C_g + C_x \\ 3) \text{ NPC}_1 &= \frac{P_g}{P_x} \end{aligned}$$

Where:- D = the distortion coefficient point  
 $P_A$  = price in the domestic market  
 $P_x$  = border price of export  
C = the marketing and processing costs.

Suffixies:- x = the border price  
g = farm-gate price  
NPC = Nominal protection coefficient.

It has been determined that,  $P_x=4244$ ,  $P_g = 3600$ ,  $C_x=559$ ,  $C_g=257$ , while the distortion coefficients has been estimated to be at farmgate=1.05, at F.O.B ( $D_x$ ) = 1.02 and NPC = 0.84. The coefficients at the two market points i.e. farmgate ( $D_g$ ) and F.O.B. ( $D_x$ ) are greater than unity. The farmgate coefficient of 1.05 indicates a 5 percent greater than the market price had there been no government intervention and/or market failure. On the other hand NPC, of 0.84 indicates that producers price is below the free market price and its difference from farmgate is represented by domestic marketing, processing and handling costs between the farms and port of exit.

Our result reveals the unfavourable position of cotton with respect to the pricing of their output by the government. Over the last seven years the price of cotton did not change much in spite of the sustained increase in farm input (fertilizer, machinery, tractor, oil etc) prices.

Farm efficiency from the economy's point of view should be measured on the basis of an economic discounted cash flow analysis

(or social cost benefit analysis) in which national economic parameters and conversion factors are used first to transform market prices into efficiency prices. The Little-Mirreles convention where the numeraire is uncommitted income in convertible foreign currency is the method used here. The application of accounting ratios to items in the farm statement converts, the statement from market prices to accounting prices and thereby enables us to measure benefits and costs at their value to the national economy rather than the individual farmer. The results of the social cost benefit analysis is conducted in this study are shown in Table 5.7.

Table 5.7 Summary of Results at Economic Rate of Return

No.	Name of the Farm	Accounting Prices	
		NPV at 10% Discount Rate	ERR (%)
1.	Amibara-Angallel	-1,242,229	7
2.	Dofen-Bolhamo	4,879,431	33
3.	Gewane	7,344,529	56
4.	Melkawarer	16,941,378	56

Note: Melkasedi has been excluded from the analysis for want of sufficient data.

Source: the same as in table 5.6.

As opposed to financial performance, there is considerable improvement in economic rate of performance. All the farms save one show a high economic rate of returns, ranging from 33 to 58% and a positive NPV ranging from a low of 4 million to a high of 17 million Birr. The results imply that all the farms save one have generated a surplus to the national economy after earning

back all the expenditures and paying back a 10% for the national economy. From this it can be concluded that cotton farm investments in Ethiopia could be justified on the ground of national objectives.

If one were to evaluate the current performance of the Middle Awash Cotton producing farm by the standard that would apply to a private or cooperative venture, the verdict would then be all of them are not efficient enough to survive in their present state of internal organization and external environment. For a period of seven years they failed to cover their cost of production by sales proceeds and as a result successive rounds of financial resources that have been invested in their operation would consistently be lost if the investors were private farmers or a collective of individual, who have no means of compensation for the loss through their influence on the rest of the environment.

It is however, the Government that owns, continues to invest in and runs the farms apparently incurs that financial losses observed. The economic environment in which the farms are, operating is largely the creation of the government and subject to changes in its policy. The government determines the market for farms produce and the terms of their supply to domestic industry. It determines prices through a trade policy that excludes competition from abroad and possibly from other domestic sources of supply for instance private small farmers or cooperatives. The government policy also significantly influences the supply condition of farm labour and to a lesser degree farm inputs including imported ones. Finally government policy determines the supply of finance to the farms.

The influence of the government on the farm external environment is so large that, financial loss that is incurred through the farm could be made to generate financial returns from state enterprises to which the farms are suppliers, or matched by benefits to consumers in the final demand or to farm employees should these benefits be the intended objectives of the government policy. Whether or not farm losses are transferred to targeted benefit of this sort cannot be determined by this study. Still, the cost-benefit analysis of the farm conducted here shows that, on the assumption that opportunity costs of resources are accurately measured by the parameters set by planning authorities, the financial loss translates into benefits accruing elsewhere in the economy. Whether or not the consequent distribution of these benefits is consistent with the government policy is again an issue that falls beyond the scope of the study.

Granted that, the Middle Awash Cotton farms perform well from the national point of view, the efficiency analysis has to be pursued further for two reasons. First, the parameters used are national parameters and do not tell us whether or not the farms have been efficient relative to other economic units that could be generating benefits of the same kind. Could the resources allocated to the farms have generate a greater magnitude of return if invested in other organizations of cotton supplies such as peasant farms, or cooperative?. In view of the fact that there are no such farms in the area of cotton production this may appear to be a hypothetical question. However, given that the government has always the option of organizing similar farms within the sector, the question can be fruitfully entertained preferably using sectoral parameters.

Secondly, even if the Middle Awash farms were to do well in a comparison with other schemes of agricultural production, the issue would arise whether or not the benefit that farms are generating could have been achieved at cost smaller than is currently incurred.

In both cases, the question posed by results of a social cost-benefit analysis is one of measuring the cost-effectiveness of the farms. Due to data and resource limitation cost-effectiveness analysis of any sort could not be conducted. However, the related question of whether or not the farms are making optimal use of the resources at their disposal can be examined.

The factors that explain the state of farm resource use described in terms of deviation from optimality conditions can be seen in relation to the management policy of the government with respect to its state farms development programme. Government policy influence farm rate of return performance in two dimensions. (1) through the implementation of its investment and price policy, the impact of which was assessed in terms of deviation of economic return from financial performance; and (2) and through its farm management policy the impact of which could be measured in terms of deviation of actual farm resource use from optimal one. The latter is the subject of the next chapter.

## CHAPTER SIX

### FARM MANAGEMENT POLICY AND RATE OF RETURN

#### 6.1 Rate of Return and Productivity

In this chapter an attempt will be made to assess the impact of farm management policy and practices on farms rate of return performance by relating the latter to farm resource use. This will be done through the analysis of inter-farm variation in both respects. In relation to each farm we ask whether or not resource allocation at the farm is consistent with the technical efficiency postulate of optimization production theory. Should the postulate be violated there is no point in moving on to the problem of allocative efficiency. One should rather, examine the circumstances of technical inefficiency in the hope of separating problems peculiar to each farm from those common to all the farms.

Farm performance in resource use translates to rate of return performance through the farmer's effect on productivity. As can be seen from Table 6.1 the productivity per ha considerably varies among the Middle Awash Cotton farms. As the various productivity measures

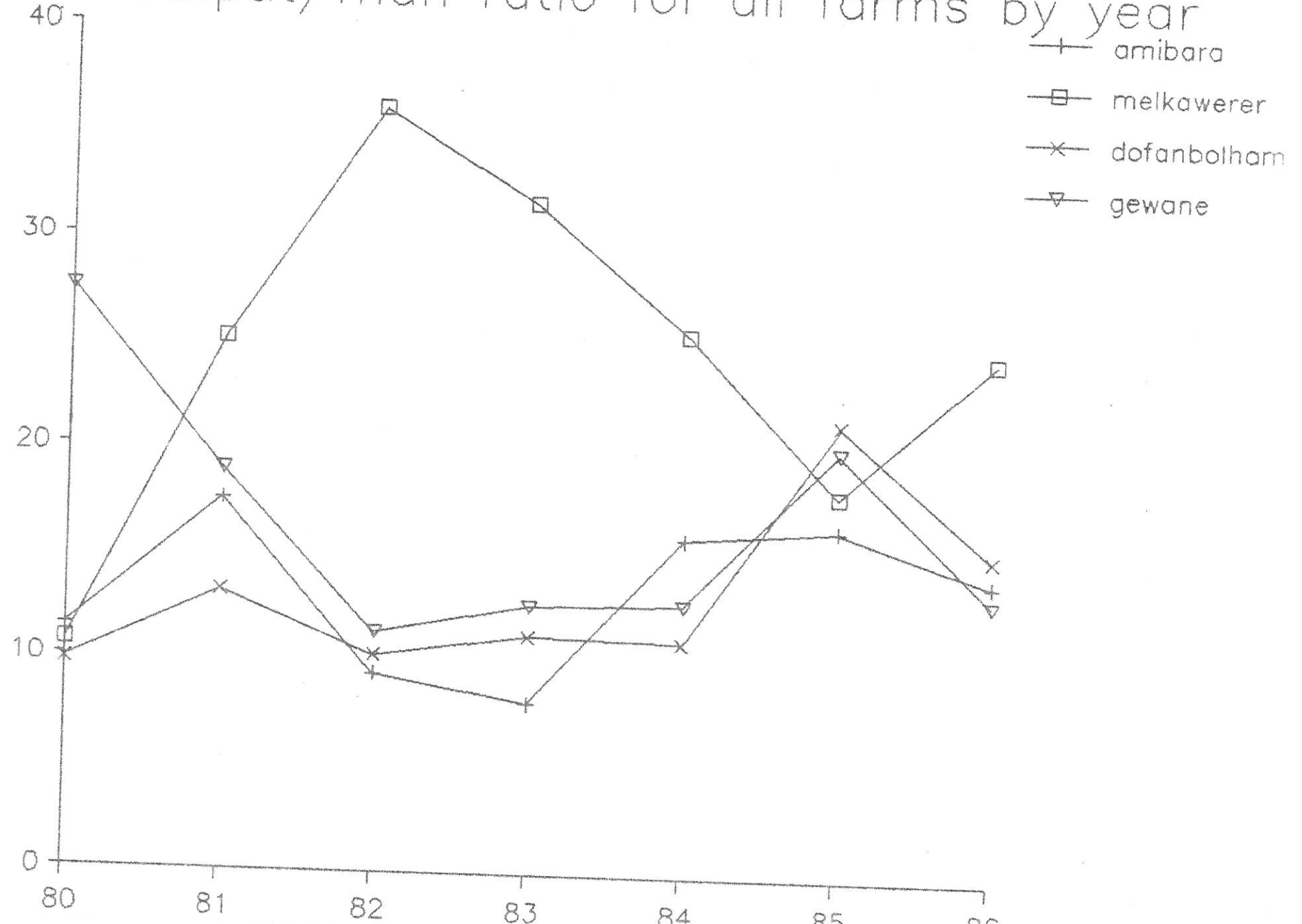
Table 6.1: Average Productivity, Average Benefit/Cost, Output/man Economic and Financial Rate of Return of Middle Awash State Farms (1980/81-1986/87).

Farms	Yield/ha	Output/ man(qt)	Direct Cost Efficiency	Benefit/ Cost	ERR	IRR
Melkawarer	36.7(1)	24.57(1)	3.82(1)	1.33(1)	58(1)	6(1)
Gewane	30.1(2)	17.22(2)	4.30(2)	0.89(2)	56(2)	-44(2)
Dofen-Bolhamo	25.5(4)	13.11(3)	3.87(3)	0.81(3)	33(3)	-57(4)
Amibara-Ang.	28.9(3)	12.82(4)	2.97(4)	0.78(4)	7(4)	-54(3)

Note: Figures in Brackets are Ranks.

Fig II

output/man ratio for all farms by year

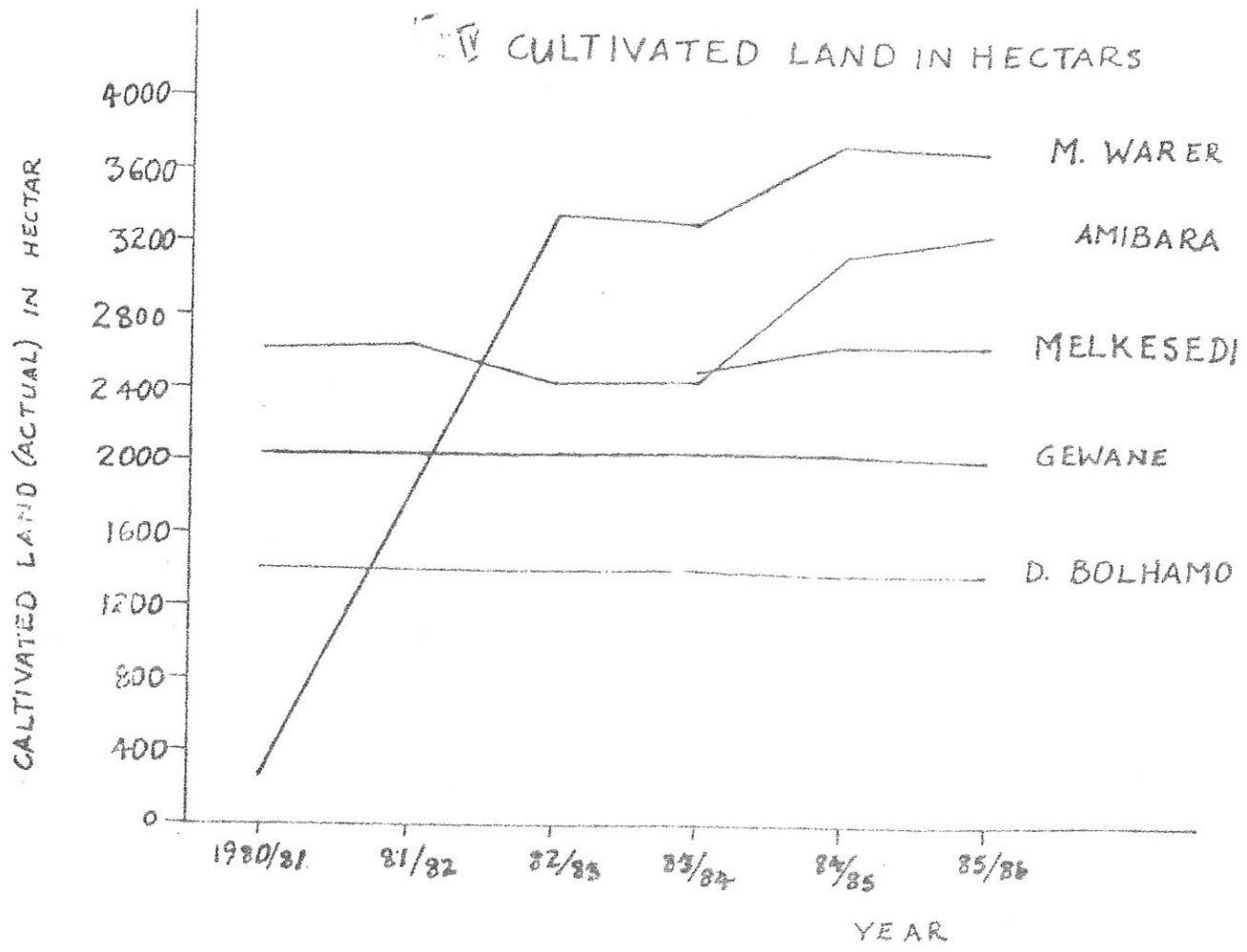


the farms value more or less identically which of the indices is used in inter-farm comparison is not an important issue. We shall nevertheless use yield per hectare as the more conventional measure of physical productivity. We can see also from Table 6.1 that the ranking of the farms by yield by hectare is almost identical to that by the various measures of rate of return. Figures II, II and V also show that the time series of productivity indicates for each farm indicated those of once another as well as the rate of return measures.

#### 6.2 Farm Differences in Resource Endowment Technology and Factor Productivity

A significant technological and resource endowment difference among the Middle Awash farms has already been pointed out in an earlier chapter. Two of the farms, Melkawarer and Melkesedi have the benefit of the best developed irrigation scheme in the country namely in Amibara irrigation scheme. These are also the most recently established farms. The other three farms have a much longer history with dates of establishment of 1967, 1969 and 1974 for Amibara-Angalle, Gewane and Dofen-Bolhamo respectively. They all depend on much less sophisticated irrigation scheme than Amibara. Gewane and Dofen-Bolhamo have the disadvantage of facing transportation problem due to the lack of a bridge on the shortest route to the enterprise and the highway contributing to relatively high transport costs. The farm managers at Amibara-Angalle and Dofen-Bolhamo also complain about lack of a sufficient number of trucks and farm machinery that are in good order. All the farms otherwise

### CULTIVATED LAND IN HECTARS



enjoy the services of a transport network that is much more developed than those used by most other state farms in the country.

All the farms suffer from an intensive salinity problems as a result of which large tracts of cultivated land has already been abandoned. However, the problem is far less serious to Melkawarer than to the other farms.

The farms also vary by size, employment and investment structure as can be seen from Table 6.2. Amibara-A. and Melkawarer are by far

Table 6.2: Farm Size, Employment, Fixed Investment and Output

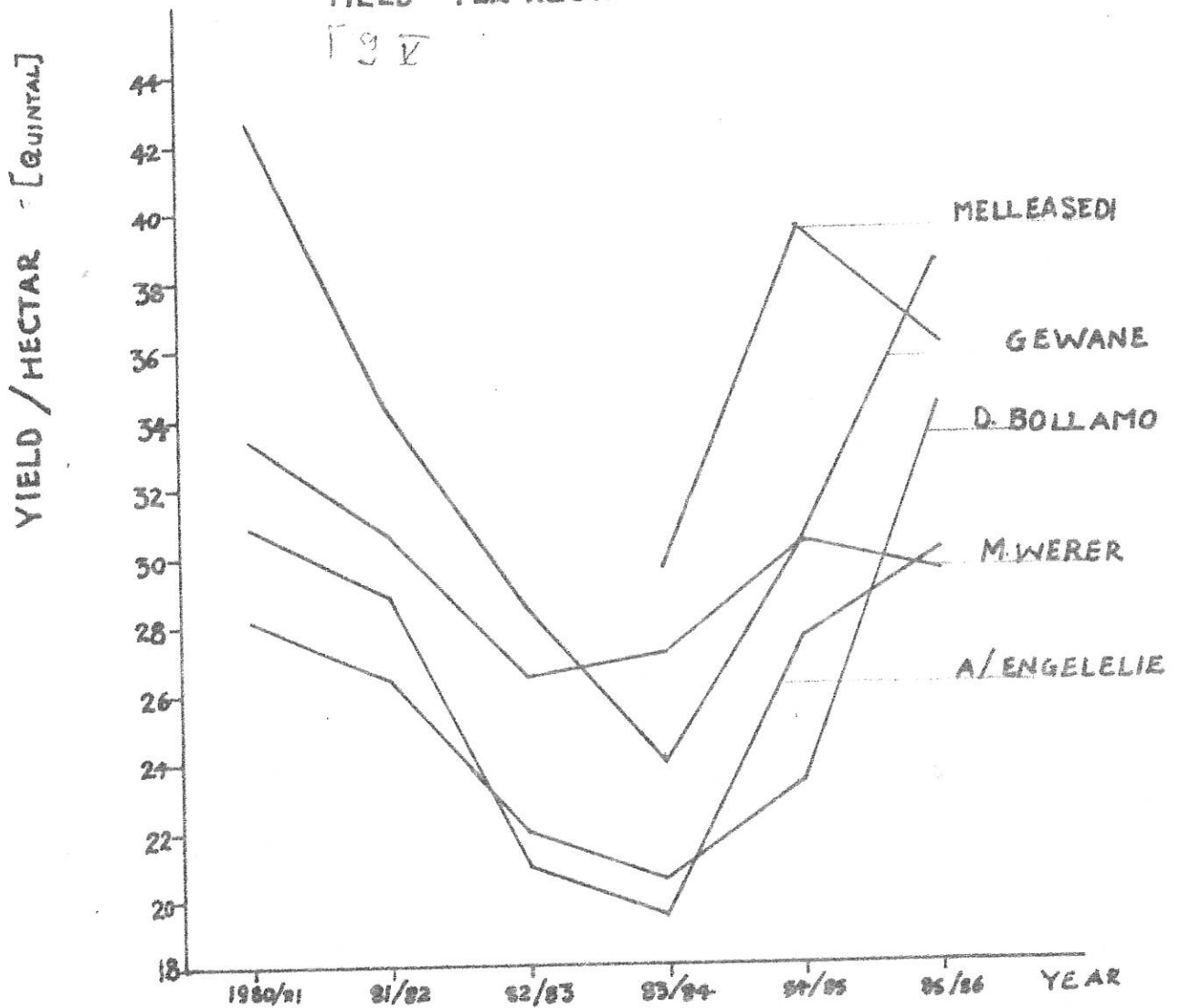
Farm	Output(Qt) 1985/86	1985/86 Total Employment	1985/86 Cultivated land (ha)	1985/86 Fixed Asset
Amibara-A.	82,292	5,477	3,269	366,926
Melkawarer	109,409	5,038	3,706	318,035
Dofen-Blhamo	47,738	2,216	1,397	110,146
Gewane	67,217	4,911	2,003	163,781
Melkesedi	94,832	4,090	2,633	N.A.
Total	401,482	20,379	13,008	

Source: MAADE Planning and Programming Services.

the largest farms in the group currently cultivating more than 1000 hecatrs of land and a total employment figure in excess of ten thousand workers (for about 50% of total employment). Gewane and Melkasedi cultivate about 2/3 of the two farms but employ as many persons is the smallest farm cultivating less than 1800 hectares and employing less than 3000 people.

PRODUCTIVITY OF THE FARMS:  
YIELD PER HECTAR

Fig V



VERTICAL SCALE 1 UNIT:1

Indicators of inter-farm variation with respect to input-structure are shown in Table 6.3 where relative factor cost shares are given. Amibara at Melkawarer appear to be the most capital intensive of the farms while the land-man ratio is highest for Melkawarer. This

Table 6.3: Average Factor Intensity of MAADE Cotton

Farm	% labour Cost	% of Material Cost	% of Machinery Cost	% age of farm Overhead	Land/man	Fixed Capital % of Lab. Cost
Amibara-Angallel	22.9	16.9	18.5	41.9	0.56	62.2
Dofen-Bolhamo	25.5	12.6	16.8	44.9	0.52	49.03
Melkawarer	25.5	16.4	13.6	44.6	0.86	65.3
Gewane	22.8	12.4	13.08	51.6	0.56	39.6
Average	23.6	15.2	15.6	44.7		

Source: Computed by the Author from the Data Obtained from AADC.

time series of yield/hectar for all the farms is depicted in Fig.V. Yield declines between 1981 and 1984 for all farms but picks up in the same fashion thereafter. Within that pattern yield is consistently highest for Melkawarer followed by Gewane, while Amibara-A. and Dofen-Bolhamo have registered the smallest figure for all years.

In a questionnaire designed to identify major constraints to improved productivity according to the perception of farm management, shortage of seasonal labour was singled out as a primary factor. Farm managers at Amibara and Dofen-Bolhamo also complained of shortage of skilled manpower and spare parts as an important bottleneck. Overmanning of permanent labour force was regarded as a primary

constraint at Amibara-Angallel and, to a lesser extent, at Melkawarer. Damages and losses in production due to Afar cattle and flooding problems were also reported as factors reducing productivity. For details of responses see (Appendix I).

### 6.3 Technical Efficiency in Production

Whether or not resource use at the farm level is consistent with the technical efficiency postulates can be examined by the parameters of the production function that fits best the input-output data of the farms. The Cobb-Douglas Specification was found to fit well farm <sup>data</sup> on the following input variables. Cultivated land in hectares, labour, machinery, pesticide, fertilizer and seed all measured in Birr at current prices. Output as the dependent variable was also measured at current prices. The OLS estimates of the Cobb-Douglas Specification are shown in Table 6.4. Data was collected on a semi-annual basis.

The most remarkable result of the regression analysis of the input-output data as can be referred from Table 6.4 is that the partial elasticity of output with respect to land for three of the farms is negative; while the only farm with a positive elasticity parameter namely, Amibara-Angallel records a negative elasticity of output with respect to labour the factor the output elasticity of which is positive for all the other farms. This, appears to be a clear indication of the underemployment of land particularly in relation to manpower (shortage of manpower) in the three farms of Melkawarer, Gewane and Dofen-Bolhamo in the order of increasing

Table 6.4 Estimated Cobb-Douglas Coefficient of b's and their Standard Error

Farms	Intercept	Land	Labour	Machine	Seed	Fertilizer	(Pesticide) Insecticide	R <sup>-2</sup>	Sum of Coefficients
Amibara-A.	-6.7093	2.42 (1.012)	-0198* (0.1107)	0.389 (0.273)	-0.048** (0.1009)	-0.035 (0.1232)	0.138 (0.0943)	0.77	2.9 -18.3
Dofen-Bolh.	145.70	-18.8** (13.72)	0.1032 (0.0933)	0.122 (0.1786)	0.177 (0.0454)	- -	0.0805 (0.2545)	0.81	
Melkawarer	1.155	-0.4545* (0.9899)	1.1639 (1.094)	0.037 (0.1321)	0.0131 (0.0468)	- -	0.1430 (0.0005)	0.92	0.93
Gewane	3.18462	-2.719* (4.094)	2.192 (1.8752)	0.1804 (0.6583)	0.0256 (0.1236)	-0.1093 (0.2558)	0.1520 (0.3299)	0.82	-2.8

Note: Figures in parentheses are standard errors

\* Significant at 10% level.

\*\* Significant at 10% level of significant

magnitude of overemployment. Amibara-A., the management of which complains of overmanning clearly suffers from shortage both of land and machinery in relation to labour. As can be seen from the "contingency tables", of Table 6.5 the underemployment or 'wastage' of land is also reflected in that of fertilizer. This is not surprising due to the complementarity between land and fertilizer as inputs. The shortage of labour in relation to the land employed is reflected in shortage of insecticide or pesticide.

Table 6.5: Contingency Tables of Elasticity Parametres  
Cobb-Douglas Specification.

	Positive partial elasticity of output with respect to land	Zero or negative partial elasticity of output with respect to land
Positive elasticity with respect to machinery	1	3
Zero or negative elasticity with respect to machinery	0	0
Positive elasticity with respect to labour	0	3
Zero/negative elasticity with respect to labour	1	0
Positive elasticity with respect to fertilizer	1	0
Zero/negative elasticity with respect to fertilizer	0	3
Positive elasticity with respect to pesticide	0	3
Zero/negative elasticity with respect to pesticide	1	0

The first two rows of Table 6.5 also indicates the existence of shortage of machinery in relation to other inputs.

The link between technical inefficiency and performance with respect to yield/hectar is provided by the concept of total productivity of factors of production. Thus, if we limit ourselves to the case of three factor or production, namely, land, labour and capital, then the relation of productivity with respect to land is given by

$$\frac{Dy}{dL} = MP_N \frac{dN}{dL} + MP_K \frac{dK}{dL} + MP_L ,$$

where  $\frac{dy}{dL}$  = total productivity of land

N = Value of labour in Birr

K = Value of Capital in Birr

L = Land in hectar.

$MP_N$  = Marginal productivity of labour

$MP_K$  = Marginal productivity of capital

$MP_L$  = Marginal productivity of land, dN, dK and dL are small changes in labour, capital and land inputs respectively.

For  $dN/dL = 1$ ,  $\frac{dK}{dL} = 1$ , the rate of increase in output with respect to increase in land will be smaller to the magnitude of negative marginal productivity of land.

#### 6.4 Farm Management and Resource Use

It emerges from the results of the preceeding section that the rate of return performance of the farms under investigation could have been much better were it not for technically inefficient allocation of resources at the individual farm level. The question naturally arises as to where in the hierarchy of the management of

the state farms lies the source of inefficiency in that respect. We may start by noting that, the existence of many tiers within the MSFD and below it, i.e. corporation, enterprise the farm makes it too bureaucratic for efficient operation of the farm units at a lower level. The important tasks of management at farm level have always been left to the enterprise and corporation, risking all the delays in operation due to ill-informed officials far away the farms. The deleneation of responsibility between corporation and enterprise is not clear at all. It appears that decision at the two level are more duplication of each other while the scope of decisions at the farm level is extremely narrow, although there is no precise set of regulations which determine the extent of authority and delegation of responsibility of each link in the hierarchy of the management of the development of state farms. As a result the main farm management decision variables are beyond the reach of farm managers. These include manpower recruitment and allocation, supply of inputs, marketing of output, size of the farm etc. Farm managers, who are agronomist by training are told to perform in physical indicators mostly provided in terms of volume of cultivated land and output produced. Consequently, farm managers do not have the power to determine and vary input mix. They in thrun give decisions largely on the basis of purely agronomic notions. The details of manifestation of this problem have <sup>also</sup> been provided by macro-level studies of Keith Griffen (1985), Ajit Choose (1985) and State Farm Sector survey (1986).

Acute shortage of seasonal labour force is one of the causes of technical inefficiency at the MAADE cotton-growing farms. It appears that the annual loss in production due to shortage of seasonal labour is quite enormous. Labour is the major bottleneck particularly during the weeding and picking seasons. Delaying in harvest and late planting due to shortage of seasonal labour has resulted in considerable loss of productivity. The late harvesting will create favourable condition for pests such as white fly and diseases to attack the bolls. If the plant is planted too late it may attract destructive insects. In consequence the farms incur unnecessary cost insecticide or pesticide.

One cause for shortage of seasonal labourforce at the farms is that many peasant association do not allow their members to work for employment beyond their areas of residence in the spirit of the land reform proclamation. Barking such problems, farm management policy is very much responsible for what might go as a labour shortage at the Middle Awash cotton growing farms. First the available labour force is attracted by the neighbouring sugat plantations at Wonji and Methara, who offer a better pay for unskilled labour up to 3 Birr per day as compared to the Middle Awash cotton farms daily wage rate of only 1.92. To this should be added the inadequacy and/or absence of basic facilities like housing, medication, water supply etc that made it difficult to absorb the seasonal work force. It has been reported by majority of the seasonal labour force that the working condition is alarmingly tiresome and not rewarding.

Shortage of skilled labour force is another aspect of the problem that has affected the performance of the farms. This is clearly attributed to the absence of efficiency oriented remuneration policy and absence of clearly established promotion and salary increment that goes with adverse working condition of the area over which management at the farm level does not have only whole either. As experienced professionals are mostly deployed at the enterprise level, it is difficult to farm managers to get experienced and professional workers at farm level. If there are some, they do have an opportunity to change job or move to the enterprise or the corporation where there is better pay and comfort than the farms. Thus, the annual flight of technicians, tractor operators, accountants and some other professionals is more common and in most cases there appears to be 'annual' brain drain' from the farms.

On the other hand, some farms are overburdened with redundant labourforce which are mostly unskilled and permanent. The problem is particularly obvious in the old state farms where what should have been a redundant labour force were handed over to the Amibara farm from ex-Amibara settlement scheme. Farm managers do not have decision competence relating to full matter either.

#### 6.5 Externalities and Rate of Return Performance

Under "externalities" we include those factors affecting farm rate of performance but over which management at the farm level could not have influence. These partly relate to the technological history and partly to the overall marketing environment either which the farms operate. The main cases of externalities responsible for the current rate of return performance of the Middle Awash cotton-growing state farms include:

a) Shortage of transport facilities. The existence of transport facilities within and outside the farms have contributed to the low level of performance. Farms like Amibara-Angallel and Dofen-Bolhamo have got old trucks which are nearly out of use and constantly add up to the maintenance cost of the farm.

b) Insufficient agronomic basis for farm investment in expansion unjustified expansion of state farms without scientifically based farm management study has caused mismanagement of resources. Although, there was a program of dividing up of the farms into smaller units at some stage this failed to warrant optimal sizes and has made it difficult to determine the actual requirement of resources invested on individual farms salinity is a related problem which is largely attributed to the lack of feasibility studies when these farms were established.

c) The ill-coordinated marketing system with the Ministry of industry has contributed to covering of financial performance of the farms. Most often delay in payment for the delivered output is created. This may lead to shortage of finance that in turn leads to delay in plan implementation. The delay in transport often leads to increased storage and interest cost.

d) Problem of financial indebtedness: The farms as generally been the case in the state farms, obtain their financial requirement almost entirely, from AID Bank on credit terms. They are liable to pay interest charges of 9% and 9.5% for operating capital and fixed investment respectively. The fact that most of of the farms do not have their own capital, they incurr alarmingly heavy interest costs

and financial indebtedness. In consequence, they shoulder massive cumulative debt that saddle the financial burden.

f) Problem of Technology: The problem of technology is no less common problem in these farms. The problem emanates partly from policy and partly from the internal operation of the farms. The policy problem lies in allocating indiscriminately farm machineries without giving due consideration to the type of soil, climatic condition etc. The MSFD imports farm machinery of the model 2T and EMT from GDR and Yugoslavia respectively and supply them to the farms. Those farms with these type of model face shortage of spare parts. The shortage of spare parts is no less common in the case of those farms with old type of tractor models. For instance during the period of 1980/81, 1982/83 and 1984/85 considerable number of tractors were out of use due to lack of spare parts of front tyres and other related technical problems. The problem is further aggravated due to lack of workshop and repair materials, lack of skilled technicians who can play supervisory role. In addition, the machinery management become more complicated on the old farms where new model tractors were introduced. In consequence, the utilization of farm machinery became extremely low, especially in Gewane, Amibara-Angallel and Dofen-Bolhamo farms.

d) Damage caused by Afar nomadic cattle herdsmen: The nomads often let the cattle graze on the farm and sometime kill the workers employed in farms. This resulted loss in output and has tremendously

affected the performance of the farms. The phenomena is more glaring in Gewane Amibara and Dofen - Bolahmo. Of course when we talk of this problem, we should not overlook the social and economic problems caused on Afars due to the establishment of these farms; such as shortage of grazing land, epidemic disease such as bilharzia, malaria etc.

## CHAPTER 7

### CONCLUSION AND RECOMMENDATIONS

#### 7.1 Conclusion

7.1.1 This dissertation has analysed results of a case study of the Middle Awash Cotton growing state farms with the broad objectives of verifying two major conclusions of aggregative studies of the development of state farms in Ethiopia. The conclusions were (1) The state farms are not only financial losers but all are also wasteful by the criteria of economic efficiency. (2) The poor performance of state farms is largely due to the pursuit of all-defined and conflicting objectives by farm enterprise as well as a farm management policy that puts very decision variates away from management at the farm level.

7.1.2 The financial rate of return performance of the Middle Awash Agricultural Development Enterprise as measured in the study appears to confirm the characterisation of state farms as "heavy financial losers" that can be kept going only through heavy government subsidies. Yet the same farms are apparently meeting the objectives set to them according to government policy statements. They have more or less managed to meet the targets set to them by planners in terms of the supply of cotton to local industries. And while not unable to substantially contribute to the easing of the unemployment problem in urban areas they are engaging the actively rural underemployed.

Finally a shadow pricing of farm generated benefits and costs indicate that all in the farm save one have made positive economic return.

7.1.3 The discrepancy between the farms' financial and economic performance is largely due to the government pricing policy that distorts valuation in a way pricing policy that unfavourable to the farms. It appears that though its current pricing policy, the government is indirectly subsidising the textile industries to which the farms are major suppliers. This discrepancy is also an indicator of the conflicting nature of the objectives that policy makers are setting for state farms.

7.1.4 The conclusion that the MAADE farms would have been financially profitable with a more rational pricing policy does not however, imply that the farms are efficient users of the resources at their disposal. It is indeed the finding of the study that the resource utilization of the farms are far from optimal. Four of the five farms clearly underutilized land while one suffers from overmanning. With a more rational resource use, and factor productivity at hand, financial and economic returns would have been considerably higher than they are now even with the existing pricing policy of the government. This in turn seems largely an outcome of the current management policy of the govt. with respect to state farm. The existing scope of decision made at farm level is extremely narrow. Outstanding farm management variables such as resource allocation i.e. land, labour and finance are mainly at the disposal of the Corporation and enterprise. It is the Corporation that decides on issues relating to investment, manpower and finance, while the enterprise controls the activities of the farms in relation to plan targets set by the corporation. The enterprise acts

Only as a link between the farms and the Corporation. It is no wonder that such excessive centralisation of ~~discuss~~ion resulted in technically inefficient utilisation of resource. In addition excessive centralization brought high administrative costs to farm operations. These costs account for over 50% of total costs incurred at the farm level.

7.1.5 Finally, it should be noted that the parametres used in calculating the economic costs and benefits, generated by the Middle Awash cotton farms are national rather than sectoral. Results of the study in the respect cannot, therefore, be interpreted in terms of the efficiency of the state farms relative to other potential forms of organizing cotton production such as cooperative or peasant production schemes. Whether or not the farms have been efficient in that sense falls beyond the scope of the study.

## 7.2 RECOMMENDATION

On the basis of our findings we forward the following specific policy recommendations.

1. Successful farm operation demands a constant process of decision making in which soundful technical and economic principles are applied with due consideration to peculiarities of time and place of decision. Important decision variables which are now being made from far away the Middle Awash farms mainly at the corporation and enterprise level, need therefore be made close to the farms with minimum delay by those who bear responsibility for the outcome.

2. In the present planning procedures of state farms there has been a tendency to place more emphasis on production targets and on the size of cultivated land to the relative neglect of efficiency in resource use. However it also be necessary to establish annual productivity targets aimed at reducing unit cost of production.
3. Since the overhead costs have a significant share of total costs of the farms, such costs have to be reduced by concentrating resources on important farm operations, sections and units.
4. The present uncontrolled out flow of skilled labour force from the farms and shortage of seasonal labour are problems the solution to which should be sought at various levels of policy making. To overcome the problems the following urgent measures have to be taken:
  - a) Working condition at the farms should significantly be improved as part of incentive system. The provision of adequate accommodation for the workers and their families along with schooling, clinics on the farms is one of the first measures that should be undertaken in that respect. Provision of such facilities in isolated rural may be a reasonable incentive particularly for the youngsters. The farms should be a a place to live and work.
  - b) Mechanization has to be introduced in all the farms. However, the possible economic costs have to be <sup>weighed</sup> against economic benefits to ensure that mechanization would not lead to unemployment.

- c) Farms have to raise the daily wage rate taking into account the condition of the area to stand out the competition for labour from the neighbouring sugar plantations at Methara & Wonji. It is also necessary to reduce redundant labour that can be avoided by way of transferring them to other farms, reallocate them or expanding the farm size.
  - d) The structure of farm wages must provide more incentives to increased qualification at the operational units i.e. the farms rather than at a higher hierarchy, if state farms all to maintain and utilize proficient and well experienced manpower at farm sites.
  - e) On job-training, should be given in view of the prevailing shortages of skilled personnel in areas of canal maintenance, technicians, accountants etc. As the experiences of other countries suggest, this method has got an advantage over training by sending in other institutions. Apart from the saving in cost, on the job-training exposes the workers early to the work on the farms. It also provides an opportunity to the workers to share in the experiences of establishing the work spirit from the start on the farms.
5. The availability of a properly integrated information system is vital for the success of the farms and the periodic measurement of the farm's performance under a set of economic criteria. This requires the following set of measures.
- a) Strengthening the planning units of each farm.

- b) Assigning to farms personnel trained with the collection and processing of information.
  - c) Establishing economic criteria and norms for evaluation of farm activities.
6. If the Middle Awash cotton - producing farms are to improve their financial performance as much as possible there should be significant charges in government's pricing as well as financial management policy.
- a) The present pricing policies towards cotton output should be revised taking into account the quality of the cotton being supplied and its demand on the world market. Ethiopian cotton has been proved to be of higher quality by international standard. While this fact is known it will be a clear disincentive to depress the prices of output in face of increasing production costs. Higher cotton prices could also act as an incentive to small holders peasants to engage in cotton production and eventually helps to boost output in cotton production regions.
  - b) There should be a more clear cut policy of income allocation and financial regulation of the farms. By this we mean more explicit definition of objectives of the farms. For instance some state farms under MAADE provide some technical labour and material services to external beneficiaries. The employees of the farms also participate in mass organization which may vary from farm to farm. Such services cost these farms in a

number of ways and are liable to increase their financial burden. In view of this the beneficiaries, be it government organization, peasant association or settlement projects have to pay for the services rendered or the farms have to be compensated by the government in the form of budget for the costs they incur. The impact of such services on the productivity of the peasants or other beneficiaries should be evaluated. This approach will help specifically to determine the surplus generated by each farm.

- c) In order to migrate the existing financial management problems, it is essential to strengthen the cost accounting practices of the farms by consolidating accounting system at farm level. In this respect, the deployment of skilled accountant at farm level is more essential than at corporation and enterprise level.

7. The problems caused by the nomadic people of the area have to be tackled soon. In this respect it is recommended that there should be an integration of livestock projects within each farm. Such projects would motivate the nomads to actively participate in the benefits of modern cattle rearing practice.

8. Some of the old farm machines have to be replaced with appropriate technology that suits the farms, particularly in Amibara and Dofen-Bolhamo State farms.

9. Finally as the findings, the case study that some factors which affect performance differ from farm to farm. It is therefore recommended that similar studies of other state farm be undertaken on a larger scale to obtain more general results than from presented here.

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Appendix I

RESPONSES OF FARM MANAGERS TO THE FACTORS AFFECTING FARM PRODUCTIVITY

PROBLEMS	1 Amibara-Angallel			2 Dofen-Bolhamo			3 Gewane			4 Melkasedi			5 Melkewarer		
	Primary	Second.	Min.	Primary	Second.	Min.	Primary	Second.	Min.	Primary	Second.	Min.	Primary	Second.	Minor
01 Salinity		✓			✓			✓	✓	✓					✓
02 Shortage of Water					✓				✓		✓				
03 Flooding	✓				✓										✓
04 Delay in deliver of inputs (fertilizer, seed etc).			✓	✓				✓							
05 Shortage of Seasonal labourforce	✓			✓			✓			✓			✓		
06 Shortage of skilled technicians, tractor operators, accountant etc.)	✓			✓				✓				✓			
07 Over-manning	✓					✓		✓				✓			
08 Shortage of spare parts & heavy machinery	✓				✓			✓			✓				✓
09 Transport problem	✓														
10 Frequent machine breakage		✓												✓	
11 *Damage due to Afar's nomadic cattle			✓				✓				✓			✓	
12 External interference on management			✓												

\* The total estimated loss in production was 94,636 quintal of seed cotton.

Appendix II

Summary of Conversion Factors Used in the Study

<u>Items</u>	<u>Conversion Factor</u>
Skilled labour	0.75
Unskilled labour	0.50
Seed	0.75
Fertilizer	0.93
Insecticide & pesticide	0.90
Fuel	0.86
Oil & lubricant	0.86
Farm machinery	0.88
Plant	0.79
Vehicles	0.93
Repair & maintenance	0.86
Building	0.75
Machinery operation	0.90
Other good and services	0.75

SOURCE: Development project study Authority (DPSA) and Valley Agricultural Development Authority, A profile of Angallel-Bolhamo Irrigation Project, 1980.

APPENDIX III  
FINANCIAL RATE OF RETURN

AMIBARA - ANGALLEL

Year	C O S T S			B E N E F I T		
	Investment	Operating Costs	Total	Gross Benefit	Net Benefit	Net Benefit at 10% Discount Factor
0	3,169,075	---	3,169,075	---	(3169075)	-3169075
1	1,098,354	16,129,394	17,227,778	4724000	(12,052,778)	-10325121
2	1,119,054	12,384,420	15,508,480	10084383	(3419097)	-2567742
3	271,849	12,902,543	13,174,391	9132631	(4041760)	-2760522
4	4,061,842	11,616,077	15,677,919	6374539	(9303380)	-577399
5	65,935	10,013,263	10,079,198	5706134	(4373064)	-2466408
6	465,957	10,709,792	11,174,749	10332217	(842532)	-432219
7	366,926	11,746,906	12,113,532	14728615	2634785	12304436

IEF = -53.7%

NPV = -28,585,271.

APPENDIX III  
ECONOMIC RATE OF RETURN

AMIBARA - ANGALLEL

Year	C O S T S			Cross Benefit	B E N E F I T	
	Investment	Operating Costs	Total		Net Benefit	Net Benefit at 10% Dis. Factor
0	2,376,806	---	2,378,806	---	(2378806)	-237806
1	825,786	11,302,166	12,135,956	4,960,200	(7165756)	6513672
2	839,291	8,314,276	9,153,567	11,093,003	1933436	1602013
3	203,887,	7,681,613	7,885,499	10,045,594	2160385	1622456
4	3,043,532	7,064,804	10,113,238	1,011,993	(3101243)	-2118149
5	49,451	8,008,492	656,943	6,276,748	320802	137119
6	349,468	6,844,644	6,920,118	11,365,188	4426326	2495447
7	275,193	6,801,366	7,076,561	1,469,298	7619737	3908925

ERR = 6.66%.

APPENDIX IV

FINANCIAL INTERNAL RATE OF RETURN

MELKAWARER

Year	C O S T S			B E N E F I T		
	Investment Cost	Operating Costs	Total	Gross Benefit	Non Benefit	Net Benefit at 10% Discount Factor
1	289,138	---	289,138	---	(289138)	-289138
2	8,451,720	1,040,044	9,491,764	1,414,190	(8077574)	-7342515
3	6,747,714	5,001,285	11,748,999	7,996,834	(3752165)	-2817875
4	113,277	8,031,790	8,145,067	8,699,115	554048	344063
5	617,652	9,547,103	10,164,755	15,246,027	5081272	2865837
6	319,035	12,977,084	13,296,119	28,717,864	15421745	7911355
7						

NPV = 1993072

IRRF = 5.7%.

APPENDIX IV  
ECONOMIC INTERNAL RATE OF RETURN

MELKAWARER

Year	C O S T S			B E N E F I T		
	Investment	Operating Costs	Total	Gross Benefit	Net Benefit	Net Benefit at 10% Discount Factor
0	216,354	---	---	---	(216854)	-216,854
1	6,338,790	955,377	7,294,167	1,565,608	(5738565)	-521,6349
2	5,060,786	2,865,356	792,6143	8,796,517	370375	718,930
3	4,620,143	6,630,008	11,250,156	13,125,794	187568	1408604
4	34,953	4,816,446	4,901,404	9,569,026	4667622	3187986
5	463,239	5,702,749	6,165,988	16,770,630	10,604,642	6584483
6	239,275	7,388,349	7,827,625	26,397,798	18,570,173	10,436,433
7						

ERR = 57.9%

NPV at 10% = 16,904,237.

APPENDIX VI  
FINANCIAL RATE OF RETURN

DOFEN - BOLHAMO

Year	C O S T S			B E N E F I T		
	Investment	Operating Costs	Total	Gross Benefit	Net Benefit	Net Benefit at 10% Discount Factor
0	800,161	---	6,001,161	---	(900161)	-800,161
1	305,905	3,717,504	4,023,899	2,141,800	(1850799)	-1861,991
2	250,207	5,233,267	5,533,474	4,870,782	(562,692)	-649,438
3	156,435	6,367,885	6,524,321	4,782,467	(1741854)	-169,1340
4	346,581	4,378,583	4,725,464	3,837,019	(888445)	-853,798
5	16,703	4,915,282	4,931,985	3,470,775	(1451210)	-135,9611
6	44,396	4,586,684	4,631,080	3,326,489	(804591)	-757,120
7	110,146	5,530,020	5,640,166	8,415,069	777923	725,822

NPV = -7277655

IRRF = -58.7

APPENDIX V  
ECONOMIC RATE OF RETURN

DOFEN - BOLHAMO

Year	C O S T S			B E N E F I T		
	Investment	Operating Costs	Total	Gross Benefit	Net Benefit	Net Benefit at 10% Discount
0	690,121	---	600,121	---	(600121)	-600121
1	323,831	2,175,855	3,404,076	2,355,980	(48096)	-43719
2	187,653	2,830,182	3,017,837	5,357,860	2340023	1932859
3	117,326	3,865,023	3,782,348	5,260,714	1478366	1110253
4	260,161	2,570,918	3,831,079	4,220,721	1,389642	945125
5	12,527	2,988,168	2,000,695	3,317,853	817,158	507485
6	33,297	2,875,008	2,908,305	4,107,513	1199508	676523
7	82,610	3,204,007	3,286,617	6,610,137	3235820	1704966

NPV = 6238841

IRR= 33%.

APPENDIX VI  
ECONOMIC RATE OF RETURN

GEWANE

Year	C O S T S			B E N E F I T		
	Investment	Operating Costs	Total	Gross Benefit	Net Benefit	Net Benefit at 10% Discount Factor
0	4,059,962	---	4,059,962	---	(4,059,962)	-4,059,962
1	767,072	5,333,833	6,100,905	9,543,488	3,442,563	3,129,289
2	686,387	7,263,150	7,949,537	9,073,509	1,123,972	928,400
3	536,549	5,763,479	6,300,028	7,510,469	1,210,441	909,041
4	37,008	5,153,197	5,190,205	7,449,275	2,259,070	1,542,944
5	112,080	5,326,984	5,439,064	3,195,031	2,755,987	1,711,455
6	122,836	5,400,022	5,522,658	11,167,109	5,644,251	3,183,357
7						

ERR at 10% = 55%

NPV = 7,344,529.

APPENDIX VI  
FINANCIAL RATE OF RETURN

GEWANE

Year	C O S T S			B E N E F I T		
	Investment	Operating Costs	Total	Gross Benefit	Net Benefit	Net Benefit at 10% Dis. Factor
0	5,413,282	---	5,413,282	---	(5,413,282)	-5,413,282
1	1,022,763	9,673,191	10,695,954	8,675,899	(2,020,055)	-1,836,230
2	915,183	11,813,433	12,725,616	8,248,645	(4,479,971)	-3,700,456
3	715,399	9,617,956	10,333,355	6,827,699	(3,505,656)	-2,632,748
4	49,344	8,170,591	8,819,935	6,772,088	(2,047,847)	-1,398,680
5	149,440	8,482,863	8,632,303	7,450,028	(1,182,275)	- 734,193
6	163,781	8,907,903	9,071,684	11,761,871	(2,690,187)	1,517,265
7						

IRRF = -43.6%

NPV at 10% = -20,805,324.

APPENDIX VII

Total Hectarage, Total Production and Yield for Hectare of Seed Cotton in the World, Africa and in Some Major Producing Countries.

	1000 MA				Production 1000 NT				Yield Kg/Ha			
	1974-76	1981	1982	1983	1974-76	1981	1982	1983	1974-76	1981	1982	1983
World	32950	34617	33777	32941	37306	45191	44282	43993	1305	1305	1311	1340
Africa	4023	3407	3677	3914	3213	3131	3235	3424	799	919	830	875
Major Prod. Countries												
Egypt	567	495	448	423	1104	1326	1211	1100	1948	2679	2704	2538
Nigeria	504	445	429	405	143	85	62	84	284	191	145	114
Uganda	524	162	450	607	96	16	59	140	183	101	132	231
Sudan	466	392	363	392	584	284	451	592	1255	725	1244	1509
Ethiopia*	24	53	59	53	50	89	89	89	2118	1679	1679	1579
USA	4341	5801	3037	2967	5791	9210	6908	4499	1331	1644	1755	1316
Brazil	3639	3511	3644	2955	1656	1732	1933	1623	455	493	531	549
China	4961	5180	5823	6200	6897	8904	10794	13911	1390	1719	1654	2244
India	7301	8057	8074	8100	3523	4053	3972	3800	483	503	492	469
Pakistan	1916	2215	2262	2270	1583	2244	2472	1560	826	1013	1093	687
Turkey	696	654	595	608	1342	1259	1270	1400	1928	1941	2134	2303
USSR	2918	3168	3188	3189	8164	9634	9284	9200	2805	3042	2912	2885
Israel**	42	61	56	58	135	250	230	240	3190	4118	4123	4138

\* Neither Ethiopia nor some African countries indicated here are major producers of seed cotton but they were included to show yield comparisons.

\*\* Israel is not a major producing country also but was included to indicate level of yields that can be achieved under favorable conditions.

SOURCE: FAO Production Year Book, Rome 1984.

Purpose:- The purpose of this questionnaire is to collect data which will be helpful to evaluate the economic performance of Middle Awash Cotton-producing state farms. The use of the information will be limited to academic circle. Therefore, you are kindly requested to fill in the necessary information.

Information

Questionnaire (to be filled by Management)

Name of the farm \_\_\_\_\_ Location \_\_\_\_\_  
Date of inquiry \_\_\_\_\_ Distance from A.Ababa \_\_\_\_\_

1. Please give us a brief historical account of the farm

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2. What are the most important objectives of the farm?

1. Production of cotton for textile industries
2. Employment creation
3. Provision of innovative and technical services
4. A combination of all the above
5. Others (specify)

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3. Which of these objectives are not yet achieved or difficult to achieve and why? \_\_\_\_\_

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4. How do planning processes linked up to the different hierarchy of state farms organization \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Please indicate by marking with (x) as which one of the following decision variable (s) are/is under the control of the farm

- 01 Input mix
- 02 Labour recruitment and deployment
- 03 Marketing of output
- 04 Size of the farm
- 05 Norm establishment
- Others \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Is there any optimum limit to the size of the farm as given by the management 01 Yes      02 No  
How many \_\_\_\_\_ hectares.

7. Please give us the total investment allocated to this farm for the last two years.

	<u>1977</u>	<u>1978</u>
a) Fixed capital		
b) Working capital		

8. How many employees are there on this farm?

	<u>1977 E.C.</u>	<u>1978 E.C.</u>	<u>1979 E.C.</u>
Permanent	_____	_____	_____
Seasonal	_____	_____	_____

9. Indicate the total working hour per day \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Have you ever faced manpower shortage? 01 No      02 Yes  
If yes in which section \_\_\_\_\_ reason \_\_\_\_\_

11. Is there any overmanning or labour redundancy in this farm?  
01 No      02 Yes, in \_\_\_\_\_ section, specify the reason.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



18. Do the machinery tested for the appropriateness before using them on this farm? 01 Yes \_\_\_\_\_ 02 No \_\_\_\_\_

19. Which type of model(s) do you think is best suits the farm?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. Is there any recent initiation to introduce new technology with regard to mechanization of the farm? No \_\_\_\_\_  
If yes, indicate the type of mechanization \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

21. Please indicate the most frequent problem with regard to mechanization  
\_\_\_\_\_  
\_\_\_\_\_

22. Is there any ginning located near by the farm to process the raw cotton. 01 Yes \_\_\_\_\_ 02 No \_\_\_\_\_ Indicate the location and distance from the farm  
\_\_\_\_\_  
\_\_\_\_\_

23. Indicate the input requirement per hectare of land for the following inputs.

	<u>Quantity (Kg)</u>	<u>Value</u>
a) Fertilizer 1. Dap urea	_____	_____
b) Seed	_____	_____
c) Insecticide	_____	_____
d) Machine Operation	_____	_____
e) Labour	_____	_____

24. Which cost item (direct, indirect etc) is most outstanding cost at this particular farm? and why? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

24. a) How much does it cost you to produce per hectare on this farm

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b) What is the selling price per quintal. \_\_\_\_\_

25. Please indicate the magnitude of losses and profit of this farm under the following years. (Calendar Year E.C.)

1972      1973      1974      1975      1976      1977

26. Please indicate by (✓) the possible causes of declining in output including the magnitude of losses where possible.

Causes of the problems

- |  | <u>Primary</u> | <u>Secondary</u> | <u>Minor</u> |
|--|----------------|------------------|--------------|
| 01. Salinity   |                |                  |              |
| 02. Shortage of water  |                |                  |              |
| 03. Flooding   |                |                  |              |
| 04. Delay in delivery of input   |                |                  |              |
| 05. Shortage of seasonal labour force  |                |                  |              |
| 06. Shortage of skilled technicians<br>irrigation foreman, tractor operators etc                       |                |                  |              |
| 07. Overmanning  |                |                  |              |
| 08. Shortage of spare parts & heavy<br>farm machinery  |                |                  |              |
| 09. Transport problem  |                |                  |              |
| 10. Frequent machine breakage  |                |                  |              |
| 11. Damage/loss in output due to Afar<br>nomadic cattles   |                |                  |              |
| 12. External interference on management  |                |                  |              |
| 13. Others specify _____   |                |                  |              |
| 27. Whose responsibility is to transport products of the farm to the market<br>or Ministry of Industry |                |                  |              |
| 01. Ministry of Industry   |                |                  |              |
| 02. The Corporation  |                |                  |              |
| 03. The enterprise itself  |                |                  |              |
| 04. Others specify _____   |                |                  |              |

28. What is your impression about the general operation of the farm?

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29. What measures would you recommend to solve the problems?

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15. How would you characterize the overall working environment on this farm

01 Extremely tiresome and boring

02 Moderate

03 I do not know

04 Others (please specify)

16. What is your impression about the overall work condition on this farm?

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DECLARATION

I, the undersigned declare that the thesis is my original work and has not been presented for a degree in any other University.

Name : Gezahegne Ayele

Signature:  \_\_\_\_\_

Place : Addis Ababa

Date of Submission: June, 1988