

PART III

PLAN FOR THE PILOT PROJECT AREA

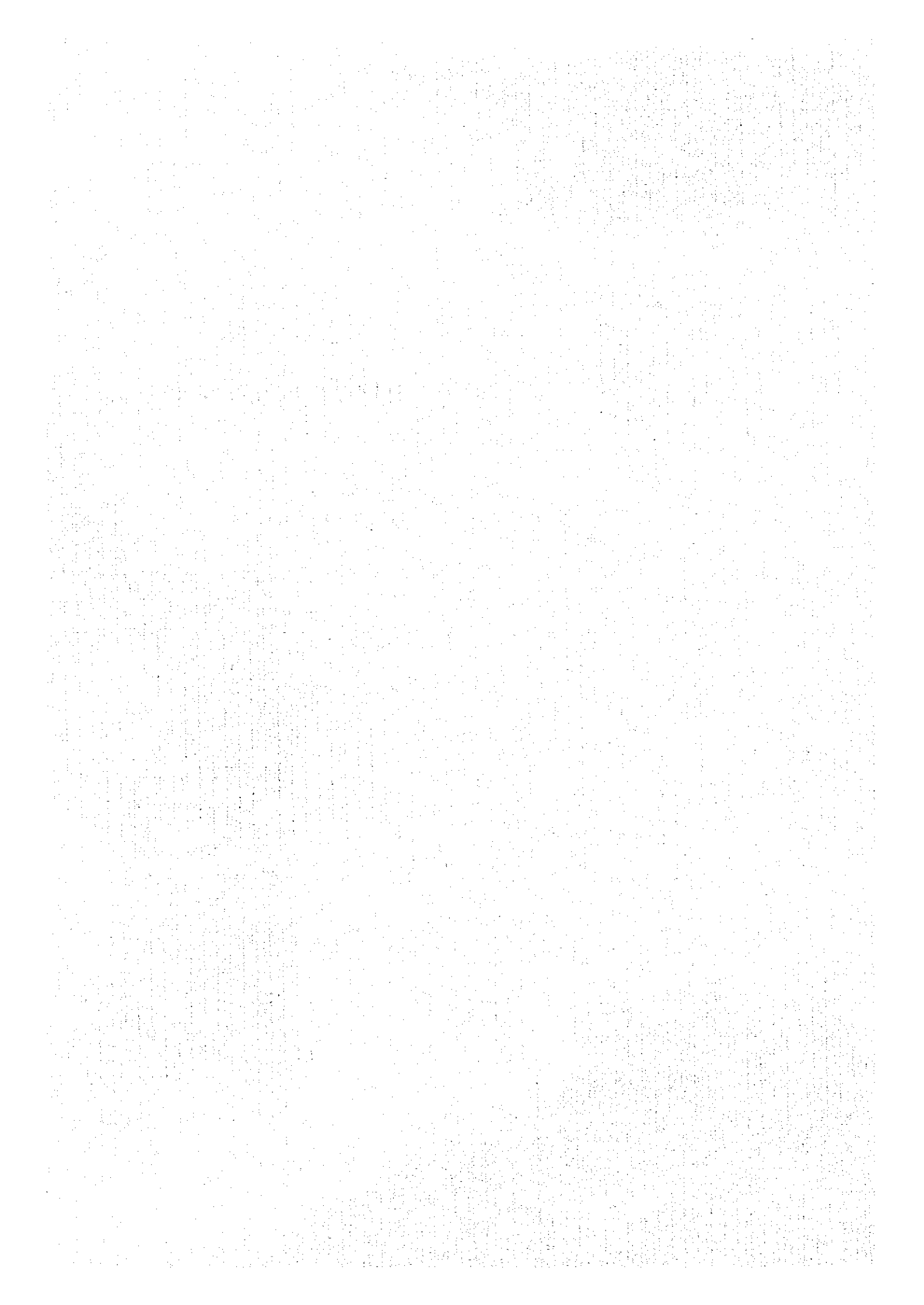


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CHAPTER 1. EXISTING CONDITION OF THE PILOT PROJECT AREA

1-1 Location of the Project Area

The Nova Zagora Pilot Project Area is located in the Sredna Tundja Study Area at the eastern part of the Trakiya plain. Distance from Nova Zagora to Sofia is 240 km, and distance from Nova Zagora to Burgas is 160 km.

1-2 Natural and Physical Conditions

1-2-1 Natural Conditions

Nova Zagora Area is the west part of Nova Zagora municipality, and is located at south of Jrebchevo dam, north of the Blatniza river and west of Nova Zagora syphon. Center of the Project Area is the Nova Zagora town. The sloping agricultural land faces south. The Project Area is supplied with irrigation water by the existing M-3 main canal and Nova Zagora syphon.

1-2-2 Climatic Conditions

Climatic conditions of the Project Area are summarized as shown below by the data from Sadievo which is the nearest observation station.

Annual average temperature is 12.1 at Sadievo, while the warmest month is August with a mean monthly temperature of 23.4.

<u>Station</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Mean</u>
Temperature	1.2	2.2	6.1	11.7	15.9	20.5	23.3	23.4	19.2	12.7	6.3	2.2	12.1
Humidity	5.6	5.6	6.9	9.6	12.8	16.1	17.2	17.1	14.0	18.5	7.8	5.3	11.4
Wind Speed	1.8	2.2	2.3	2.1	1.7	1.9	1.8	1.9	1.8	1.6	1.9	1.9	1.9

Note : Humidity is shown by absolute humidity in mmHG

Unit of wind speed is m/sec

1-2-3 Precipitation

The rainfall of this area occurs throughout the year. The rainfall in the growing season from April to September, as shown on following table, is 288.8 mm at Sadievo.

<u>Station</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Annual</u>
Sadievo	33.1	35.0	32.7	53.5	55.8	61.3	50.8	35.4	32.0	35.5	48.8	46.1	520.1

(unit: mm)

1-3 Economic Conditions

1-3-1 General Economic Condition in Nova Zagora Municipality

Nova Zagora municipality has a population of 48,907 in 1995. There are 26,658 people in town and 22,249 people in village area. In past 3 years, population growth is stable and population flow to the town from the village is not observed. Unemployment rate is 17.7% in 1995, which decreased from 28.7% in 1993. (See Appendix A-4-1, Appendix A)

Main economic activity in the municipality is agricultural production and the food processing industry. Agricultural output occupies 50% of municipal economy and 50% of population work in agriculture sector (including food processing industry). Dairy product company known in Europe is also located in the municipality.

In 1995, revenues from sales, production and services of agricultural sector is total Lev 653 million. Revenue from plant growing and stock-breeding are Lev 509 million (77.9%) and Lev 68 million (10.5%) in each. Share of stock-breeding in the revenue has declined from 30% in 1993 (See Table A-4-3, Appendix A). In food processing industry, the output fall down until about less than 50% level of former peak production. Number of employment in public sector has declined to 6142 in 1996 from 7561 in 1993, while number of employment in private sector increased to 1888 in 1995 from 693 in 1993, because of privatization of the state owned companies. Annual average salary in public sector is Lev 63,375 in 1995, which is a little less than national average level.

In the other, economic condition of industry is stable, however output level remained to be under the former levels before transition. In 1995, industrial output in public sector is Lev 1,728 million. Main industries beside food processing industry are a machine building

(motor machine, lather), textile industry, agro-machinery (pesticide spray instrument, maintenance and repair service for agricultural machine) etc.

The Municipality has already determined the economic development programs from 1996 to 1999. However, projection for future economic growth in the municipality and objective figures for economic indexes are not included in the program. Main objectives of the programs are as follows;

- stabilization of the economic, social and cultural life in the municipality during the first two years of the mandate.
- ensuring a stable economic growth through maximum economic initiative of the state owned, municipal and private companies and individuals
- normalization of the living conditions through water supply of the towns and villages, improvement and maintenance of the transportation, communication and other services for the population
- improvement of the organization and priority funding and support for health care and social aid at the municipality
- ensuring conditions and means for the forthcoming reforms in the educational system
- preservation, rehabilitation and enrichment of the local cultural traditions and activities
- designing a local legislative base and coordination of the efforts and measures for social order and protection of the personality and the property of the individuals
- elaboration of the organization, quality and efficiency of the functioning of the municipal administration and specialized environmental bodies on the territory of the municipality.

Economic conditions of the municipality will be changeable due to the national economic crisis such as high inflation rate and fluctuation of leva-dollar exchange rate. At present condition, it seems that the economy in the municipality has a difficulty to grow at the pace beyond national economic growth rate. As main industry in the municipality is agriculture and agriculture related industries, agriculture improvement is consider to have a large impact to reconstruct the regional economic condition in the municipality.

1-3-2 Food Processing Industries

(1) Strategy for Food Processing Industries in Nova Zagora Municipality

The Nova Zagora municipality implements the development of the food processing industry as one of strategies in the economic programs, to create permanent and temporary jobs, advance financial supports to agricultural producers and more sable purchase price. The

municipality also lent a better site land for food processing companies. Additionally, the municipality has an idea to support and develop young local managers and specialists in the food processing industries.

Food processing companies in Nova Zagora municipality are listed in Appendix A-5-4.

(2) Condition of Food Processing Companies

To study the business condition and production capability of food processing industries around the pilot project area, according to the hearing survey for 13 state owned and private food processing companies such as milling, feeding, canning, winery, dairy, meat processing, poultry, greenhouse in Nova Zagora, Sliven and Yambol municipality (See table below).

The List of the Food Processing Companies Studied

No.	Region	Sector	Type of organization	Number of Employees
1	Nova Zagora	Milling	State owned	140
2		Feeding	Cooperative	30
3		Canning	Private	233
4		Dairy	State owned + Private	120
5		Dairy	Private	12
6		Meat processing	Private	40
7		Poultry	Private	21
8	Sliven	Milling and Feeding	Private	-
9		Canning	State owned	-
10		Vine	State owned	324
11		Greenhouse	State owned	198
12	Yambol	Milling	State owned	170
13		Canning	State owned	800-1500*

*Including seasonal workers

a) General Findings for the Food Processing Industries in the Region

- The food processing companies are separated into two groups, small and medium size private companies, and large state-owned companies.
- The food processing companies survive and struggle to continue a production in economic crisis. Large meat processing companies are affected heavily by the present economic condition. While, business competition between the companies will become more intense in all the companies, not limited in private company.

- The food processing companies have affordable production capacity to increase the production without investment for repair or improvement. If raw materials supply is enough, it is few problems to increase the production volume.
- The food processing companies consider they have a power to sale the increasing volume of products, as the products quality is high and client reputation for the product of the region is good.
- The equipment and facility are superannuated, made in late of 1960's in many companies. They have a problem on the point of the operation efficiency.
- The food processing managers change from inexpensive agriculturists, food processors, traders, transporters, constructors, etc. to entrepreneurs with business and marketing sense, especially with private companies. The private companies increases their sale and earn the profit gradually.
- The food processing companies purchase raw materials almost only from producers, cooperatives and private farmers in the region. Their reputation for the products quality in the region is good and they are not afraid about raw material supply from the region. For the products from Nova Zagora municipality, the companies in Sliven and Yambol municipality also have intention to purchase from Nova Zagora study area.
- Although many food processing companies make the purchase contract between producers, it is difficult to fix the purchase price before the delivery due to high inflation and fluctuated exchange rate. It is unclear whether companies pay the advanced payment for the products or not.
- Some companies do the assistance service for the producers such as agrochemicals and seeds supply, advanced payment.

b) Findings for the Main Sectors of the Food Processing Industries in the Region

Milling and Feeding: Most companies are state owned. Business competition is getting intense in purchasing the grains and selling the flour between each milling. Especially for in the region, there are many millings such as Nova Zagora, Sliven, Yambol, Burgas, Varna. The financial condition of the milling is still unstable caused by shortage of grain.

Feeding sector has management condition in despair due to delay of payment from the client, breeding companies which almost are loss making companies by over cost of production.

Milling and feeding companies do the exchange service from grain to the products to compensate the short of financial resources for the purchase of grain and increase the activity level of facility.

Canning: Almost all the products are exported to Russia and the rest of Europe. Share of export to Russia is still high and occupies over 60-70% of total export. Production capacity of private canning companies are smaller than state owned companies. One of winning keys on business competition is the production of low price and high quality products.

Winery: More than 90% of the wine is exported to western European countries, such as UK, Austria, German, etc. Business conditions seemed to be better than other food processing sectors. In increasing export volume of the wine, they have trouble to expand varieties and improve the quality of grapes to meet a client's demand, because the grape vines are old.

Dairy: In the region, there is the modern advanced dairy factory which received foreign investment and sell products on foreign market. While small private companies also had established and sell cheese only for the domestic market.

Meat processing: State owned companies with a large number of animals are facing bankruptcy. In the other hand, small private companies need only a small number of animals appear and sell the products for domestic market. Business of small private company is good and its sales volume is growing.

Others: Greenhouse business become loss making due to increase rate of energy cost for heating beyond increasing rate of products. The private poultry company sell only one day chicken and made closed system of the broiler to reduce.

1-3-3 Land Restitution Condition

According to the Nova Zagora Municipal Land Committee, the procedures of the land restitution scheme in the Pilot Project area are now under way. Only two villages, Karanovo and Sabrano, have completed the land division plan, as of 13 November, 1996.

Consequently, all of the land owners in the municipal area have obtained temporary land ownership rights, and have some notary deeds. Farmland in the area is cultivated by farmers who obtained the temporary land ownership rights in the state of indefinite land division and boundary line. In addition, some farmers and/or agricultural production cooperatives rent the lands from absentee land owners. More than 60% of land owners have the lands under the temporary land ownership rights. (see Appendix A-5-6, Appendix A)

Number of the land owners who have temporary land ownership rights and the land area is tabulated as follows:

Village	Total farmland (dca)	No. of temp. land ownership	Average farm size (dca)
Asenovetz	10,669	615	17.3
Bryastovo	6,020	256	23.5
Zagortzi	26,535	729	36.4
Karanovo	14,275	392	36.4
Korten	27,300	2,472	11.0
Lubenets	21,031	650	32.4
Nova Zagora	15,659	704	22.2
Stoil Voivoda	32,275	1,348	23.9
Sabrano	17,672	463	38.2
Total	171,436	7,629	22.5
Bogdanovo*	16,366	1,006	16.3

Data source: Nova Zagora Municipal Land Committee

Note: *Only 900 dca includes in the pilot area.

There are 33 villages and 1 town with 606,602 dca of farmland in the Nova Zagora municipality. Currently, 19 villages within the area are preparing the land division plan. The rest are successively issuing the notary deeds for land owners. The municipal land committee plans to issue the notary deeds, which will be completed for 20 villages at the end of 1996, and the land restitution scheme in the municipality will be concluded at the end of 1997.

As of November 13, 1996, land owners who obtained the notary deeds are 1,348 with 106,030 dca of farmland, none of these are within the Pilot Project area. On the other hand, land owners who have a temporary land ownership right are 10,787 with 309,195 dca of farmland.

All farmers who perform farming in the area have own farmland. Although the farms in the area are extensive, the average size of the ownership plots is small (26.8 dca). More than 70% of land owners live outside of the village.

1-4 Social Conditions

1-4-1 Organization of the Local Government

The budget of a nation is often a useful prism through which to view and accent the political and economic changes that the transformation seeks to encourage. To a large extent, Soviet budgeting practices are still in place in Bulgaria, and the level of decentralization at the local government level is indicative of the slow and confused pace of change. 1997 is expected to bring a new act on Administrative Division that will expand local autonomy, but currently, localities operate at various degrees of independence and dependence on national level fiscal installments. The Municipality of Nova Zagora illustrates the national situation with its mix of local autonomy and significant dependence on central-level fiscal allocations. As a mid-sized municipality of 34 settlements and about 50,000 people, the Nova Zagora municipal 1996 budget is built upon 33 % of its own revenue and 67 % on central government redistributed resources.

Local government depends heavily on central government fiscal transfers to close the gap between revenue capacity (authority) and expenditure needs of the local municipality. The aggregate volume of transfers is determined ad hoc by the central government and is subject to intense negotiations that lead to unpredictable outcomes from year to year. As a result, neither the incentives with respect to tax effort, nor the equity impacts of fiscal transfers are clear.

In Nova Zagora, two-thirds of the municipal budget comes from a central level redistribution of the State funds. 50 % of the income tax and 100 % of the VAT collected locally is sent to Sofia and redistributed back to localities in part on a need basis and also by application of an objective quota on the number of hospital beds, schools, infrastructure facilities among other factors. Nova Zagora has 4 principle local revenue sources covering approximately one-third of the local budget. First, income taxes are collected and 50% remains in the municipality and 50% is sent to the central level. Income taxes account for the largest share of locally generated revenue. These income taxes retained account for half of the 33% of locally-generated revenue. Property taxes are collected, and 100% remains locally. Second, charges and fees on garbage collection, building permits and social services charges are collected. Rents on municipal properties and business enterprise taxes on municipal firms provide the third and fourth type of local revenue sources.

The town of Nova Zagora, population of approximately 26,000, and the 33 villages (including the 9 villages in the pilot area), are supported through the municipal budget approved by the elected Municipal Council. A balanced budget is nationally mandated, though municipalities have local autonomy with regard to local revenues and expenditure management. Essentially, this budget is divided for social sector expenditures, including education (34-45 %), health (22 %), social support (15-17 %), and capital investment (2-3 %), totaling Lev 600 million in 1996.

Administratively, Nova Zagora municipality and its popularly elected mayor report to the Ministry of Finance and Ministry of Territories in Sofia. A municipality is the lowest and highest level of local government. The district (oblast) level of government in Burgas, is a branch of the central government and serves as an informational arm of the national level ministries. The old structure of 28 region (okrag) towns was officially dissolved and Nova Zagora is no longer subordinate to administrators in Sliven, though remnants of this system remain. In fact, a July 1996 order in part resurrected this region function to help facilitate communication from the Ministry of Agriculture and applicants to the Agriculture Fund. The town of Sliven (population about 180,000), has an Agricultural Department staffed by MAFI administrative personnel. Sliven is now the first point of processing applications for Agricultural Fund subsidies for farmers in Nova Zagora. An Agricultural Fund application is screened in Sliven, then Burgas, before reaching MAFI in Sofia.

In terms of agriculture, the Municipality of Nova Zagora currently has limited capital investment resources and provides moral support for agricultural producers and processors in the area. The municipality aims to revitalize agriculture through land restitution, and has encouraged a local branch of the national level Union of Cooperatives. The municipality seeks to build upon its small municipal Agricultural Department, and expand information functions from the collection of production information to include market price data, product information, technical advice and extension services.

1-4-2 Rural Society

The table below shows the demographic characteristics of the pilot area. The population in the Nova Zagora-town is almost 80% of the total population in the Pilot Area.

Demographic Characteristics of the Settlements of the Pilot Area (1996)

People	N. Zagora	Korten	Assen	Bryast.	Karan.	St. Voiv.	Zagor.	Sabran.	Iyuben.	Bogdan.	Total
Males	13,307	1,059	359	194	402	407	272	235	282	207	16,724
Females	13,335	1,049	365	201	414	423	246	276	293	215	16,822
EAP	13,597	1,409	451	191	330	404	244	184	343	198	17,351
Unempl.	2,487	186	130	70	130	177	32	60	20	5	3,297
Gypsies	7,236	200	0	0	273	135	80	5	34	0	7,963
Total	26,932	2,108	724	395	816	830	518	511	575	422	33,831

Source: Nova Zagora Municipality

Among several social specific characteristics the following four might affect the implementation of the Project : the rural migration, the aging of the population, the unemployment and the minorities (gypsies). Each of the four problems needs to be addressed in a social development plan which should specify how the realization of the Project would deal with the cited above social disadvantages and to what extent.

a) The Migration

For the whole country, the intensity of migration has been decreasing since 1956/65 census period from 18 % to 4 % in 1986/92 (See Figure B-3-1, Appendix B). The females and young people (16-29 year of age) have been contributing most to the country's migration (See Figure B-3-2, Appendix B). Among the migrant during the period between 1986-1992 the part of the women (52.9%) is greater than the men (47.1%). Therefore, the trend of greater contribution of women to the country's internal migration that had characterized the previous three periods between censuses (1956-1985) was still substantial at the time of the last census (1992). The statistics also illustrates that approximately one third (32.3%) of the migrants were very young people (below 20 years of age). Taking into consideration that migrants of age between 20-24 years were 19.2% and these of age between 25-29 years were 12.3% of the total number of migrants, it is evident that almost two thirds of all migrants were young people. The share of the people of age up to 29 years in the total number of the population in the end of 1992 was 39.8%. The region migration destinations dominate the people movement, mostly two—to Nova Zagora and to sites out of the area, which suggested a differential approach to analyzing the problem. Consequently, the migration that affects the pilot area was divided into internal migration (within the pilot area) and migration to destinations out of the pilot area.

- i) Migration within the pilot area: people migrate from villages of the pilot area to Nova Zagora-town. In the five year period between 1991-1996 about 28% of the pilot area

population contributed to this migration and most of the people moved to Nova Zagora town.

ii) Migration to sites outside of the pilot area

The Maritza-Iztok electric power complex, just south of the pilot area, is a major labor consumer in the region, encouraging migration and causing concern for rural developers. In addition, Stara Zagora, Sliven, and Jambol are cities within a range of 50 km from the pilot area offering a developed urban environment and cultural life, with opera houses and theaters. About 10% of the pilot area population contributed to this migration in the five year period between 1991-1996.

b) The Aging

The aging of the population in the Pilot Area is a consequence of rural to urban migration and birthrate decline. Figures made public by Nova Zagora municipal welfare office illustrate a sharp drop, more than 30%, in birthrate registered between 1988 and 1995 as the number of live-births for the whole municipality decreased from 617 in 1988 to 425 in 1995. Figures are identical for Nova Zagora-town with 451 live-births in 1988 and 301 in 1995. The birth rate decline is foreseen to continue until the year of 2010 (see Fig. B-3-3, Appendix B).

c) The Unemployment

The number of people registered as unemployed at the Labor Bureau in Nova Zagora in August 1996 was 3,297, in which 86% was below age 44 (see Table B-3-5, Appendix B). Main reasons for the high unemployment rate are the recession and the on-going privatization of the economy. Private enterprises no more enjoy government subsidies in exchange of keeping a redundant labor force. Privatization of agriculture has reduced employment opportunities in the short-run. Other activities, such as restructuring of government organizations, education, culture, also laid-off people. For rural areas the dominant unemployment contingent are former farm workers, mostly gypsies, who lost their jobs with the demolition of the former cooperatives and are still struggling to find employers.

d) The Minority

According to the available municipal information, 7,236 people of the minority group, known as gypsies, reside on the territory of Nova Zagora municipality. The Bulgarian gypsies who inhabit this region do not have their own language, history and cultural identity speaking a mixture of Bulgarian and Turkish languages. Non-school enrollment is estimated at over 20% among their children. Illiteracy is high, and unemployment is

estimated at 70% among this segment of the population. They do not own land and thus, their living standard is not expected to improve with land restitution. Crimes, primarily theft, are frequently credited to the gypsy population. Many of them do not receive social welfare due to the fact that they avoid any registration with the government offices trying to avoid tax payments. Due to low education levels, their employment opportunities are limited to seasonal workers in agriculture.

e) Education

i) Tradition in educational development in Nova Zagora municipality

A historical review of the roots of education in the area shows that organized education in the region began 140 years ago. The foundations of European education were initiated by the progressive intelligentsia together with the orthodox clergy. During 1897/98 school year, there was a school in every settlement of the former Nova Zagora county. The county achieved the highest enrollment rate in the country during 1894/95 school year - 94.33% of all children in their school age. A professional education was initiated in the region in 1908.

ii) Present state and problems

Social activities of the municipality in a great part are brought down to financing and superintending of education and health care. In 1994, a total of 44.77% from the Nova Zagora municipal budget were allocated for education, in 1995—35.64% and in 1996—38.68%. For 1996 after the actualization of the budget (Lev 600 million.) the share of education was Lev 234 million which effectively gives each student in municipality approximately Lev 34,000 (US\$ 100, on average for 1996 exchange rate of Lev 340 per 1 US\$).

Further, due to an insufficient number of students there is a real possibility schools and kindergartens in two of them, Bryastovo and Lubenetz, to be closed. There are three educational centers on the territory of the pilot area that are included in the social development program of the project: the Agricultural School in Nova Zagora, the orphanage in Asenovetz and the boarding school in Bogdanovo (See Table B-3-3, Appendix B).

f) Health Services and Welfare

The greatest part of the welfare burden on municipal budget as well as on country's budget, comes from funds dedicated to support free education, health care and provide public

pensions to all retirees. The people that receive the welfare money are in proportion with the tax payers of the pilot area settlements.

In conclusion, most of the socioeconomic hurdles in Nova Zagora municipality are an outcome of the recession in the country. Taking into consideration the agricultural potential of the Pilot area, the availability of skill labor and the existing infrastructure, with no doubt, the area has a formidable potential to recover economically through properly directed technical assistance, managerial guidance, and capital investment.

1-5 Agricultural Condition

1-5-1 Agricultural Production and Land Use

(1) Introduction

For many years Bulgarian agriculture functioned efficiently, and provided a variety of plant and animal products both for Bulgarians and the export markets of Eastern Europe and the Soviet Union. Today, that old system is in disarray and the new system is still to be established. A lack of agreement on the direction and the nature of the reforms at all levels, from the Government to village level liquidation committees has reduced a flourishing system, to a patchwork of neglected fields, abandoned orchards, struggling private farmers and the occasional cooperative that have survived intact. Production has declined and the future for Bulgarian agriculture remains uncertain. Fortunately the pilot project area has a rich physical and human endowment.

(2) Nova Zagora and the Pilot Project Area

Currently the Nova Zagora area is growing mainly wheat and barley as autumn crops, (approx. 6,000 and 3,000 ha respectively) and maize (2,000 ha) and sunflower (3,000 ha) as spring crops. The current ratio of the area of spring to autumn crops is about 0.75 to 1. Very little irrigation is currently occurring, and what irrigation is occurring is being used primarily on the maize. The area under alfalfa is small (5-600 ha), most of the orchards are badly neglected, and probably of the area under grapes (800 ha), approximately a quarter is irretrievably damaged. Currently, due to late payments by processors very few vegetables are grown, (1-200 ha) primarily tomatoes and cucumbers. Of the industrial crops, sunflower is by far and away the most important with about 3,000 ha, a small amount (1-200 ha) of cotton is also grown.

The land use figures for the 10 villages in the study area show a total agricultural land area of 18,504 ha, of which 17,213 ha are arable, 307 are orchards and 983 are vines of some sort, (wine, dessert or varietal propagation). The agricultural statistics for the study area show a similar set of figures, with a total area of 18,147 ha, of which 17,076 is arable, 223 is orchard and 848 ha is vines. These lower figures for orchards and vines probably more closely reflect the actual situation on the ground, as compared to the designated land use as recorded in the land use statistics.

The following table shows the calculated average area under the main crops for the last two years in the pilot project area. Eighty eight percent of the land is under wheat, barley and the spring crops, the remainder is grapes, orchards, pastures and alfalfa. The land under grapes and orchards has been declining, and much of the w/o project area under fruit and grapes is only marginally productive. The area under barley and alfalfa appears to be increasing, and this might indicate that livestock numbers are starting to go up again.

With and Without Project Cropping Pattern (Hectares and %)

	w/o ha	w/o %	with ha	with %	Change
Wheat & Barley	6,879	52%	6,864	52%	0%
Maize and Sunflower	3,668	28%	3,300	25%	-3%
Other spring crops	875	7%	1,518	11.5%	+4.5%
Grapes	610	4.6%	620	4.7%	+0.1%
Fruit	165	1.2%	172	1.3%	+0.1%
Alfalfa	396	3%	528	4%	+1%
Pasture	191	1.5%	132	1%	-0.5%

Source: Calculated from MAFI data

The pilot project area contains 10 population centers (including Nova Zagora), and the management of the land varies somewhat from village to village. While every village still has a cooperative operating, in some villages they dominate the farming, in others leasees and owner operators are more important. The whole area can be divided in two on the basis of the topography and the soils. In the northern portion, the villages along the M3 canal (Korten, Asenovetz and Karanovo) have gently sloping land and brown forest soils. This is where the majority of the orchards and the vineyards are found. In the south the land is level, the fields are larger and the soils are chernozems. The majority of the land in the southern area is primarily used for grain crops.

1-5-2 Marketing and Distribution

(1) Cereal

Before 1989, the state milling company in Nova Zagora was the only purchaser of cereals from Nova Zagora region. The total storage facility was about 100,000 to 120,000 tons and recorded 120,000 procurement in the first half of the 1980s. Producers brought produce to the company immediately after the harvest. Drying, quality analysis and tolling services were also provided by the company. Therefore, most of the existing storage facilities for cereals located at villages were designed for temporary use only and were not equipped with devices necessary for long storage.

After 1989, these facilities for cereals have been either restituted to former owners, or privatized. Currently, most facilities located in the area are owned mainly by cooperatives. However, having been designed for temporary use, most of the facilities are block-lined clamps for bulk produce (sheds), small storehouses and cellars without ventilation and cooling functions. Very few places are equipped with ventilation and quality check facility. Weighing facilities including platform scales for lorry loads are equipped. Under the condition that existing on farm storage facilities are only for temporary use, producers have to sell the produce immediately after the harvest at the cheapest price. As Table E-3-1, Appendix E shows that storage capacities of these state and private procurement companies are significantly higher than the current production level.

(2) Vegetables and Fruit

Before 1989, the state owned vegetables and fruit procurement company in Nova Zagora was the only purchaser in the study area. The total production of vegetables and fruit in 1988 and 1989 was between 150,000 tons and 160,000 tons for entire Sliven region, out of which about one third was grapes. Most of the produce has been processed and exported. Main products are tomato pure, nectar, and pickles. There was a cooling storage capacity for fresh produce at Korten which procured significant amounts of vegetables and fruit from the study area. The branch of Bulgarplod was privatized in 1996 and currently its storage capacity for vegetables and fruits is between 20,000 to 25,000 tons. The Korten storage facility owned by a cooperative has storage capacities of 20,000 m³ consisting of fifteen cellars equipped with cooling and freezing facility.

1-5-3 Agricultural Management

(1) Farming Pattern and Size

The farming pattern in the pilot project area is classified into four types as shown in the following table.

Farming Organization	Farm Size (dca)	Farming Pattern
Agri. Production Coop	5,000dca to 24,000dca	Cereals, Grape, Livestock
Private Partnership	1,000dca to 5,000dca	Cereals, Livestock
Lessee	500dca and over	Cereals, Grape, Vegetables
Private Farmer	Average 140dca	Cereals, Grape

In case of private farmer, the average farm size of land in the down stream of M3 Canal is about 140 dca and number of plots is between 3 to 5. This farmer uses his land for farming as follows: 118 dca for cereals, 8 dca for alfalfa, and 14 dca for vineyard. A certain farmer uses his land in combination with cereals and sunflower as rotation system. In the upper stream in the area, i.e., along with M3 Canal, the average farm size of land is about 80 dca which is smaller than that of the down stream. This farmer uses his land for farming such as 38 dca for cereals, 2 dca for potatoes, 23 dca for orchard, 12 dca for vineyard and 2 dca for grasses.

Agricultural production cooperatives in the area mainly cultivate cereals by large scale mechanized farming. Cooperatives in the down stream produce mainly cereals and fodder crops. In the upper stream, cooperatives also produce mainly cereals, and grow grapes and fruits. Some cooperatives perform multiple farm management combining cereals and livestock.

(2) Farm Management

There are 14 agricultural production cooperatives in the pilot area. The land cultivated by them extends over 134,405 dca. This land accounts for about 72% of the total area of farmland. The remaining land, about 28%, is cultivated by private partnership farmers and private farmers including lessees.

By interview with private farmers and village survey, the farming of private farmer is similar to that of the cooperatives, such as cereals of main crops and fodder crops for their animal husbandry, by mechanized farming. Most the private farmers have farm machines as tractor with the whole set of attachments.

(3) Farm Labor Force and Mechanization

As a result of farm labor force, the total requirement of current farm labor force in the pilot project area is about 166 thousand man-day annually. Higher demand of farm labor is required April, and September owing to seeding for vegetables and cereals, and harvest of grapes.

Cooperatives use hired labor for their farming practices such as weeding and harvesting. Cooperatives members work for these farming practices as seasonal farm workers. Private farmers maintain their farming by mainly their family members, but they help each other in their farming activities, especially, in the harvesting time.

A typical private farmer (140 dca), has a tractor with 45 hp (old) for his farming, and he hires a harvester for harvesting cereals. Most private farmers including partnership and lessees have a different type of machinery and equipment. A typical cooperative (7,800 dca) has 5 tractors and 1 combine harvester.

Most private farmers and cooperatives irrigate their land for maize and vegetable growings, using gravity irrigation method.

(4) Agricultural Management Analysis

As the results of agricultural management analysis for a typical private farm and agricultural production cooperative, both agricultural organizations earn considerable profits from their farming activities. In general, existing private farmers are active and progressive for their farming. In case of cooperative, the maintenance costs of farm machinery and equipment have relatively high production costs due to deterioration.

The results of the analysis are presented as follows:

Private Farm	(Lev)	Agri. Cooperative	(Lev)
Farm Income	1,682,600	Farm Income	69,961,300
Other Income	416,000	Other Income	635,700
Production Costs	962,920	Production Costs	34,685,520
Return	1,135,680	Return	35,911,480
Home Consumption	282,400	Self-consumption	5,472,000
Living Expenses	120,000	Expenditure	16,053,550
Reserves	733,280	Reserves	14,385,930

Details of existing farm management and its economy of a private farm and agri. production cooperative are shown in Table F-II-4-1 and 2, Appendix F.

(5) Farm Mechanization

There are plenty of farm machinery in Nova Zagora municipality and about 30 percent of the machinery is deteriorated. Out of them, 515 wheel tractors, 84 chain tractors and 113 combine harvesters, are available. However, the renewal of these machinery is required. (see Table F-II-6-1, Appendix F)

Taking into account these circumstances, the number of farm machinery in the area has been examined based on the data of NIMESS, Agricultural Academy. As a result, it is clarified that existing number of farm machinery is inappropriate to present farming activities from size and operating capacities, due to these machinery used from ex-collective cooperatives.

1-5-4 Financial Support for Agriculture

(1) State Agricultural Fund

The state agricultural fund has an important role to support agricultural management. In 1995/1996 agricultural year, wheat producers received a subsidy and advance of the contract with MAFI for wheat production from the fund. The subsidy of 350 lev/decare was paid to producer. The advance was paid by installments in three stages (before sowing, fertilizing, and harvesting), for the purpose of financing support for wheat production. The conditions of the contract was 30 lev/kg and the quantity of wheat contracted was sold to the state owned mill factory.

In the 1995/1996 agricultural year, the total amount of Lev 45 million was spent in the whole area of Nova Zagora municipality from the fund. For wheat production in the 1996/1997 agricultural year, Lev 10 million of the advance was already paid for sowing purposes.

Besides, 20% of the purchasing amount for the farm machinery such as tractor and combine is subsidized by the fund. However, this subsidy system does not function effectively. Few farmers use this system because of the high exchange rates and high interest rates of the loan.

(2) Amelioration Fund

This fund is to finance the construction of hydroameliorative facilities, such as dams, river adjustments, pump stations, irrigation and drainage facilities as well as pay for the

maintenance of these facilities. In 1995, the fund used Lev 26 million in Sliven region, including Nova Zagora municipality.

(3) Agricultural Insurance

The agricultural insurance system which has an important role for agricultural producers by protection against agricultural disasters, is widely diffused in the area. In particular, agricultural producer who makes the contract utilized by the agricultural fund, should take out insurance on crop production.

In the area, the DZI, Nova Zagora branch - state-owned insurance company - has made the contract of insurance with agricultural producers such as agricultural production cooperatives, private partnership and farmers. On the territory of Nova Zagora municipality, the DZI provides free pesticides every year for client farmers according to a premium levels. In 1996, the pesticides for spring and autumn crops were provided which amounted Lev 162,000 and Lev 160,000, respectively.

1-5-5 Farmers Organizations

Agricultural production in the pilot area of Nova Zagora is classified into four common forms of organization: cooperatives, lessees, associations, and private farmers. There is one dominant union of cooperatives in the pilot area, but a noticeable absence of other forms of association or group formation. Consumer cooperative shops following the old socialist model operate across the villages in the area, though with sparsely stocked shelves.

Cooperatives are currently the dominant form of production unit, accounting for 72% of the land under cultivation. One or two cooperatives are found in each of the 9 small villages. There are no cooperatives in the town of Nova Zagora. Cooperatives have been a convenient holding pattern, and the most familiar form of organizing production in the transition period given the uncertainty of change, and the absence of land reform. Cooperatives were encouraged to organize in 1992 and 1993, in order to facilitate liquidation of the old state farm structure, and thus the revised cooperatives had the important advantage of access and ownership of facilities and large farm equipment.

Cooperatives are registered under the Cooperatives Act, each with a Board and General Assembly of members as the basic management structure. Village-based cooperatives in Nova Zagora vary by location, with a variety of rules and management styles. Several of the largest cooperatives in the area closely resemble the former socialist model, and play a dominant role in village economic and political activity. In other cases, villages with two

cooperatives of smaller and similar size, often suggest more democratic practices and examples of positive competition between cooperatives and their members. Modes of operation vary by each cooperative. Some cooperatives insist on full control of land cultivation and cropping strategies, while others offer members options on the degree of cooperative participation, labor requirements, and cropping options. Members, on average, received 20-35% of the proceeds of the harvest in kind or in cash rent-like payments.

With encouragement of the municipal government, Nova Zagora has a local branch of the national level Union of Cooperatives. The local Union has grown from 18 members since its founding in 1994, to 28 cooperatives among its membership. The Union's principle role is to be a conduit for agricultural fund subsidies, and encourage links with banks, insurance companies and input providers. To date, it has been unsuccessful in its attempts to form a common input supply service center, and the bank formed in 1994 by the Union has failed. Foreign contacts, marketing support, and machinery leasing arrangements are areas noted as the future focus by the local Union.

Lessee production arrangements account for about 13-14% of the land under cultivation in the municipality of Nova Zagora. Lease agreements are arranged between temporary users and the leasing agent serving as farm manager. Leasing combines several parcels of land under common production management in exchange for cash or in-kind rental payments to the land owners. Such arrangements are on a personal level, and the structure is not normally registered as a business or farm enterprise. Village interviews with lessees suggest profitable operations, paying modestly better rents than cooperatives - payments ranging from 25-35% of the proceeds of the production as compensation to participating members.

Associations of temporary land users have so far accounted for 11-12% of the land under cultivation in the Municipality. Associations often form along kinship lines, and operate similar to a cooperative among extended family members. Several associations in the area have moved from informal family structures to more formalized business associations of 3-5 farm managers, at times, registered under the Trade Act or Cooperatives Act.

Private farmers account for a small minority of production in Nova Zagora, with an estimated 2-3% of the land under this form of production. With a few exceptions, most private farmers are small with 100-150 dca under cultivation.

1-5-6 Institutions and Supporting Services

(1) Water Management Institutions

ISC is a joint stock company with MAFI as the only shareholder. ISC is responsible for the management, operation and maintenance of main and farm level irrigation facilities. ISC has a regional, semi-autonomous branch office in Sliven, servicing the Nova Zagora M3 canal pilot area. The Sliven Branch also maintains a water control point office within the Municipality of Nova Zagora, as well as 1-2 operators at each village. ISC contracts for water deliver to agricultural producers, and undertakes scheduled and on-demand maintenance activities across the Sredna Tundja area. Currently, water fees are charged and collected by ISC based on a per deca and crop basis, and little extension services or technical advice on irrigated agriculture is provided to water customers.

The National Water Council has overall responsibility for water resource management, and has tasked ISC with delivering water to users and maintaining and operating the delivery system. In Sofia, MAFI maintains a two person Irrigation Unit within the Plant Production Department tasked with coordinating legislative matters. The Institute for Irrigation and Hydro-amelioration under the Agricultural Academy in Sofia is the leading research institute for irrigated agriculture, and discussions are underway for a possible role for the Institute in providing irrigation extension services and support to water user associations. The Irrigation Experiment Station in Stara Zagora, once an active center on experimentation on irrigated crop production, has lost staff, funding and vitality. The Irrigation Institute, and the Experiment Station, offer interesting prospects for supporting the pilot area with a revised mandate and renewed funding levels.

(2) Water Users Associations

WUAs are not yet established in the M3 canal pilot area in Nova Zagora. Water syndicates, or WUAs, while a stated goal of the national and regional offices of ISC have not formed. ISC/Sliven retains full responsibility for the management of irrigation facilities. In 1996, ISC/Sliven lead preliminary discussions at each village to encourage the formation of WUAs. Yet, the incentives to register do not currently exist given low demand for irrigated crops and limited sales channels, high cost of water, and declining conditions of irrigation equipment. These facts, combined with the low trust among producers and suspicions of government sponsored group formation have discouraged WUA formation in the pilot area.

Regrettably, the central mandate and push encouraged by the World Bank to register a target number of WUAs in 1996 shifted attention from registration on a technological

principle to a village-based registration. Stoil Voivoda and Korten are examples of the village, and cooperative-based approach, and represent the largest water customers in the M3 system. Each organized over a series of meetings, but did not register as a WUA. Registration along village lines is not desirable, and (fortunately) is placed on hold pending new guidelines and passage of new WUA legislation now placed before the Cabinet and legislature for approval.

(3) Extension Services

European style extension services were launched under MAFI in 1996, largely underwritten by EC-PHARE. The Research, Education and Development Department of MAFI has defined a division on Extension Services. The Extension network was launched with 19 centers across the country, placing 5 extension specialists on the sites of former experiment stations. MAFI and EC-PHARE plans are to expand an additional 25 offices in 1997, targeting 100 offices by the year 2000. These "local advisory offices", are designed to provide consultancy services to producers on animal breeding and plant growing, accounting and financial management, project design and business planning.

The 19 Experiment stations hope to retain capacity for testing and demonstrating new varieties, breeds, and techniques and maintain research links to the Agricultural Academy. In the pilot area of Nova Zagora, Yambol is the closest 1 of the 19 advisory offices and is recognized for its excellent start in assuming the new extension role. The Yambol office is, in small part, self-financing through seed production and sales. This 5 person expert office services a 30 km radius, and will be the core experiment station in an expanded office network in the M3 canal pilot area. An extension office is targeted for Sliven in 1997, and one to follow in Nova Zagora thereafter. This movement to increase the support capacity at the local, municipal, level is positive move to support the information and technical needs of agricultural producers. In its initial months of operation, the Yambol office has served mostly small producers seeking advice on managing small production plots seeking basic advice on input and crop management. Extension services are an important link for small producers, though the Extension service faces a difficult challenge of also servicing different needs of large producers and cooperative organizations.

Officially 40 research institutes and experiment stations exist across the country, largely influenced by former structures organized along commodity lines, and each is in various states of operation. In addition to the irrigation concerns noted above, the stations with the closest technical and geographic link to the pilot area include: Pomorie Horticulture Experiment Station, Sliven Peach Institute, Stara Zagora livestock station, Elhorro Farm Machinery experiment station, and Plevin horticultural nursery.

The Agricultural Faculty in Plovdiv is the national center for university education and advanced degree training in agricultural sciences. A 500 student agricultural / vocational high school is located in Nova Zagora, and receives financial support from MAFI, and curriculum guidance through the Ministry of Education. Students are drawn across Southeast Bulgaria for specialized secondary education in farm mechanics, and basic production and animal husbandry techniques.

1-5-7 Agricultural Credit

(1) Financing Services by Banks

In the pilot project area, the banks which carry out the financing services for agriculture, commerce and industry, are the United Bulgarian Bank (UBB) (state-owned), Central Cooperative Bank (CCB) (private, shareholders - Union of Agricultural Cooperatives and 29 cooperatives, and "Gunza" Winery). The branch of these banks are in Nova Zagora, and the CCB has the office in Korten.

Currently, only the CCB provides financing services for agricultural producers. However, agricultural credit services are not functioning because of a lack of clients for credit/loan. Present primary interest rate of the NBB is set at 180%, so that the minimum interest rate of the bank is 188% and over. A loan requires collateral such as farm machines, facilities, and crops.

(2) Rural Credit Cooperative

In the area, a credit cooperative, named "Kalm", is established recently in Nova Zagora under the Agricultural Capital Fund Scheme. The cooperative is organized by 100 private small-scale farmers who have a notary deeds and practice agriculture in Nova Zagora municipality.

The limit of the credit is 20,000 ECU per farmer and its term is within 1 year. As an exception, the interest rate is set up 54% annually which is about quarter of the interest rate of commercial banks. The operation of this credit cooperative will start from the beginning of December, 1996. The cooperatives manage by member themselves under the guidance and control of the EC-PHARE and MAFI.

1-6 Infrastructure Conditions

1-6-1 Irrigation Acreage

The Pilot Project Area is located in the west side of the Nova Zagora municipality at south of M-3 main canal, west of Nova Zagora syphon and north of Blatniza river. The Area can get irrigation water from open canal or main pipe lines of M-3 main canal or Nova Zagora syphon which are operated by ISC. The commanded area by canal or pipes are described below and detailed acreage are given in Table J-2-5, Appendix J.

<u>Name of Canal</u>	<u>Commanded Area</u>	<u>Remarks</u>
M-3 Main Canal (direct offtake)	26,676 dca	open canal
Nova Zagora Syphon	11,029 dca	pipe networks
No.1 Main Pipe	7,661 dca	pipe networks
No.2 Main Pipe	5,040 dca	pipe networks
No.3 Main Pipe	46,525 dca	pipe networks
No.4 Main Pipe	35,069 dca	pipe networks

1-6-2 The Main Irrigation Facilities

The irrigation water to the Project Area is supplied from one of the Jrebchevo dam outlets through the discharge control structure and Korten tunnel. At the end of Korten tunnel, the water is divided into two canals; M-2 main canal for Nova Zagora east and Mlekaevo Padarevo Block and M-3 main canal for Nova Zagora west. The construction of Nova Zagora syphon, which is the one of the branch canal of M-2 main canal, is not completed, however the syphon is supplying the irrigation water to Korten village and Nova Zagora town in the Project Area and Mlekarevo out of the Project Area.

The main irrigation facilities for the Project Area are discussed below.

(1) M-3 Main Canal

M-3 Main Canal has about 9.9 km in length according to the As-Built drawings, and open canal part is lined by concrete with following canal elements.

	<u>Earth Foundation</u>	<u>Rock Foundation</u>
Width of canal bottom	1.00 m	2.10 m
Height of canal	2.00 m	2.00 m
Side slope of canal	1 : 1.50	1 : 0.67

There are four turnouts for main pipe lines, several small direct offtakes, one aqueduct (canal bridge), three syphons, on the M-3 Main Canal.

The turnouts for main pipe lines have gates for controlling the water amount as follows;

<u>Name</u>	<u>Gate dimensions</u>
No. 1 Turnout	1,000 x 1,400 mm
No. 2 Turnout	1,000 x 1,500 1,500 x 1,500
No. 3 Turnout	1,500 x 2,000
No. 4 Turnout	2,000 x 2,200

Direct offtakes are constructed by steel pipes and valves for controlling water discharge. However no turnout has a measuring device. All syphons were formed in two lines by steel pipes, and new lines of each syphon was constructed in the past three years.

No. 1 syphon near the Asenovetz crosses the reservoir which was constructed by the ex-cooperative and is operated by the Asenovetz village office. This reservoir has its own catchment area and own irrigation canal, however the reservoir is planned to receive water from M-3 Main Canal for securing the irrigation water.

(2) Main Pipe

Main pipe lines were made by the steel pipes and pre-stressed concrete pipes, and major dimensions of each main pipe line are mentioned below;

<u>Name</u>	<u>Pipe Diameter</u>	<u>Total Pipe Length</u>	<u>Kind of Pipe</u>
No.1 Main Pipe	630 mm	1,460 m	SP
No.2 Main Pipe	630 -530 mm	3,056 m	SP
No.3 Main Pipe	1,400 - 800 mm	19,012 m	SP & PC
No.4 Main Pipe	2,020 - 1,200 mm	11,726 m	SP & PC

No. 3 & No. 4 Main Pipe have same gate valves dividing the irrigation block and crossing the important transporting facilities such as rail-ways and national roads for stopping the water flow in case of emergency, but without a measuring device.

(3) M-2 Main Canal & Nova Zagora Syphon

The starting point of M-2 main canal is the separator at outlet of Korten tunnel, and M-2 main canal was designed to supply irrigation water to east of Nova Zagora municipality and Mlekaevo Padarevo Block. However, M-2 main Canal was completed only 3,429 m in

length by the beginning point of Nova Zagora syphon. Major dimensions of M-2 main canal are as follows;

	<u>Earth Foundation</u>	<u>Rock Foundation</u>
Width of canal bottom	1.40 m	5.25 m
Height of canal	3.50 m	3.50 m
Side slope of canal	1 : 2.0	1 : 0.5

The syphon is one kind of water convey structure for crossing the river, road or rail-way located on low level. Generally, there is no case to intake the water from the pipe of syphon, however since Nova Zagora syphon is a long syphon about 10 km in length, it takes the irrigation water from the pipe of syphon main body. The dimension of the Nova Zagora syphon is as follows;

Length of Syphon	8,330 m
Diameter of Syphon	2 x 2,420 mm in diameter

1-6-3 On-farm-Facilities

There are two kinds of on-farm facilities for irrigation water supply, open canal and pipe network for pressured irrigation method such as sprinkler, center pivot or irrigation machine with reel. Currently all of the irrigation is gravity. Agricultural land potentially irrigated by the different irrigation methods is summarized as follows;

<u>Irrigation Method</u>	<u>Irrigation Area</u>	<u>Percentage (1)</u>	<u>Percentage (2)</u>
Gravity Irrigation	26,676 dca	20 %	---
Pivot Irrigation	23,500 dca	18 %	23 %
Reel Irrigation	22,400 dca	17 %	21 %
Sprinkler Irrigation	59,424 dca	45 %	45 %
Total	132,000 dca	100 %	100 %

Dimensions of each irrigation facility are tabulated below.

<u>Description</u>	<u>Pivot</u>	<u>Reel</u>	<u>Sprinkler</u>
Watering Diameter	365, 395, 454 m	120 m	48 m
Water Pressure	50 m	6.2 atm	3.5 atm
Discharge	50 to 70 l/s	30.6	3.39
Interval of Distribution Pipe	--	83 m	30 m
Interval of Hydrant	120 m	76 m	36 m

The gate valves are facilitated on all delivery point from pipe main to distribution pipe as on farm facilities but without a measuring device.

The repair and/or maintenance of on farm facilities such as hydrants and pipes have been carried out only for necessary facilities of next irrigation. In case of 1996, the following repairs were carried out for irrigation, and about same number of facilities were requested to be repaired.

110 hydrants	replaced by new hydrants
40 hydrants	replaced by cups
350 m of pipe	replaced by new pipes

1-7 Environmental Conditions

1-7-1 Initial Environmental Examination (IEE) Survey

In compliance with JICA and Bulgarian regulations a survey for IEE has been organized on the basis of sub-contract. For this purpose Study Team signed an agreement with the Research Institute for Irrigation, Drainage and Hydraulic Engineering (RIIDHE). Accordingly experts from various fields were fielded for the collection of samples and data/information in the Pilot Area.

In order to know the existing conditions of environmental parameters in the Project Area samples of air and water were collected and analyzed in the laboratory. In case of other parameters such as soil, flora, fauna, health risk, cultural heritage etc. were analyzed on the basis of available information. The report for existing conditions of environment and possible impact due to the implementation of the subject project with recommendations has been submitted to the Team. However, a brief description of air and water samples locations are given below and major findings of some important parameters are described in the paragraph 1-7-2. The locations where the samples were taken are shown in Figure M-1, Appendix M.

(1) Air Sample

Four (4) locations have been selected and they are as follows.

- P1 at the center of Nova Zagora, an indicative point for all types of pollution
- P2 at the entrance of Perla Company, an indicative industrial pollution point

- P3 at the center of Korten village, an indicative settlement with industries
- P4 at the center of Lubenetz village, indicative of no source of atmospheric pollution

In all observation points parameters for emissions and meteorology were measured by an ultra-modern mobile laboratory belongs to the MOE.

(2) Water Samples

Nine (9) locations have been selected and they are as follows.

- P1 from the reservoir of Jrebchevo dam, an indicative of quality of irrigation water
- P2 from a micro dam named 'aisher dere', used for fish culture and irrigation
- P3 from a point upstream of Blatniza river (before the Nova Zagora waste water treatment facility outlet), used as drainage canal, an indicative drainage water quality point
- P4 from a point of Blatniza river (after the treatment facility outlet), indicative of the quality of wastewater after treatment
- P5 from a point downstream of Blatniza river (bridge of Bogdanovo village), indicative of recovery of pollution
- P6 from a micro dam named 'Lubenetz dam', used for fish culture and irrigation
- P7 from the outlet of a subsurface drainage system, indicative of sub-surface drainage water quality
- P8 from a shallow well in the village of Stoil Voivoda, indicative of groundwater quality
- P9 from a shallow well in the village of Zagortzi, indicative of groundwater, also indicative of groundwater quality

For all samples physical and chemical analyses were performed in an authorized laboratory.

1-7-2 Results of the Survey

(1) Existing Air Quality

At all points the measured parameters are below the maximum acceptable concentrations, but at Nova Zagora city, SO₂ showed slightly higher value but average is still below the norms

(2) Existing Water Quality

According to the values of tested parameters the water samples have been categorized on the basis of regulation No. 7. Only few parameters in some locations showed higher

values of 3rd category, rests are in categories 1st and 2nd. However, summarized result of the water quality is presented in table, Result of Water Quality Tests.

(3) Existing Soils

There is no recent data about soils in the area. According to an old data (1966) Luvisols has the highest share about 44.5%, followed by Vertisols 37.8%. There is about 4.3% of slightly saline soils in the area. No complaint regarding soil quality has been reported.

(4) Cultural Heritage

The Nova Zagora region is exceptionally rich in ancient archeological sites. The ancient villages with many burial mounds have been found in the villages of Karanovo, Dyadovo, Ezero, Sadievo, Assenovetz and the town of Nova Zagora itself. The excavation in this region has been started as early as 1920s. Among the other findings, pre-historic villages, burial mounds, earthenwares, surgical instruments, metal containers etc. This discoveries reveal the customs and religious beliefs of dated back in the 6000 years B.C.

There are projects for discovering these rich ancient treasures funded by foreign agencies and local government.

1-7-3 Problem Areas

On the basis of the air and water quality test results there is no problem at this moment. The little percentage of saline soils that exist in the area is not arable, low lying areas along the gullies. Absence of waste water treatment facilities and improper management of solid waste in the villages are the factors for water pollution.

The main concern for area is the presence of numerous historical ruins. Therefore, for any construction work prior consultation with the proper organization should be done to avoid any destruction of cultural heritage present in the area.

Results of Water Quality Tests

N	Indicator	Dimension	Sampling point 1		Sampling point 2		Sampling point 3		Sampling point 4		Sampling point 5		Sampling point 6		Sampling point 7		Sampling point 8		Sampling point 9			
			value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category	value	water recipient category
A Physical indicators																						
1.	Turbidity	mg/l	10	I	11	I	16	I	22	III	32	III	61	III	5	I	1.5	I	1.5	I		
2.	Colour	degrees	colourless	I	colourless	I	colourless	I	colourless	I	colourless	I	light brown	III	colourless	I	colourless	I	colourless	I		
3.	Taste	**	tasteless	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Conductivity	µS/cm	431	I	446	I	790	II	769	II	870	II	806	II	790	II	1087	II	1556	III		
5.	pH		7.75	I	7.80	I	7.58	I	7.59	I	7.90	I	7.97	I	7.41	I	7.21	I	7.09	I		
6.	Odour	force	2	I	2	I	2	I	2	I	2	I	2	I	2	I	2	I	2	I	2	I
7.	Temperature	°C	9	I	10	I	11.5	I	12.5	I	12	I	12	I	11.5	I	13.2	I	14	I	14	I
B Chemical indicators																						
1.	Total hardness	mgCaCO ₃ /l	80	-	115	-	205	-	200	-	210	-	165	-	195	-	255	-	385	-		
	Total hardness	mgca/l	1.6	I	2.3	I	4.1	I	4.0	I	4.2	I	3.30	I	3.90	I	5.1	I	7.7	II		
2.	Chlorides	mg/l	17.73	I	17.73	I	60.28	I	74.46	I	85.10	I	67.37	I	56.73	I	78.01	I	341.11	II		
3.	Nitrite nitrogen	**	0.565	I	0.226	I	8.023	II	4.18	I	4.29	I	1.24	I	9.15	II	25.31	III	30.06	III		
4.	Nitrite nitrogen	**	-	I	0.014	I	0.027	II	0.037	II	0.027	II	0.02	II	-	I	0.005	II	0.003	II		
5.	Ammonia	**	0.05	I	0.15	II	0.05	I	2.0	II	1.8	II	2.0	II	0.05	I	0.05	I	0.05	I		
6.	Sodium	**	11	-	10.8	-	64	-	64	-	76	-	11	-	45	-	33.1	-	34.5	-		
7.	Boron	**	0.015	III	<0.010	III	0.060	III	0.061	III	0.075	III	0.012	III	0.068	III	0.01	III	0.001	III		
8.	Dissolved phosphates	**	152.55	-	222.72	-	424.08	-	424.00	-	417.98	-	408.83	-	387.47	-	430.15	-	446.40	-		
9.	COO	**	1.72	I	4.16	I	5.82	II	11.5	II	8.16	II	12.8	II	1.38	I	1.32	II	1.64	I		
10.	COO	**	19	I	28	II	40	II	30	II	32	II	60	II	14	I	12	I	16	I		
11.	Suspended solid (st)	**	10	I	11	I	16	I	22	I	32	II	61	I	5	I	-	-	-	-		

Note: The categories are according to the Bulgarian Regulation N7, of August 8, 1986:

- 1st category - used for drinking and washing;
- 2nd category - used for irrigation and supply of water to animals;
- 3rd category - used for irrigation

Date of sampling: 23 October, 1996

CHAPTER 2. FORMULATION OF THE PROJECT AREA

2-1 Basic Concept of the Development of the Pilot Project Area

2-1-1 Development Strategy of the Project Area

(1) Macroeconomic Approach for Increasing Agricultural Production

The current unstable macroeconomic condition in Bulgaria is caused mainly by the accumulated payment for foreign debt, delayed social-economic structure reform, national budget deficit and low production from economic activity such as industry and agriculture sector, since the implementation of market-oriented economic system in 1989. Decline of production is the most influential problem for development of stable macroeconomic condition. At present, Bulgaria imports flour as well as industrial products and life of people is supported by imported goods. Then the prices vary with the lev dollar exchange rate. Since May 1996, lev value against dollar continues to decline and inflation has escalated. Economist in the Academy of Science reported Bulgarian economy to be in a stage of hyperinflation in December.

IMF proposed to Bulgarian government the establishment of the currency board for developing the stable macroeconomy. However, due to only a monetary strategy, it seems insufficient to recover the current economic condition. Macroeconomic constitution without base on the production still has been unstable. In the first place, recovery of the domestic production in agriculture and industry is considered to be preference. The agricultural and industrial strategies for increase of the production and their implementation is necessary to create stabilization of national macroeconomy.

Therefore, the Project aims 'agriculture production increase' as the main objective on making the strategy for agricultural development. As short term strategy, domestic food demand is expected to recover. Naturally, to attain the sustainable economic growth, it is necessary to consider an export strategy for agricultural products and their processed products in the long term.

Bulgaria is considered to have the potential to produce the high quality and low price agriculture products which can overcome the international trade competition with depending on reconstruction of organization for agriculture operation and implementation of new information and technology for agriculture.

The linkage flow between macroeconomic problems and Project Implementation in market-oriented economy is shown in Figure III-2-1.

The agricultural sector is of critical importance to the economic development of Bulgaria and its promotion and reform is an important task of the nation's successful adaptation to a market-oriented economy. Reform plans in agriculture include attention placed on individual land ownership, investment, support services, privatization of agricultural processing industries and marketing systems. The objective of agricultural reform is to develop a new production, processing and marketing structure that will be internationally competitive.

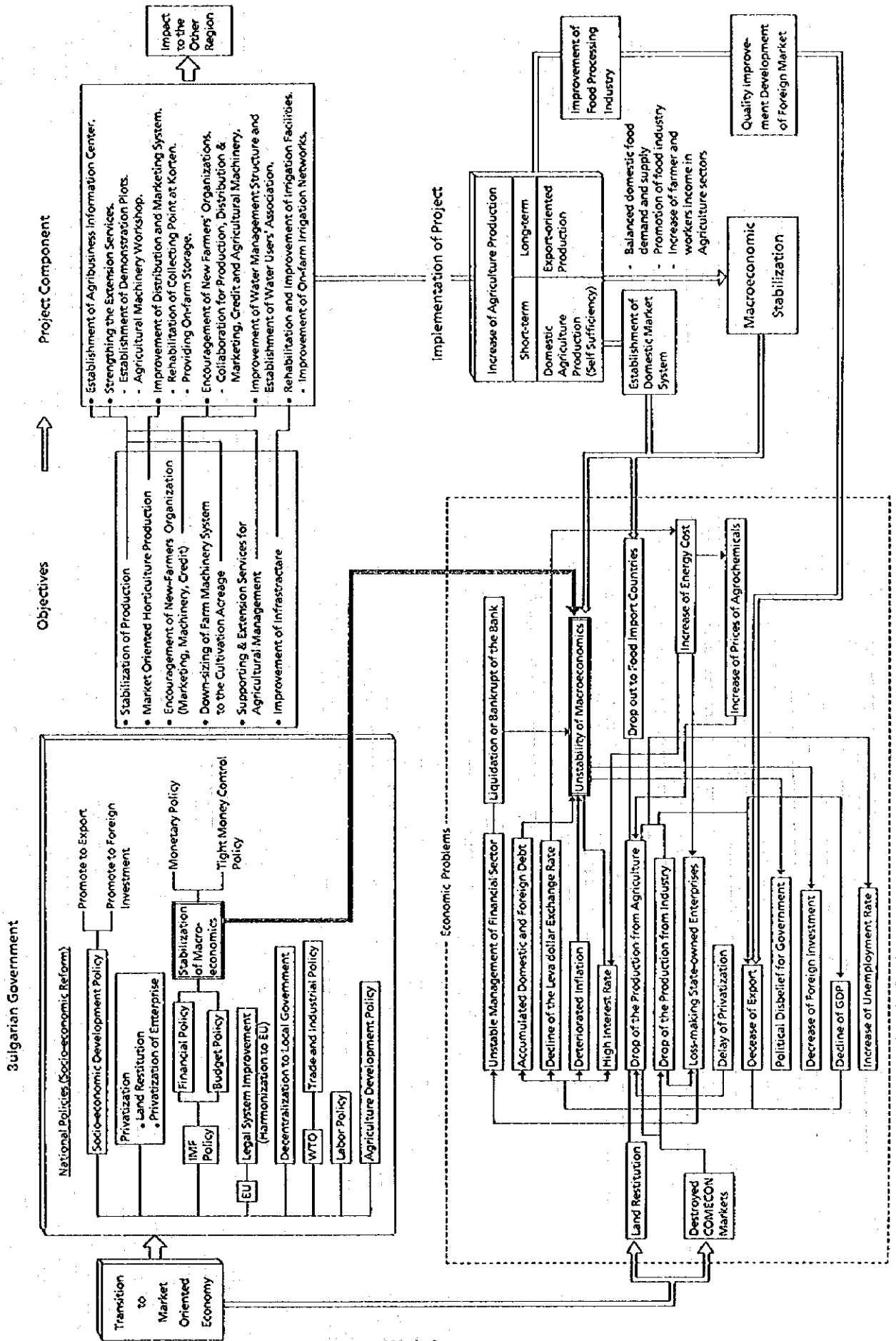
Change abounds, and more restructuring is vitally important. Support to agriculture through research, extension, planning, market information, input supply, purchasing, machinery services and processing all require attention. Re-training and re-orientation call for a political will to re-organize and a major investment of Government funding.

The basic problem for the agricultural reform is the delay of the land restitution. The Land reform committee plans to complete the land restitution by the end of 1998 in the whole country. The Pilot Project Study has assumed land restitution is completed. When land restitution is completed, there will still be problems of the land scattered in the several different places which need to be consolidated, non-residence owners, and the current small scale of landownership holdings. In the Project area the average land ownership is about 2.5 hectares and about 60% of the land is owned by absentee landlords. Therefore, the farmers use to rent the farm land from several absentee landlords. In November 1996, the land lease in agriculture act was enforced. The land lease act allows a period of lease contract of four years minimum and fifty years maximum. The current land lease contract is basically on a year by year basis.

(2) Basic Concept of Agricultural Development

- a) **The First Countermeasure: Establishment of Clear Agricultural Land Property Rights**
Major problems and confusion of Bulgarian Agriculture is being caused by the current state of the system of land ownership of agricultural land. At present, most of the restituted farm land has only been approved to have temporary use rights, and most of the new "owners" have not yet established their property rights to their land.

Figure III-2-1 Linkage Flow between Macroeconomic Problems and Project Implementation in Market Oriented Economy



The implementation of the Land Lease Act will improve the situation with regard to leases and tenancy conditions and should therefore increase both the cultivation area and the land being farmed by private farmers. But the basic problems will not be solved yet. Without clear property rights to their agricultural land, the following problems can be seen;

1. Farmers do not become attached to their farm land, lack of incentive to engage in and promote agricultural production.
2. Due to the temporary use right, farmers do not have any incentive to investment in their farm land, their buildings, their livestock or their machinery.
3. Due to lack of clear title and property rights to their land, there is no security for capital investments.
4. After the establishment of the land ownership, there are still problems because on any one farm, the land is scattered in several places. It will urgently necessary to provide regulations and governmental organization to proceed to the next stage, land consolidation.
5. In order to increase the average land holding size and farm management size, it is required to provide a land market act and the organization to take charge of the implementation of the act.

b) **The Second Countermeasure: Agricultural Credit.**

When the property right for the farm land has been established, farmers will have the incentive to invest in their farm land. It will be necessary to provide an agricultural credit system with reasonable interest rates to promote the investment for their facilities and farm machinery. Currently the machinery available is mainly owned by the coops or aging and inappropriately sized for private farmers, new investment is needed.

c) **The Third Countermeasure : Infrastructure**

In order to promote the farmers incentive to produce profitable crops and increase the quality of the production, diversification of the farming system will be necessary. On farm irrigation facilities need to be readjusted to meet with the new farm sizes, the areas under cultivation and the types of crops. To promote the establishment of the Water Users Association and to facilitate a make easier operation and maintenance, measuring devices and new pipe line systems will be required. The on farm irrigation system networks were designed for large (1,000 ha plus) cooperatives, not the emerging private farmers.

d) **The fourth Countermeasure : Establishment of New Private Farmers Organizations with Multiple Functions.**

The current farmer organizations are frequently simply producer unions. It will be necessary to establish new private farmers organizations to promote competitive market oriented agricultural production. The new organizations should include not only producers unions but also the equitable (not an uniformity) of distribution of the benefit on the basis of the principles of competition, as well as marketing and credit functions. It will be necessary to provide regulations and take actions to nurture and develop these new autonomous equitable organizations.

e) **The Fifth Countermeasure : Improvement of Institution and Extension Services to Encourage Diversified Agricultural Production System.**

Establishment of new institutions, and reinforcement of the extension service and information system networks, will play a very important role in promoting incentives for the farmers to improve quality and, introduce diversified agricultural production systems to meet with the emerging consumers needs and to select and produce marketable crops for both the domestic and export markets.

f) **The Sixth Countermeasure : Export Oriented Agricultural Enterprises.**

To move from "quantity" to "quality" oriented the agricultural production system, it will be necessary to introduce and provide regulations and standardization of quality control, grading, ranking of quality of their production. Accelerating the privatization of the food processing industries, rehabilitation of their facilities, improvement of their management, and grading up the production system to meet with the requirements of the international markets will allow the development and promotion of the standard, export oriented agriculture production sector.

2-1-2 Local Input for the Pilot Project

In order to know the requirements of the local people, a series of meetings were held with the Mayor and Vice Mayors of the Nova Zagora Municipality and other Mayors in the related villages, farmers cooperatives, private farmers, and land committee, among others. Participation for the field study has been strong, and local agricultural leaders have pledged support for ensuring project implementation.

Local requirements and suggestions are incorporated in the following project components.

2-2 Project Components

2-2-1 Major Functions of a Pilot Project

The pilot project will serve as a model for the market-oriented agricultural reform in the project area as well as other locations in Bulgaria. The pilot project area will become a model agricultural area in Bulgaria, particularly in promoting advanced agriculture. Functions of the pilot project include: low cost irrigation system rehabilitation, creation of water users' associations, advanced marketing systems, collaboration for consignment of the production, development of new farmer organizations, improved farm machinery, and advanced farming technology supported by institutional and supporting services.

The agricultural development strategies for the Pilot Area are focused on the promotion of large scale farming systems as the basis of cereals cultivation, promotion of livestock production, more production of maize fodder in the area, and improvement of support services.

The main function of the current cooperatives is limited to producers cooperatives purchasing the agricultural inputs and share holding the land. Other farmers associations functions such as marketing and credit should be strengthened for the farmer associations in the future. A rehabilitation project of the wholesale market at Sliven by EBRD is scheduled to commence the construction in 1997. This project can be linked with the present project to strengthen the marketing networks in the Pilot Project Area. Marketing characteristics should also be investigated through the consumers market.

The main canal system has been lined, therefore, for on-farm facilities, where appropriate, a pipeline system can be proposed. Water users' associations will be organized to operate the irrigation facilities to reduce the water loss and improve water application. Also, the Water Users' Associations should operate and maintain their terminal facilities by themselves. On-farm development can be done by the Water Users' Association.

2-2-2 Project Components

In order to improve the marketing conditions for the farm products, information on markets and retail prices with volumes, prices of input materials, available machinery etc., and related farming activities are very important. The existing information system for retail price of the agricultural commodities and prices and quantities in the wholesale market in Sliven will be activated and will provide facilities to the Pilot Project Area.

As for the agricultural sector, participation of the local government is necessary to support the farmers attitudes and the extension services. The aim is to encourage decentralization and target planning to meet the specific needs of local areas.

Currently, international organizations are providing assistance, particularly the World Bank, EC-PIHARE, the EBRD, and are providing funding and ideas that will benefit marketing and farm organization restructuring and credit for private farmers in the project area.

Both farm management and marketing systems will require a re-orientation to meet the new demands of a market economy. Improved extension services, research, and supporting services are necessary for the new agricultural technologies, and important components of the institutional setting.

Irrigation rehabilitation is recognized as an important factor not only in increasing yields, but also in improving quality and promoting the use of facilities.

Functions of the pilot project are advanced institutional support to the farmers and their organizations to give necessary information for their farming, management, marketing and other agricultural activities. A marketing function for the farmers organizations is an important factor to find the selling point for their production.

The following six components have been selected for the Pilot Project Implementation. The inter relation among these components and related factors are shown in Figure III-2-2.

(1) Restructuring of the Farmers' Organization.

(Assumption of future style of the size of farm household)

The population of the Bulgaria is now decreasing by about 1.5% on an annual basis due to low birth of rate. In the rural area, younger generations tend to transfer to the urban area. In the Nova Zagora area the population is reducing about 5.0% in a year. On the basis of the trend analysis of the population in the area, about 22% of the population will be reduced during 10 year period in the Nova Zagora Municipality. As a result, the number of farm households will be reduced in the future. It is necessary to promote agricultural development in the rural area in order to settle the younger generation in agriculture. However, due to the reduction of numbers of the farm household, it is necessary to increase the size of farm land area per household and the number of full-time farmers.

Due to the present land restitution system to return land back to all descendants, the size of the land holding per household becomes small about 2 to 3 ha which is not a desirable

economic management unit. In addition, the land ownership is scattered in several places. In the Project Area, more than 60% of the land has been owned by absentee owners. Due to such land holding conditions, the management of cultivated land by farmers is rather complicated. The farm management size of the farm household consists of the following three categories.

Land owned (Temporarily use right) Scattered in a few places.	⇒	Cultivated Plots Including leased land Scattered in a few places.	⇒	Farm Management Size Total cultivated land per household.
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Many of the people in the Project Area belong to farmers' cooperatives, but are not directly engaged in agriculture but renting their farm land to the cooperatives and receiving a land rental fee only. Such "farmers" are counted as farmers in the statistical data, yet more than 50% of the total farmers are not directly engaged on farming. At present about 70% of total project area has been managed under the farmers' cooperatives. Some of the cooperatives managed and controlled by a group of several managers, similar to the former collective farms.

Under this complicated background, existing farmers' cooperatives based on the old collective structures, land holding systems and system of land restitution, the farmers do not have incentives to produce agricultural products. In the future, the farmers' cooperatives (the old type) will be dissolved to private farmers. Accordingly, reorganization of the private farmers will be formed as lease and partner types. The new type of the private farmers organization should be encouraged requiring not only producers association but also distribution and marketing, credit and farm machinery to collaborate with each other. It is estimated that about 40% of the total project area from the 70% at present will be managed under the farmers cooperatives. In future the numbers of the private farmers will increase and the farm management size per household will also increase.

(2) Strengthening the Extension Services of Agricultural Technology

a) Establishment of Agricultural Machinery Center:

The agricultural machinery used are large-sized, which were used in the former collective farms adopted to large scale farming systems. In the future, it will be necessary to provide middle scale farm machinery for private farmers managing middle-scale farming of about 40 ha. However, the present economic situation will not support the purchase of this machinery by private farmers themselves without financial support such as agricultural credit or loan. As for an urgent countermeasure to accelerate and encourage the new

private farmers organization and improve the farm management condition, introducing and providing middle scale of farm machinery will directly give an impact to the market oriented agriculture. Therefore, it has been proposed to establish a farm machinery center together with repair shop and spare parts shop within the extension service center in the Nova Zagora Municipality. The operation and the management is done on the basis of leasing system of the machinery to the private farmers.

b) Strengthen the Supporting Services for Horticulture;

In order to activate and accelerate market oriented agriculture, it is planned to utilize the on-going wholesale market project for horticulture established at Sliven and Stara Zagora by EBRD/GTZ. Cultivation of horticulture requires labor and high cost input materials, but may be profitable for farmers' income (High input but high return). Since introduction of suitable size of farm machinery has been planned, mechanized farming system for horticulture can be attained. The rate of unemployment is rather high, it will be possible to give an opportunity of employment in the region by means of introducing the labor intensive agriculture. It is necessary to strengthen the supporting services of the horticulture cultivation to the farmers, and re-establish processors to serve as purchasers.

c) Settlement of Demonstration Plots:

The main purpose of the extension service center is to support and diffuse agricultural technology to the farmers. In order to supplement and strengthen the effect of diffusion of the farming technology, demonstration plots in key villages are necessary to demonstrate new skills to the local farmers, especially horticulture crops.

(3) Establishment of Agribusiness Information Center (ABC)

In order to encourage and accelerate the farmers' willingness to participate in the market oriented economy, it is important to offer sufficient information related to their agricultural productions. Prices and quantities of the agricultural production are very important for farmers, especially precise and timely information about the wholesale market in Sliven in order to encourage the farmers' direction to the market oriented economy. At present, the MAFI Information System is providing on-line information related to state-owned food processing industries, especially purchasing price of raw materials and duration of the delay of payment. The information on retail prices of the agricultural commodities and input materials are providing by SAPI. Also the wholesale market rehabilitation project is going to provide price and quantity information when the operation is started. It has been included to establish an information center to introduce an on-line computer system to link to these existing database system and offering this information to the farmers and the information center is named as "Agribusiness Information Center (ABC)".

In order to activate the ABC, more information is necessary to provide to the farmers for their agricultural performance, such as information on supporting services, and irrigation supply schedules from ISC. Recently, agricultural land lease act has been enforced and water users association act is under preparation, the contents, operation and registration are very important for the farmers. Especially, at the moment no water users associations are registered, so the information and advice of registration system is very important to encourage and promote the establishment of WUAs. Also, the information for the application of credit for private farmers provided by EC-PHARE is very important.

These information will be offered through published paper or radio, and sometimes training and lecture can be held in the center or at villages.

(4) Improvement of Distribution and Marketing System

At present EBRD/GTZ is providing rehabilitation of wholesale market project for horticulture crop, and at the first phase four project sites are under detailed design stage at Sliven, Stara Zagora, Haskovo and Plovdiv. In order to link and activate the wholesale market establishing at Sliven, about 38km East and at Stara Zagora, about 45km West from the Project area, high profitable horticulture crops, especially vegetables and fruit production is promoted to cultivate in the Project area. At Korten Village, a large size facility of cooling storage was established. It can be sufficiently utilized as a collecting point for vegetables and fruits with additional facilities of grading and packing equipments and forklifts. It is expected to have higher values of the horticulture crops in the wholesale market at Sliven by introducing the quality control and grading system.

The cereal crops are the main crops in the Project area, but the storage facilities at on-farm site are not sufficient. Therefore, at present the harvested grains are brought to the milling factory directly without controlling the quality. As the production of the cereal crop is expected to increase, additional storage facilities at the on-farm level will be necessary.

(5) Improvement of Water Management Structures and Establishment of Water Users' Associations

Under the World Bank Project, the restructuring of irrigation system is in the process through the transfer of irrigation management and operation & maintenance to farms and improve water delivery and application efficiency by means of organizing Water Users Associations across the country. No WUAs are established in the Project area up to now. It is necessary to coordinate with the on-going World Bank project to establish the WUAs in the Project Area.

In order to improve water management conditions as a whole project area, water management system/structure is necessary to encourage and strengthen both of facilities conditions and organization which involve in the water management between SCI from supply side and farmers from users side. The Nova Zagora Municipality needs to participate in the water management system to coordinate ISC and WUAs. In order to activate and accelerate the irrigation water utilization and autonomous management of the on-farm irrigation facilities, WUAs should be established along with the irrigation network block. ISC Sliven office is necessary to give and advice to establish the WUAs in accordance with the Water Users Act preparing by MAFI.

(6) Rehabilitation and Improvement of the Irrigation Facilities

Rehabilitation of the existing irrigation facilities is necessary to implement to reduce the water loss, increase the efficiency and to make easy and effective operation and maintenance work.

As for the on-farm irrigation facilities, the operation and maintenance and management for collecting water charge are proposed to perform by WUAs themselves. The rehabilitation and improvement of the pipe-line network where the farm management size is small, should be made to meet with the requirement of WUAs.

2-2-3 Priority Components for Urgent Countermeasure

(1) Establishment of Agri-Service Center

Considering the present agricultural crisis in Bulgaria, it is necessary to give an impact to expect quick yield with comparatively small investment. The priority components among above 6 components to be implemented immediately, will be given to the establishment of Agribusiness Information Center and the Extension Service Office, especially Agricultural Machinery Workshop. In order to activate and efficient guide for the farmers, it is proposed to combine these two components at one place and named as "Agri-Service Center".

However, the staff for the ABC are required high knowledge of the computerized database system, efficient management technology for data collection and experiences in marketing, farm management, etc. The success of the ABC totally relies on the ability of these staff which need special training required long period of training under the well experienced experts in such field. The initial investment cost will not be so much but the knowledge

and technology is very important. So at the first stage selection of the staff as well as training them should be carefully done.

Strengthening the Extension Service Office, especially introducing the agricultural machinery, will expect quick yield to the private farmers. Present economic crisis will not allow to purchase necessary agricultural machinery by farmers themselves. The machinery can be purchased by the project cost under the cost of Extension Service Office and the machinery leases to farmers to pay back the cost.

The functions of the ABC and Extension Service Office are summarized as follows:

- a) Establishment of the Agribusiness Information Center in Nova Zagora Municipality. Its information functions include collection and dissemination of:
 - 1) Marketing price and production volume information
 - 2) Machinery information: Available machinery type, period, place and rental fee.
 - 3) Farming technology: Application timing of fertilizer, pesticides etc.
 - 4) Irrigation Water Supply information: communication between the ISC Sliven, Nova Zagora and WUA
Information from the Supply side ; Irrigation water supply schedule, Rotation area to supply water, structure repairing data, water supply information.
Negotiation of water charge rate.
Water demand request from the WUA and farmers.
 - 5) Providing computerized Integrated Data-bank system among MAFI, Sliven wholesale market, ISC in Sliven, the extension service offices in Sliven, Yambol and Stara Zagora and Nova Zagora
 - 6) Legal guidance on new farm-related acts and government support programs

- b) Supplement MAFI Extension Service Office and provision of demonstration plot at key Villages
 - 1) Supplement and coordinate the MAFI Extension Service Office at Nova Zagora Municipality proposed by EC-PHARE.
 - 2) The purpose of the Demonstration Plots is to show new management techniques and introduce new farming technologies in different crops throughout the region such as cereals, vegetables, grape sunflower, etc.
 - 3) Agricultural Machinery Workshop for medium-scale machineries for private farmers is necessary as a part of the Extension Service Office together with spare parts and repair shops. The operation and management of the machinery workshop will be made based on the leasing system to the private farmers.

(2) Necessity of Foreign Experts for Agri-Service Center

As the urgent countermeasure, establishment of Agri-Service Center, which is combined with ABC and Extension Service Office including Agricultural Machinery Workshop, has been proposed. At the initial stage of the Agri-Service Center, it is very important to have staff who have sufficient ability and knowledge for the operation and management of the Center. It will be recommendable to dispatch a few experienced experts at the initial stage for a few years, to train and guide the local staff in order to give sufficient knowledge for the operation and management of the Center by themselves. It is expected to exhibit sufficient effect from the beginning of the operation of the Center by dispatching the experienced experts and at the same time the local staff can be trained through on-the-job training system. As for the urgent countermeasures, dispatching experienced experts will be a key point to bring the success of the Agri-Service Center.