



T.R.
PRIME MINISTRY
STATE PLANNING ORGANIZATION
UNDERSECRETARIAT

EASTERN ANATOLIA PROJECT MASTER PLAN

EXECUTIVE SUMMARY

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ABBREVIATIONS

PUC	Per Unit Cattle
RDB	Regional Development Bank
FYDP	Five Year Development Plan
EAP	Eastern Anatolia Project
DHMİ	State Airports Administration
DPT	State Planning Organization
DSİ	State Hydraulic Works
EDA	Economic Development Agency
GDP	Gross Domestic Product
HES	Hydroelectric Power Plant
İMKB	İstanbul Stock Exchange Market
KHGM	General Directorate of Village Affairs
KGM	General Directorate of State Highways
MEB	Ministry of National Education
OIZ	Organized Industrial Zones
TKB	Turkish Development Bank
TT	Turkish Telecom
BRPS	Boarding Regional Primary Schools
BOT	Build-Operate-Transfer
YÖK	Board of Higher Education

1. INTRODUCTION

Eastern Anatolia Project Region (EAP) covers 16 provinces in the Eastern part of Turkey. Those provinces are Ağrı, Bingöl, Bitlis, Elazığ, Erzincan, Erzurum, Gümüşhane, Hakkari, Kars, Malatya, Muş, Tunceli, Van, Ardahan, Bayburt and Iğdır (**Figure 1**).

Surface area of the Region is 158,972 km² and its population according to 1997 General Population Census is 5,868,535. Compared to overall national values, the share of regional surface area and population is respectively 20.4 and 9.3 %. Population density is approximately half of average national population density, though there are significant differences among provinces in this regard.

The Region has a difficult topography. It is divided into three sub-regions according to topography, climate, a transport network largely determined by topography, and functional relations among settlements determined by this transport network. These sub-regions are Erzurum Sub-region composed of Ağrı, Erzincan, Erzurum, Gümüşhane, Kars, Muş, Ardahan, Bayburt and Iğdır provinces; Malatya-Elazığ Sub-region composed of Bingöl, Elazığ, Malatya and Tunceli provinces; and Van Sub-region composed of Bitlis, Hakkari and Van provinces. These sub-regions differ from each other in terms of economic structure and the level of development. The most industrialized and the highest income per capita generating sub-region is the Malatya-Elazığ Sub-region, while relatively most underdeveloped sub-region is the Van Sub-region. However, in each sub-region there are provinces that are very different from each other in terms of development level.

The first topic in this report, prepared as an “Executive Summary” of the Eastern Anatolia Region Master Plan, is the current situation as well as the advantages and disadvantages of the Region. Then the report describes the objectives and strategies determined in the framework of expected probable developments in Turkey and in the other countries that have economic relations with Turkey, in the forthcoming 20 years. Finally, growth scenarios and the Master Plan in its various aspects are summarized.

2. CURRENT SITUATION AND POTENTIALS

2.1. CURRENT SITUATION

Eastern Anatolia Region is today an underdeveloped region with respect to all socio-economic indicators. Though it differs among provinces, income per capita is very low compared to Turkish average (**Table 1**). 12 out of 16 least developed provinces were from Eastern Anatolia Region, ranked by the level of development in mid-1990s. Even the most developed provinces of the region such as Elazığ, Malatya, Erzurum and Erzincan could rank 33, 37, 47 and 57, respectively, with respect to socio-economic development ranking among provinces in Turkey.

The region has been less developed for a long time, at least for the last 30-40 years. According to a study done in 1945, 6 out of the 16 least developed provinces were from Eastern Anatolia . This figure reached to 9 in 1965 and 1985. Elazığ shifted to 33rd place by mid-1990s from its 8th place in 1945, with regard to socio-economic development. By the same comparison Van shifted from 23rd place to 67th, and Kars from 37th place to 62nd.

Ağrı, Bingöl, Bitlis, Gümüşhane, Hakkari, Muş and Tunceli occupied the last rows in the ranking list throughout these years.

The Region's share in overall national gross domestic product (GDP) decreased from 6.6 % in 1965 to 4.3 % in 1987, and 4 % in 1997. The size of production is expanding very slowly in the Region. The contribution of the Region to total gross domestic product in 1987 prices was only 3.4 % in 1997. While the Turkish economy grew with an average growth rate of 4.1 % in 1987-1997 period in 1987 prices, average growth rate of the Region was just 1.9 % (**Table 1**). None of the provinces in the Region was able to reach the national average in growth, except for Muş.

The economy is agriculture-dominated in the region. According to 1990 General Census data the share of agriculture in total employment ranges between 62.2 % and 85 % for provinces, while that of industry ranges between 1.8 % and 7.1 %. These figures for the country as a whole were 53.7 and 12.8 %.

Industrial value added of the region had a share of 2.9 % in 1987, and 2.4 % in 1997 (in current prices) within total national industrial value added. Manufacturing industry's share in Turkey's total manufacturing industrial value added was 2.0 % in 1987, and 1.8 % in 1997. While the share of manufacturing industry in gross domestic product (in current prices) in the country was 21.8 % in 1987 and 21.6 % in 1997, these shares were 9.8 % and 9.0 %, respectively, in the Region. (**Table 2**).

Tunceli showed negative growth in 1987-1997 period, and the rate of growth for Erzincan and Erzurum was recorded below 0.5 %. Malatya showed the best performance after Muş. Malatya attained an average annual growth rate of 3.1 % in the period under consideration. Even this rate is 25 % below the average growth rate of the national economy.

Slow growth of the regional economy is reflected in the regional income per capita as well. Although the natural population growth rate has been above 3 % in many provinces, population increased only 0.6 % in the region in 1987-1997 period, due to limited economic potential and intensive migration caused by terror. Income per capita also decreased in the region relative to national average (**Table 1**). Income per capita for Ağrı decreased from 19.4 % of the national average in 1987 prices to 18 % of the national average in 1997. By the same comparison income per capita relative to national average decreased from 80.5 % to 69.4 % for Elazığ, from 69.2 % to 62.1 % for Malatya, from 33.9 % to 27.4 % for Van. While income per capita in the region as a whole was 41.9 % of the national average in 1987 prices, it decreased to 36.7 % in 1997.

Figure 1: Provinces in the Scope of the EAP

Table 1: Some Basic Indicators Related to the EAP Region

PROVINCE	Annual Average Growth Rate in GDP, 1987-1997 (%)	Income Per Capita as a % of Turkish Average (%)			Annual Average Population Growth Rate (1990-1997) (%)
		With 1987 Prices		1997 Current Prices	
		1987	1997	1997	
Ağrı	2.4	19.4	18.0	24.7	0.9
Bingöl	2.9	22.6	25.3	35.5	-0.8
Bitlis	2.9	26.0	25.3	33.9	0.0
Elazığ	1.4	80.5	69.3	77.4	0.7
Erzincan	0.3	55.0	48.4	67.7	-0.9
Erzurum	0.4	41.7	33.8	44.0	0.4
Gümüşhane*	---	35.2	39.0	44.3	-1.3
Hakkari	0.4	26.1	16.7	34.5	3.4
Kars*	---	26.2	29.2	34.6	-1.1
Malatya	3.1	69.2	62.1	62.9	2.1
Muş	4.4	19.8	20.4	25.3	1.6
Tunceli	-1.8	35.5	39.5	67.1	-6.2
Van	3.0	33.9	27.4	34.7	2.5
Ardahan*	---	---	26.8	34.7	-3.9
Bayburt*	---	---	30.7	36.2	-1.1
Iğdır*	---	---	29.6	38.2	0.3
EAP Region	1.9	41.9	36.7	44.7	0.6
Turkey	4.1	100.0	100.0	100.0	1.5

Note:* Growth rates and income regarding these provinces could not be calculated due to changing borders or due to their being declared as new provinces.

Table 2: Shares of Sectors in Gross Domestic Product (%)

Sector	Year	EAP Region	Turkey
I. AGRICULTURE	1987 (S)*	28.3	17.8
	1997 (S)	25.4	13.3
	1997 (C)**	23.8	14.5
II. INDUSTRY	1987 (S)	16.8	25.8
	1997 (S)	19.7	29.2
	1997 (C)	14.5	25.3
II.1. Manufacturing Industry	1987 (S)	9.8	21.8
	1997 (S)	12.0	24.7
	1997 (C)	9.0	21.6
III. TRADE	1987 (S)	13.5	19.9
	1997 (S)	16.9	22.2
	1997 (C)	12.0	20.8
IV. TRANSPORT AND COMMUNICATION	1987 (S)	10.6	11.6
	1997 (S)	11.8	12.9
	1997 (C)	11.5	13.9
V. PUBLIC SERVICES	1987 (S)	12.8	5.1
	1997 (S)	11.8	4.0
	1997 (C)	26.8	8.9

Note:

*S: 1987 Prices.

**C: Current Prices.

Even though real growth rate has been slow, income per capita in current prices is higher than income per capita in constant prices (**Table 1**), except for some provinces in which public services have a relatively lower share, thanks to the fact that price changes have been in favor of the region in recent years, and partly because public services has a remarkable share in gross domestic product in some provinces (**Table 2**). For instance, income per capita in constant prices for Erzincan Province was 48.4 % of Turkish average in 1997, whereas it was 67.7 % in current prices. These figures for Tunceli were 39.1 % in constant prices and 67.1 % in current prices. On the other hand, average income per capita at regional level was 44.7 % of the national average in current prices and 8 points higher than that of constant prices.

2.2. FACTORS LEADING TO UNDERDEVELOPMENT IN THE REGION

There are three main factors that bring about the underdevelopment of the EAP Region. These are:

- 1) Differences in labor productivity between agriculture and other sectors,
- 2) Insufficient industry (especially in manufacturing industry),
- 3) Productivity differences between sub-sectors and regions in industry and other sectors.

2.3. PRODUCTIVITY DIFFERENCES AMONG SECTORS

There are large differences in terms of labor productivity between agriculture and non-agricultural sectors both in Turkey and in the Region. This is not a phenomenon peculiar to Turkey, but rather a universal tendency. While the ratio of industrial labor productivity to agricultural labor productivity has been between 2-3 in the United States of America and in Japan, it ranged between 3.3 and 5.9 in Turkey between the period 1955-1995. The ratio of non-agricultural labor productivity to agricultural labor productivity was even higher.

In 1975-1985 period the ratio of industrial productivity to agricultural productivity ranged between 2.0 and 4.7 % in the Erzurum Sub-region of the Region. The fact that these ratios were lower than the national averages, was due to lower industrial productivity in that sub-region, relative to the national average.

Eastern Anatolia Region is an agriculture-dominated region (**Table 2**). Agriculture has the largest share in the economy in all provinces, except for a few. For instance, the share of agriculture (animal husbandry, forestry and fishery included) in gross output in current prices was 42.5 % in Ağrı, 48.2 % in Bingöl, 35.9 % in Erzincan, 46.4 % in Hakkari, and 54.8 % in Tunceli in 1987. In contrast, Malatya in which the share of agriculture in gross product is 22 %, is the best in terms of per capita income relative to national average, after Elazığ that has a large gross product due to energy production but which does not contribute to the income of the people living in the province (**Table 1**).

In such an agriculture-dominated economy, increases in real economic activity and rises in per capita income, will depend primarily on the transforming the economic structure and increasing the productivity in agriculture. However, it is not going to be easy for the following reasons.

2.3.1. Effects of Climate and Altitude

First of all, the dominant climate in the Region is a terrestrial climate with its long and harsh winters and dry summers except for Malatya, Elazığ, Iğdır and narrow and deep valleys. For example, average annual frosty days observed is 152 in Ağrı, 150.9 in Erzurum, 113 in Hakkari, 170 in Kars, 117 in Muş, 125.9 in Van. This figure is 78.6 and 72.2 in Elazığ and Malatya, respectively, where the climate is more moderate. The number of frosty days does not exceed 100 in any other regions, except for Kayseri, Sivas and a few provinces in other regions. The fact that the number of frosty days is very high, limits agricultural activities, particularly cultivation-related activities, in terms of variety and time. Annual average rainfall is not sufficient, not distributed evenly throughout the year, and varies considerably from one year to another. This limits productivity, except for certain locations. The volatility of the rainfall from one year to the other increases the farmers' risk, hence limits the speed of introducing the new agricultural practices and seeds, which have not tested sufficiently so as to satisfy the farmers.

Another factor, which is closely related with climate and adversely affect agricultural activities, is the topographic structure of the Region. Altitudes of those cities, which located either in or on the edge of a plain field are quite high: Erzurum is 1950, Erzincan is 1205, Kars is 1750, Ardahan is 1800, Muş is 1520, Ağrı is 1640, Van is 1727, Hakkari is 1748, Tunceli is 1050, Bingöl is 1125 and Bitlis is 1500 meters above the sea level. Only a few province centers has an altitude around 1000 meters or below. The altitudes for Malatya, Elazığ, and Iğdır are 900, 1020 and 860 meters, respectively. The average altitude of the region is 1649 meters.

Agricultural lands in the Region are given in **Figure 2**. Even though the percentage of I.-IV. class land in total land in the Region is close to Mediterranean and Aegean Regions, a part of it is being used as permanent pasture land due to limits brought about by altitude. In the high plateaus to the east of the line between Erzincan and Muş, sown-planted agriculture can be done in the limited areas with some micro-climate characteristics. For example, according to 1991 General Agricultural Census 27.9 %, 28.6 %, 22.3 %, 21.7 % 22.4 % of the land in Ağrı, Bingöl, Erzurum, Kars, and Muş, respectively, are being used as permanent pastures.

Because of climatic and topographic adverse conditions and partly due to limited marketing opportunities; except for limited areas with relatively moderate climatic conditions and appropriate topographic features, products such as fruits and vegetables with high value added per unit of land, which requires intensive labor, hence leading to high employment, cannot be produced in the Region extensively. According to 1991 General Agricultural Census, area allocated to vegetables is only 1.4 %, while area allocated to fruits and other long-term plants is 4.3 % of the cultivated area in the Region. These rates are 2.4 % and 9 % respectively, across Turkey. Area allocated to fruits and vegetables are higher than Turkish average only in Elazığ, Malatya, Hakkari and Gümüşhane. Area allocated to fruits is more than one fifth of the area sown in Malatya, that is, more than twice as high as Turkish average. Accordingly, Malatya has the highest income per capita in the Region.

Figure 2: Agricultural Lands

Table 3: Use of Land in Agricultural Firms and Average Cultivated Land per Farm (1991)

PROVINCES	CULTIVATED LAND / TOTAL AREA (%)	AREA SOWN / CULTIVATED AREA (%)	FALLOW LAND / CULTIVATED AREA (%)	VEGETABLE AND FLOWER AREA / CULTIVATED AREA (%)	FRUIT AND OTHER LONG LIVED CROPS AREA / CULTIVATED AREA (%)	CULTIVABLE LAND NOT USED / TOTAL AREA (%)	PERMANENT PASTURE / TOTAL AREA (%)	AVERAGE CULTIVATED LAND PER FARM (Decare)
AĞRI	69.5	60.5	38.8	0.3	0.4	2.4	27.9	69.4
BİNGÖL	57.1	81.2	14.6	2.6	1.8	14.1	28.6	13.4
BİTLİS	93.4	79.1	19.3	1.3	0.4	0.0	6.6	13.5
ELAZIĞ	82.8	59.2	27.2	4.1	9.6	16.6	0.4	60.2
ERZİNCAN	76.7	61.6	32.0	1.9	4.5	18.4	4.7	44.6
ERZURUM	72.2	67.7	30.7	0.8	0.9	4.8	22.3	45.0
GÜMÜŞHANE	87.1	61.4	32.4	1.7	4.6	7.5	4.7	30.0
HAKKARİ	74.1	59.2	7.3	15.6	17.8	0.3	19.8	31.8
KARS	77.5	79.3	18.7	0.6	1.4	0.6	21.7	44.2
MALATYA	90.3	57.5	20.6	1.6	20.3	6.2	2.0	48.0
MUŞ	76.5	78.1	21.0	0.4	0.5	0.2	22.4	71.9
TUNCELİ	81.8	61.5	32.2	1.7	4.6	14.9	3.0	43.7
VAN	78.5	61.1	36.3	0.7	1.9	4.5	12.7	69.8
EASTERN ANATOLIA	78.8	67.4	26.9	1.4	4.3	5.4	14.8	52.7
TURKEY	91.5	73.6	14.9	2.4	9.0	2.6	3.9	54.7

Source: The State Institute of Statistics, "1991 Genel Tarım Sayımı: Tarımsal İşletmeler (Hanehalkı) Araştırma Sonuçları", (Ankara: SIS, 1994).

Climatic conditions require a remarkable portion of the cultivated area to be left as fallow land (**Table 3**). Of course, high risk brought about by partly climatic conditions and partly the uncertainties caused by the new cultivating technologies for low-income farmers plays a certain role in this. The ratio of the fallow land across the Region, according to 1991 General Agricultural Census, is approximately twice as high as that of Turkish average. The ratio of the fallow land is 38.8 % in Ağrı and 36.3 % in Van.

2.3.2. Land Ownership in Enterprises and Its Effects

The risk facing the farmers in the Region is resulted not only from climatic conditions, but also the limited amount of the area cultivated per farm. According to 1991 General Agricultural Census the amount of the area cultivated per farm in the Region is 52.7 decares (**Table 3**). This amount rises up to 71.9 decares in Muş, whereas it goes down to 13.4 decares in Bingöl. The main reason for the small sized nature of the land ownership is the existence of large-scale pastureland and uncultivable land in those provinces due to topographic features and the altitude. Approximately one half of the land in Bingöl, one-third in Erzurum, and one-fourth in Kars is left for the pastureland. The fact that the size of the land per farm is small, directs the farmers to adopt security-first attitudes and low-risk agricultural practices or practices of which the risk levels are known. The farmer with limited resources wants to secure his food first. The basic food item in the Region is bread and other derivatives of wheat. Therefore wheat sowing in the Region is very common and a large portion of the area sown is allocated to wheat production. Scarce resources combined with climatic conditions and topographic features increase the risk level of the innovations, hence make it difficult to change traditional agricultural practices including crop variety.

2.3.3. Other Problems Related to Agriculture

Soil resources of the Region are not being used according to their natural capacities and features. Necessary land use planning for the Region has not been prepared yet. Improper land use reduces production and leads to erosion. There is water erosion problem in 17 % of cultivated lands and in 45 % of non-cultivated land. This causes sedimentation in dams and water reservoirs besides soil loss. In addition, there is wind erosion problem over 13,542 ha. land areas in Aralık District of Iğdır Province.

Agricultural enterprises have been decreased and fragmented due to inheritance. According to the latest agricultural census (1991), number of enterprises in the Region reached 454,118, and 11.9 % of enterprises own less than 1 ha., 46.2 % between 1-5 ha., 22 % between 5-10 ha., and 18.3 % between 10-50 ha. land. Total number of land parcels in enterprises is 2,250,650. The ratio of enterprises that own between 25-30 ha, which is the optimum enterprise size, is approximately 10 % in the Region. Land aggregation is partially a solution for this problem. Land aggregation studies done till now in the Region is just 3,636 ha. Almost 1.9 million hectare land is yet to be aggregated.

There is not adequate water reservoirs for animals in pasture lands. General Directorate of Village Affairs has constructed 291 animal water reservoir. These reservoirs could only serve to 306,483 cattle and 967,367 sheep/goat.

5.6 % of cultivated agricultural land and 30.2 % of total agricultural land that is not appropriate for cultivation, face stone problem.

There is drainage problem in approximately 290,667 ha. land and salinity and sodium problem in 168,270 ha. land in the region which have microclimatic features and appropriate for intensive cultivation (Iğdır) as well as in irrigated regions.

Agricultural land that can be economically irrigated is 1,218,921 ha. in the Region. Currently irrigated fields out of this is 625.410 ha., while it is possible to irrigate an additional 593,511 ha. land.

Irrigated agricultural lands could be left uncultivated due to problems in water management, and insufficient water as well as higher operating costs are created due to low irrigation performance and inappropriate crop composition.

As the farmers do not have a sufficient information about crop irrigation planning (interms of timing and amount of irrigation) and proper irrigation crop (by water quality, soil characteristics, and crop type), quality and yield are decreasing in crop production, while water is not being used in an optimum way.

Due to insufficient training of farmers, irrigation structures are not being utilized at an adequate level and properly. This problem, in turn, leads to destruction of irrigation systems that have been created with a great deal of labor, time and expenditure.

2.3.4. Animal Husbandry in the Region

Climatic and topographic characteristics mentioned above have made animal husbandry the primary agricultural activity in the region. As of 1991, the share of animal husbandry in total agricultural gross output is 48.8 % in Ağrı, 47.8 % in Tunceli, 29.7 % in Erzincan, 42.3 % in Erzurum, 54.1 % in Kars, 79.5 % in Bingöl, 48.5 % in Bitlis, 85.9 % in Hakkari, 42.3 in Muş, 30.3 % in Siirt and 58.4 % in Van. The agricultural economy relies on animal husbandry in many provinces. However, economy of the animal husbandry has changed radically through time. **Table 4** and **Table 5** indicate this change.

Tables are arranged in terms of sub-regions because the data was provided for nine geographical regions in the related statistics. Besides Ağrı, Ardahan, Erzurum, Iğdır and Kars provinces, Artvin is included in the Northeast Region, while the Southeast Region includes Bingöl, Bitlis, Hakkari, Muş and Van provinces, in addition to Batman, Diyarbakır, Mardin, Siirt, Şanlıurfa and Şırnak.

Until 1980, animal quantity increased rapidly parallel to population increase while the amount of pastureland got narrowed in both regions (**Table 4**). After 1980, however, animal quantity decreased in time, especially in the Northeast, due to liberalization of imports of live-stock and animal products and the fact that the terms of trade moved against animal husbandry.

The pressure by increasing population on the one hand and the support of positive domestic terms of trade until late 1970s on the other, led to a rapid increase in the animal

quantity, hence pastureland per unit of cattle (PUC) declined rapidly. In the Northeast Region where animal husbandry has been the primary agricultural activity, the pastureland per unit of cattle decreased from 5.2 hectare in 1950 to 1.9 hectare in 1980 (**Table 5**). While the pastureland in this Region (Northeast Region) was able to satisfy 109.4 % of digestible nourishment needs of the existing animal quantity, this rate fell down to 37.1 % in 1980. Although this ratio increased in the 1990s because of declining animal quantity due to unfavourable market conditions in the 1980s, the need for alternative nourishment still continues to exist. This need, forces the farmers who already have small sized land to allocate a part of the land for fodder crops. Sufficient amount of fodder crops cannot be grown due to high opportunity costs for the farms; hence the animals cannot be fed so as to get the optimal productivity

Table 4: Pastureland, Animal Quantity in terms of Cattle and Rural Population Indices

	1927	1950	1960	1970	1980	1991
1) NORTHEAST REGION¹						
a) Pastureland Index	105.0	100.0	96.8	89.2	83.7	90.6
b) Animal Quantity Index	26.9	100.0	150.3	153.9	223.2	88.0
c) Rural Population Index		100.0	118.6	132.8	139.2	123.2
2) SOUTHEAST REGION²						
a) Pastureland Index	109.1	100.0	93.7	85.0	71.2	54.5
b) Animal Quantity Index	28.4	100.0	149.0	208.4	284.6	181.5
c) Rural Population Index		100.0	133.4	165.4	194.4	232.8
3) TURKEY						
a) Pastureland Index	125.0	100.0	84.2	78.9	73.4	70.7
b) Animal Quantity Index	36.7	100.0	126.2	126.5	147.5	106.9
c) Rural Population Index	65.9	100.0	119.1	135.2	145.7	146.2

NOTES:

1) Northeast Region: Ağrı, Ardahan, Artvin, Erzurum, Erzincan, Iğdır, Kars

2) Southeast Region: Batman, Bingöl, Bitlis, Diyarbakır, Hakkari, Mardin, Muş, Siirt, Şanlıurfa, Şırnak, and Van.

No doubt that the reduced quality and productivity of the common pastureland due to inefficient and excessive use has an important role in getting lower and lower amount of digestible nourishment needs of the animals obtained from the pastureland. It will be possible to increase the productivity of the pastureland and hence the number of animals that can be fed optimally from them, if the new Law of Pastureland enacted in 1998 can be implemented properly.

Negative developments observed in the size of pasturelands and animal quantities, as well as in the pastureland qualities during the last 40-50 years, and the unfavorable domestic terms of trade since the 1980s, made animal husbandry an unprofitable activity for the enterprises in the Region. These have been among the most important factors for the slow pace of the regional development.

Table 5: Some Indicators Related to Animal Husbandry

	1927	1950	1960	1970	1980	1991
1) NORTHEAST REGION⁴						
a) PL / PUC (ha)	20.3	5.2	3.3	3.0	1.9	3.7
b) Conventional PL / PUC (ha)	22.7	5.6	3.4	3.0	1.9	3.6
c) TDN / RDNPU C (%) ⁶	445.5	109.4	67.4	59.2	37.1	70.4
2) SOUTHEAST REGION⁵						
a) PL / PUC (ha)	33.9	8.8	5.6	3.6	2.2	2.7
b) Conventional PL / PUC (ha)	29.3	7.4	4.6	2.9	1.7	2.1
c) TDN / RDNPU C (%)	573.9	145.9	89.4	56.3	32.9	40.6
3) TURKEY						
a) PL / PUC (ha)	9.3	3.0	2.0	1.8	1.5	2.0
b) Conventional PL / PUC (ha)	7.4	2.9	1.6	1.4	1.1	1.4
c) TDN / RDNPU C (%)	145.5	46.5	30.8	27.7	21.0	27.7

NOTES:

- 1) PUC: 500 kg live weight
- 2) 1 hectare conventional pastureland: amount of pastureland that would yield 1000 kg dry wild grass.
- 3) Amount of annual digestible nourishment per unit of cattle is: 2550 kg.
- 4) Northeast Region: Ağrı, Ardahan, Artvin, Erzincan, Erzurum, Iğdır, Kars.
- 5) Southeast Region: Batman, Bingöl, Bitlis, Diyarbakır, Hakkari, Mardin, Muş, Siirt, Şanlıurfa, Şırnak, and Van.
- 6) RDNPU C: Required Digestible Nourishment Per Unit of Cattle. TDN / RDNPU C is the ratio of total digestible nourishment obtained from pastureland to digestible nourishment needs for the animals in the region. It is the potential in the current conditions, rather than the actual ratio.

2.4. FACTORS AFFECTING THE SPATIAL DISTRIBUTION OF INDUSTRIES AND THE REGION

Due to lower labor productivity in agriculture relative to industry, a region with agriculture-dominated economy, would have a lower income per capita. The difference is created primarily by the manufacturing industry because the share of the manufacturing industry in total Turkish industrial output is about 80 %.

According to 1997 data, none of the provinces, except Malatya, Elazığ and Erzincan, were able to reach Turkish average in terms of the share of industry in GDP. Excluding these three provinces, industry's share in GDP in current prices, ranges between one twenty-fourth (Hakkari) and one third (Erzurum) of the national average. In fact, there is only one province in which the industrial sector is expanding and the economy relies on this sector: This provinces is Malatya. The share of manufacturing industry in GDP in current prices 5.8 % in Erzincan where industrial sector has a relatively large share, and it is 8.2 % in Elazığ. The industry is predominantly comprised of mining and stone quarry in Erzincan, and of electrical power supply in Elazığ, whose value added is largely transferred to the outside of the Region and hence does not contribute much to the economy of the related provinces.

One can enumerate five main factors that determine the location of industrial investments. These are:

- 1) Closeness to the source of raw material, which implies the closeness to the borders (or the ports), if the raw material is predominantly imported,

- 2) Closeness to the market, which implies the closeness to the borders (or the ports), if the output is predominantly exported,
- 3) Closeness to the cheap labor (especially for the footloose industries where there is no gain or loss in terms of weight and volume during the production process),
- 4) Closeness to the backward and forward linking industries,
- 5) Existence or non-existence of externalities and producer services (whether there exist mechanical and maintenance services, labor market with a large volume and variety of labor skills, financial, accounting and legal services or not).

2.4.1. Raw Material Oriented Industries and the Region

Raw material oriented industries are those in which the unit weight or size of the final product is much less than the unit weight or size of the raw materials used to produce the final product or the industries that process perishable materials. These are generally mine processing and agricultural industries. As they are very sensitive to transport costs, mine processing industries are established at a point where the raw material is extracted, or at the port of import, or at the point where transportation costs are minimized in case more than one raw materials are used. Since the mines in Eastern Anatolia, except copper, perlite, pumice stone, kaolin and chrome, are not found to be processed at economical scales with the existing technology, the raw material oriented industries, except the ones based on stone and the soil and copper ore, have not been established. Furthermore, there is no possibility for such industries to be established unless economically efficient mine reserves exist, or even if the mine reserves exist, unless competitive production scale and cost can be achieved at the location of the plant producing the final product.

A considerable portion of the current industries in the Region is composed generally of agriculture based industries, that process perishable items or those items that lose volume during the processing. The main reason why Malatya was able to become a province with an industrial-based economy is that, it is possible to grow fruits and vegetable as raw materials for such industries thanks to positive altitude and climatic conditions, and its ability to get raw materials from the neighboring provinces, without incurring high transportation costs due to its location.

One of the raw material oriented industries is the milk processing industry. A number of milk processing units have been established in the region. In a region where animal husbandry is a major economic activity, this can be thought as rational at first glance. However, capacity utilization in those units is very low, hence they are not used efficiently. The main reason for this is the fact that there could not be established an effective, low-cost cold-chain due to the scattered location of the milk producers. In addition to the scattered settlements, among other important reasons for the lack of an efficient cold-chain is having rural roads closed very often due to climatic conditions or at least higher transportation costs due to inappropriate conditions.

2.4.2. Market Oriented Industries and the Region

Market oriented industries are those industries producing those products that gain weight and/or volume during the production process. Closeness to the market is essential for these industries. Depending on whether there exist economies of scale, this type of industries can be local, regional, and rarely national, if the transportation costs are lower than the scale economies. Local market oriented industries are established in the Region, but the employment, production capacity and the value added created by these industries are small because of the small size of the local markets. They will continue to be small, unless there is a significant increase in the income per capita.

On the other hand, there does not exist a regional market in the Region, because topographic conditions divided the Region into three Sub-regions: Erzurum Sub-region, Malatya-Elazığ Sub-region, and Van Sub-region. High transportation costs arising from topographic conditions isolate these sub-regions from one another and make it difficult for a regional market to emerge. Improving the transportation between these sub-regions and lowering the transportation costs may allow the formation of a regional market for certain market oriented products. But this will take time.

As the size of the sub-regional markets are small, population is insufficient, spatial distribution of the population is dispersed and the purchasing power is low, employment and value added creating capacity of the established or potential industries toward subregional markets are low.

Second type of market oriented industries are those producing products, which do not lose or gain weight or volume during production process, hence are not very sensitive to transportation costs, but nevertheless need to follow market preferences. The typical example of this is the fashion oriented sub-sector of the clothing industry. This type of industries is established in the gravity center of the market. The Region does not have almost any chance in these industries.

2.4.3. Footloose Industries and the Region

Footloose industries are the ones for which transportation costs are low and labor costs are high in the total cost of the final product and these industries are located in the areas in which cheap labor can be found. However, production methods of these industries are either standardized or simple, hence there is not much need for skilled labor. Typical examples of footloose industries are assembling stages of electronics, undergarment and clothing. In order for a region to host international market oriented industries such as electronic assembling industry, there has to be fast and reliable transportation possibilities. It is impossible to establish such industries, even if the labor is cheap, unless there exists fast and reliable transportation.

Transportation from the Region to outside is difficult, slow and not reliable especially during the long winter seasons. Even if the transportation possibilities are improved, existing disadvantage of the region relative to the western regions of the country to access the centers of international markets with a lower transportation cost will continue to exist, except for Caucasus and Central Asian countries where purchasing power is low

and the market size is small. This is because the western regions are closer to those market centers. Besides, immigration to the western regions in the last 30-40 years gave way to large unskilled labor pools, canceling out to a great extent the advantage of cheap labor of the Eastern Anatolia. For these reasons, footloose industries relying on fast and reliable transportation possibilities have not been established in the region so far. The chance for the foreseeable future is also low.

The Region does not have an advantage in footloose industries such as undergarment and clothing. The primary reasons for this, again, are the high unemployment in the western parts of the country and the fact that immigration has led to the formation of cheap labor pools there, and that the disadvantage of the Region relative to other regions in terms of closeness to the international markets will persist no matter how well the transportation is improved. Nevertheless, the Region's advantage in these industries is much higher than the first type of footloose industries relying on fast and reliable transportation possibilities.

2.4.4. Forward and Backward Linkages and the Region

When the output of an industry is used as an input by another industry, this relationship between the two industries is called a forward linkage for the first, and a backward linkage for the second industry. Having forward and backward linkages between two industries is a functional relationship, and it is not a sufficient condition to have both of these industries located at the same place. What is at stake is a total cost minimization issue, and existence of a forward linkage between two enterprises is not a sufficient condition for the establishment of the both enterprises at the same location. That is also valid in the case of location selection for an enterprise established at a location and producing a product with a high backward linkage effect and enterprises that provide input for that enterprise. On the other hand, the necessity of working with minimum stocks under increased competition has resulted in the establishment of industries within a backward linkage relationship at the same location.

When the industries in the Region are examined in terms of forward and backward linkages, it is realized that, many of these industries have backward linkages with agriculture, mining and stone quarry and soil, i.e. raw material oriented industries. As of 1994, for example, in Malatya, which is the most industrialized province of the Region, 13.4 % of the total working population was employed in food, beverages and tobacco, 13.2 % in textile, and 20.7 % in stone and soil based industries. The most important industry other than the ones mentioned is the metal products and machinery with its 17.4 % employment share, but it is mostly local and regional market oriented and 98 % of its backward and forward linking industry, i.e. metal industry, is located outside of the Region.

Backward linking raw material oriented industries can have a higher chance for establishment and survival in the Eastern Anatolia Region. The basic raw materials in the Region are agricultural products, some mines, stone and soil. It is of low probability for the forward linking industries to be established and induce industries with which they have forward linkages, due to the difficulties to have access to national and international markets because of the location of the Region.

2.4.5 External Economies and the Region

The existence or non-existence of external economies has become an important location factor especially for small and medium sized industries today. These economies are the benefits received by the enterprises from one another outside of market relations. External economies arise from spatial concentration of industrial enterprises and population. It is impossible to have external economies without spatial concentration.

Concentration of several enterprises at the same location creates a labor market with a variety of skills and qualifications. This is attractive both for enterprises and labor.

Another important external economy arising from spatial concentration is to have producer services such as repair, maintenance, accounting, and consulting. Existence of producer services in a location is a factor to lower the cost and increase the competitiveness, particularly for the enterprises that cannot provide these services internally. Therefore, existence of other enterprises, hence of external economies such as producer services is crucial for non-raw material-oriented industrial enterprises.

Another important external economy for some industries is the learning economies from outside of the enterprise. The formation of learning economies depends on spatial concentration of the enterprises from the same sector. Being located at the same place, increases face-to-face contacts of designers with research and development experts, which facilitates informal information sharing. This is also true for the lower level employees, though it is not as crucial as the first one. In addition, proximity increases the possibilities for skill and knowledge sharing among enterprises via swift labor mobility.

Another external economy created by the settlements of the enterprises from the same sector at the same location or nearby is the network economies. Enterprises located at the same place, might specialize on different production stages of the same final product. Furthermore, they can create the umbrella organizations to protect the industry or strengthen the competitiveness more easily and quickly than otherwise. The location of textiles and wearing apparels producers in Italy is a good example of location and concentration creating network economies.

Industrial centers creating high external economies has not developed in the Eastern Anatolia since the Region has not industrialized due to its location and topography, which give rise to high transportation costs to reach national and international markets and to the ports of imports. Only in Malatya an industrial concentration exists, and it is highly likely that external economies creating cost advantages for the enterprises will emerge there. Since there are not industrial concentrations, which often create external economies in the Eastern Anatolia, the possibility is very low for small and medium sized enterprises to emerge at least in the foreseeable future, or to survive in a competitive environment even if they emerge.

2.4.6. The Effects of Market Structure and the Region

Turkey implemented a highly protective customs policy from 1930s to 1980s; hence the industry developed behind the custom barriers. The small size of the domestic

market and insufficiency in scale economies combined with the custom barriers gave rise to the formation of monopolistic or oligopolistic market structure in many sectors. High profit margins guaranteed by the custom barriers made the firms insensitive to the cost, hence disregard the local advantages that would lower the costs. But the protection has been abolished gradually in many sectors since the 1980s, so the foreign markets and costs started to become important factors.

This development requires investments to move toward the locations where the cheap labor and the land can be found. This process has already begun to develop to some extent and oligopolistic firms have started to establish their new enterprises in the vicinity of the traditional industrial centers in Marmara, Aegean and Çukurova regions. These centers provide the enterprises with the advantage of the external economies created by İstanbul, İzmir and Adana in addition to taking advantage of the cheap labor and land. With the establishment of the Customs Union with the European Union, the relative advantage of the vicinity of the big industrial cities has strengthened. The Eastern Anatolia Region is located far away from this area, which is close to the ports of imports and exports, market centers, and the big cities with external economies. Therefore, the possibility that the Region can get a share from the industrial expansion because of low cost is not possible at least in the foreseeable future, due to its location.

The industrial boom that has been observed outside the Region such as in Çorum, Denizli, and Kahramanmaraş in the last 10-15 years has essentially been realized in the competitive sectors like textiles and wearing apparels. The pressure of the competition on the costs caused the firms to take advantage of the cheap labor and other local advantages. The industries that have a potential in the Eastern Anatolia Region are also the ones with competitive markets, having cost pressures on them and the cost advantages provided by some local factors. But the survival of these industries once they are established depends on concentration in a few cities that would provide some external economies, and fast and reliable transportation possibilities.

2.5. POPULATION GROWTH AND ITS EFFECTS

One of the main problems of the Eastern Anatolia Region is the high natural rate of population growth. The natural rate of population growth has been recorded very high, at least over the last 30 years, despite the high rate of infant mortality until recently, due to high fertility rates and the availability of modern medical services to the region, especially gradually expanding health-protecting services. The annual rate of natural population growth in many Eastern Anatolia Region provinces ranged between 3.5 % and 3.9 % during the 1965-1990 period. Only Elazığ and Malatya were found to have the natural rates of population growth below these rates. Elazığ's natural rate of population growth in this period ranged between 2.9 % and 3.4 %, and that of Malatya ranged between 2.1 % (1985-1990) and 3.2 %. Despite the natural population growth rate decreased to 2.2 % under the effect of out-migration in the Region during the 1995-2000 period, this rate is still above the national average which is 1.6 %.

It is a debatable question why population increases in a region very fast, and what socio-economic circumstances lead to high fertility and rapid population growth. Low education level of the women, the need for a secure future by the parents in the areas

where there is not a sufficient social security system, and unawareness or less awareness of contraceptive methods or inaccessibility of the family planning services are among the most important reasons for high fertility rate as the primary factor in population growth.

One of the most important consequences of high natural population growth rate is the high ratio of dependent young population. For instance, population between 0-14 age category is 35 % of total population in Turkey, while it is 43.5 % in the Region. This means the increase of burden upon population at the working age and a lower per capita income relative to national average, even under equal labor productivity for working population.

High natural population growth rate combined with climatic conditions, has increased pressure on resources particularly in rural areas, also has led to a widespread unemployment problem.

Climatic characteristics, particularly the number of frosty and snowy days in the Region, limits the number of workable days on the field, and this, combined with agricultural practices brought about by the limited resource base, leads to labor surplus problem in the rural areas. Climatic conditions allow, for instance, only 118 workable days in a year in Kars, 132 days in Erzurum, 152 days in Bitlis, and 153 days in Muş. Total labor supply in the region is much higher than demand for labor in the Region even when all agricultural activities, including animal husbandry, are considered. Given the sown-planted area and animal resources, the ratio of total labor supply to demand for agricultural labor is 2.9 in Bingöl, 2.4 in Bitlis, 3.1 in Elazığ, 2.5 in Erzurum, 3.2 in Hakkari, 3.2 in Malatya, and 3.8 in Van. This labor surplus constitutes the reason for migration from rural to urban areas within the Region as well as to other region. Besides, it is one of the main reasons for low income per capita in the rural section, hence in those provinces with agriculture-based economies. Assuming that labor is equally productive in the rural and urban areas, income per labor in the rural section, for example, could only be 26 % of the urban section in Bingöl, 34.3 % in Erzurum, 26.9 in Van, and 49.3 % in Erzincan. In fact, agricultural labor productivity ranges between one-third and one-sixth of nonagricultural labor productivity over the years. One of the most important reasons for the low income per capita in many provinces of the Region is the rural labor surplus that could not be absorbed by the urban areas, hence left idle, due to the limits brought about by the climatic conditions partly in some and to a great extent in many of the Eastern Anatolia provinces.

High rate of population growth, combined with insufficient employment possibilities and low income level in the rural areas has led to massive migration to the other regions. The main reason for high migration is the high natural rate of population growth, although the security problems encountered at some parts of the Region have also played a certain role.

While high natural population growth has led to out-migration and increased the pressure on the natural resources in the rural areas, it also has created adverse effects on the urban infrastructure in the major cities like Erzurum, Malatya, Elazığ, and Van, which are over populated because of the intra-regional rural migration to urban centers. In the meantime, education and health services infrastructure has remained inadequate too.

Currently the natural rate of population growth, despite its decelerating pace due to the falling rates of fertility, is still over the Turkish average. It is expected that the natural rate of population growth will be high relative to national average in the near future, although it might slow down to some degree.

It is necessary to expand the family planning services while improving the efficiency in order to lower the high fertility rate. However, the infrastructure and especially the personnel are not sufficient in the Region. It is also possible to provide much more efficient services with the existing physical infrastructure. But the problem in the Region is to employ enough personnel with sufficient quantity and quality just like in education services.

2.6. THE FIELDS IN WHICH THE PROVINCES HAVE COMPARATIVE ADVANTAGE

The fields in which the provinces in the Region have a comparative advantage can be summarized by taking into account the factors determining the location of various industries, the location of the Region relative to market centers, main import and export gates, the conditions of transportation, and the features related to altitude and climate.

Among those provinces only Elazığ, Erzurum, Malatya and to a certain extent Erzincan and Van can be considered to have a comparative advantage in industry in the light of factors mentioned above. Malatya in particular shows a potential in footloose industries thanks to its diversified industrial structure and the size of its industry reaching a level to create external economies.

One may state that all provinces in the Region are still bearing a comparative advantage in the animal husbandry sector. However, this comparative advantage is bound to erode rapidly if necessary measures would not be taken for improving pasture lands and for controlled grazing.

In the Region whose economy depends largely upon agriculture, some of the provinces do not have a significant comparative advantage in field crops due to climate, topography and altitude. However, that does not mean that there does not exist any provinces that have micro climate, lower altitude, appropriate topography, and thus suitable fields for agricultural cultivation. Again, due to factors of altitude, climate, and relative closeness to the markets only Bitlis, Elazığ, Erzincan, Malatya and Iğdır in the Region have a comparative advantage in fruit and vegetables, at least at the regional scale.

2.7. SPATIAL STRUCTURE

As has been stated before, transport channels largely determined by topography, climate, and historical, economic and social processes have created three different sub-regions and sub-region centers in the Region. These sub-region centers and their sub-regions are as follows.

- 1) Erzurum Sub-region: Ağrı, Erzincan, Erzurum, Gümüşhane, Kars, Muş, Ardahan, Bayburt and Iğdır provinces
Sub-region Center: Erzurum City
- 2) Malatya-Elazığ Sub-region: Bingöl, Elazığ, Malatya and Tunceli provinces
Sub-region Center: Malatya and Elazığ Cities (Malatya-Elazığ Urban Region)
- 3) Van Sub-region: Bitlis, Hakkari and Van provinces
Sub-region Center: Van City

The largest settlements in the Region are sub-regional centers. These sub-region centers correspond to influence areas of the 5th level centers in the national stratification of settlement centers. They are named as Sub-region centers here since they are centers of sub-regions of the Region. According to 1997 Population Census, population of Erzurum, Malatya, Elazığ and Van are 299, 400, 250, and 227 thousand respectively. Erzincan is the only city with a population above 100 thousand (102 thousand) apart from these cities in the Region. These five cities are, at the same time, the locations where the current industry has concentrated.

Distribution and development of cities in the Region are essentially determined by geomorphologic structure. Important cities of the Region are generally located in the plateaus and depressions lying on east-west axis (**Figure 3**). Erzurum and Erzincan are located in the northern depression chain, while Malatya, Elazığ and Van are located in the southern depression chain. Again, there are Adilcevaz, Ahlat, Bulanık, Patnos, Yüksekova and Hakkari with locations related to the southern depression chain. Population growth rate in these cities, has increased in the 1990-1997 period. Doğubeyazıt in the north has shown a stable population growth, thanks to the advantages provided by Gürbulak border gate. Iğdır has gone through a rapid population growth over the last decade, as a result of opening of the Dilucu border gate and gaining a provincial status. Almost all growing and developing cities of the Region are located along the natural road routes lying in the east-west direction. Erzurum is, at the same time, on the historical trade road connecting Trabzon port to Iran.

Erzurum and Van Sub-regions are the sub-regions where the average elevation is very high and high plateaus and mountains emerge as the dominant geographical shapes. The economy is based on agriculture, especially on the animal husbandry.

On the other hand, Malatya-Elazığ Sub-region, except for the northern part, has relatively lower plains, a mild climate, particularly in winter, better transport connections to the West and the Eastern Mediterranean ports, a more diversified agriculture thanks to its climatic characteristics, and a much more developed industry compared to the other sub-regions. Malatya Sub-region, even though it covers a much smaller area, creates approximately 70 % higher agricultural value added than that of the Van Sub-region even just Malatya Province's agricultural value added is higher than the whole Van Sub-region. This is because sown-planted agriculture is more common, and the value added created per unit of land is higher in Malatya.

Malatya Province was able to increase manufacturing industry value added between 1987-1997 by 53.6 % in 1987 prices, and it achieved 54.6 % of the total EAP Region manufacturing industry value added in 1997. Major part of industry in the province is located in Malatya city center. The only other province that showed a similar increase is Van. However, manufacturing industry value added in Van is only one-tenth of that of Malatya.

It is obvious that the industry concentrated in Malatya province center has gained a certain momentum, captured a comparative advantage. Accordingly external economies and producer services, which put industrialization in the city in a cumulative cyclical process, are formed. For instance, gross value added created by the “self employment and services” sector, which could be taken as an indicator of a portion of the producer services, increased between 1987-1997 by 53 %. As of 1997, Malatya Province has reached a position where it can create nearly 30 % of the total value added created by the whole Region in these activities. On the other hand, value added created by the “self employment and services” sector throughout Erzurum Province, which is a big sub-region center, increased only 21 % in the same period.

The conclusion that follows from these investigations is that; Malatya has taken a step forward in industrialization recently and started to drag along with itself especially those sectors with which it has backward links. This industrial dynamism in Malatya results from its favorable location, the fact that it is located in a plain where a diversified agriculture is dominant, and it has more educated labor force. The spirit of entrepreneurship has no doubt a role in this. Development of industry in Malatya and in the Malatya-Elazığ axis should be supported and the necessary public investments including a good urban infrastructure which will attract the population movements from other provinces as to become a regional metropolitan center should be provided. With its performance in the last ten-fifteen years, Malatya has shown that it has comparative advantage in certain industrial sectors. This comparative advantage should be improved. Diversification of industry and ever-developing producer services indicate that agglomeration economies are developing in Malatya. Intensifying industrial activities in Malatya and Malatya-Elazığ axis will further develop these agglomeration economies and bring more competitiveness to the subregional industry. Erzurum and Van provinces are the other centers that should be supported with respect to the status of industry.

The share of manufacturing industry in gross product as of 1997 in Erzurum and Van provinces is respectively 8.5 and 6.8 %. Almost all industrial plants in these provinces are either located in city centers or very close to them. There is no province in the Region with more than 6 % share of manufacturing industry in gross product, except for sub-regional centers and Erzincan, while this share is 8.2 % in Erzincan as of 1997. In that context, Erzincan city has the necessary conditions to become a secondary attraction center in terms of its location and population, after sub-regional centers which emerge as primary locations for industry.

Figure 3: Topography and Settlements

2.8. CURRENT SITUATION, STRATEGIES AND THE FRAMEWORK OF THE REGIONAL PLAN

As a summary, the following points can be put forth:

- 1) The regional economy is backward relative to other regions of the country. The growth rate in the last decade has been below the Turkish average.
- 2) The reasons for the relative underdevelopment of the Region are the sectoral structure of its economy and the productivity differences among the various sectors.
- 3) The region has an agriculture-dominated economy except for a few provinces. The way to activate the economy in the Region is through agriculture. Productivity in agriculture is low. It is impossible to achieve a real economic growth unless improving labor and land productivity in agriculture. Improving productivity in agriculture, in turn, depends on consideration of the following two factors.
 - i) Climate and topographic conditions limit the size of the area cultivated and product variety. It is important to consider climatic characteristics when bringing new agricultural practices and technologies to the Region.
 - ii) Small size of the land per farm under the present climatic conditions, makes the innovations risky for the villagers at subsistence level. It is imperative for the new agricultural technologies and practices to be less risky under these climatic conditions and the land size per farm.
- 4) The agriculture in the Region relies on animal husbandry. However, common pastureland grass quality and productivity have decreased due to misuse and overuse. Accordingly, animal husbandry has become increasingly more dependent on nourishment sources with high opportunity costs. Animal husbandry in the Region has come down to a point where it continues to exist only because the rural labor is willing to accept a very low implicit wage due to limited employment possibilities. Another important reason for the decline of the animal husbandry in the Region is abolishing the protection and the resulting negative development of the domestic terms of trade against animal husbandry after 1980. However:
 - i) Even though the animal husbandry has declined, it continues to be the primary economic activity in the Region. In addition, animal husbandry of the Region currently keeps its comparative advantage with respect to the other regions. It is impossible to improve the rural economy, hence the urban economy in a large portion of the Region, without increasing the productivity in the animal husbandry.

- ii) Increasing the productivity in animal husbandry depends on improving the pastureland and stock, and avoiding the misuse or overuse of the pastureland. Improving the pastureland and supervision of putting (the animals) out to pasture is a necessary condition for the rural development of the Region.
- iii) Animal husbandry should be protected as a national policy. It is highly probable for the animal husbandry, hence the rural economy to decline, at least in the foreseeable future, unless animal husbandry is protected since the policies to increase productivity such as pastureland and stock improvement, supervision for putting out to pasture will not be affective.

The industry has not developed in the Region, except for a few provinces. The main reasons for this are insufficient agricultural raw materials for processing because of the underdeveloped regional economy, small size of regional and subregional markets due to low personal incomes, long distance of the Region from the gravity center of the national market due to the Region's location and the transportation difficulties due to climatic and topographic conditions. In this context:

- i) First of all, transportation infrastructure connecting the Region to the other regions and sub-regions to one another has to be improved. This will make sure the formation of a regional market and the easy access to national and international markets.
- ii) Except for the agriculture-based industries, the possibility to develop in the foreseeable future in the Region is low for industries facing toward national and international markets and/or the ones importing the raw materials heavily from abroad.
- iii) The industrial development in the Region in the foreseeable future has to rely on the industries processing the regional raw materials, regional agricultural and animal products and providing inputs for these sectors due to the location of the Region with respect to the markets and to the ports of exports and imports. Rural development becomes even more crucial in this regard.
- iv) The fact that agricultural raw materials can be found in the Region is not sufficient to have industries processing those raw materials established and used with a high capacity utilization ratio. Rural transportation conditions and the cost of delivering the raw material to the processing plants are crucial. The problems faced in this regard are among the main reasons for the low capacity utilization in many agricultural industry enterprises in the Region.
- v) Externalities are factors that provide competitive power to the enterprises. It is impossible to run industrial enterprises efficiently in

the areas where there are not at least some of the externalities given the regional conditions, in the foreseeable future. It is imperative to implement a selective agglomeration policy through incentives in the Region.

- vi) It is difficult to attract investors to the Region only with some local resources, e.g. cheap labor, because of the disadvantageous location of the Region with respect to the markets and to the ports of exports and imports. Industrial development has to rely on the local entrepreneurs. Local entrepreneurs should be supported at maximum level. However, taking into account the limited degree of capital accumulation in the Region in the context of low income per capita, it is necessary to attract capital and investment into the Region from outside of the Region.
- 5) Economies of many provinces in the Region have rather become the ones that rely upon public services, and the wages and salaries of the public servants. The economies of some provinces are sustaining themselves just with the public sector. Reduction of public spending in the Region would cause a recession in the Region's economy.
- 6) Underdevelopment of the Region also means a low level of capital accumulation. Considering the high level of unemployment in the Region, it is important not only to use capital in an effective way, but also in a maximum employment generating way. Industry is a capital-intensive activity compared to agriculture. The reasons like the shortage of regional capital, the relative location of the Region to the gravity centers of the domestic market as well as to import and export gates, necessity to generate maximum employment in order to reduce unemployment, combined with a condition like low capital accumulation, all reveal the necessity of using capital primarily and heavily in the improvement of agricultural productivity and in the direction of increasing employment capacity. That does not mean there will be no support for industry. On the contrary, it means that priority must be given to agro-industries that would stimulate production in agriculture and generate higher income for producers. Moreover, it is also important to provide maximum support to industries other than agro-industries in a limited number of centers and activities that have a potential for the development of the Region in the long run.

The current situation, location and potential of the Region, constitute the framework of the strategies and plans to be followed. **Figure 4** summarizes current dynamic functions, transport routes, location, universities and agricultural areas that need to be taken as a basis for planning and directing the development of the Region.

3. TARGETS AND STRATEGIES

3.1. TARGETS

Four main target groups have been determined for the EAP Master Plan:

I. Economic Targets:

- i) Main Target: To increase income per capita and employment
- ii) Sub Targets:
 - a) To reduce the difference between the structures of the Regional and the national economy,
 - b) To decrease out-migration from the Region and stop it in the long run,
 - c) To diversify the economic structure in fields with potential,
 - d) To construct the necessary infrastructure that will make possible to utilize the economic opportunities that might emerge within the course of time,
 - e) To accelerate the capital accumulation in the Region, to support local entrepreneurship and to mobilize the economic potential of the Region,
 - f) To ensure that the Region will have a sustainable economic structure.

II. Social Targets:

- i) Main Target: To extent the activities that would speed up development.
- ii) Sub Targets:
 - a) To decrease the intra-regional income differences,
 - b) To decrease out-migration, and minimize the social damage caused by out-migration,
 - c) To ensure a balance in terms of accessing the services in the Region,
 - d) To increase the quality and the level of educational and health services as well as the urban infrastructure,
 - e) To raise the level of welfare and quality of life in urban and rural areas,
 - f) To improve the skills of labor force,
 - g) To reduce informal sector and to enhance the number of people under the protection of social security system,
 - h) To develop social help and protection systems,
 - i) To raise the status of women and integrate them into the development process,
 - j) To ensure development of current social structure in time,
 - k) To prevent unplanned urbanization.

III. Environmental Targets:

- i) Main Target: To protect and improve the environment and to ensure the sustainability of development,
- ii) Sub Targets:
 - a) To improve pastures and prevent erosion, in order to protect soil and water resources,
 - b) To protect and develop forests,
 - c) To increase the quality of life in settlements,
 - d) To protect biological diversity,

IV. Spatial Targets:

- i) Main Target: To develop sub-regional centers as industrial and service centers, thereby creating a filter in front of the east to west migration route,
- ii) Sub Targets:
 - a) To improve physical and social infrastructure in sub-regional centers,
 - b) To increase the quality of environment in sub-regional centers,
 - c) To evaluate sub-regional centers as a phenomenon that would accelerate economic development.

3.2. GENERAL STRATEGIES

The main target of the EAP Master Plan is to create an environment in which the potentials of the Region can be mobilized. For this purpose, a planning strategy is adopted that is in harmony with current development patterns.

In this context, it is projected that the resources, especially in the early stages of development process, have to be directed primarily to those areas and locations in the Region, which have comparative advantage, and development should be expanded to others eventually from these pioneer sectors and areas.

The second main strategy is to give priority to those arrangements that would result in more efficient use of the current production and service capacities. Expansion of the organizational activities, better management and operation of the institutional structures, human resources and other infrastructures so that their contribution to the economy would be increased is accepted to be the fundamental approach in all sectors. In line with this objective, strategies toward improving inter-sectoral linkages and organizing different sectors so as to support one another become prevalent as well.

The Plan considers the Region's development in an integrated manner with its economic, social and environmental dimensions. Even though this is a priority in every planning activity, it becomes even more vital in the context of the Eastern Anatolia Region. In the Region where the development relies, first of all, on modernization of the agriculture, the environmental issues such as protection of soil and water resources,

prevention of erosion, improvement of pastureland have to be considered at first. On the other hand, one can argue that economic development accelerates social development. But the investments related to economic development alone cannot guarantee the improvement of the quality of life and expansion of the welfare. Therefore the EAP Master Plan also emphasizes social strategies and programs such as improvement of human resources, elevation of the women's status, provision of social assistance and protection for the poor, organization and expansion of small scale income generating activities for the low income and poor people, and increasing the variety of the rural economy.

For the development of the EAP Region, in addition to the contribution of the public sector, it is necessary to mobilize the knowledge, experience, labor, and administrative as well as financial resources of all sections of the society. In principle the role assigned to the public sector is to provide technical and social infrastructure services such as transportation, communication, energy, education, health and irrigation, which are the prerequisites for development, and to protect and improve the natural and cultural assets. However, this role should not be limited to the public sector. It is essential to ensure the participation of the private sector, local people, as well as non-governmental organizations in and out of the Region to the provision of technical, economic and social structures and services as well as to their operation and development through various models.

Public sector should not undertake industrial investments directly. However, it is inevitable for the public sector to support the private sector with various instruments in the Region in which capital, entrepreneurship culture, management information, and competitive power are limited. The primary role of the public sector should be, in addition to providing infrastructure, to stimulate entrepreneurship and participation with the incentives and the necessary legal and institutional arrangements.

Figure 4: Dynamic Functions Guiding Development

The underlying principle in developing the sectoral strategies of the Master Plan is to strengthen the participation in the Region with different models. Some of the examples of these sectoral strategies are the following: transferring the irrigation units in agriculture to the irrigation unions; promoting construction and operation of the secondary roads by the village unions; participation of the villagers in afforesting, pastureland improvement, erosion control, and soil improvement efforts; transfer of the right of utilization of the coppic forests to the villagers; promoting establishment of private schools and hospitals; supporting voluntary organizations in organizing social, cultural, and technical training courses; supporting the activities to improve the knowledge and qualifications of the members of producer and professional institutions; using the models such as Build-Operate-Transfer or Transfer of Operating Right in the context of improving the technical infrastructure.

Supporting the regional economic and social activities of the non-governmental organizations organized at national level are essential in terms of bringing experiences gained in different regions and expanding project evaluation and application capacities of the local non-governmental organizations. Voluntary organizations can be active in the Region through model projects. The activities of such voluntary organizations related to the Region should be supported.

One of the most important instruments of the Master Plan is the proposal for establishing an Economic Development Agency (EDA) or an alternative administrative unit, which will be in charge of directing the economic life of the Region. EDA is a participatory regional development instrument both in terms of its organizational structure (an institution that has the public authority in which the Chambers of Commerce and Industry are extensively represented), and its functions (developing the entrepreneurial culture in the Region and strengthening the contribution of the private sector to regional development process). The Plan further gives importance to active participation of the universities located in the Region in the implementation of various projects related to the development of the Region. It is also very important for the State Planning Organization to ensure efficiency in the implementations of the plan by establishing a unit in the Region.

In the context of these general strategies summarized above, seven priority intervention areas are determined in the EAP Master Plan. These are:

- a) To Improve Human Resources,
- b) To Expand Organizational Structure,
- c) To Provide Infrastructure,
- d) To Improve and Manage Pastureland,
- e) To Improve Environmental Quality,
- f) To Fight Against Poverty,
- g) Finance.

3.3. SECTORAL STRATEGIES

3.3.1. Education and Health

- 1) The main problem with education and health is the problem of not having enough personnel both number and quality wise, rather than physical facilities and equipment. In order to overcome this problem all staff positions should be converted to fixed/permanent positions and each personnel to work in every education and health facility should be hired for the specific open position wherever that might be. In case the personnel wants to transfer to another place from where he/she was hired his/her contract should be cancelled. It will be necessary to amend the related laws for this purpose.
- 2) In case the system of permanent position is not adapted, high wages should be paid to attract personnel to this region, especially in the health services.
- 3) Education of female students should be considered particularly important and female school enrollment rate in the primary schools should be increased along with male students.
- 4) Boarding Regional Primary Schools (BRPS) should be expanded in order to reduce the financial burden on parents and ensure higher school enrollment rates.
- 5) Preschool education and informal education should be considered important in order to increase literacy rate.
- 6) Apprentice Training Centers should be established in the Organized Industrial Zones.
- 7) On the job training need to be stressed in order to raise institutional capacities.
- 8) Utilization of information technologies within education should be given more importance, and a distant training (teleconference) system should be established between developed universities in the West and the universities in the Region.
- 9) Lack of equipment at the hospitals and the personnel to use these equipment should be eliminated.
- 10) Unhealthy and insufficient drinking water problem, which is the source of many diseases, should be solved urgently.
- 11) Family planning, preventive medicine and public health services should be expanded.
- 12) Health education should be intensified by using printed materials, verbal means, visual materials and similar tools in order to raise the awareness of people in the Region regarding health.

- 13) Capacities of the regional universities should be expanded and quality of education should be increased to obtain education and health personnel on a voluntary basis at all levels and solve the problem in a most economical way.

3.3.2. Agriculture

- 1) Extension organization should be made effective and reorganized by the following principles.
 - i) Extension personnel who will be sent to each province and district should be the ones who are educated in the dominant or potentially dominant crop types in that province and district.
 - ii) More than one extension personnel, who are specialized in the related areas, should be hired in those provinces and districts having a diversified agriculture.
 - iii) Special extension education should be given to the extension personnel, regardless of their area of specialization.
 - iv) Vehicles should be given to the extension personnel so as to increase their mobility and operational expenses of these vehicles should be covered.
 - v) Extension personnel should be appointed for certain minimum periods, (5 years for instance) hence the experience gained in the regional conditions should be utilized at maximum level.
 - vi) Special work regulation, transaction principles and discipline regulation should be developed in order for the assurance of the extension personnel to work on the field rather than in the office.
 - vii) A research and development, application and feedback from application to research and development system should be developed to ensure a close interaction with other research and development institutions in the Region.
- 2) Soil cultivation techniques to reduce fallow land and crops to replace fallow should be made prevalent in the Region.
- 3) Crops with higher value added such as fruits, vegetables, and green house vegetable farming should be encouraged wherever the climate and topographic conditions allow. In this context;
 - i) Producers should be organized for input supply and marketing purposes. In order to encourage producer organizations credits and other possible instruments should be extended only to the members of these organizations.

- ii) Technologically simple facilities and systems that could cost within the affordability of producers and other entrepreneurs, should be encouraged for storing and processing fruits and vegetables.
- 4) Special products such as Adilcevaz's walnut and Van's herbed cheese should be marketed as trademarks. Producer organizations and companies that would be involved in this marketing process should be supported with credits and subsidized interests.
- 5) Priority should be given to irrigation works under construction, and the potential fields should be opened to irrigation until the end of the Plan period (**Figure 5** shows current and potential irrigation fields in the Region).
- 6) Stony fields should be reclaimed.
- 7) Underground and surface drainage systems should be set up in the fields that have a drainage problem.
- 8) All the production-oriented credits to be given to farmers in the Region, should be in the form of controlled credits. The controlled credit system implemented successfully by Ziraat Bank in the past in some areas should be expanded in the Region.
- 9) Those areas used for sown-planted agriculture today, but in fact should have been used as meadow-pastureland because of climatic and topographic conditions, should be converted to meadow-pastureland within a plan. While doing this, farmers should be supported with seed.
- 10) Natural farm fertilizer used as fuel should be directed to land use. For this purpose it should be substituted with natural gas especially in the big cities. In the short and the medium term, green fertilization and feed plants should be included in production cycle in the areas where the farmers cannot afford this substitution. Especially production of feed plants should be encouraged all over the Region for eliminating the feed deficit in the animal husbandry sector.
- 11) Land aggregation is necessary in the Region. For this purpose title deed and cadastration procedures should be completed as soon as possible. Land aggregation should be started from the land that will be opened to irrigation. Irrigation projects should be done together with aggregation of land.
- 12) Inheritance law should be amended, so that certain minimum sizes for lots should be determined according to local characteristics, and those divisions that will lead to smaller than minimum lot size should not be allowed.

- 13) In the long term, increasing agricultural productivity and keeping it continuous will depend on increasing the education level of the farmer, in addition to providing an effective extension service. In order to increase the level of education of the farmers, importance should be given to education in the rural areas, and professional skills should be enhanced through the courses to be organized by the extension organization.
- 14) Standard of rural roads should be raised.

Figure 5: Irrigation Projects

3.3.2.1. Animal Husbandry

- 1) The number of animals that would be allowed to put out to pastures, which are used as common property and as much as they wish without any limitation, should be limited in accordance with the pastureland capacity.
- 2) The time allocated for putting animals out to pastureland should be limited.
- 3) Pasturelands should be used on a rotational basis. The Pastureland Law should be amended and sanctions against violations and an effective supervision mechanism should be incorporated to increase the success of the implementation.
- 4) Pasturelands should be improved. Since pastureland improvement is a time consuming activity that requires tight supervision, improvement activities should start from those places where the chance of success is higher because of available sociological conditions or easy-to-watch and supervise, and it should be expanded within a plan. The success of the initial implementations will raise the chance of success for later implementations.
- 5) In the extension institutions to be organized in every province and district centers a veterinary and a meadow-pastureland expert should definitely be hired, and working and supervision principles for effective service by these experts should be specified.
- 6) Planting fodder crops should be encouraged.
- 7) Those pieces of land used currently as sown-planted agricultural land even though ecological, topographic conditions and structure of soil are not convenient should be converted to meadow-pastureland. Those farmers whose land are decided to be converted to meadow-pastureland should be supported with long-term, low-interest credits and/or minimum level in-kind or cash assistance, during the period of converting the land into productive meadow-pastureland.
- 8) In order to make it available for rotational use, small pieces of pastureland slots owned by farmers should be aggregated. For this purpose, title deed and official registration activities in the Region should be completed at first.
- 9) Credits to be given to animal raisers, should definitely be in the form of controlled credits.
- 10) Animal product processing industries should be encouraged.
- 11) Contractual animal husbandry should be encouraged.
- 12) Improvement of pastureland and race and encouragement applications should be harmonized in terms of time and space. For example, race improvement

activities should be conducted simultaneously with meadow-pastureland improvement activities together at the same places.

- 13) For increasing productivity of meadow and pasturelands, irrigation possibilities should be considered and new irrigation facilities should be constructed where ever possible.
- 14) In the places where race improvement efforts take place, animal shelters, barns and sheepfolds should also be improved in addition to meadow-pasturelands. Improvement activities should be supported by credits.
- 15) Veterinary services should be expanded and made more efficient.
- 16) Village roads should be improved to establish economic cold chain in the period during which the animals provide milk.
- 17) Activities of pastureland and race improvement and as well as efforts of establishing cold chain should be started in the vicinity of the big cities and expanded to distant places gradually.
- 18) Organization of producers should also start from the immediate neighborhood of the big cities. Union members should be given priority in extending credits in the context of encouraging establishment of the producer unions.
- 19) Domestic market should be protected and the profits on livestock-breeding should be increased to the extent possible in the framework of international agreements signed by Turkey.
- 20) Modern staples and shelters should be encouraged by long term soft loans in order to improve shelter conditions of animals aiming at increasing productivity.
- 21) Research projects in the regional universities to develop high quality fodder types that better fit to regional climatic and farming conditions should be supported and positive results obtained from them should be expanded through the extension organization.

3.3.2.2. Fisheries

- 1) Liminological research and stock determination studies of water resources should be given priority, and appropriate resources should be enriched by new fish species. Amount of fishing, appropriate fishing techniques, tools and fishing seasons should be specified and proper locations should be opened to fishing, provided that fishermen are trained on these subjects.
- 2) In the stagnant water resources (natural and dam lakes) cage fishing should be developed. It is projected to develop cage fishing in Fırat River Basin (Malatya-

Elazığ) at first, and to establish some of the facilities in Kura-Aras and Dicle Basin.

- 3) Pool fishing should be developed in Fırat and Dicle Basins, which are rich in terms of stream water resources, and some of the facilities should be located in Çoruh and Lake Van Basins.
- 4) The most important issue in cage and pool fishing is to satisfy the need of young fish and feed. The need of young fish could be satisfied particularly by promoting the present enterprises to establish additional facilities. New enterprises are proposed to be established in Elazığ, Erzurum and Van. It will also be useful to promote feed producing factories in the Region to produce feed for fish. Feed variety should be increased.
- 5) Water products processing industry should be established in Elazığ (carp), Erzurum (trout) and Van (striped mullet).
- 6) It is necessary to expand cooperatives in the Region to develop water products industry. In addition, cold storage facilities should also be developed.
- 7) Hunters' education should be given importance.

3.3.3. Industry

- 1) Industry should be concentrated in Malatya-Elazığ axis, as well as in Erzurum and Van provinces as attraction centers. Erzincan should be supported as a secondary attraction center.
- 2) Economic Development Agency (EDA) or an alternative institution to promote opportunities of the Region to domestic and international investors, to provide consultancy services in a broad range and to direct industrial development in the Region should be established. Chambers of Industry and Commerce in the Region should be strongly represented in the board of directors of this organization.
- 3) In the small cities industrial establishments should not be set up, except for the mining industry for which carrying the basic raw material from one place to another brings a high cost, or cotton ginning and beet processing industries whose raw products are produced extensively in the land and the processing units need to be located close by for the minimum transportation costs.
- 4) Industrial enterprises should be directed to the Organized Industrial Zones.
- 5) State aids (incentives) should be differentiated enough to affect investment decisions in the advantage of the Region, and these aids should be tightly controlled.
- 6) Technical and social infrastructure should be improved in the attraction centers.

- 7) Industry-university cooperation should be encouraged.
- 8) Labor force training programs of the firms located in organized industrial zones should be encouraged by the public sector in the form of meeting a part of the cost.

3.3.4. Mining

- 1) Detailed inventories of mines and stone quarries in the Region should be prepared and reserves should be determined. Operation of mine reserves that are determined to be appropriate technically and economically should be supported, considering provision of inputs to the manufacturing industry in the Region.
- 2) Lignite coal formations should be explored, thermal power plants should be built in the locations that have economical reserves, and lignite should be substituted for dried cow dung used for heating in households (in that way dried cow dung could be used as natural fertilizer).
- 3) Rich pumice and fertile reserves of the Region should be extracted and their use as construction materials should be encouraged.
- 4) The disorder observed in the mining legislation should be eliminated and legislation related to stone quarries and salt production should also be included in the “Code of Mine” (Law no. 3213).
- 5) In order for an effective inspection of the licensed areas, Mining Affairs General Directorate should establish its regional organizations in Elazığ and Erzurum.
- 6) In the mining sector, mine owners should be encouraged to be organized in the framework of unions to enhance marketing possibilities and reduce marketing costs. Establishment of Sectoral Foreign Trade Companies should be investigated to enhance the export possibilities for some minerals such as marble.
- 7) Possible unfavorable effects of mining on the environment should not be neglected and mining enterprises should be operated according to the results of environmental impact assessment studies.

3.3.5. Transportation and Communication

- 1) Main strategic corridors that would strengthen the relations of the Region with the western regions, the SAP (Southeastern Anatolia Project) area in the south, the northern ports and the potential markets in the east should be improved, increased to a high standard and be open in all seasons (**Figure 6** gives the priority transportation corridors that have a strategic importance for the development of the Region).

- 2) Erzurum, Malatya and Van airports should be improved as the possible future cargo transportation gates, in order to encourage footloose industries that have markets in western regions or abroad, and that produce high value products relative to their weights.
- 3) Main village roads serving to many villages should be kept open under all weather conditions. Alternative transportation and communication facilities should be used instead of trying to keep open the roads of other villages under all weather conditions.
- 4) Telephone exchange capacities should be increased in parallel to demand, particularly in sub-regional centers that are envisaged to be industrial and commercial centers.
- 5) Mobile communication technology should be expanded.
- 6) Communication infrastructure should be isolated from weather conditions, transmission lines should be put to underground for this purpose.
- 7) Communication network in rural areas should be developed.
- 8) Necessary studies should be done to ensure State TV's can broadcast efficiently to the rural areas in the Region.
- 9) The opportunity to serve regional education and culture by establishing television channels should be given to universities in the Region, and the necessary amendments should be done in Law No. 3984 for this purpose.

Figure 6: The Eastern Anatolia Project

3.3.6. Energy

- 1) Power supply for the Region should be made reliable. Reliable electrical energy should be provided particularly to Malatya-Elazığ, Erzurum, Erzincan and Van, which are projected to be the industrial centers. Communication lines and transformer centers in these cities should be satisfactory, both quality and quantity wise, to satisfy the demand.
- 2) Hydroelectricity potential of the Region should be mobilized and Build-Operate-Transfer (BOT) model should be utilized in the finance of the plants.
- 3) In order to prevent the forests from further damage for the reasons of obtaining heating materials and substitution of dried cow dung used as fuel especially in the rural areas, coal reserves in the Region should be operated more efficiently. Dried cow dung used in the big cities should be replaced by the natural gas coming from Iran and Turkmenistan. New coal reserves should be searched for and they should be operated if the reserves are found to be economically efficient.
- 4) Natural gas pipelines that will come from Iran should be extended to Elazığ, Malatya and Van, and the gas should be used for heating and other household needs. Natural gas should also be used in thermal power plants to close the regional energy gap.
- 5) Geothermal energy should be used in appropriate places like heating houses, green houses and barns, and incentives should be provided in that direction.

3.3.7. Environment

- 1) Soil erosion control and tree plantation activities should be accelerated and carried to a larger scale in order to create employment possibilities and prevent economic life of the dam lakes especially over the Euphrates getting shorter as a result of being filled with sediment. Erosion control activities are vital in some areas of the Region. These activities should be carried out together with pastureland improvement activities, wherever appropriate.
- 2) Industrial waste should be treated in especially Malatya, Elazığ and Van to prevent the pollution of the rivers and especially dam lakes over the Euphrates and Lake Van. Priority should be given to these cities to treat the household waste as well (treatment plant in Van should be activated).
- 3) No polluting industrial facility without a treatment system should be allowed in the Region.
- 4) Training of farmers should be given importance for the protection of water resources from agricultural pesticides and fertilizers.

- 5) Protection programs for natural lakes and dam lakes should be developed and urgently applied.
- 6) Solid waste storage, elimination and recycling systems in settlements should be implemented, giving priority to big cities.
- 7) Natural gas should be used for heating and other household needs in Erzurum, Malatya, Elazığ and Van, where there are intense air pollution in the winter. Accordingly, natural gas pipeline to come from Iran or Turkmenistan should be extended to these cities and inner-city infrastructure should be constructed immediately.
- 8) Chimney gas emissions of all air polluting industrial units should be inspected and those units found to be above the standards should be forced to install purification systems.
- 9) Public transportation systems need to be improved in the cities of Erzurum, Malatya, Elazığ, and Van.
- 10) In order to stop damages given to the forests in the Region and improve the damaged ones, a new system of forestry management should be introduced, so as to get the forest villagers participate in forest management and protection and share the income accruing to the government from forest management.
- 11) Forest cadastral surveys need to be completed and forest amenajman plans need to be renewed. It will be appropriate to purchase some of the services from the private sector.
- 12) Research should be conducted to determine the non-wood forest products in detail and their economic values in the Region. Credits should be provided for culture production of those products found to be economically promising. Possibilities for producing and marketing processed products instead of raw drog should be searched.
- 13) Rare plants found especially in the areas covered by waters due to construction of dams in the Region, should be collected and grown in other appropriate places and genetic variety should be preserved.
- 14) Necessary steps should be taken to take the wetlands under protection in the Region, which currently do not have protection status and rated “B class” by the international criteria. Doğu Beyazıt Reeds (Ağrı), Lake Arın (Bitlis), Çaldıran Reeds (Van) should be evaluated with priority in this regard.

3.3.8. Tourism

- 1) **Figure 7** shows “natural and cultural” assets that would make it possible to develop the tourism of the Region. These assets should be preserved and improved.

- 2) Types and forms of tourism to be provided should have the variety to spread the tourism activities throughout the year, and not concentrated in a particular season.
- 3) Tourism activities should especially be taken into consideration in the context of improving water resources in the Region.
- 4) Protection and restoration of the historical and cultural assets should be considered important, Regional Museums should be opened to display the items found in archeological excavations. These museums can also serve as scientific research, documentation and convention centers.
- 5) Diversity should be ensured in the accommodation facilities. Necessary arrangements must be done especially so as to make possible summer use of the accommodation facilities in the winter sports centers.
- 6) Activities should be arranged to promote the Region in terms of tourism (for example, Winter Olympics), and well-known themes such as Mount Ararat Legend (Ağrı Dağı Efsanesi) should be used in the promotion. Economic Development Agency or an alternative institution should assume an effective role in introducing the Region to the foreign investors.
- 7) Raising qualified labor at all levels should be considered important for providing high quality services.
- 8) Lake Van and its vicinity should be declared as “Tourism Region”, and Mount Ararat should be declared as “National Park”.
- 9) Tourism movements in the Region should be directed especially to airway tours. These tours should be differentiated in terms of types of tourism they offer, but diversified within themselves on the basis of three sub-regions (**Figure 8** gives these possible airway-oriented tours).
- 10) Tourism infrastructure investments should be given priority and an intensive promotion campaign should be initiated.
- 11) Arrangements should be done for tourism and recreation around the natural and artificial lakes in the Region. Water resources to be opened to fishing, the quantity of fishing, appropriate fishing techniques and fishing seasons should be specified.
- 12) Detailed research should be conducted in potential fields like National Park, Natural Park, Natural Protection Area, and Special Environment Preservation Area. Particularly Nazik Lake around the Lake Van (Bitlis-Ahlat), Mount Nemrut and crater lakes (Bitlis-Tatvan), Aygır Lake, Mount Süphan (Bitlis-Adilcevaz), Bendimahir Waterfall (Van-Muradiye), Beyazçeşme Waterfall (Van-Gevaş), Çıldır Lake (Ardahan), Floating Islands in Bingöl (Bingöl) are some of the fields to be evaluated in this context.

Figure 7: Natural and Cultural Values

3.4. SPATIAL STRATEGY

- 1) Overcoming the disadvantages of the Region emanating from its relative location to gravity centers of national market, as well as to main export and import gates to a certain extent and creating competitiveness for the industrial enterprises is possible to implement the attraction centers policy in the development of industry and related physical and social infrastructure, in other words, upon concentration of industry and infrastructure in certain cities or urban areas. Attraction centers policy is the only policy that could be effective in a region with an underdeveloped industry, particularly to increase competitive power of small and medium sized industries, to prepare the suitable conditions for external economies and network economies, to save resources, to attract qualified personnel into the Region and be effective in keeping them there by the social environment that would emerge.

There are potential attraction centers in the Region with their population size, existing industries, infrastructure conditions, transport and communication connections. These are Malatya-Elazığ Urban Region, Erzurum and Van cities. These cities are at the same time centers of sub-regions and for centuries traditional important commercial and administrative centers that have been created by intra and inter regional transportation connections, topography, size of economic activity, and functional relations among settlements. Kars, Muş, Ardahan, Bayburt and Iğdır provinces are in the sphere of influence of Erzurum City; Bingöl, Elazığ, Malatya and Tunceli provinces are in the sphere of influence of Malatya-Elazığ urban centers; while Bitlis, Hakkari and Van provinces are in the sphere of influence of Van City.

Current manufacturing industry in the Region has concentrated in these four cities. The share of Malatya, Elazığ, Erzurum and Van provinces in the total manufacturing sector value added in the Region in 1997 are respectively 54.6, 14.4, 9.7 and 5.5 %.

Industry, especially industry in Malatya and Van provinces, has mainly concentrated in city centers. Erzincan is a secondary industrial center in the Region. These cities have common characteristics like being located at important crossroads, being close to rich plains in terms of soil and water resources. Moreover all these cities are university cities, except for Erzincan which has vocational higher education schools and faculties of Atatürk University.

Transformation of economic structure in the Region, its industrialization that would allow this transformation in the economic structure and acquiring first degree level services, depend upon maximum encouragement of these three attraction centers as an industrial and service location.

After reaching to a critical mass in these centers, industry can spill over to other centers around these centers or to the centers that are in a suitable location to benefit from some economies generated in these centers. Except for raw material

based industries, industries have a very low probability of working efficiently and obtaining competitiveness out of these centers for a long time.

Attraction centers would constitute a significant filter in front of the out-migration from east to west and as a result east-west out-migration would gradually decrease. This process will reduce the pressure over the big cities in the west and contribute to better service provision and higher quality of life in these cities. (**Figure 9;** shows suggested urban development and structure in the context of above given strategies; and **Figure 10** shows the functions attributed to important settlements and the Regional development scheme).

In this context, Malatya-Elazığ axis should be developed as a focal corridor in which industry, producer services, health and education services, transportation and communication, research and development and cultural activities are concentrated. Erzurum should be supported as a strategic transport, commerce, education, culture and industry center, providing the east-west and Trans-Asia connection as well as connection between Eastern Blacksea and SAP (GAP) Regions. Van should be developed particularly as a tourism center, and be considered as an important gate to Iran and Asia.

For taking the protection measures against negative effects of population growth on the lake in an integrated way and for preserving the tourism potential, Lake Van Area should be planned as a whole in terms of tourism and settlement.

Figure 8: Tourism and Culture

Figure 9: Urban Development

Figure 10: Development Scheme

- 2) Priority should be given to the adequate provision of physical and social infrastructure of Erzurum, Malatya, Elazığ and Van cities. Second priority in the provision of the physical and social infrastructure should be given to city centers other than cities to be developed as sub-regional centers, and third priority should be given to district centers that have a population above a certain threshold.
- 3) Transportation connections of particularly the sub-regional centers to western regions and to the SAP (GAP) Region should be improved.
- 4) District centers should be the main centers in the provision of services to rural areas and their transportation connections with the surrounding villages should be developed.
- 5) In all public sector investments and private sector incentive policies, functions that can be attributed to settlement centers need to be examined; and special importance should be given to the realization of investments in such a way as to support each other in the space, to generate external economies for each other and to be effective in the development of strong sub-regional and sub - subregional centers. Activities should be supported if they are in appropriate environments in terms of economic, social and cultural aspects.
- 6) In order to stimulate new private sector investments and give a momentum to sub-regional economies through economies of scale and agglomeration of economies created by spatial concentration of activities; in all kinds of public investments and in the distribution of incentives, first priority should be given to the sub-regional centers; Malatya, Elazığ, Erzurum and Van. Second priority should be given to Erzincan, Kars, Bayburt, Iğdır, Muş, Bingöl, Ağrı, Tatvan and Erciş as the 4th hierarchy centers in the Region. Priority should be given according to their potentials among the fourth hierarchy centers of Gümüşhane, Bitlis, Hakkari, Tunceli and Ardahan.
- 7) Health and education services should be provided sufficiently in all centers stratified among themselves with facilities that have adequate equipment and personnel. The location of facilities and services with the highest degree of specialization and demand thresholds should be started in the sub-regional centers, going down to lower hierarchy centers according to service scale and type.
- 8) Central village policy need to be revised. The following points should be taken into consideration in this process.
 - i) Number of central villages should be limited. On the contrary, a small number of dominant settlements that show characteristics of being a central location for their environment should be selected as central villages. In this framework, central villages should have higher population than the rural settlements within their sphere of influence and

their population should have increased over the years or at least have not decreased to a significant extent.

- ii) Villages with population less than 500 inhabitants should not be given the status of central village.
- iii) Rural settlements in the neighborhood of district centers should be selected as central villages only if they have a definite sphere of influence and if it is difficult for the settlements in their sphere of influence to access to district centers.
- iv) There is no need to determine central villages for district centers with low current or projected population and with small rural area as well as for districts which have a linear settlement form along the state highway that goes to district centers. Strengthening district centers should be the main policy in such districts.
- v) Central village status of those settlements, those have lost population according to the results of 1997 General Population but had reached a significant level of population in the past, should be continued, if there does not exist a better alternative.
- vi) Villages close to border and border gates should be given priority in giving the status of central village, provided that they meet the other requirements.
- vii) Central village status should be terminated for those central villages in the current system that do not fit into the above given criteria.
- viii) Central villages in the Region should be evaluated as a means of rural development, besides creating efficiency in public services and investments.

A study has been conducted during the planning stage, under the light of the above given criteria, and it has been found out that only 403 out of current number of 787 central villages could be central village (**Figure 11** shows rural settlements and some central villages in the Region).

3.5. FINANCE

- 1) Private banks avoid extending credits to the enterprises in the EAP Region for various reasons such as the fact that the size of the credits requested is too low to be economical from the bank's perspective, that guarantee and mortgages cannot be provided, or the difficulties faced in cashing the mortgages. It will be useful to strengthen the current Credit Guaranty Fund to overcome this problem.

- 2) Agricultural credits should be provided by the Ziraat Bank in the form of controlled credit applications. In this regard, credits should be extended together with an effective extension and educational support.
- 3) On the other hand, it will be necessary to develop a new finance system other than of the sources of commercial banks, targeting small size income generating activities conducted in the rural areas and the relatively poorer sections of the urban areas. This organization, to be structured as a non-profit organization or a foundation, should provide credits and in-kind support based on continuous guarantee to small groups organized formally or informally. Participation of public and private banks and local establishments should be realized to the organization, which will be formed as an Economic Development Agency or to an alternative structure. Non-governmental organizations and volunteers among the local residents should be able to take part in the management, follow-up and auditing of the system.
- 4) A micro-finance system should be developed based on continuous succession of guarantee targeting particularly small producers in rural areas.
- 5) Real estate capital partnerships should be established to play an important role in the finance of development by channeling small savings into investments.
- 6) A Regional Development Bank (RDB) should be established or the Turkish Development Bank (TDB) should be reorganized in the framework of regional development perspective.

3.6. THE ROLE OF THE PUBLIC SECTOR

- 1) Among the tasks of public sector are improvement of transportation and communication possibilities, provision of reliable energy and social and physical infrastructure, attainment of the urban infrastructure to the desired level especially in the big cities, maintenance of high service capacity of all kinds of infrastructures over time, construction of irrigation infrastructure, prevention of erosion, water, soil and air pollution, formation of a well functioning extension organization, and development of necessary legal and institutional arrangements for the success of some strategies. The most significant condition of regional development is to perform such tasks effectively.
- 2) Public sector should encourage entrepreneurship in the Region, and in some cases also should be able to participate in the industrial establishments through the utilization of minority shares to realize some investments that might not be realized otherwise. In such cases those minority shares should also be transferred to private sector after some time. In particular, partnership of local administrations in industrial enterprises via minority shares may give favorable results in the Region.

- 3) Private sector should assume a major role in industry. However, in a region where capital sources and entrepreneurship are scarce and investment risks are high, effective fulfillment of such a role by the private sector depends on effective public performance. In addition to improvement and efficient operation of physical and social infrastructure, public sector should encourage private sector by various instruments. Incentives should no longer be used as a source of illegitimate gain, instead, they should be allocated to entrepreneurs who will create permanent jobs in the Region. In order to overcome capital shortage problem of the potential entrepreneurs, state aids, should be in the form of factory building, a well functioning infrastructure, and subsidies for leasing machinery and equipment, instead of monetary incentives and tax deductions of today.
- 4) An Economic Development Agency (EDA) or an alternative structure need to be established in the Region under the leadership of the public sector, in which the Chambers of Commerce and Industry should have a strong representation.
- 5) Constitution of non-governmental organizations and voluntary institutions and their activities should receive public support. Public sector should cooperate with and benefit from the expertise of some non-governmental organizations in the implementation of some projects in which they have specialized.
- 6) Development of the Region largely depends on mobilizing its own potential power. The best the public sector can do is to carry out the functions assigned to it in the sectoral strategies efficiently, hence mobilize this potential power, including entrepreneurship.

4. SCENARIOS, PLAN AND IMPLEMENTATION

4.1. VIII. FIVE YEAR DEVELOPMENT PLAN AND EAP MASTER PLAN

One of the primary objectives of this Plan is to draw EAP Region's per capita income close to Turkish average in the long run. In order to make a plan to reach this target, the estimated long run growth rates of Turkey should be known.

The annual average growth rate for the country is projected to be around 7 % in the Eighth Five Year Development Plan (VIII. FYDP) Strategy in 2001-2023 period. In the perspective study conducted by the State Planning Organization (SPO) as a preparation for the Plan, Gross Domestic Product (GDP) is estimated to grow annually, with an optimistic view, 5.7 % in 2001-2005, 6.0 % in 2006-2010, 6.4 % in 2011-2015, and 6.6 % in 2016-2020. Pessimistic estimations, on the other hand, are such that the growth rates in the same periods will be 3.7 %, 4.0 %, 4.5 %, and 5.1 % respectively.

In order for the income per capita in the EAP Region to come reasonably close to Turkey's averages at the end of the Plan period, the Region's growth rate has to be much faster than that of the country. When the population growth in the Region is considered, which is faster than that of the country's average and is highly likely to continue to be

faster within the Plan period despite its declining pattern, the Region has to grow relatively faster in order to reach the Plan targets.

VIII. FYDP projects to change the composition of gross national product such that agriculture, industry and services have a share of, respectively, 5 %, 30 % and 65 % in the total value added in the year 2023. Employment in agriculture is also expected to go down to 10 % at the end of the period. It will be necessary that this general change for the overall country be reflected in the Region, so both the contribution of agriculture to the regional product and its share in employment will have to decline, so that both targets of adjustment to the country strategy and higher income levels can be achieved. The Master Plan developed for the Region is in this direction.

VIII. FYDP and its strategy redefine the role of government in different sectors. The government will withdraw from the manufacturing industry to a great extent, and will concentrate more in energy, transportation-communication, education and health sectors. For example, taking VII. FYDP expenditures as base, public sector expenditures will increase by 2.4 times on education, 1.8 times on health, and energy investments will increase by 2.4 times in VIII. FYDP period. On the contrary, public investments in the manufacturing industry will increase only by 16 %. EAP Master Plan, too, is prepared so as to be compatible with the role designated to the public sector in VIII. FYDP and its strategy. In the Plan, manufacturing industry investments are projected to be handled by the private sector supported by the public sector. The Public sector will not act as an industrial entrepreneur, even though it will assume an essential role in energy and transportation as well as expansion and improvement of education and health services. Nevertheless, this does not mean that the public sector will completely withdraw from the industry in the Region.

Future expectations about the Region in the scenarios formed for the Region in the context of VIII. FYDP and its 2023 perspective can be enumerated as follow:

- i) Entrance by the Region into a fast, stable and sustainable growth process,
- ii) Getting the Region's income per capita close to the country average as a result of this growth,
- iii) Generating gradually more local jobs for the regional population which grows with a minor falling tendency based on the national average, and thus, lessening the volume of outmigration in the Region in time.
- iv) Changing the structure of employment and income, increasing productivity in agriculture and moving agricultural labor surplus to industry and services,
- v) Raising the labor quality in the Region via improved education and health,
- vi) Directing the savings created in the Region into investments within the Region and attracting investments from outside the Region with an effective organization by improving physical and social infrastructure,
- vii) Increasing animal products supply, hence contributing more to satisfy the rising national demand for animal products by improving the quality of meadow-pasture, operating them efficiently, quality breeding of the livestock and increasing crop production for animal feed,

- viii) Supporting and increasing the competitive power of the industries and enterprises in the Region relying on relatively low-wage labor, and face difficulties because of the increased competition due to the Customs Union and globalization, by providing them with qualified labor and infrastructure,
- ix) Protecting the environment as a prerequisite for sustainability,
- x) Attracting a considerable amount of tourists to the Region and increasing employment possibilities in the tourism sector, by promoting the Region domestically and abroad,
- xi) Satisfying from the Region the ever-increasing portions, if not all, of the increasing import demand of the Caucasus and Central Asian countries, whose income per capita, total economic activity and import volume are low for today, but who have the potential to show a rapid growth performance in the future via utilizing their natural resources,
- xii) Ensuring the participation of non governmental organizations as well as voluntary organizations in the improvement of the economic and social life of the Region,
- xiii) Increasing the competitiveness of the enterprises in the Region via organizing economic activities on more and more institutionalized basis, providing cheap input and effective marketing in both urban and rural areas by establishing forming producer unions.

In order for the Region to achieve all of the above mentioned points, a considerable amount of investments as well as the establishment of new organizations are needed. The issue of investments is discussed below and organization related issues are investigated in the related sectors.

4.2. SCENARIOS AND VOLUME OF REQUIRED INVESTMENTS

Three different scenarios are produced for each sub-region of the EAP Region, which is divided into three sub-regions by taking into account the economic and geographical characteristics. In these scenarios, rural-urban distinction, development potential for each of the sub-region in the short, medium and long run, past growth performance of the country and future growth potential are considered, and for each sub-region income per capita targets relative to country average are determined, and the necessary growth rates, sectoral employment levels and investments to achieve these targets are analyzed.

Three different scenarios are developed for each sub-region taking their potentials into account. The modest scenario is Scenario A1. According to A1's projection; the EAP Region will grow at an annual average rate of 5.3 % in 2001-2005, 6.6 % in 2006-2010, 6.9 % in 2011-2020 (**Table 6**). The Region's income per capita, by the same scenario will reach 46 % of the country average by the year 2005, 49.3 % of the country average by 2010, and 57.7 % of the national average by the year 2020 (**Table 7**). By Scenario A3, which is the most optimistic one, income per capita in the same periods will reach 50.1 %, 59.8 % and 86.2 % of the country average, respectively.

Table 6: Annual Average Growth Rates of Gross Domestic Product (%)

	A1			A2			A3			1987-1997
	2001-2005	2006-2010	2011-2020	2001-2005	2006-2010	2011-2020	2001-2005	2006-2010	2011-2020	
ERZURUM SUB-REGION	5.0	6.5	7.1	6.0	8.2	8.4	6.6	9.3	9.6	1.6
1. Agriculture	3.8	4.4	4.8	4.4	5.9	5.7	4.6	6.0	5.6	
2. Industry	10.3	11.4	9.5	11.6	12.3	12.2	13.3	14.3	13.4	
Man. industry	12.1	11.8	11.0	13.1	12.7	13.7	14.6	15.2	15.2	
3. Services	4.8	6.4	7.4	5.9	8.3	8.3	6.4	9.5	9.8	
Public Services	1.1	2.8	2.9	1.1	2.7	3.6	1.5	3.1	6.0	
MALATYA-ELAZIĞ SUB-REGION	5.6	6.5	6.5	6.6	7.5	7.4	7.4	8.0	7.8	2.2
1. Agriculture	4.3	5.3	5.5	5.2	5.4	5.4	5.5	5.3	5.4	
2. Industry	5.8	7.6	7.2	7.2	9.2	8.4	8.7	9.0	8.1	
Man. industry	5.5	7.6	7.4	7.2	9.6	8.7	8.8	9.2	8.3	
3. Services	6.0	6.4	6.4	6.8	7.3	7.3	7.5	8.3	8.2	
Public services	4.2	3.4	3.3	4.3	3.5	3.3	4.3	3.5	3.3	
VAN SUB-REGION	5.4	7.0	7.1	6.2	8.3	8.7	7.3	9.2	9.7	2.6
1. Agriculture	3.2	6.2	6.6	4.2	6.2	6.1	5.1	6.9	7.2	
2. Industry	9.8	12.0	12.0	15.4	15.9	13.9	17.5	16.7	15.7	
Man. industry	10.3	12.1	11.8	15.8	15.7	13.6	17.3	16.5	16.0	
3. Services	5.6	6.7	6.4	5.8	7.7	7.9	6.9	8.6	8.6	
Public services	4.6	4.9	4.6	4.6	4.9	4.6	4.6	4.9	4.6	
EAP REGION	5.3	6.6	6.9	6.3	7.9	8.0	5.1	8.7	8.9	
1. Agriculture	3.9	5.0	5.4	4.6	5.8	5.7	5.0	5.9	5.9	
2. Industry	7.2	9.0	8.5	9.0	10.8	10.4	10.6	11.4	11.2	
Man. industry	7.3	9.2	9.1	9.3	11.2	11.0	10.9	11.7	12.0	
3. Services	5.4	6.5	6.8	6.2	7.8	7.9	6.9	8.9	9.0	
Public services	3.2	3.6	3.6	3.2	3.6	3.8	3.3	3.8	4.7	
TURKEY	5.2	5.3	5.4	5.2	5.3	5.4	5.2	5.3	5.4	4.1

Table 7: Income and Population in the EAP Region

EAP REGION SCENARIOS	Income Per Capita		Population	
	Value * (Million TL.)	Region/Turkey (%)	Total (000)	Urban/Total (%)
1) A1 SCENARIO				
1997	205	44.6	5.868	40.0
2005	265	46.0	6.297	53.5
2010	349	49.3	6.646	59.9
2020	632	57.7	9.291	71.2
2) A2 SCENARIO				
1997	205	44.6	5.868	40.0
2005	278	48.2	6.297	53.5
2010	391	55.3	6.646	59.9
2020	797	72.8	9.291	71.2
3) A3 SCENARIO				
1997	205	44.6	5.868	40.0
2005	289	50.1	6.297	53.5
2010	423	59.8	6.646	59.9
2020	944	86.2	9.291	71.2

* 1997 Prices.

In order to realize the income targets and relative improvements with respect to Turkish averages given in **Table 7**, each sub-region will have to grow quite rapidly. To achieve the projected income targets even in the modest scenario, the necessary periodic growth rates are higher than the growth rates of Turkey for the five-year periods in the past. For example, Scenario A1's average annual growth rate for the Region as a whole for 2001-2020 period is 60 % higher than the Turkish average growth rate for the period 1987-1997. By the same comparison, this is more than twice according to Scenario A3 (**Table 6**).

Realization of the growth rates projected for the Region and the sub-regions depends on the fact that the sectors need to grow at various rates. In particular, industrial sector will have to grow at a high rate. For instance, in the Erzurum Sub-region, according to Scenario A1 while agriculture grows at an annual average rate of 5 % in 2001-2005, 6.5 % in 2006-2010, and 7.1 % in 2011-2020, industry will have to grow in the same periods by 10.3 %, 11.4 % and 9.5 %, respectively. As the income per capita targets relative to Turkish averages go up, corresponding growth rates for industry rise as well (**Table 6**).

Each one of the three scenarios projects that the employment structure in the Region will have a radical change. The share of agriculture in total employment goes down to 38 % in 2020 from 70 % at the end of the 1990s. On the other hand, the share of industry goes up from 4.4 % to 14 %, and that of services increases from 25.5 % to around 46 % (**Table 8**). In 2020, services will gain importance and will provide almost half of the employment, as has been observed in every modernizing and developing economy.

However, based on the strategies taking into account the characteristics and development potentials of sub-regions sectoral shares in employment, like today, will show differences at the end of the plan period as well. In Erzurum Sub-region where industrial

development potential is relatively lower, the share of agriculture in employment, though posing marginal differences on the basis of scenarios, falls from 70 % to around 41-44 %, and to 32-39 % in Van sub-region. In both sub-regions the share of industry in employment at the end of the period goes up to around 14-17 % (**Table 8**). On the other hand, in Malatya-Elazığ Sub-region where industrial development potential is the highest, the share of agriculture falls from 67 % in 1997, to around 24-27 % at the end of the period by different scenarios. By the same comparison, the share of industry increases from 6 % to approximately 20 %. Parallel to the industrial development in this sub-region, the share of services doubles compared to its current level and reaches to roughly 55 %.

Employment will decrease in agriculture, whereas it will increase in industry and services in absolute value. For example according to Scenario A1 agricultural employment will decline by 385 thousand, whereas industrial and services employment will increase by 303 thousand and 618 thousand, respectively, throughout the Region in 2001-2010 period (**Table 8**). Net employment increase will be 536 thousand. During this period, the underemployed population who seems to be employed in agriculture but actually works only a few months in a year will move from agriculture to industry and services.

A remarkable amount of investment will be necessary in the Region in order to realize the transformation described by the above figures. During 2001-2020 period the required amount of investment will be \$80.3 billion in Scenario A1, \$94.1 billion in Scenario A2, and \$106.9 billion in Scenario A3 (**Table 9**). While agriculture and industry take approximately equal share from total investments in the early years in all three scenarios, the share of industry increases in 2006-2010 period, and reaches to 2.5-3 times that of agriculture in the last period (2011-2020) according to Scenarios A2 and A3. In all three scenarios, services have the largest share. It is natural that the services sector gets the largest share, since it is absolutely necessary to improve the physical infrastructure such as highways, energy, and communication, and the social infrastructure such as education and health for increasing productivity and ensuring an effectively working regional economy. The share of services, though decreasing gradually, increases in absolute value in all scenarios.

Table 8: Sectoral Employment by Sub-regions, Scenarios and Years

SUB-REGIONS SCENARIOS SECTORS	Employment in 1997 (1.000) Person	Employment Share in 1997(%)	EMPLOYMENT (000 Pers.)				Employment Share in 2020(%)	2000-2020 Annual Average Growth (%)
			2000	2005	2010	2020		
ERZURUM SUB-REGION								
SCENARIO A1								
Agriculture	773	70.6	710	672	630	563	44.3	-1.2
Industry	42	3.8	49	67	104	177	14.0	6.4
Services	279	25.6	297	334	390	530	41.7	2.9
Total	1,094	100.0	1,056	1,073	1,124	1,270	100.0	0.9
SCENARIO A2								
Agriculture	773	70.6	710	667	626	558	42.8	-1.2
Industry	42	3.8	49	71	112	187	14.4	6.7
Services	279	25.6	297	350	413	557	42.8	3.2
Total	1,094	100.0	1,056	1,088	1,151	1,302	100.0	1.0
SCENARIO A3								
Agriculture	773	70.6	710	663	621	549	41.2	-1.3
Industry	42	3.8	49	76	119	198	14.9	7.0
Services	279	25.6	297	367	430	584	43.9	3.4
Total	1,094	100.0	1,056	1,106	1,170	1,331	100.0	1.2
MALATYA-ELAZIĞ SUB-REGION								
SCENARIO A1								
Agriculture	423	67.6	387	325	282	217	27.0	-2.9
Industry	37	5.9	52	76	95	160	19.9	5.6
Services	166	26.5	192	242	309	428	53.1	4.0
Total	626	100.0	631	643	686	805	100.0	1.2
SCENARIO A2								
Agriculture	423	67.6	387	320	279	214	25.3	-3.0
Industry	37	5.9	52	82	104	172	20.3	6.0
Services	166	26.5	192	261	328	461	54.4	4.4
Total	626	100.0	631	663	711	847	100.0	1.5
SCENARIO A3								
Agriculture	423	67.6	387	315	274	209	24.0	-3.1
Industry	37	5.9	52	84	108	177	20.4	6.1
Services	166	26.5	192	267	340	483	55.6	4.6
Total	626	100.0	631	666	722	869	100.0	1.6
VAN SUB-REGION								
SCENARIO A1								
Agriculture	313	72.3	302	276	249	233	39.2	-1.3
Industry	15	3.5	23	35	54	90	15.1	6.8
Services	105	24.2	123	159	200	272	45.7	4.0
Total	433	100.0	448	470	503	595	100.0	1.4
SCENARIO A2								
Agriculture	313	72.3	302	274	248	226	36.8	-1.4
Industry	15	3.5	23	42	60	95	15.5	7.1
Services	105	24.2	123	160	206	293	47.7	4.3
Total	433	100.0	448	476	514	614	100.0	1.6

Table 8: Sectoral Employment by Sub-regions, Scenarios and Years (Cont.)

SUB-REGIONS SCENARIOS SECTORS	Employment in 1997 (1.000) Person	Employment Share in 1997(%)	EMPLOYMENT (1,000 Pers.)				Employment Share in 2020(%)	2000-2020 Annual Average Growth (%)
			2000	2005	2010	2020		
SCENARIO A3								
Agriculture	313	72.3	302	254	223	197	32.0	-2.1
Industry	15	3.5	23	42	63	106	17.2	7.6
Services	105	24.2	123	179	228	313	50.8	4.7
Total	433	100.0	448	475	514	616	100.0	1.6
EAP REGION								
SCENARIO A1								
Agriculture	1,508	70.1	1,399	1,273	1,161	1,013	37.9	-1.6
Industry	94	4.4	124	178	253	427	16.0	6.2
Services	549	25.5	611	735	899	1,230	46.1	3.5
Total	2,151	100.0	2,135	2,186	2,313	2,670	100.0	1.1
SCENARIO A2								
Agriculture	1,508	70.1	1,399	1,261	1,153	998	36.1	-1.7
Industry	94	4.4	124	195	276	454	16.4	6.5
Services	549	25.5	612	770	947	1,311	247.5	3.8
Total	2,151	100.0	2,135	2,226	2,376	2,763	100.0	1.3
SCENARIO A3								
Agriculture	1,508	70.1	1,399	1,232	1,118	955	33.9	-1.9
Industry	94	4.4	124	202	290	481	17.1	6.8
Services	549	25.5	612	813	998	1380	49.0	4.1
Total	2,151	100.0	2,135	2,247	2,406	2,816	100.0	1.4

NOTE: Sum of sectors may not correspond to total figure due to rounding.

Table 9: Total Investments in the EAP Region

(Million Dollar/Period)

SECTORS	SCENARIO											
	A1				A2				A3			
	2001-2005	2006-2010	2011-2020	Total 2001-2020	2001-2005	2006-2010	2011-2020	Total 2001-2020	2001-2005	2006-2010	2011-2020	Total 2001-2020
1) Agriculture	1,532	2,252	5,606	9,391	1,578	2,391	6,181	10,150	1,625	2,490	6,676	10,791
2) Industry	1,803	3,493	11,966	17,262	1,911	3,669	14,845	20,425	2,047	4,471	18,510	25,028
Man. Industry	964	2,087	7,125	10,176	1,017	2,331	8,975	12,323	1,090	2,608	11,035	14,733
3) Services	9,460	13,399	30,807	53,666	9,861	14,821	38,520	63,202	10,262	16,219	44,642	71,123
TOTAL	12,795	19,144	48,379	80,318	13,350	21,181	59,546	94,077	13,934	23,179	69,828	106,941

Table 10: Total Investments by Sub-regions, Scenarios and Years

(Million Dollar/Period)

SUB-REGIONS	A1			A2			A3		
	2001-2005	2006-2010	2011-2020	2001-2005	2006-2010	2011-2020	2001-2005	2006-2010	2011-2020
ERZURUM SUB-REGION									
1. Agriculture	575	938	2,642	588	971	2,826	608	1,017	3,025
2. Industry	687	1,466	5,620	729	1,638	6,729	753	1,796	8,123
Man. Industry	350	819	3,025	369	905	3,738	396	1,024	4,590
3. Services	3,447	5,197	13,340	3,581	5,734	16,635	3,738	6,386	18,286
TOTAL	4,708	7,601	21,601	4,897	8,343	26,191	5,098	9,199	29,433
MALATYA-ELAZIĞ SUB-REGION									
1. Agriculture	535	726	1,790	568	806	2,027	588	839	2,153
2. Industry	713	1,262	3,752	779	1,506	4,946	832	1,677	6,016
Man. Industry	409	819	2,338	429	911	3,077	449	991	3,619
3. Services	3,939	5,236	10,328	4,101	5,765	12,488	4,187	5,696	14,634
TOTAL	5,187	7,225	15,869	5,448	8,076	19,461	5,607	8,512	22,803
VAN SUB-REGION									
1. Agriculture	423	588	1,175	423	613	1,327	429	634	1,499
2. Industry	403	766	2,595	403	826	3,169	462	997	4,372
Man. Industry	205	449	1,763	218	515	2,159	244	594	2,826
3. Services	2,074	2,965	7,139	2,179	3,321	9,396	2,337	3,837	11,721
TOTAL	2,899	4,319	10,909	3,003	4,761	13,894	3,230	5,468	17,593
EAP REGION	12,795	19,145	48,379	13,350	21,181	59,546	13,934	23,179	69,828

Table 11: Public Sector Investments by Periods and Scenarios

(Million Dollar/Period)

SUB-REGIONS	SCENARIO A1			SCENARIO A2			SCENARIO A3		
	2001-2005	2006-2010	2010-2020	2001-2005	2006-2010	2010-2020	2001-2005	2006-2010	2010-2020
ERZURUM SUB-REGION									
1. Agriculture	99	125	198	106	132	225	106	145	258
2. Industry	317	528	1,532	339	594	1,816	337	614	1,948
Man. Industry	53	79	304	59	92	343	66	99	363
3. Services	726	1,043	2,490	755	1,158	2,992	779	1,162	3,249
TOTAL	1,142	1,697	4,220	1,199	1,884	5,032	1,222	1,922	5,455
MALATYA-ELAZIĞ SUB-REGION									
1. Agriculture	79	92	178	86	106	225	92	112	225
2. Industry	271	343	700	310	475	1,057	337	522	1,149
Man. Industry	79	119	225	86	132	251	86	132	251
3. Services	773	997	1,935	806	1,142	2,371	819	1,103	2,668
TOTAL	1,123	1,433	2,813	1,202	1,724	3,652	1,248	1,737	4,042
VAN SUB-REGION									
1. Agriculture	59	86	172	59	92	185	59	86	205
2. Industry	172	251	561	158	231	634	198	330	1,076
Man. Industry	26	40	99	26	40	112	33	53	132
3. Services	429	542	1,162	429	568	1,334	449	634	1,704
TOTAL	660	878	1,895	647	892	2,153	707	1,050	2,985
EAP REGION	2,925	4,008	8,928	3,048	4,500	10,837	3,177	4,709	12,482

Table 12: Private Sector Investments by Periods and Scenarios

(Million Dollar/Period)

SUB-REGIONS	SCENARIO A1			SCENARIO A2			SCENARIO A3		
	2001-2005	2006-2010	2011-2020	2001-2005	2006-2010	2011-2020	2001-2005	2006-2010	2011-2020
ERZURUM SUB-REGION									
1. Agriculture	475	812	2,443	482	839	2,602	502	872	2,767
2. Industry	370	938	4,088	390	1,043	4,913	416	1,182	6,175
Man. Industry	297	740	2,721	310	812	3,394	330	925	4,226
3. Services	2,721	4,154	10,850	2,826	4,576	13,643	2,958	5,224	15,037
TOTAL	3,566	5,904	17,381	3,698	6,458	21,158	3,876	7,277	23,978
MALATYA-ELAZIĞ SUB-REGION									
1. Agriculture	456	634	1,611	482	700	1,803	495	726	1,928
2. Industry	442	918	3,051	469	1,030	3,890	495	1,156	4,867
Man. Industry	330	700	2,113	343	779	2,826	363	858	3,368
3. Services	3,167	4,240	8,393	3,295	4,623	10,117	3,368	4,893	11,966
TOTAL	4,065	5,792	13,056	4,246	6,353	15,809	4,358	6,775	18,761
VAN SUB-REGION									
1. Agriculture	363	502	1,004	363	522	1,142	370	548	1,294
2. Industry	231	515	2,034	244	594	2,536	264	667	3,295
Man. Industry	178	409	1,664	192	475	2,047	211	542	2,694
3. Services	1,644	2,424	5,976	1,750	2,754	8,063	1,889	3,203	10,018
TOTAL	2,239	3,441	9,014	2,358	3,870	11,742	2,523	4,418	14,608
EAP REGION	9,870	15,137	39,451	10,302	16,681	48,709	10,757	18,470	57,347

Table 10 gives subregional distribution of the investments. Industrial investments are concentrated in Malatya-Elazığ and Erzurum Sub-regions in all three scenarios, as a natural outcome of the projected strategies. Industrial investments are lower, in absolute value, in Van Sub-region than those in the other two sub-regions.

Public sector has to make considerable amount of investments in order for each scenario to be realized. Total amount of public investments needed in 2001-2020 period is \$15.9 billion in Scenario A1, \$18.4 billion in Scenario A2, and \$20.4 billion in Scenario A3 (**Table 11**). These amounts correspond to 19.8 % of the total investments in Scenario A1, 19.6 % in Scenario A2, 19.1 % in Scenario A3. As these figures and **Table 12** indicate, much of the investments, roughly 80 %, have to be made by the private sector.

4.3. PROJECTED INVESTMENTS, INVESTMENT CAPACITY AND FINANCE

It is realized that considerable amounts of investments are needed in order to achieve the income targets and growth rates projected in the scenarios. Investments are high both in absolute terms and as a share of the regional product. According to scenarios, investment requirement reaches approximately to 26 % of the gross regional product in 2001-2005, 29 % in 2006-2010, and 22 % in 2011-2020 period (**Table 13**).

Projected public investments range between 3.9 % and 6.1 % of gross regional product in different scenarios and periods. By the same comparison, private sector investments will have to range between 17.3 % and 23.6 % of gross regional product.

It is hard for the Region where income per capita is \$1000 in a large part such as Erzurum and Van Sub-regions and nearly \$2000 only in Malatya-Elazığ Sub-region, to allocate 22-30 % of its gross regional product to investments. Turkey was able to allocate only 10.4 % of its gross national product to fixed capital investments in 1950. Except for 1954 and 1955, the country could not allocate more than 15 % of its gross national product to investments until 1963. Investments reached, for the first time, to 20 % of gross national product in 1977, and they exceeded again, for the first time, 25 % in 1988 (26.1 %). After 1998 it has not fallen below 22 %. The country has been able to allocate 20-25 % of its gross national product only as the income per capita approached to \$3000.

Table 13: Ratio of Investments to Gross Regional Product in the EAP Region (%)

INVESTMENTS	SCENARIO		
	A1	A2	A3
I. TOTAL INVESTMENTS			
2001-2005	25.8	26.2	26.6
2006-2010	28.5	28.9	29.7
2011-2020	21.2	21.7	22.3
II. PUBLIC INVESTMENTS			
2001-2005	5.9	5.9	6.0
2006-2010	5.9	6.1	6.0
2011-2020	3.9	3.9	3.9
III. PRIVATE INVESTMENTS			
2001-2005	19.9	20.2	20.6
2006-2010	22.5	22.7	23.6
2011-2020	17.3	17.7	18.3

Given the country experience, it is quite difficult, if not impossible, for the Region to finance those investments, which reach 22-30 % of its gross regional product by its own savings. This implies that in order to achieve the growth and employment targets projected by the scenarios, the Region has to import considerable amount of capital from outside of the Region in the context of the scenario assumptions on capital/revenue ratio.

A major portion of the capital to be imported from outside the Region, shall come from the private sector. In the first half of the 1980s the ratio of private sector fixed capital investments to gross national product did not exceed 7.7 %, only in the second half of the 1980s has it started to increase as the Government gradually pulled out from the economy of the Region and hence income per capita and the savings increased, and reached to approximately 20 % level in the second half of the 1990s. Private fixed capital investments to the gross regional product ratio projected in the scenarios ranges between 17.3 % and 23.6 %. In the light of the past country experience, it seems very difficult, if not impossible, for the regional private sector investors to achieve the investment levels projected in the scenarios due to low level of per capita Regional income, even if they showed similar behavior with the national private investors. Therefore, large amounts of private sector capital have to be brought to the Region from outside in order to realize the income and employment targets of the scenarios. It is considered as necessary to establish EDA (Economic Development Agency) or an alternative structure in order to attract capital from out of the Region, and to promote regional opportunities at national and international levels by this agency or structure that should also guide prospective investors. Furthermore, it is necessary to raise public investments up to considerable amounts so as to create a difference in favor of the Region.

Even though it is projected in the scenarios that 80 % of the investments be handled by the private sector and 20 % by the public sector, in absolute terms the public sector still has to make very high levels of investments. As mentioned above, the amount of investments the public sector has to handle in the coming twenty years, between 2001-2020, is \$15.9 billion in Scenario A1, \$18.4 billion in Scenario A2, and \$20.4 billion in Scenario A3 (**Table 11**). The public sector has to change its behavior and allocate more funds at least to the projects in the annual investment programs in order to achieve the regional investment targets specified in these scenarios.

It is hard but not impossible for the public sector to allocate the resources to the Region required by the scenarios especially in the coming years during which an anti-inflationary stabilization program is expected to be in place. If the inflation and public sector deficits can be controlled as projected in the last stabilization program, investment capacity of the public sector will remarkably increase, hence it will become possible to allocate more and more resources to the EAP Region. Besides, if Turkey can join the European Union by the year 2010, then it will be possible to get considerable amount of sources from the EU funds allocated to regional development and infrastructure, hence the public will be able to make the investments projected in the scenarios.

In order for the private sector to generate adequate resources and utilize these resources for the development of the Region, credit extensions and state aids should be transparent before all else, they should be saved from being a means for illicit profit seeking, and their control should be effective. Incentives and credits provided for the

Region should be differentiated relative to the developed regions in accordance to the characteristics of the Region, a Regional Development Bank (RDB) should be established, or the Turkish Development Bank (TDB) should be reorganized in the framework of regional development perspective. Particularly the credits extended to agriculture should be supported by a “extension and training package” applications should be tightly controlled; micro-credit method without continuous succession guarantee and mortgage should be introduced and extended; and in the credits, along with tight banking criteria like credit repayment ratio, social criteria involving regional development content like social benefit/cost ratio should be taken into account.

The ratio of deposits to the Gross Domestic Product in the Region is below half of the national average. Even this low level of deposits are not converted into credits in the Region. Credit-deposit ratio is below the national average too. Particularly the private banks perceive a high risk in the economic situation of the Region, do not often accept immovable assets as mortgage, and invest their deposits to the Treasury bonds or credit the entrepreneurs out of the Region. Measures should be taken to transform the deposits collected in the Region into credits and investments in the Region. In addition to this, new resources should be created. In case Turkey becomes a full member of the European Union, it would be possible to attract finance for the regional development from the resources of the Union. However, this seems to be a phenomenon requiring a long time. It is possible to raise long term finance from international sources with Treasury guarantee in order for the establishment, in near or medium term, of the Regional Development Bank or for the reorganization of the Turkish Development Bank in the framework of regional development perspective. Besides, the regional enterprises could be organized in the form of incorporated companies, quoted in regional markets or new company markets created by the İstanbul Stock Exchange (İSE), for raising financial resources. For the small and medium scaled companies and newly established firms, the method of entry into stock exchange markets operate very effectively in the developed western countries. It is possible in the medium and long term, if not in the short term, for the Region’s companies to acquire funds in new markets of the İSE, provided that their balance sheets are audited by independent audit firms.

4.4. NEW TRENDS IN THE WORLD AND IN TURKEY AND THE EAP

Policy planning and strategies have become more important rather than the detailed development plans, in the light of past experiences in the world with regard to regional development. There are primarily four factors behind this;

- i) Financial capital has become globalized and can pose an international stream, the path of which cannot be easily foreseen.
- ii) Physical capital investments have started to be made more taking into account the conditions of global integration and of market, as a result of the reduction or elimination of the trade barriers gradually in the context of the formation of international trading blocks and international agreements.

- iii) In most of the countries including Turkey, mixed economy model has been given up and investments, except for education and health sectors, are started to be realized by private sector in accordance with the requirements of free market conditions.
- iv) The state, in many countries including Turkey, has withdrawn from the economy except for infrastructure, justice, education and health sectors and reduced or totally stopped intervening with the price mechanism.

These four factors made the future uncertain to a great extent. It is impossible to make comprehensive plans and implement them under the conditions of uncertainty. Therefore, policy planning, strategies, and institutionalization that has the capacity to implement these policy plans and strategies by flexibly adjusting them to the conditions changing over time has started to become more prevalent. For this reason, again, assuming there will be the macroeconomic stability in the country, certain institutionalization principles are particularly stressed in the context of the EAP Region. The strategies put forth in the context of development of the Eastern Anatolia Region are essential. Even though the sectoral plans developed indicate what must be done in education, health, and infrastructure sectors in the context of the road map put forth by the strategies, for many other sectors they just try to determine the major line of execution as long as the resources and the changing competition conditions allow.

Under free market conditions, a regional plan, from private sector's perspective, means a declaration of the Government intention, and a document removing or minimizing the uncertainties in certain issues. In order for this document to be functional, the Government has to make infrastructure investments envisaged in the plan in accordance with the projected timing and spatial strategy.

Another issue that has become prevalent in regards to planning in the last 15-20 years is the concept of "sustainability." There are certain prerequisites of sustainability in the Eastern Anatolia Region where industrial potential is relatively limited. These prerequisites are protection, improvement and rotational-capacity based grazing of the meadow-pasturelands in the Region, as the animal husbandry is the main economic activity at present and in the foreseeable future. Another prerequisite is the prevention of pollution in rivers and lakes including dams and erosion control in river basins. Otherwise, sustainable development in the East will become impossible to a great extent.

4.5. POSSIBLE INTERACTIONS BETWEEN THE EAP REGION AND OTHER REGIONS

Development of a region in a given country can not be evaluated separate from the development of the other regions. The relations and interactions between the EAP Region and the other regions depend on the developments of the other regions as well as the developments within the EAP Region itself.

Implementing even the modest scenario, Scenario A1, developed for the EAP Region, the outmigration from the Region to the Marmara, the Aegean, and the

Mediterranean Regions will decline gradually. This, in turn, will reduce the pressure on the metropolitan centers such as İstanbul, İzmir, Ankara and Adana.

Improvement of transportation channels linking the Region to the western regions will open up the Region more to the industrial goods of western origin. This is valid for the goods having scale economies and higher value/weight ratios particularly in the short and the medium run, and adversely affects the Region. On the other hand, industries in western cities of Turkey, which face increasing competition due to the Customs Union, might prefer to invest in the Region; as the infrastructure is improved, to benefit from the relatively cheap labor in the East and to escape from some of the negative externalities of the metropolitan areas. Incentives might stimulate such industries to migrate to the Region.

Industries not having scale economies and using relatively cheap labor-intensive technologies can be located in the attraction centers of the Region, in order to increase their competitive power as urban, physical and social infrastructure as well as East-West transportation and communication channels will be improved. This may happen both in the form of capital transfers from West to the Region and by flourishing new enterprises in the Region by benefiting from incentive measures.

Improving the present standards of the Trabzon-Erzurum highway is likely to stimulate Erzurum's industrial development by enabling provision of cheaper input via Trabzon harbor for the small and medium scaled industries to be established in Erzurum.

The issue that would influence the Eastern Anatolian Region most, especially the central and southeastern parts, is the developments in the SAP Region. It is likely that the SAP Region might attract some migration from the East, especially from the Van Sub-region, as the SAP Region might develop rapidly based on the acceleration brought about by the irrigation investments. It is also probable that the industry in Gaziantep in the SAP Region adversely affects industrial development in the Van Sub-region.

Some of the industrial inputs produced in the SAP Region such as cotton may be used in Malatya-Elazığ Urban Region and this may accelerate industrialization in this region. Fodder plants produced in the SAP Region and some secondary industrial products such as residue of crushed seeds may be used to reduce fodder deficits and increase animal products in the EAP Region.

4.6. GLOBALIZATION AND ITS POSSIBLE IMPACTS ON THE REGION

Globalization means the organization of the economic activities in a system that goes beyond the national boundaries and integration of the national economies with one another; and the state of existence of different economies, regardless of any geographical or political scale they might exist i.e. national, regional, or local, in wider interregional relations and networks. Geographical location does not constitute an obstacle for social and economic interaction and organization. The internet and the reality of 24 hours on-going business in global financial markets are good examples on how the limits of geographical location can be exceeded and on how interactions between individuals and organizations can go beyond limitations of time and space concepts.

In globalization, the events and developments in distant locations may result in serious developments in a national economy, and similarly, a local or regional event might cause global influences.

Globalization is not a new event. It is a fact that has been, at least since the 16th century, comprising geographically more and more countries and regions, and economically more and more activity areas. Now, the thing that distinguishes today's globalization from the past is the unprecedented scale and size of the modern global interaction.

The distant location of the Region as compared to the other regions to the Western European countries (which have been the main trading partners of the country) and its far distance from the main export and import points and ports have put the Region in a disadvantageous position.

One factor accelerating globalization for Turkey is the Customs Union with the European Union. The western regions of the country, especially the Marmara, the Aegean and to some extent the Mediterranean Regions have become superior relative to other regions both as importers and exporters under the increased flow of goods and services as a result of the Customs Union. This superiority is likely to be strengthened even more in case Turkey joins the European Union.

The Customs Union excluded the free or non-tariff import of agricultural products from free trade for the time being. When this period ends in the 2010s, domestic agricultural production will face competition from the EU members, which benefit from scale economies and high technology. It is highly possible that this competition will put the production of animal products in the EAP Region in a difficult position if necessary measures are not taken. In order for the animal husbandry of the Region to be able to compete with animal products originating from Western Europe, the main source of nutrition, meadow-pastureland, which gradually became unproductive due to excessive and irregular use, has to be improved and should be used on a rotational basis, animal races should be improved, the share of fodder plants in plant rotation should be increased, animal diseases should be fought against, and to achieve all these, the extension organization has to be made more efficient, and the farmers should be educated and organized.

On the other hand, in case Turkey joins the European Union, she will be able to get a considerable support from various funds of the Union such as "Regional Development Fund," "European Social Fund," "Agricultural Guidance and Guarantee Fund," and "Cohesion Fund". A part of this assistance can be directed to infrastructure investments, meadow-pastureland improvement, and other agricultural and industrial infrastructure projects in the Eastern Anatolia, hence the competitive power of the Region can be strengthened in livestock and industrial products. Improvement of especially transportation and communication infrastructure may attract some industrial investments from the Union to utilize the cheap labor.

With the collapse of the Soviet Union, the nations of the Caucasus and Central Asia adopted free market economy at various degrees and entered to the globalization process. Current income per capita and import demand generated by these countries are low.

However, Azerbaijan, Kazakhstan and Turkmenistan have important natural gas and/or petroleum reserves. Import demand will also go up in these countries as income per capita rises. Most of this import demand will turn toward industrial goods due to their high income elasticity. It is natural that Turkey will get a share from this increase due to cultural and geographical proximity. However, at least in the short and medium run, it is highly likely that most of the import demand for Turkish goods from these countries will be satisfied by the western regions due to their improved industrial and marketing organizations. It is likely that the Eastern Anatolia Region can get only a marginal share in the short and the medium run from this rising import demand. On the other hand, it is more likely in the long run for the Region to get a larger share in this rising demand as a result of improved industry partly based on such demand.

The most important country to the east of the Region is Iran, with more than 60 million population and \$14,705 million imports in 1997. Turkey was able to get a share of only \$307 million or 2.1 % from this import in that year. Iran produces industrial goods similar to those produced by Turkey. Goods with price advantage, which do not require high technology can be sold to Iran, and currently such goods are being sold to Iran, too. In the future, the Region can get a share from the Iranian market by taking advantage of geographical proximity. Besides, since Iran has food deficit, the Region can get a share from Iran's food products market provided that agriculture and animal husbandry are improved in the Region.

Another market for the Eastern Anatolia is our southern neighbours (Syria and Iraq) and the Gulf countries. Our exports to Iraq and the Gulf countries have reached to satisfactory levels during the 1980s. But the embargo imposed on Iraq by the United Nations and the resulting difficulties, reduced the exports to the Gulf countries. These southern markets can regain importance in the future if the embargo is lifted and positive political relations with Syria can be developed. However, the SAP provinces are more advantageous than the EAP provinces in trading with the south. The Gulf countries' demand for agricultural products and livestock will continue in the future as these countries have food deficits. However, in order for the Eastern Anatolia to get a remarkable share in this market, as summarized above, it has to increase productivity in animal husbandry and be able to compete in animal products, especially in sheep and lamb meat, originating from Australia, New Zealand, and Western Europe.