Republic of Turkey
Prime Ministry
State Planning Organization

GAP

The Southeastern Anatolia Project Master Plan Study

Final Master Plan Report

VOLUME

3

Appendices A, B, C

April 1989

Nippon Koei Co. Ltd.
Tokyo, Japan

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All the monetary terms in this report are in mid-1988 price

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THE SOUTHEASTERN ANATOLIA PROJECT
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Appendices A, B, C

Appendix A : PRESENT CONDITIONS AND PROSPECTS OF AGRICULTURE

Appendix B : PRESENT CONDITIONS AND PROSPECTS OF INDUSTRY AND COMMERCE

Appendix C : DATA FOR SOCIO-ECONOMIC PROJECTION AND ESTIMATE OF INVESTMENTS

Abbreviations of Organizations/Institutions (2/2)

SEE		State Economic Enterprise
SIS	Devlet İstatistik Enstitüsü DİE	State Institute of Statistics
SPO	Devlet Planlama Teşkilatı DPT	State Planning Organization
SÜB	Sümerbank	
TAÇE	Türk-Alman Çıraklık Eğitimi	Turkish-German Apprentice Training Center
TCDD	Türkiye Cumhuriyeti Devlet Demiryolları	Turkish State Railways
TCK	Türkiye Cumhuriyeti Karayolları	General Directorate of State Highways
TCZB	Türkiye Cumhuriyeti Ziraat Bankası	Turkish Agricultural Bank
TEK	Türkiye Elektrik Kurumu	Turkish Electricity Authority
TEKB	Türkiye Emlak Kredi Bankası	Turkish Emlak Bank
TETEK	Türkiye Transit Karayolu	Trans Turkey Highway
THB	Türkiye Halk Bankası	Turkish Halk Bank
THK	Türk Hava Kurumu	Turkish Air Organization
THY	Türk Hava Yolları	Turkish Airlines
TİB	Türkiye İş Bankası	Turkish Is Bank
TİGEM	Tarım İşletmeleri Genel Müdürlüğü	State Farms General Directorate
TKİ	Türkiye Kömür İşletmeleri	Turkish Coal (lignite) Enterprises
TKK	Tarım Kredi Kooperatifleri	Agricultural Credit Cooperatives
TKV	Türkiye Kalkınma Vakfı	Turkish Development Foundation
TMO	Toprak Mahsulleri Ofisi	Soil Products Office
TOPRAKSU		(Former) General Directorate of Land and Water Development
TPAO	Türkiye Petrolleri A.O.	Turkish Petroleum Corporation
TSEK	Türkiye Süt Endüstrisi Kurumu	Turkish Dairy Industries Organization
TSK	Tarım Satış Kooperatifleri	Agricultural Sales Cooperatives
TTK	Türkiye Taşkömürü Kurumu	Turkish Hard Coal Enterprises
TURSAB	Türkiye Seyahat Acentaları Birliği	Union of Travel Agencies of Turkey
TYT	Türkiye Yapağı Tiftik	Turkish Wool Mohair Corporation
TYUAP	Tarımsal Yayım ve Uygulamalı Araştırma Projesi	Agricultural Extension and Applied Research Project
TZDK	Türkiye Zirai Donatım Kurumu	Turkish Agricultural Supply Organization
WASP		Wien Automatic System Planning Package
YSE	Yol Su Elektrik	(Former) Road, Water and Electricity Services

Abbreviations of Technical Terms

BOT	Build, Operate and Transfer
CIF	Cost, Insurance and Freight
D/D	Detailed Design
El.	Elevation
F/S	Feasibility Study
GDP	Gross Domestic Product
GNP	Gross National Product
GRP	Gross Regional Product
ICOR	Incremental Capital Output Ratio
IRR	Internal Rate of Return
LPG	Liquified Petroleum Gas
M/P	Master Plan
O-D	Origin-Destination
TDN	Total Digestible Nutrients
TDS	Total Dissolved Solids
VAT	Value-Added Tax

Abbreviations of Measures

Length

mm	millimeter
m	meter
km	kilometer

Area

km^2	square kilometers
ha	hectare
m^2	square meter
da	decare = 0.1ha

Volume

lit	litre
m^3	cubic meter
Mm^3	million cubic meters

Weight

kg	kilograms
t	tons

Time

s	second
sec	second
hr	hour
yr	year

Money

TL	Turkish lira
US $	United States dollar

Energy

GWh	Gigawatt-hour
kWh	Kilowatt-hour
kW	Kilowatt
MW	Megawatt
koe	kilograms of oils equivalent
toe	tons of oil equivalent
Mtoe	million tons of oil equivalent
kcal	kilocalorie
GJ	Gigajoule
hp	Horse power

Others

%	percent
^{0}	degree
^0C	degree Celsius

A

APPENDIX A
PRESENT CONDITIONS AND PROSPECTS OF AGRICULTURE

CONTENTS

TABLES

TABLES

Appendix A : PRESENT CONDITIONS AND PROSPECTS OF AGRICULTURE

A-1 Present Conditions of Agriculture, Livestock, Forestry and Fishery

1. Agriculture

(1) Land use and land tenure

Agricultural land use

Of the total land area of 7,295,624 ha in the GAP region the cultivated land occupies 3,081,170 ha or 42.2 % of the total, consisting of 2,628,703 ha dry farming land (85.3 % of the cultivated land), 120,740 ha irrigated area and the rest for horticulture and others (Table A.1). Approximately 97 % of dry farming land is cultivated either by a crop-fallow-crop rotation or with lentils or chick peas in the place of fallow. Fallow land occupies 11% in 1985 and 9.5% in 1986 of the total ciltivated land.

The area sown in the Region in 1986 as well as production and yield of cereals and legumes are shown (Table A.2):

Crop	Area sown(1000ha)	Yield(kg/ha)	Production(1000tons)
Wheat	1,048.5	1,795	1,882
Barley	570.8	1,875	1,071
Maize	3.0	4,450	13
Rice	3.1	1,845	5
Lentils	519.5	1,244	646
Chick peas	86.9	1,350	117

Land tenure and land holdings

The land in the Region is categorized into the Government (treasury) land, private land, and communal land belonging to village communities. The Government land consists of forest-bush land, part of pasture land, some agricultural land rented to private entities, land left to the use of State farms and others.

The cadastral surveys and land adjudication works have been continuing in the Region. Some 60% of village cadastral surveys were completed, but land disputes have not been settled. The G.D of Agricultural Reform Organization expropriated 161,600 ha in Sanliurfa, designated as a land reform area by the law 1757 due to significant irrigation development expected, but only 23,000 ha have been distributed to farmers. This law was cancelled by the High Constitution Court in 1978. The new law enacted in 1984 concerns mainly land distribution and land consolidation in irrigated areas and brings about certain norms and procedures to apply in the land reform areas.

Distribution of land holding size in the Region is given in Table A.3. About 40% of farm families are still landless, while

there are over 30% of holdings larger than 5 ha in both Sanliurfa and Gaziantep and between 9 and 20% in other provinces.

Farming system

Of the total land holding farmers, 9% are exclusively for crop production, and the rest are mixed farming with crop production and livestock breeding (Table A.4). Recently, there are some sheep breeding farmers having no other farming practice.

(2) Crop production

Under the prevailing dry farming system, field crops such as wheat, barley, lentils, chickpeas and sesame, and horticultural crops such as pistachios and grapes are cultivated in the Region as economically important crops. Crops cultivated in the Region under irrigated conditions include wheat, cotton, rice, sorghum, sunflower, melon, watermelon, tomatoes, eggplants, peppers and cucumbers.

Present crop patterns in the GAP provinces are presented in Table A.5. The regional production is compared with the national production in Table A.6. As seen from Table A.6, the Region produces substantial portions of the national production for some crops : 76 % of lentils, 19 % of chickpeas, 15 % of barley, 10 % of wheat, 41 % of sesame, 39 % of sorghum - millet, 92 % of pistachios, 22 % of grapes and 28 % of pomegranate.

(3) Marketing and storage

Organizations for marketing

Market types and outlets of major agricultural products are broadly shown in Table A.7. Most agricultural products are exchanged freely in local markets. In the cities of Diyarbakir, Sanliurfa and Gaziantep, there are official markets (borsa) established by the Chamber of Trade Laws and Regulations, where prices are listed and products exchanged.

The Government has given authority and responsibility to the State Economic Enterprises and Agricultural Sales Cooperatives to buy certain agricultural products at prices set according to the commodity support price system. These organizations buy the products, store and sell them in the domestic and international markets.

Sales Cooperatives have facilities for grading, processing and storing certain industrial crops. Two cooperatives are important in the Region : the Southeast Agricultural Sales Cooperative in Gaziantep (Guneydogubirlik) and the Cukurova Cotton Agricultural Sales Cooperative (Cukobirlik). Guneydogubirlik is composed of five agricultural sales cooperatives dealing respectively with pistachios, olive, red pepper, pulses and grapes. Cukobirlik has

unified recently with Groundnuts Agricultural Sales Cooperatives Union handling cotton, soybeans and other second crops. Guneydogubirlik and Cukobirlik have 43 and 7 member cooperatives respectively in the Region. The latter has many facilities in the Cukurova and the GAP regions such as cotton ginneries, stores, fiber and textile plants and edible oil mills.

Soil Product Office (TMO) is the principle supporting agency for cereals and legumes. It has buying stations, and grain silos throughout Turkey, including 32 stations with 421,000 tons of storage capacity in the Region.

Processing and storage facilities in the GAP provinces are summarized in Table A.8.

Marketing by crop group

TMO is the main government entity responsible for marketing cereals, including wheat, barley, rice and maize. Demand is generally high for flour mills, macaroni and semolina plants and feed plants as well as direct consumption. The market is very active. The crops are exchanged in local municipal markets and also organized markets in larger cities. Most producers and consumers of rural and small communities obtain wheat processed into flour at local mills. Barley is consumed directly at farms or is exchanged in local markets and used as animal feed. To some extent, it is sold to feed mills or malt plants directly. Production of rice and maize is limited in the Region. Paddy is processed locally into rice and marketed in local markets.

Lentils, chick peas and dry beans are the major legumes produced in the Region. The main marketing body is the Union of Southeastern Agricultural Sales Cooperatives (Guneydogubirlik) and five other cooperative unions. Lentils and chick peas are nationally marketed also by TMO and the private sector. Red lentils produced in the Region face some marketing problems. Domestic demand for red lentils used for soup can not absorb the present production and competes with green lentils from the Central Anatolia. TMO as well as private enterprises is recently active in exporting this crop.

There exist pistachio and grapes sales cooperatives under Guneydogubirlik. They buy, process and market the produce of their members. Pistachios are marketed in unshelled and shelled forms by Guneydogubirlik both in the domestic and the international markets. Fresh grapes, after dried by farmers, are marketed through sales cooperatives mostly to a Turkish monopoly (TEKEL) for making wine and other alcoholic beverages. Important demand exists in the north Anatolian provinces for dried grapes of this Region.

Cotton has been marketed through private entities and Cukurova Cotton Agricultural Sales Cooperative (Cukobirlik). Most of the

cotton in the Region is marketed privately to ginneries and traders. The Region does not have sufficient processing and storage capacities at present.

Sesame is an important oil crop in the Region at present. It is used mostly in sesame oil (tahin) industry and food/confectionery industry. Sesame is marketed through private traders, mostly to other regions. Sunflower, produced in small quantity in the Region, is marketed to Elazig Oil Seed Agricultural Sales Cooperative as well as in local markets.

Export

Export of agro-related products from the Region is primarily from Gaziantep. Live animals, meat, cereals, lentils, chick peas, lentil straw and fresh vegetables are exported to neighbouring countries. Many processing industries have developed in this city such as flour, macaroni-semolina, meat, vegetables and oil.

(4) Support systems

Extension

The agricultural extension by the Department of Organization and Support of the Ministry of Agriculture, Forestry and Rural Affairs (MAFRA) is executed at the provincial level by extension staff for the farmers education and extension section. Under the extension specialists, there exist village group technicians who bring services via leader farmers to the villages allocated to them. The extension staff are graduates of faculties of agriculture or veterinary, and supported by agricultural technicians and animal health technicians who undergo a 3-year education at vocational schools.

Turkey has acquired a vast extension experiences based on the training and visit systems tested in the field in the rural development programs supported by the World Bank loans. Anew extension project referred to as the Agricultural Extension and Applied Research Project (TYUAP) is on the way, covering 16 provinces of the Country including Diyarbakir, Mardin and Sanliurfa in the Region. The basic concept of the project is to train farmers in order to effect knowledge and service exchange between the research and extension organizations.

Input supply

Seed production and distribution in Turkey had been handled by the Government organizations and parastatals for many years, but are now open to the private sector. There are many private firms producing, importing and distributing high quality, improved seed varieties, in particular high quality vegetable seed, hybrid maize seed, sunflower and soybean seed. Government organizations and parastatals dealing with distribution of seed and seedlings are TMO, Agricultural Supply Organization (TZDK) and Agricultural Credit Cooperatives (TKK), Agricultural Sales Cooperatives (TSK)

and the G.D. of Agricultural Enterprises. Provincial and County Agricultural Directorates are active in determining and providing farmers' requirements of seed and seedlings. The Ceylanpinar Agricultural Enterprises with its large land area in Sanliurfa is responsible for seed and seedlings production and distribution at the national level.

Table A.9 shows the amount of wheat and barley seed distribution in the Region compared to the need. Most farmers in the Region use their own crops as seed, except sugarbeet and cotton seed. Seed quality is naturally low.

Fertilizer distribution has also been deregulated recently from the Government monopoly, but their ceiling prices are fixed by the Government and subsidized. The principal organizations responsible for fertilizer distribution are TZDK, Agricultural Credit Cooperatives, Turkish Sugar Industry, Agricultural Sales Cooperatives and some of local Chambers of Agriculture as well as fertilizer manufacturing firms and their local private sales agents. Fertilizer utilization in the Region is compared with that in Turkey in Table A.10.

Provision and distribution of plant protection chemicals are in the hands of private sector. The Region is sometimes attacked by some insects (e.g. Eurygaster integriceps, Aelia rostrata and African grasshopper). The plant protection against these insects is the direct responsibility of the Government.

Agricultural credit

The Agricultural Bank and Agricultural Credit Cooperatives provide loans for the purchase of agricultural inputs. Interest rates are relatively low for these inputs (e.g. 34-43%, against 43-50% for machinery and equipment loans).

The Agricultural Bank of Turkey (TC Ziraat Bankasi;TCZB) is the almost unique agricultural credit organization in Turkey, having a number of branch offices, at least one in every provincial and county center. It has three main sources of funds : its own capital, the Central Bank sources and the deposits of customers. It is also an on-lending agency for credits from foreign lending institutions. The credits extended to farmers are short term production credits, medium term machinery and equipment credits and medium and long term investment credits.

Short term production credits are extended to farmers on the basis of a simple crop budget analysis or unit production cost with mutual guarantee or land title as collateral. Investment credits need detailed project files and feasibility studies.

Agricultural credit cooperatives extend short and medium term credits to farmers from their own sources and from the Agricultural Bank sources. They also provide, in kind, for

agricultural input needs and other machinery and equipment requirements of their members. They buy lentils, chick peas and potatoes in some regions and distribute them as seed to farmers after processing. There are about 1.5 million cooperative members in Turkey, representing 40 % of the farm households. TSK make advance payments to their members to cover production costs before harvesting.

There exist 68 branch offices of the Agricultural Bank and 83 credit cooperatives and 50 agricultural sales cooperatives in the GAP region. One of the important credit schemes implemented in the Region is the Second Agricultural Credit Project supported by the World Bank to supply the Agricultural Bank sources. Among the beneficiary provinces are Diyarbakir, Mardin and Sanliurfa. Two other projects in the Region also have credit components : the Fallowland Reduction Project, and the Second Crop Project.

Research

The following agricultural research institutions have been set up in the Region :

Southeastern Anatolia Agricultural Research Institute (Guneydogu Tarimsal Arastirma Enstitusu) in Diyarbakir,
CUZF Agricultural Research Center - Koruklu, south of Sanliurfa,
Irrigation Techniques Research Institute (Sulama Teknikleri Arastirma Enstitusu) in Akcakale,
Village Affairs Research Institute,
Plant Protection Research Institute (Bolge Zirai Mucadele Arastirma Enstitusu) in Diyarbakir,
Pistachio Research Institute (Antepfistigi Arastirma Enstitusu) in Gaziantep,
Horticulture Breeding Station (Meyvecilik Uretme Istasyonu) in Kilis, and
Plant Breeding Station in eight locations.

The Ceylanpinar Agricultural Enterprises carries out applied research activities, and allocates land and research facilities to research institutes and universities. A close link is maintained between the research institutes and the provincial extension services, as manifested by the TYUAP project.

The Region is relatively free from plant diseases but some insects attack cereals each year before the crop maturation. The Diyarbakir Plant Protection Research Institute is carrying out research activities on pests, diseases and insect damages.

There are four soil analysis laboratories in the Region, where farmers obtain soil analysis of their farm land and recommendation for fertilization.

Agricultural machinery

Most agricultural machinery is domestically produced. There are

agricultural machinery and implement (equipment) manufacturers in Gaziantep, Diyarbakir and Sanliurfa. The Agricultural Supply Organization, a State Economic Enterprise providing agricultural inputs to farmers, mainly fertilizer and machinery, has a big agricultural machinery and implement manufacturing plant in Sanliurfa. Although at present the plant operates below capacity, it is expected to manufacture machinery and equipment suitable to the Region.

The number of tractors and other machinery/implements in the Region are shown in Table A.11. The Region is comparatively less equipped with these machinery and implements. The low level of mechanization comes from the fact that dryland agriculture system prevailing in the Region does not require as high mechanization as irrigated agriculture. Other reasons are fragmented land ownership and land tenure systems and difficulties for farmers to obtain farm credit.

There are no organized tractor and machinery hiring services in the Region, but such services are common in Turkey. Combine harvesters move from one region to another depending on crop maturity. Due to early crop maturity in the Region, combine harvesters come from outside the Region before they serve other regions.

Tractors and machinery are hired locally, usually from other farmers in the same village. Lentils face harvesting problems, since harvesting period is short and planted area is very large. Harvesting by hand is too expensive and time consuming, while harvesting by mower damages the crop and causes grain losses.

Technical training

Of two universities in the Region, only Dicle University in Diyarbakir offers education in agricultural sciences. Its Faculty of Agriculture is located in Sanliurfa. The Cukurova University Faculty of Agriculture has many research activities directed to the GAP region. Two technical agricultural schools in the Region, one in Siirt and the other in Mardin, are closed at present. The one in Siirt is used at present as a home economics school.

(5) Farmers' association

The only farmers' associations with legal status are the Chambers of Agriculture and the Union of the Chambers of Agriculture. Most counties have their chambers of agriculture, but some in Eastern and Southeastern Anatolia are not active due to financial problems. The Chamber of Agriculture Law, effected in 1957, gives authority and responsibility to each chamber to engage in extension, research, input provision, marketing and other activities to support farmers. However, the chambers of agriculture in the GAP region are not well organized and not

active.

There are also farm unions established by the Associations Law to organize farmers participating in the same cultivation of stock raising activities. Most of them are not active, including one in Sanliurfa.

2. Livestock

(1) Livestock population and production

Livestock population

The livestock population in the GAP region is provided in Table A.12 by kind of animal and by province. There exist 5.01 million sheep and 2.15 million ordinary goats in the Region, accounting for 11.7 and 19.3 % of the respective total population in Turkey. The number of cattle is only 831 thousand, corresponding to 6.5 % of the total in Turkey. This dominance by sheep and goats reflects the nomadic type of stock raising prevailing in the Region due to its socio-cultural backgrounds and climatic conditions.

Other livestock populations in the Region include poultry (6.1 % in the national population), turkeys (12.8 %), bee hives (3.1 %), angora goats (8.8 %), and buffaloes (2.7 %). In addition, large number of horses (12.7 %), mules (17.7 %) and donkeys (11.3 %) are kept as draft animals.

Livestock production

The production of meat and milk has been estimated based on the livestock population, the analysis on herd composition and the estimated live weights according to ages. The production of red meat in the Region is summarized in Table A.13 by kind of meat and by province. The total amount of red meat produced in the Region is 65,300 tons. The total amount of poultry produced in the Region is 11,000 tons, consisting of 8,700 tons from chickens and 2,300 tons of turkey.

The average milk yields are widely different among different breeds of animals, ranging from 3,500 kg/year for Holstein and 2,000 kg/year for the crossbred of cattle to 700 kg/year for native breeds of cattle and 40-70 kg/year for sheep and goats. The total amount of milk produced in the Region in 1987 is estimated to be 409 thousand tons. The breakdown by animal kind and by province is shown in Table A.14. About 75 to 80% of the regional production is consumed by producing farmers, and the rest sent to the market.

Other livestock products supplied to markets in 1987 include 18 thousand ton eggs, 9,270 ton wool, 322 ton angora mohair, 1,260 ton goat hair, 383 ton honey and 27 ton beeswax (Tables A.15, A.16 and A.17).

(2) Typical stock raising practice

A few heads of cattle owned by each farming family are brought together to constitute a village cattle herd. The herd, after morning milking, graze in the village common pasture until it is distributed to the respective houses at sunset for milking. Then they are usually fed straw, barley or industrial feed to complete their feeding. A pasture and meadow system with partitioned paddocks, which are alternatively used, is not found in the Region, except at the Ceylanpinar Agricultural Enterprise in Sanliurfa. Fodder production with irrigation and rotation is also carried out at the Farm.

Sheep lamb generally between January and March, taken to pastures in the highlands to graze during summer, where the shearing and milking are also carried out. Ordinary goats and angora goats also follow the same nomadic livestock practices.

(3) Policies and organizations

The national policies related to livestock development are formulated by the Ministry of Agriculture, Forestry and Rural Affairs. The ministry is sub-divided into three major departments. Their main responsibilities related to livestock development are the following. The Department of Protection and Control is to protect animal health, produce or procure for this purpose all kinds of inoculations, serum, biological and chemical agents, determine conditions for their import, export, preservation and sale, and control movements of animals in the Country. The Department of Projects and Implementation is to bring about the selection and development of animal species, assist in the preparation of animal pedigrees, formulate implementation programs, and supervise the project implementation. The Department of Organization and Support is to assist farmers and producers to organize themselves, obtain training, satisfy demand for agricultural inputs and other basic goods.

There are number of State-owned enterprises performing various ancillary activities. The Meat and Fish Organization is involved in regulating the meat market in the Country and in protecting consumers from high meat prices. The Turkish Dairy Industries Organization (TSEK) is commissioned to evaluate milk production to develop proper cattle breeding. The Turkish Feed Industries Corporation is charged with the production of concentrated feed. The General Directorate of Agricultural Enterprises produces and distributes seed, saplings and studs required by farmers, and the Agricultural Bank of Turkey supports various agricultural activities with a range of credits.

The Chambers of Agriculture and the Turkish Union of Agricultural Chambers are main private sector entities responsible for

organizing professional activities of farmers. The Turkish Union of Chambers of Commerce, Industry and Maritime Trade and Commodity Exchanges is involved in animal marketing. The Turkish Development Foundation (TKV) has been performing outstanding services in supporting poultry farms. In the Region, there are poultry undertakings supported by TKV. The milk and dairy plants was once operated in Siirt by TSEK but its equipment was transferred to Izmir due to a shortage in operating budget and insufficient collection equipment.

(4) Marketing

Marketing facilities

The facilities established in the Region for marketing animal products include, meat combines of the Meat and Fish Organization, dairy plants, cold storage and other processing plants as summarized in Table A.18 by province.

There are two types of livestock markets: traditional municipal livestock markets and organized livestock markets constructed by MAFRA. The former open on specified days of a week in places determined by each municipality, and the latter open almost everyday. Two organized markets exist in the Region. The one in Diyarbakir is managed by the Union of Turkish Chambers of Commerce and Borsas, and the other in Sanliurfa by the municipality.

Marketing by product

Approximately 60-70% of total milk production in Turkey is marketed through mandira, small establishments for cheese and butter making. The sales are on the consign basis. Milk requirements of consumers in larger cities are satisfied through street milk sellers. Milk is also delivered to consumers at home.

Facilities for meat marketing such as cold storage and refrigerated vehicles are provided by the Fish and Meat Organization (Et ve Balik Kurumu ; EBK) or private entities. In Diyarbakir and Sanliurfa, meat marketing depends mostly on the private sector and EBK contributes to 10% of sales. Mardin-Kiziltepe slaughterhouse has been recently established and is operating at 8-10% capacity.

(5) Support systems

Artificial and natural insemination

Artificial insemination has been done in Turkey for many years for Merinos, Jersey, Brown Swiss and Holstein breeding. In the Region, however, its execution has been limited due to dispersed settlement patterns, inadequacy of knowledge and education on animal breeding, lack of incentive on the part of producers to improve the quality of their products, and insufficient facilities.

In areas where artificial insemination is unavailable or inadequate, bull centers are established. Application of natural insemination is also limited in the Region. Most farmers keep their female cows together with the bulls of dubious pedigree. Distribution of breeding cattle by race is shown in Table A.19 by province.

Disease control

Animal diseases such as foot and mouth disease, pestes equina and bovina are the threat to the Region's livestock. Nomadic movements, which do not observe borders with Iraq and Syria, constitute the single most important factor for the transmission of diseases.

The Ministry has performed preventive inoculation works which have put the spread of diseases under control for the time being. In the Region, the cases of preventive inoculation rose from 920,000 in 1982 to 1,544,000 in 1987 for cattle and from 3,123,000 to 10,947,000 for ovines during the same period (Table A.20). Control of parasitic diseases has also been made by the Ministry in the provinces of Mardin, Diyarbakir and Siirt in particular.

Animal feed

There exist eight feed mills in the Region with capacities ranging from 8 to 30 tons/hour. The total annual feed production is 108,000 tons. The production of forage in the Region totaled some 5.42 millions tons in 1987, including natural fodder, cultivated hay, straw hay and ghime, vegetable residues, fallows, stubbles, industrial residues and others (Table A.21). The area of pastures in the Region is about 2.42 million ha, corresponding to about 11 % of the total pasture area in the Country, but the area of meadows is only 2,500 ha, or about 0.4 % of the total meadow area in the Country (Table A.22).

3. Forestry

(1) Existing forest resources

Forest areas

Of the total land area of 72,956 km² in the GAP region, 14,933 km² or 20% falls in the category of forest and heath areas. Based on the MAFRA General Directorate of Rural Services (former Topraksu) land use classification, the actual forested area in 1978 was 604 km².

The MAFRA General Directorate of Forests (GDF) indicates in its 1986 GAP Forestry Planning Report 479 km² as being actually forested (koru), while the total forestry area has been determined to be 11,991 km². The remaining 11,512 km² has been classified as "energy forests" that are covered with shrubs and bushes. GDF policies are based on these two classifications.

Forest resources

Analysis on forest resources indicates that the quality of these resources are degrading every year. Recent studies indicate that 60 to 90% of the energy forests are of poor quality. This implies decreasing yields of wood and increasing erosion of soil by wind and water.

Primary reasons for the degrading forest resources are :

1) Extensive grazing,
2) Tree cutting for heating and cooking, including illicit cutting, and
3) Expansion of farm lands.

Low productivity, rain-fed agriculture, low education levels and difficulties in enforcing land use practices combined contribute to these practices.

(2) Present wood supply and demand

Wood fuel

Current wood fuel demand of the Region is estimated at 1.5 million tons/year (GDF). The current supply capacity in the Region can be estimated based on the area of more productive energy forests and the average yield. The more productive energy forests cover 279,000 ha of which 10% may be cut every year for wood fuel production. Assuming the average yield of 25 tons per hectare cut, this would produce 697,500 tons/year, satisfying 47% of the Region's needs. (Table A.23).

Industrial wood

The Region's industrial wood demand has been estimated to be 170,079 m^3/year. The existing forests in the Region can supply 43,124 m^3/year, indicating a sufficiency ratio of 25%. (GDF)

State nurseries

The GAP region presently has six GDF operated State forestry nurseries covering a total area of 2,369 da with an annual capacity of producing 22.8 million saplings per year. This can cover some 7,500 ha for afforestation. These tree farms are geographically well dispersed. Their locations are Birecik, Diyarbakir, mardin, Ceylanpinar, Siirt-Barus and Gaziantep. The GDF regional organization includes a Regional GDF in Adiyaman-Merkez and provincial offices in each of the six GAP provinces.

(3) Needs for forestry development

Wood demand

Demand for wood fuel in the Region may increase at 2% per annum to reach 2 million tons/year by 2005. The full satisfaction of this demand will require the expansion of areas for tree cutting from the present 27,900 ha to 63,643 ha, assuming the yield will increase also to 32 tons/ha at the annual rate of 1.6%. this

implies that the energy forests of poor quality will have to be converted to the productive energy forests by proper forest management.

Demand for industrial wood in the Region may increase at the annual rate of 2.9% to reach 260,000 tons/year by 2005. By increasing the actual forested area from 47,916 ha to 68,388 ha as well as yield increase at the annual rate of 2.9%, the total industrial wood production will increase from the present 43,124 m^3/year to 94,505 m^3/year by 2005. (Table A.24). This represents the sufficiency ratio of 36% in 2005. The Region's industrial wood needs will also diversify. Thus these needs will be satisfied with supply from elsewhere.

On-farm tree planting

The GAP implementation will bring additional 1.1 million ha under irrigation by 2005 (Alternative C). Based on estimates of minimum tree coverage for wind and erosion control, suggested by UN-FAO, 5% of lands that are irrigated should be planted with trees. This means that 62,000 ha of the present and future irrigation area will have to be planted with trees, including nurseries and poplar as well as windbreaks. (Table A.25).

Coordination needs

The successful implementation of forestry development depends on the cooperation of the indigenous population. Social and economic appreciation of trees/forests is a well established fact. In an environment where subsistence farming activity has been dominant the development and implementation of forestry programs have been difficult.

Forestry development activities need to be coordinated with agricultural extension, education and incentives and marketing assistance. The implementation of GAP will result in a more responsive population due to improved productive capacities.

(4) Prospect

Forestry development planning for GAP

The GAP implementation will alter the existing production and land use patterns, which will have serious implications to the forestry sector. On the one hand, agricultural land use will become more intensive with higher productivity, as a result of irrigation, controlled grazing and other associated measures. This may reduce the pressure on forest resources. On the other hand, proper management of irrigated area will call for extensive on-farm tree planting. Also demand for wood fuel and industrial wood will increase as the Region develops and the population increases. Therefore, the forestry development planning needs to be phased in accordance with the GAP implementation.

The GAP forestry development planning deals with the following :

1) forestation in areas currently under irrigation (121,983 ha),
2) on-farm tree planting on the planned irrigation area (1,115,975 ha by 2005, Alternative C),
3) improvement of productivity of existing forests (47,916 ha) and expansion of forested area,
4) maintenance and enhancement of productive energy forests (279,000 ha), and conversion of a part of poor energy forests (872,150 ha) into productive ones, and
5) establishment of a saplings/seedlings supply policy with adequate tree farms to meet the needs for all the above.

Supply capacity expansion

The regional wood fuel demand can be met by expanding the energy forest areas for cutting by 2,383 ha every year during 1990-2005. This will call for proper management of the current productive energy forests and the enhancement of some poor energy forests.

In order to increase the sufficiency ratio of the regional demand for industrial wood from the current 25% to 36% by 2005, the actual forested area will have to be expanded by 1,365 ha annually during 1990-2005. The on-farm tree planting on the irrigation areas will cover on an average 4,133 ha/year. For these purposes, the seedlings/saplings supply capacity of the GDF services in the Region will have to be maintained. Also the supply by private enterprises should be encouraged with incentives provided by Forestry Law 6831 as amended and new Afforestation Legislation introduced in 1987.

Program components

Forestry development programs of GDF within the Region would include :

- inventory of existing forest resources,
- completion of cadastre surveys to determine land ownership,
- potential evaluation of various forest reserves,
- establishment of policy objectives based on the potential evaluation,
- upgrading of research facilities to determine adaptive characteristics of alternative tree species for erosion control, commercial farming, recreational and urban needs,
- programming of tree-farming operations to meet the Region's needs, and
- development of operational framework in which private initiative can be channeled to commercializing forest development.

Investment

The GAP forestry development would require TL 203.5 billion (mid-1988 price) over 1990-2005. This does not include the costs of on-farm tree planting by farmers. The investment will increase towards the latter phases of GAP implementation. (Table A.26).

4. Fishery

(1) Fishery in Turkey - an overview

Inland waters and fisheries

Turkey has some 200 larger natural lakes, 100 reservoirs (dam lakes), 37 lagoons (25,000 ha), 600 smaller reservoirs and 33 major rivers (177,714 ha). There are also a number of inland salt lakes. The majority of inland water bodies are situated in the western part of Anatolia.

The inland fisheries of Turkey are characterized by two factors: firstly they are almost entirely confined to the natural lakes and man - made water bodies that are perennial, and secondly exotic species of cyprinus carpio (common carp) form the main source of these fisheries.

Freshwater fish production in the inland waters had risen from 22,244 (metric)tons in 1979 to 46,497 tons in 1984 and 40,280 tons in 1986 with common carp, mullet,trouts and freshwater crayfish as major species. The decline in production in 1986 is due to outbreak of disease in crayfish. On the average freshwater fish accounts for 8 % of the national fish production.

The aquaculture share in the freshwater fish production has been gradually rising. There are over 120 private farms in Turkey involved in trout culture; most of these farms are not in operation.

The capture fisheries employs about 10,000 full-time fishermen.

The productivity from natural lakes in Western Anatolia ranges between 4 and 44 kg/ha/year. Most of the lakes support a subsistence fishery. Some do support a commercial fishery. The highest catches are achieved in Lakes Aksehir and Egridir which have intensive crayfish fishery. However in recent years the catches declined from 400 kg/ha/yr to 60 kg/ha/yr. Other fishes of commercial importance are common carp, cat fish (Silurus glanis) and pike (Esox lucius).

Rivers only support subsistence fishery. There is a paucity in fisheries statistics and there is a need to study the physical, chemical and biological factors including fishes of the rivers.

The reservoirs in Turkey are perennial. They are presently utilized only marginally for fish production through the stocking of fingerlings by DSI. The total yield from the reservoir fishery is presently 6,760 tons (1986) averaging a yield of 37 kg/ha/year contributed mainly by common carp and crayfish. Experimental cage culture of common carp is currently being carried out in Keban Dam reservoir.

Fish distribution and consumption pattern

Turkey has a good road communication network and its fish are transported by road vehicles. There are three principal lines of distribution from Black sea ports, where approximately 80 % of the marine fishes are landed to central distribution points. The principal lines are Trabzon, Fatsa and Eregli lines. The Trabzon line supplies Erzurum, Erzincan, Elazig, Diyarbakir, Sanliurfa and other centers in the east and southeast.

Marketing of lake and reservoir fish is done by cooperatives and private firms which have been leased by the Ministry of Finance and Custom to fish or harvest lakes and reservoirs by the. These fish are sold in specific townships or area.

In Turkey the majority of fish is sold fresh. Consumers in the coastal regions show a preference for marine fish over freshwater fish. Consumers from low-income groups especially in the hinterland prefer freshwater fish. The output of frozen fish is almost entirely for export, and very limited amount is canned for export. Domestic consumption of canned fish and frozen fish is not established.

The main source of animal protein is from red meat and white meat. The per capita consumption of red meat is about 19 kg and white meat is about 4.5 kg. Fish contributes very little to turkish diets. The per capita fish consumption was 7.5 kg in 1981 and 8.5 kg in 1986. The contribution by freshwater fish is but 0.8 kg per capita.

The price of fish varies considerably from place to place. The price varies from 1,500 TL/kg for anchovies and mackerel to 4,000 TL/kg for quality fish such as turbot. The price of freshwater fish also varies from species to species; 800 TL/kg for common carp, 1,200 TL/kg for Wels, 2,500 TL/kg for eels and 3,000 TL/kg for cray fish.

(2) Organizations and institutions

Central organizations

Inland fisheries in Turkey has gained importance since 1971 when the General Directorate of Fisheries was founded. However, in the reorganization within the Ministry of Agriculture, Forestry and Rural Affairs (MAFRA), the General Directorate of Fisheries was abolished and several General Directorates were formed. Three General Directorates are responsible for the fishery. They assist in the planning for and the management of the inland fisheries - particularly in the natural lakes or rivers. Currently these directorates coordinate various government fisheries centers and research stations. Some Provincial directorates under the General Directorates are also involved in advising and monitoring the capture fisheries and in the expansion of aquaculture.

The Division of Operation and Maintenance of DSI is responsible for water resources development for hydroelectric power plants, irrigation and drainage system.They are carrying out fishery activities in the reservoirs. DSI has made limnological study of about 100 reservoirs and stocked them with fingerlings of mirror carps (11,000,000) produced at their three hatcheries in Bolu-Golkoy, Adana-Seyhan and Edirne-Ipsala. Brooder (Broodstocks of scale carp, mirror carps) of 60,000 have been restocked to 92 reservoirs till the end of 1986. A few of reservoirs (especially the small ones) are assigned for sports fishery and till the 1986, 54 reservoirs were leased to the fishery cooperatives and private sectors for harvesting. Fishery season and off-season of the reservoirs are enforced by Government with the advice of DSI fishery personnel.

Fishery institutes

There are a number of fisheries high school and universities offering fishery science. These institutions offer courses at licence level and the graduates are officially known as "Fisheries Engineer". The following are well known schools in Turkey;

Egridir Fisheries High School
Izmir Fisheries High School
Adana Fisheries High School
Sinop Fisheries High School
Istanbul Fisheries High School
Ankara University (Fisheries Dept.-Agriculture Faculty)

The fisheries institutions are not well equipped. There is a lack of faculties, trained staff for teaching and research. Graduates lack practical training particularly for hatchery and farm operation and management.

(3) Fishery in the GAP region

Inland waters

In the GAP region, there are 2,235 km of rivers, 6,481 ha of natural lakes and 37,751 ha of reservoirs (Table A.23). The Firat river has 3,281 ha of natural lakes and 6,689 ha of reservoirs. Existing reservoirs in the Firat-Dicle river systems within the Region are given in Table A.24. Dam reservoirs under construction and planned are summarized in Tables A.25 and A.26.

Fish species

The list of fish species in the Firat-Dicle system is provided in Table A.27. It is represented by the families of Cyprinidae, Cobitidae, Bagridae, Sisoridae, and Aridae. The marketable species are of Barbus spp(Biyikli Balik) and fresh water mullets (Tatlisu Kefali).

Fish supply

The total production of freshwater fish was 805 tons in 1980,

1,515 tons in 1984 and 898 tons in 1986. Common carp is the dominant type of fish in all the provinces (Table A.28) amounting for about 90% of the production (1986). The data do not indicate whether they are from fish farms or capture fisheries. Gaziantep province contributed about 71% (640 tons) of the production and Adiyaman about 13%. The contribution of GAP production to the national freshwater production is very small accounting for about 2%. The per capita consumption in the GAP is 0.21 kg. Gaziantep province has the highest per capita consumption with 0.66 kg and Sanliurfa has the lowest with 0.04 kg.

The supply of marine fish to the GAP is seasonal and is from the Black Sea region by the Trabzon line as explained earlier. The supply is once or twice a week in winter months and there are no supplies in summer months because there are lack of cold storage facilities for fish.

Fishery activities

As indicated above the total freshwater catch does not indicate the aquaculture contribution, if there is any. If there is any aquaculture activities in the GAP, it is not documented except for some hatcheries activities (Table A.29) in Diyarbakir, Mardin and Gaziantep where six hatcheries belonging to cooperatives and private owners produce fingerlings of mirror carp for stocking.

There is a project under preparation for trout culture in Adiyaman province. The project is located in Harmanli of Golbasi district. It is expected to be in operation in 1989. The production capacity is 15 tons annually and the hatchery is to produce.70,000 fingerlings for its own production and 30,000 for sales. The total cost is estimated to be about 50 million TL.

Other fishery activities are the stocking programmes that are being carried out by MAFRA and provincial directorates. Under the Inland Water Aquaculture Product Development Project by the General Directorate of Project Application and Implementation; 648,000 fingerlings in Diyarbakir, 25,000 in Adiyaman, 175,000 in Gaziantep and 148,000 in Mardin, amounting to 996,000 fingerlings of mirror carp have been stocked in the GAP. In another project known as Turkish Inland Waters Fish and Crayfish Stocking Project, the objective is to stock 16.5 million of fingerlings in Turkish inland waters. Approximately 3.71 million of mirror carp fingerlings have been stocked from 1984 to 1986 in the GAP (Table A.30). In total 4.705 million fingerlings have been stocked in the GAP provinces. The provincial directorate of Adiyaman has stocked 3.60 million fingerlings of mirror carp in Lakes Azali, Golbasi, Inekli, Abdulharap, Cataltepe and Dot (artificial lake) since 1984 to 1987 (Table A.31) which also includes the 896,000 fingerlings stocked in 1986 under the Turkish Inland Waters Fish and Crayfish Project.

There is no data on the reservoir fishery activities except for the limnological study and stocking programmes by DSI. The DSI has carried out limnological studies of Devegecidi reservoir and Tahtakopru reservoir before stocking. According to their studies, the productivity of the reservoirs in the GAP in general is low. The productivity of Tahtakopru reservoir was about 15 kg/ha/year before stocking and it is currently about 56 kg/ha/year after stocking. Similarly, Devegecidi reservoir was about 20 kg/ha/year before stocking and presently it is about 53 kg/ha/year after stocking. The fish species are commonly of mirror carp and other cyprinids.

The Karakaya Dam reservoir which is in partial operation from 1988, has no fishery activities. Since it is a new reservoir it may take three to four years for biological development to occur. After a limnological study by DSI, a stocking programme would be envisaged by them. This reservoir will be one of the potential water bodies for fisheries development.

A-2. Production and Value-Added Estimate

1. Baseline conditions

(1) Crop cultivation

Cultivated area, production and yields of crops in the GAP region in 1985, the base year, are summarized in Table A.32. The value-added per ha under different crops has been obtained from crop budget analysis. The value-added by crop has been calculated as shown in Table A.33. The total value-added of crop cultivation was TL 1,068.1 billion in 1985.

(2) Livestock production

Gross production value of livestock products has been estimated for 1987 based on the production and the price of various livestock products. The results have been converted to the 1985 value by assuming 1.8% annual increase between 1985 and 1987. The overall value-added ratio of 0.55 has been applied to the gross production value to obtain the value-added of livestock activities at TL 365.8 billion in 1985 (Table A.34).

(3) Agricultural value-added in 1985

Fishery, forestry and other sectors are very small and treated as a residual to make the total value-added estimate for agriculture consistent with the available estimate (Table 2.4, The Master Plan). The results are summarized in Table A.35.

2. Projection

(1) Crop cultivation

Value-added due to the planned irrigation schemes has been calculated by adopting simplified cropping patterns and the value-added per ha obtained from the crop budget analysis under irrigation (Table A.36). Variants of the basic cropping pattern (Table 3.2, The Master Plan) were assigned to different irrigation schemes. The total value-added has been calculated for Alternatives A, B and C on the basic of value-added of those schemes included in the respective alternatives (definition of the alternatives in Section 4.1, The Master Plan).

It is assumed that the total agricultural land will increase by 10% in the next two decades. The area of dryland is calculated by subtracting the area replaced by irrigation from the total agricultural land in 2005. An increase in productivity on dryland is incorporated in projecting the value-added of dry farming.

(2) Livestock

Alternative production levels have been examined for livestock activities:

1) Present productivity level in the GAP region,
2) Productivity level I representing a slow increase in productivity to reach the national average in 2005,
3) Productivity level II between the national average and the present European standard, and
4) Productivity level III representing the present European standard.

For each alternative, production of various livestock products has been estimated under relevant assumptions on productivity (Table A.37). The gross production value has been converted to the value-added by applying the same overall value-added ratio of 0.55.

The value-added of livestock activities will increase at 1.8%, 2.9%, 3.0% and 3.4% respectively under the alternative production levels.

Future livestock activities will be a mixture of production at different productivity levels. In the present estimate, the growth rate of livestock value-added is assumed at 2.8% per annum.

(3) Fishery and others

Value-added in fishery will increase substantially as the water areas to be newly created by the GAP dam schemes are used for inland fishery. The value-added from fishery in the Ataturk reservoir is roughly estimated as follows.

Surface area of Ataturk reservoir		660	km² (minimum)
Yields of fish		50	kg/ha/year
Production		3,300	tons/year
Price	TL	2,000	/kg
Production value	TL	6.6	billion
Value-added ratio		0.8	
Value-added	TL	5.28	billion

The total water surface area will be 2,200 km² after the full development of the GAP. Including other related activities the total value-added of fishery would be some TL 20 billion in 2005.

The main activity in forestry sector will be wood fuel production. The total value-added due to wood fuel production from energy forests with fast growing tree species is roughly estimated as follows.

Cost of establishing energy forests :		
TL 350,000/ha * 0.1 (annuity)=	TL	35,000/ha
Maintenance cost	TL	75,000/ha
Total annual cost	TL	110,000/ha
Average yield of productive energy forests	4	tons/ha/year
Price of wood fuel	TL	60,000/tons
Production value	TL	240,000/ha/year
Value-added	TL	130,000/ha/year
Total area of productive energy forests in 2005 (projected)		354,000 ha
Total value-added	TL	46.0billion/year

(4) Agricultural value-added in 2005

The projection results are summarized in Table A.38 for Alternatives A, B and C. Under Alternative A, the total agricultural value-added will increase from TL 1,467 billion in 1985 to TL 3,810 billion in 2005 at the average annual rate of 4.9%. Under Alternative B or C, it will increase to TL 3,186 billion in 2005 at the rate of 4.0% per annum.

A-3 Farm Budget Analysis and Development Evaluation by Other Indices

1. Farm budget analysis

Farm budgets have been worked out for a few model farms of different size. Although there is no single such farm as an average or a typical farm, the size of 2, 5 and 10 ha have been taken as representatives of farms existing in the GAP region. The objective was to obtain an indication of how the general income levels will improve at individual farm levels as a result of introduction of irrigated and more intensive farming.

For each size farm, a typical farming practice has been assumed both for non-irrigated (without project) and irrigated (with project) cases. The farming practices are mostly mixed farming, except the non-irrigated case of 2 ha farm.

For each case, income and expenditure have been estimated for crop cultivation and livestock activities. Income and expenditure data for crop cultivation under irrigation are consistent with the results of the crop budget analysis used in the value-added estimate (Section 4.1 in The Master Plan; Appendix C).

The detailed results are given in Tables A.43 through A.48.

From these results, the net income per ha is calculated for each size farm with and without project and compared with the unit value-added per ha indicated by the socio-economic framework:

Net income per ha and unit value-added

(Unit: 10^3 TL/ha)

Farm size	Without project	With project
2 ha	236	568
5 ha	350	873
10 ha	588	1,172
25 ha	593	1,145
60 ha	483	1,156
Year	1985	2005
Unit value-added	476	940

The unit value-added includes the contribution of labour so that it can not be directly compared with the net income per ha from the farm budget analysis. Also the value-added in 2005 consists of that from both irrigated and rainfed agriculture. Nevertheless, the results summarized above are consistent one another. The income levels will more than double at individual farm levels by the introduction of irrigation.

2. Development evaluation by other indices

The development of agriculture in the GAP region as a result of the GAP implementation can be evaluated by many indices. Some of the indices used by SPO and other indices are taken to compare the agricultural situation in the Region in 1985 and 2005.

The agricultural land per employment will decrease from 2.84 ha to 2.35 ha despite the 10 % increase in the total agricultural land. However all the performance indices show significant improvement. Value-added per cultivated area will double, value-added per rural population will increase by 70%, and milk and meat production will increase substantially. At the same time, fertilizer and tractor requirements will increase by four and over three times, respectively.

Evaluation of GAP agricultural development from 1985 to 2005 by several indices

Index		1985	2005
Total agricultural land	10^3 ha	3,081	3,389
Agricultural land per agricultural employment	ha	2.84	2.35
Total irrigated land	10^3 ha	121	895
Share of irrigated land to agricultural land	%	3.9	26.4
Total fertilizer consumption* per cultivated area	kg/ha	195	772
Number of tractors per cultivated area	no/1,000 ha	8.3	26.6
Value-added per cultivated area	10^3 TL/ha	476	940
Value-added per rural population	10^3 TL	740	1,276
Per capita milk production	kg/year	95.1	160.5
Per capita meat production	kg/year	17.7	20.7

* Calculated as the total of fertilizer containing 21% N, 17% P_2O_2 and 50% K_2O

Table A.1 Present Land Use

Area	Total Area (ha)	% in Total	Percentage in each category (%)
1. Area cultivated	3,081,170	42.2	100.0
1) Rainfed agr. land	2,628,703	-	85.3
2) Irrigated area	120,740		3.9
3) Horticulture fruits-vegetables	251,627		8.2
4) Special crops	80,074		2.6
2. Pasture and meadows	2,427,229	33.2	100.0
1) Meadows (grassland)	587		0.0
2) Pastures	2,426,642		100.0
3. Forest and Bush	1,493,327	20.5	100.0
1) Forest	60,401		4.0
2) Bush	1,432,926		96.0
4. Settlement Areas	25.561	0.4	100.0
5. Others	268,334	3.7	100.0
Total (*)	7,295,624	100.0	

(*) Open water areas are not included

Source: Ex TOPRAKSU General Directorate, Provincial Soil Sources Inventory Report

Table A.2 Present Cropping Pattern, Yields and Production, 1986

Crop	Area (Ha)	Yield (Kg/ha)	Production (Ton)	Percent of Total Planted Area (%)
Wheat	1,048,598	1,795	1,882,000	33.9
Barley	570,781	1,878	1,071,800	18.5
Rice	3,089	1,845	5,700	0.1
Maize	2,960	4,459	13,200	0.1
Chick pea	86,929	1,350	117,400	2.8
Lentil	519,524	1,244	646,300	16.8
Pulses	3,392	1,222	4,146	0.1
Cotton	85,127	2,080	177,125	2.8
Sunflower	6,398	938	6,000	0.2
Suger beet	310	26,452	8,200	0.0
Sesame	57,223	327	18,700	1.9
Tobacco	13,499	1,133	15,300	0.4
Vegetables	67,670		1,119,100	2.2
Forages	1,472			0.0
Pistachio	148,084	187	27,700	4.8
Grapes	141,629	4,620	654,400	4.6
Others	32,740			1.1
Dry onion	3,981	19,171	76,320	0.1
Potato	247	15,380	3,799	0.0
Millet	3,896	1,537	5,992	0.1
Fallow	294,012			9.5
Total Area	3,091,561			100
Crop Intensity				90.5

Source: SIS-Agricultural Structure and Production 1986 (published in 1988)

Table A.3 Land Holding Size in the Region

Holding Size	Proportional Distribution of Holdings					
	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURF
Landless	21.2	45.1	28.6	41.3	44.6	42.
1 - 5	58.3	41.3	37.4	46.7	46.6	26.
5.1 - 20.0	16.7	10.3	27.1	9.6	7.2	23.
20.1 - 50.0	2.8	2.1	6.5	1.6	1.0	5.
50.1 - 100.0	0.7	0.7	0.1	0.5	0.5	1.
100.0	0.3	0.5	0.3	0.3	0.1	0.

Source: Ex. Land Settlement General Directorate

Table A.4 Farming Systems in GAP Region

Provinces	Farmers engaged in crop production		Farmers engaged in crop-livestock mixed farming		Total	
	No.	%	No.	%	No.	%
Adiyaman	2,213	7.3	28,055	92.7	30,268	100
Diyarbakir	1,669	4.0	40,267	96.0	41,936	100
Gaziantep	3,933	12.3	27,902	87.7	31,835	100
Mardin	4,239	10.0	37,622	90.0	41,861	100
Siirt	2,056	8.7	21,639	91.3	23,695	100
Sanliurfa	3,922	12.5	27,333	87.5	31,255	100
Total	18,032	9.0	182,818	91.0	200,850	100

Source: State Hydraulic Works, Submitted at GAP Seminar

Table A.5 Present Crop Pattern (Ha.)

Crops	Provinces					
	Adiyaman	Diyarbakir	Gaziantep	Mardin	Siirt	Sanliurfa
Wheat	93,825	246,924	100,737	162,180	82,240	362,592
Barley	52,203	141,008	62,963	67,668	26,450	220,489
Maize	1,393	858	407	-	-	308
Rice	128	1,562	-	292	214	893
Chickpeas	19,470	22,714	22,362	12,187	1,676	8,520
Lentils	25,772	109,060	39,851	151,099	33,320	160,422
Cotton	3,594	22,125	12,860	13,827	2,505	30,216
Sesame	3,850	4,115	1,189	262	118	47,689
Sugarbeet	169	54	87	-	-	-
Sunflower	-	6,164	-	-	-	-
Tobacco	7,579	1,369	45	78	4,428	234
Dry onion	327	926	1,309	472	596	351
Potatoes	15	75	5	152	-	-
Pistachio	36,375	2,450	61,515	3,362	6,234	38,148
Grapes	14,641	22,262	51,538	25,745	7,710	19,733
Vegetables	3,964	17,943	8,365	120	74	124
Fallow	7,630	91,195	1,600	34,000	22,800	136,787
Total	270,935	690,804	364,833	471,444	188,365	1,102,506

Source: SIS - Agricultural Structure and Production, 1986

Table A.6 Regional Share of Agricultural Production, 1986

Crops	National Production (ton)	Regional Production (ton)	Region's Share(%)
Wheat	19,000,000	1,882,000	9.9
Barley	7,000,000	1,071,800	15.3
Maize	2,300,000	13,200	0.6
Rice	165,000	5,700	3.5
Chick pea	630,000	117,400	18.6
Lentils	850,000	646,300	76.0
Vetche	170,000	100	0.1
Wild Vetche	16,000	1,300	8.1
Cotton	1,346,800	177,125	13.2
Sesame	45,000	18,700	41.6
Sorghum millet	15,000	5,900	39.3
Beans	170,000	2,700	1.6
Sugar beet	10,662,346	8,200	0.1
Sunflower	940,000	6,000	0.6
Tobacco	170,000	15,300	9.0
Pistachio	30,000	27,700	92.3
Pomegranate	35,000	9,900	28.3
Grapes	3,000,000	654,400	21.8
Figs	370,000	8,200	2.2
Olives	1,010,000	38,600	3.8
Apricot	300,000	5,800	1.9
Plum	172,000	5,300	3.1
Vegetables	14,823,000	1,119,100	7.5
Milk	6,192,024	409,394	6.6
Meat	677,428	65,267	9.6

Source: Agricultural Structure and Production, 1986

Table A.7 Marketing Types and Outlets of Major Agricultural Products

Products	Types of Marketing	Processing	Storage
Wheat	Free marketing	Flour, macaroni, semolina	TMO Flour mill
Barley	Free market	Feed plant	TMO feed plant
Maize	Free market	Feed Plant	Feed plant
Rice	Free market	Paddy processing	TMO
Sesame	Free market	Tahin	
Sugar beet	Sugar beet factory	Sugar factory	
Sunflower	Free market	Oil factory	Oil industry
Tobacco	Monopoly(TEKEL)	Tobacco, cigarette	Monopoly
Pistachio	Free market, Coop.	Grading, packing	Cooperative
Cotton	Free market	Ginns, fiber factry	Coop.
Grapes	Free market, Coop.	Wine, fruit juice	
Milk	Free market, SEK Fact.,Cheese dairy	Milk factory, cheese dairy	
Meat	Free market, EBK, Fish Organization	Meat slaughter house Butcher,meat products	
Wool	Free market,TYT	Fiber, textile	Fiber,textile
Mohair	Free market,coop.	Fiber, tops, text.	Tops,textile
Hide and skin	Free market,coop.	Tannery, skin fact.	
Live animals	Free market, EBK slaughter house		

EBK = Meat and Fish Organization
SEK = Milk Industry Organization
TYT = Turkish Wool Mohair Corporation

Table A.8 **Processing and Cold Storage Facilties**

Number : S
Capacity: K

Facilities	Unit of Capacity	Adiyaman S	Adiyaman K	Diyarbakir S	Diyarbakir K	Gaziantep S	Gaziantep K	Mardin S	Mardin K	Siirt S	Siirt K	Sanliurfa S	Sanliurfa K	GAP S	GAP K
Flour mill	t/day	4	460	6	597	28	1,392	3	142	2	140	6	502	49	3,233
Macaroni-Semolina	t/day					5	111,858							5	111,858
Edible oils	t/day					2	15,191							2	15,191
Cotton ginnery		1		3		6		9				2		21	0
Cotton fibre						16		1				1		18	0
Textile				1		2								3	0
Wool processing												1		1	0
Tabacco				1										1	0
Feed plant	t/hour	1	8	1	8	2	40	1	8	2	18	1	8	8	90
Milk plant	t/year	1	7,500	1	6,000			1	7,500	1	7,500 *	1	7,500 *	5	36,000
Slaughter house	large heads/day				200		100		400				200	0	900
	small heads/day			1	2,000	1	1,000	1	2,500			1	1,500	4	7,000
Cold storage	chill: t/day		1,030		2,150		2,150		1,335		915		4,415	0	11,995
	frozen: t/day	3	0	8	600	6	600	6	0	4	0	9	500	36	1,700
Agricultural Machinery/Equipment												1		1	0

Note *; Not operational

Table A.9 Seed Requirements, Distribution and Compensation Rate in 1984 and 1985

	Amount Needed (%)		Years	Amount distributed		Compensation Rate	
	Turkey	GAP		Turkey	GAP	Turkey	GAP
Wheat	360,000	43,493	1984	185,877	12,700	51	29
			1985	166,318	8,197	46	19
Barley	130,000	22,289	1984	44,361	382	34	3
			1985	24,434	340	19	2

Source : Ministry of Agriculture, Forestry and Rural Affairs (MAFRA)

Table A.10 Fertilizer Utilization in GAP and Turkey in 1985

(Unit:tons)

Cities	Nitrogenous (21% N)	Phosphate (17% P_2O_5)	Potassium (50% K_2O)	Total (Tons)
Adiyaman	39,198	23,363	-	62,561
Diyarbakir	99,257	42,190	-	141,447
Gaziantep	61,696	39,115	-	100,811
Mardin	49,204	29,235	-	78,439
Siirt	23,380	11,653	1,616	36,659
Sanliurfa	109,671	72,628	-	182,299
Total	382,406	218,194	1,616	602,216
Turkey	4,754,211	3,380,754	62,883	7,197,848
GAP region (%)	8.0	6.5	2.5	7.3

Source: Ministry of Agriculture, Forestry and Rural Affairs

Table A.11 Number of Machinery and Equipments, GAP Provinces

Machinery and Equip.	Adiyaman	Diyarbakir	Gaziantep	Mardin	Siirt	Sanliurfa	Region	Turkey
Tractor	3574	5122	8008	4062	1815	4978	27559	583974
Combine Harvester	3	90	15	144	36	326	614	13615
Seed Drill-Planter	240	1978	1141	2302	179	5233	11073	228447
Cultivator	3290	3987	3734	1373	451	3940	16775	217821
Tractor Hoe	163	240	1079	18	---	273	1773	85822
Tractor Plow	3519	4481	7495	4202	2007	6685	28389	670359
Fertilizer Distributer	698	1185	786	1256	103	1358	5386	120802
Mover	182	--	215	244	--	221	862	33651
Tresher	89	773	387	598	887	754	3488	117986
Sprayer	2729	2366	1657	634	823	1240	9449	494442
Motor Pump	970	1734	729	742	1577	3635	9387	361795
Trailer	3439	4668	6335	3554	1581	4248	23825	525791
Wooden Plow	8620	9610	8780	46400	9628	10975	94013	706324
Livestock Plow	503	1337	670	3150	629	2269	8558	654181

Source : Agricultural Structure and Production, 1986

Table A.12 Livestock Population in GAP Region (1986)

Province	Sheep	Goats	Mohair Goat	Cattle	Buffaloes	Poultry	Turkeys	Bee hives
Adiyaman	322,393	208,461	-	91,857	5	463,443	22,691	11,681
Diyarbakir	897,115	339,542	-	326,107	12,554	617,320	95,224	7,059
Gaziantep	668,976	357,180	-	62,939	444	993,657	47,374	13,304
Mardin	975,627	400,969	148,959	130,749	658	531,288	100,454	19,225
Siirt	766,921	555,820	40,612	89,555	515	367,040	54,250	15,484
Sanliurfa	1,379,600	290,540	-	129,499	801	565,723	91,933	13,511
Total in Region	5,010,632	2,152,512	189,571	830,706	14,977	3,538,471	411,926	80,264
Share in national Total (%)	11.7	19.3	8.8	6.5	2.7	6.1	12.8	3.1
Total in Turkey	42,791,144	11,158,634	2,163,056	12,695,293	554,831	58,039,000	3,207,000	2,586,971

Source: Ministry of Agriculture, Forestry and Rural Affairs (MAFRA)

Table A.13 Meat Production in GAP Region (1987)

(Unit:tons/year)

Province	Sheep meat	Goat meat	Mohair Goat	Beef	Buffalo	Total	Share (%)
Adiyaman	2,428	1,115	-	1,632	0	5,175	7.9
Diyarbakir	6,755	1,817	-	5,795	259	14,626	22.4
Gaziantep	5,037	1,911	-	1,119	9	8,076	12.4
Mardin	7,346	2,146	746	2,324	14	12,576	19.3
Siirt	5,775	2,974	203	1,591	10	10,553	16.2
Sanliurfa	10,388	1,555	-	2,301	17	14,261	21.9
Total	37,729	11,518	949	14,762	309	65,267	100.0
Share (%)	57.8	17.6	1.5	22.6	0.5	100.0	

* Estimated by the Consultant based on population statistics

Table A.14 Milk Production in GAP Region (1987)

(Unit : tons/year)

Province	Holstein	Brown Swiss	Cross Breed	Southern Ana. Red	Native Breed	Baffaloes	Sheep	Ordinary Goats	Mohair Goats	Total milk production	Share (%)
Adiyaman	3,829	1,830	6,590	6,433	10,935	1	6,261	6,414	-	42,293	10.3
Diyarbakir	4,046	-	3,932	5,097	57,221	2,680	17,423	10,447	-	100,846	24.6
Gaziantep	2,762	-	4,196	16,559	-	95	23,711	10,989	-	58,312	14.2
Mardin	189	312	446	8,748	19,106	140	22,737	12,337	1,835	65,850	16.1
Siirt	357	15	2,112	1,407	15,637	110	14,895	17,101	500	52,134	12.7
Sanliurfa	5,225	-	7,724	21,153	9,237	171	37,510	8,939	-	89,959	22.0
Total in Region	16,408	2,157	25,000	59,397	112,136	3,197	122,537	66,227	2,335	409,394	100.0
Share (%)	4.0	0.5	6.1	14.5	27.4	0.8	29.9	16.2	0.6	100	

* Estimated by the Consultant based on population statistics

Table A.15 Poultry Meat and Egg Production in GAP Region 1987

	Adiyaman	Diyarbakir	Gaziantep	Mardin	Siirt	Sanliurfa	Total in Region
Population (hen and cock)	894,047	1,256,632	993,657	1,075,270	948,710	1,168,777	6,337,093
Slaughter weight (kg/head)	1,960	1,915	1,954	1,870	2,160	1,890	
Dressing percentage(%)	70	70	70	70	70		
Meat production (ton)	1,228	1,683	1,359	1,407	1,439	1,553	8,669
Egg production (ton)	2,390	3,914	3,234	3,172	1,957	3,347	18,014 (excl.breeding)
Egg production(1000)	44,909	73,344	60,445	59,610	36,775	62,895	337,978 (incl.breeding)
Population (Turkeys)	81,873	178,531	89,147	192,708	105,280	184,315	658.424
Slaughter weight(kg/head)	4,050	4,000	4,000	3,950	3,930	3,860	
Dressing percentage(%)	75	75	75	75	75		
Meat production (ton)	127	537	267	572	310	534	2,347
Egg production (ton)	59	256	116	299	144	297	1,171(ex.br)
Egg production(1000)	682	2,962	1,485	3,280	1,814	3,284	13,507(in.br)
Poultry population	975,920	1,435,163	1,082,804	1,267,978	1053,990	1,353,092	6,995,517
Poultry meat (total)(t)	1,355	2,220	1,626	1,979	1,749	2,087	11,016
Egg prod.(total ton)	2,449	4,170	3,350	3,471	2,101	3,644	19,185
Egg prod. in 1000	45,591	76,306	61,930	62,890	38,589	66,179	351,485

* Estimated by the Consultant based on population statistics

Table A.16 Wool, Hair and Mohair Production in GAP Region (1987)

Provinces	Wool			Hair			Mohair		
	Population	Average kg/year	Production tons	Population	Average kg/year	Production tons	Popu.	Aver. kg/yr	Prod. tons
ADIYAMAN	322,393	1.850	596	208,461	.585	122	-	-	-
DIYARBAKIR	897,115	1.850	1,660	339,542	.585	199	-	-	-
GAZIANTEP	668,976	1.850	1,238	357,180	.585	209	-	-	-
MARDIN	975,627	1.850	1,805	400,969	.585	235	148,959	1.700	253
SIIRT	766,921	1.850	1,419	555,820	.585	325	40,612	1.700	69
SANLIURFA	1,379,600	1.858	2,552	290,540	.585	170	-	-	-
TOTAL	5,010,632		9,270	2,152,512		1,260	189,571		322

* Estimated by the Consultant based on population statistics

Table A.17 Honey and Wax Production in GAP Region, 1987

	Adiyaman	Diyarbakir	Gaziantep	Mardin	Siirt	Sanliurfa	Total in Region
Population							
Number of hives:							
a) old type	8,209	5,004	11,104	18,275	14,518	12,723	69,833
b) modern type	3,517	2,056	2,200	950	966	788	10,477
Honey production (kg)	95,328	48,743	66,185	63,390	52,990	56,251	382,887
Wax production (kg)	3,115	5,460	1,580	9,880	4,810	1,885	26,730
Honey production percentage	24.90	12.73	17.29	16.56	13.84	14.68	100.00

Source: MAFRA, TKV

Table A.18 Processing and Marketing Facilities for Livestock-Related Products

Province	Flour Mill		YSTAS Feed Mill	EBK Meat Combine	TSEK Dairy Plant	Cold Storage		Other Processing Plants	
	(tons/day)	No.of Estab.	(tons/year)	(tons/year)	(tons/year)	(tons)	No.of Estab.	(tons/year)	No.of Estab.
Adiyaman	460	4	16,000	-	7,500	1,030	3		
Diyarbakir	597	6	16,000	96,000	6,000	Cold: 2,835 Freeze:1,015	8	111,858 15,191	5 2
Gaziantep	1,392	28	42,952	4,800	-	Cold: 2,835 Freeze:1,015	6		
Mardin	142	3	2,146	10,650	7,500	1,335	6		
Siirt	140	2	2,974	-	-	915	4	16,000	
Sanliurfa	502	6	1,555	7200	6000 (at Siverek*)	Cold: 4,415 Freeze: 500	9		1

Note *: Not operational at present
Source: TMO, EBK, TSEK

Table A.19 Distribution of Breeding Cattle by Races and Its Projection

Year	Pure Bred Cattle			Cross Bred Cattle			Netive Cattle	Grant Total
	Brown-Suiss	Holstein	Total	Brown-Suiss	Holstein	Total	Total	Heads
1986	1,870	11,356	13,226	6,232	26,345	32,577	784,903	830,706
1989 *			14,229			34,800	810,224	859,850
1994			17,379			39,948	860,983	918,310
1999			21,145			350,291	683,439	1,047,875
2004			27,357			840,991	286,132	1,154,480
2009			50,507			1,142,420	91,973	1,284,900

* :Pure Bred-Cross Breeding and Dairy Programme will start in 1989.

Table A.20 Preventive Vaccinations Against Foot and Mouth Disease, Pestis Bovina, Variola ovis, Anthrax and Enterotoxemia (1000 head)

Kind of Provinces	1982 Animals	Vaccinated animals	1987 Preventive vaccination	Vaccinated animals	Preventive vaccination
ADIYAMAN	Cattle	1	109	8	121
	Sheep	14	166	42	932
DIYARBAKIR	Cattle	31	408	2	350
	Sheep	363	677	88	1,358
GAZIANTEP	Cattle	1	60	--	67
	Sheep	86	588	2	2,325
MARDIN	Cattle	-	134	1	118
	Sheet	274	530	45	2,347
SIIRT	Cattle	-	100	4	730
	Sheep	243	308	181	2,292
SANLIURFA	Cattle	2	109	1	158
	Sheep	153	854	6	2,693
TOTAL	Cattle	35	920	16	1,544
	Sheep	1,133	3,123	364	10,947

Source: MAFRA

Table A.21 Roughages Production in GAP Region, 1987

(Unit:tons)

Name of Roughages	Adıyaman	Diyarbakır	Gaziantep	Mardin	Siirt	Sanlıurfa	Total in Region	
Natural fodder	156,805	201,959	42,254	198,287	118,481	336,673	1,054,459	19.5%
Cultivated hay	4,265	2,111	562	35	1,081	11,301	19,355	0.4%
Straws hay and ghime	403,865	745,534	402,289	731,602	218,410	1,089,587	3,591,287	66.3%
Fallows	1,907	22,774	400	8,500	5,700	34,196	73,477	1.4%
Stubbles	10,837	16,668	7,441	9,713	4,414	23,659	72,732	1.3%
Roots and tubers	20	190	14	346	-	-	570	0.0%
Vegetable residues	5,544	31,164	14,227	357,755	5,598	19,714	434,002	8.0%
Garden resides	26,505	72,846	10,049	13,734	9,710	12,014	144,858	2.7%
Industrial residues Vegetable origin	2,854	9,053	6,002	5,529	1,002	1,438	25,878	0.7%
TOTAL	612,602	1,102,299	483,238	1,325,501	364,396	1,528,582	5,416,618	100.0
	11.3%	20.4%	8.9%	24.7%	6.7%	28.2%		

Source: MAFRA

Table A.22 Meadows and Pastures in GAP Region

	Adıyaman	Diyarbakır	Gaziantep	Mardin	Siirt	Sanlıurfa	Total in Region	Total National
Meadows (ha)	587	-	-	-	-	-	587	646,264
Pastures (ha)	345,185	443,294	193,098	439,330	263,206	742,529	2,426,642	21,099,426

SOURCE: General Directorate TOPRAKSU

AREA

	Annual Increase * (%)	(ha) 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forested (koru)	2.4	47916	49066	50244	51449	52684	53949	55243	56569	57927	59317	60741	62199	63691	65220	66785	68388
Energy forest (productive)	1.6	279000	283464	287999	292607	297289	302046	306878	311789	316777	321846	326995	332227	337543	342943	348430	354005
Energy forest (poor)	1.6	872150	866536	860823	855009	849093	843072	836944	830708	824362	817903	811330	804640	797832	790903	783850	776673
Total Area (ha)		1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066	1199066

* Projected yield growth rates derived from National Forestry Master Plan (1990-2009).
Note: 1990 figures show the existing areas.

YIELD

	Unit	Annual Increase * (%)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forested	m3/ha	2.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.4
Energy forest (productive)	Ton/ha	1.6	25	25	26	26	27	27	27	28	28	29	29	30	30	31	31	32
Energy forest (poor)	Ton/ha	1.6	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6

* Projected yield growth rates derived from National Forestry Master Plan (1990-2009).
Note : 1990 yields based on discussions with Provincial GDF authorities.

SUPPLY

	Unit	Annual Increase (%)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Forest (industrial lumber)	m3	5.4	43124	45440	47880	50451	53160	56014	59022	62191	65531	69050	72757	76664	80781	85118	89689	94505
Energy forest (productive)	Ton	3.2	697500	719999	743223	767196	791943	817488	843857	871076	899174	928177	958117	989022	1020924	1053854	1087848	1122937
Energy forest (poor)	Ton	0.8	436075	440200	444295	448355	452376	456355	460287	464167	467991	471754	475450	479074	482621	486084	489458	492735
Regional production of fuel wood	Ton	2.4	1133575	1160199	1187518	1215551	1244319	1273843	1304144	1335243	1367165	1399931	1433566	1468096	1503544	1539938	1577305	1615672

DEMAND FOR FUEL WOOD

	Unit	Annual Increase * (%)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Regional demand for fuel wood **	Ton	2.0	1500000	1530000	1560600	1591812	1623648	1656121	1689244	1723029	1757489	1792639	1828492	1865061	1902363	1940410	1979218	2018803
Regional production of fuel wood	Ton	3.2	697500	719999	743223	767196	791943	817488	843857	871076	899174	928177	958117	989022	1020924	1053854	1087848	1122937
Regional sufficiency rate	%		46.5	47.1	47.6	48.2	48.8	49.4	50.0	50.6	51.2	51.8	52.4	53.0	53.7	54.3	55.0	55.6
Regional deficiency of fuel wood	Ton		802500	810001	817377	824616	831705	838633	845387	851952	858315	864462	870375	876040	881439	886556	891371	895865

** Annual rate of increase : 2%

Table A.24 Regional Forest Resource Balance

REGIONAL INDUSTRIAL WOOD BALANCE	Unit	Annual Increase (%)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Regional demand for industrial wood *	m3	2.9	170079	175011	180087	185309	190683	196213	201903	207758	213783	219983	226363	232927	239682	246633	253785	261145
Regional production of industrial wood **	m3	5.4	43124	45440	47880	50451	53160	56014	59022	62191	65531	69050	72757	76664	80781	85118	89689	94505
Regional deficiency	m3	1.8	126955	129571	132207	134858	137523	140199	142881	145567	148252	150933	153605	156263	158901	161515	164096	166640
Regional sufficiency rate	%		25.4	26.0	26.6	27.2	27.9	28.5	29.2	29.9	30.7	31.4	32.1	32.9	33.7	34.5	35.3	36.2

* Based on estimate from National Forestry Master Plan (1990-2009).
** Adjusted National Forestry Master Plan (1990-2009) figures.

REGIONAL FUEL WOOD BALANCE (for productive energy forests)	Unit	Annual Increase * (%)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Productive area being cut *	ha	1.6	27900	28346	28800	29261	29729	30205	30688	31179	31678	32185	32700	33223	33754	34294	34843	35401
Additional area need for cutting	ha	-0.8	32100	31890	31673	31451	31222	30986	30743	30494	30238	29975	29705	29427	29143	28850	28550	28242
Total area needed to meet demand	ha	0.4	60000	60236	60473	60711	60950	61190	61431	61673	61916	62160	62404	62650	62897	63144	63393	63643
Cutting area necessary to achieve total demand in 2005	ha	5.7	27900	30283	32666	35049	37431	39814	42197	44580	46963	49346	51728	54111	56494	58877	61260	63643
Percent of productive energy forest	%		10.0	10.7	11.3	12.0	12.6	13.2	13.8	14.3	14.8	15.3	15.8	16.3	16.7	17.2	17.6	18.0
-Total production	Ton	7.3	697500	769184	842984	918948	997127	1077573	1160338	1245475	1333040	1423088	1515676	1610863	1708707	1809271	1912615	2018803
Regional sufficiency rate	(%)		46.5	50.3	54.0	57.7	61.4	65.1	68.7	72.3	75.8	79.4	82.9	86.4	89.8	93.2	96.6	100.0

* 10% of area under productive energy forest
** Productive area being cut + yearly increases of 2383 ha.

Irrigation scheme	Irrigation area (ha)	Area Planted* (ha)	(ha) 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total ha planted
1) Firat river basin																			
Urfa-Harran	141,535	7,077								786	786	786	786	786	786	786	786	786	7,077
Mardin-Ceylanpinar	334,939	16,747												3,349	3,349	3,349	3,349	3,349	16,747
Adiyaman-Kahta	77,409	3,870											645	645	645	645	645	645	3,870
Adiyaman-Goksu-Araban	71,598	3,580														1,193	1,193	1,193	3,580
Gaziantep	81,670	4,084															2,042	2,042	4,084
2) Dicle river basin																			
Dicle-Kralkizi	126,080	6,304									788	788	788	788	788	788	788	788	6,304
Batman	37,744	1,887			135	135	135	135	135	135	135	135	135	135	135	135	135	135	1,887
Batman-Silvan	213,000	10,650															5,325	5,325	10,650
Silopi	32,000	1,600													400	400	400	400	1,600
Grand Total(Firat+Dicle)	1,115,975	55,799			135	135	135	135	135	921	1,709	1,709	2,354	5,704	6,104	7,297	14,664	14,664	55,799
Existing Irrigation	121,983	6,099	610	610	610	610	610	610	610	610	610	610							6,099
Total Area Planted		61,898	610	610	745	745	745	745	745	1,531	2,319	2,319	2,354	5,704	6,104	7,297	14,664	14,664	61,898

Costs of Tree Planting in Irrigated Areas

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total (1990-2005)
Total Investment TL (million)**	213	213	261	261	261	261	261	536	812	812	824	1996	2136	2554	5132	5132	21664
Total Investment $ US(million)	0.16		0.19	0.19	0.19	0.19	0.19	0.40	0.60	0.60	0.61	1.48	1.58	1.89	3.80	3.80	16.05

* %5 of irrigated area

** per ha investment requirement : 350,000 TL (1988)

Note : $ US 1=1,350 TL

Table A.26 Forest Resource Development Plan (1990-2005

Activity	Unit cost	Unit	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total (1990-2005)
Forest (industrial purposes)																			
New forestation *	(350000 TL/ha)	ha		1150	1178	1206	1235	1264	1295	1326	1358	1390	1424	1458	1493	1529	1565	1603	20472
Maintenance	(75000 TL/ha)	ha	47916	47916	49066	50244	51449	52684	53949	55243	56569	57927	59317	60741	62199	63691	65220	66785	
Sub Total		TL mill.	3593.7	3996.2	4092.1	4190.3	4290.9	4393.9	4499.3	4607.3	4717.9	4831.1	4947.0	5065.8	5187.4	5311.9	5439.3	5569.9	74733.9
Productive energy forest																			
New cutting areas **	(100000 TL/ha)	ha		2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	2383	35743
Maintenance	(25000 TL/ha)	ha	279000	281081	285617	290225	294906	299663	304496	309406	314394	319463	324612	329844	335160	340561	346048	351623	
Sub Total		TL mill.	6975.0	7265.3	7378.7	7493.9	7610.9	7729.9	7850.7	7973.4	8098.1	8224.9	8353.6	8484.4	8617.3	8752.3	8889.5	9028.8	128726.7
Irrigation area forestation ***																			
New forestation	(350000 TL/ha)	ha	610	610	745	745	745	745	745	1531	2319	2319	2354	5704	6104	7297	14664	14664	61901
Sub Total		TL mill.	213.5	213.5	260.8	260.8	260.8	260.8	260.8	535.9	811.7	811.7	823.9	1996.4	2136.4	2554.0	5132.4	5132.4	21665.4
TOTAL COST		TL mill.	10782.2	11475.0	11731.6	11945.0	12162.6	12384.5	12610.7	13116.6	13627.7	13867.6	14124.5	15546.6	15941.0	16618.1	19461.2	19731.1	225125.9
		$ US mil	8.0	8.5	8.7	8.8	9.0	9.2	9.3	9.7	10.1	10.3	10.5	11.5	11.8	12.3	14.4	14.6	166.8

* New forest areas.
** Allocations from existing productive energy forests.
*** 5 percent of total irrigated land.

Table A.27 Existing and Potential Water Resources in GAP Region

	Existing	Under Construction (1990-1995)	Planned	Total
Rivers	2,235 km	-	-	2,235 km
Natural lakes	6,481 ha	-	-	6,481 ha
Reservoirs	37,751 ha	95,748 ha	86,866 ha	220,365 ha

Note: Estimated total inland waters in Turkey is approximately 1,168,000 ha

Table A.28 Reservoirs in Operation in GAP Region

Name	River Basin	Province	Surface Area (ha)	Storage Volume (m^3)
1. Devegecidi	D	Diyarbakir	3214	$20,032*10^6$
2. Tahtakopru	F	Gaziantep	2340	$20,000*10^6$
3. Karakaya	F	Diyarbakir	29800	$9,580*10^6$
4. Dirsekli		Mardin	-	$2,522*10^3$
5. Serifbaba		Mardin		$1,650*10^3$
6. Kirkat		Mardin		$2,159*10^3$
7. Desan		Mardin		$250*10^3$
8. Yildiztepe		Mardin	- 2397	$2,800*10^3$
9. Ortaviran		Diyarbakir		$3,100*10^3$
10. Bespinar		Diyarbakir		$1,200*10^3$
11. Gozegol		Diyarbakir		$16,771*10^3$
12. Halilan		Diyarbakir		$7,500*10^3$
13. Kurtkayasi		Diyarbakir		$172*10^3$
14. Kunres		Diyarbakir		$792*10^3$
15. Kabakli		Diyarbakir		$7,500*10^3$
16. B.Kozanli		Sanliurfa	-	-
17. Erkenek	F	Adiyaman		-
Total			37751	

Table A.29 Reservoir Under Consruction in GAP Region

NAME	RIVER BASIN	PROVINCE	SURFACE AREA (HA)	STORAGE VOLUME (10^6 M^3)
Ataturk	Firat	Sanliurfa	81,700	48,700
Batman	Dicle	Diyarbakir	4,925	1,175
Dicle	Dicle	Diyarbakir	2,400	595
Dumluca	Firat	Mardin	223	22
Hancagiz	Firat	Gaziantep	750	100
Kiralkizi	Dicle	Diyarbakir	5,750	1,919
Goksu	Dicle	Diyarbakir	390	62
Hacihidir	Firat	Sanliurfa	440	68
Kayacik	Firat	Gaziantep	460	52
Total			97,038	

Table A.30 Planned Reservoirs in Final Design

NAME	RIVER BASIN	PROVINCE	SURFACE AREA (ha)	STORAGE VOLUME (10^6 m^3)
Ilisu	Dicle	Mardin	29,950	10,410
Birecik	Firat	Sanliurfa	5,625	1,220
Cizre	dicle	Mardin	2,100	360
Karkamis	Firat	Sanliurfa	2,840	157
Total			40,515	

Table A.31 Fish Species of Euphrates-Tigris Systems

Cyprinidae	Acanthobrama narmid
	Alburnoides bipunctatus
	Aspius vorax
	Barbus xanthepterus
	Barbus esocinus
	Barbus rajonorum mystaceus
	Barbus pelebejus lacerta
	Barbus capito pectoralis
	Bartinus subquicunciatus
	Tor grypus
	Carasobarbus luteus
	Barilius mesepotamicus
	Chalcalburnus mossulensis
	Chondrostoma regium
	Cyprinon macrostomus
	Cyprinon tenuiradius
	Garra rufa obtusa
	Garra varidbilis
	Leociscus cephalus
	Leuciscus lepidus
	Capoeta tinca
	Capoeta capoeta umpla
Ariidae	Arius ceus
Bagridae	Mystus colvillii
	Mystus halepersis
Sisoridae	Glyptothorax

Table A.32 Production of Freshwater Fish by Province and Type (1986)

(Unit: kg)

TYPE OF FISH	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION	OTHER PROVINCES	NATIONAL
Trouts			2,540	1,690		1,690	5,920	1,257,450	1,263,370
Bream				1,600			1,600	69,660	71,260
Greymullets							0	9,300,000	9,300,000
Karabalik (1)			1,900	1,200	2,000	3,000	8,100	630,050	638,150
Mullet		2,000		5,500			7,500	1,269,400	1,276,900
Pikeperch	3,000						3,000	1,439,380	1,442,380
Common Carp	84,200	9,500	630,300	14,600	62,000	22,500	823,100	16,466,490	17,289,590
Cyprinids	2,200						2,200	201,060	203,260
Wels	11,750		3,380	5,070		850	21,050	402,790	423,840
European Eels	2,540						2,540	514,890	517,430
Northern Pike			2,500				2,500	605,090	607,590
Crayfish							0	1,585,280	1,585,280
Others (2)	10,570			4,820		5,910	21,300	5,639,580	5,660,880
(Aquaculture)							0	3,075,000	3,075,000
TOTAL (kg)	114,260	11,500	640,620	34,480	64,000	33,950	898,810	42,456,120	43,354,930
%	12.7	1.3	71.3	3.8	7.1	3.8	2.07 100.0	97.93	100.00
Population (1985)	430,728	934,505	966,490	652,069	524,741	795,034	4,303,567	46,360,891	50,664,458
Percapita Consumption (kg)	0.27	0.01	0.66	0.05	0.12	0.04	0.21	0.92	0.86

(1) Local name; English equivalent unknown
(2) Includes roaches, freshwater gobies, etc. and snail (3,131,740 kg)
Note: Production of freshwater fish in 1980 and 1984 were 805 tons and 1,515 tons.respectively.
Source: Fishery Statistics, 1986

Table A.33 Hatcheries in and around GAP Region

LOCATION	NAME OF FIRM	TYPE OF FISH	REMARKS (1986)
Diyarbakir	DSI	Mirror carp	120,000 fingerlings introduced in nine lakes
Mardin Kirkat Goleti	DSI Kirkat Goleti	Mirror carp	110,000 introduced to lakes
Gaziantep Budak Koyu	Private firm	Mirror carp	
Gaziantep	DSI Karapinar Lake	Mirror carp	25,000
Gaziantep Islahiye	Toprak-su Coop. Cakmak Lake	Mirror carp	15,000
Gaziantep Islahiye	Toprak-su Coop. Balik Alan Lake	Mirror carp	20,000
Gaziantep Islahyiye	Toprak-su Coop. Gozluhoyuk Lake	Mirror carp	
Gaziantep	Tahtakopru Dam Lake	Mirror carp	
Alabalik Arastirma Istasyon Sivas-Gururi	Ziraat Faculty	Trout	

Table A.34 Quantity of Fingerlings (Mirror Carp) Stocked in GAP Region Under Turkish Inland Waters Fish and Crayfish Stocking Project

(Unit;1000)

Province	1984	1985	1986	Total
Diyarbakir	320	40	448	808
Sanliurfa			560	560
Mardin			728	728
Adiyaman		10	896	906
Gaziantep		35	672	707
Siirt				
TOTAL				3709

Source: General Directorate of Project Application and Implementation (MAFRA)

Table A.35 Quantity of Fingerlings (Mirror Carp) Stocked in Lakes of Adiyaman Province

Name of lake	1984	1985	1986	1987	Total
Azapali		10		1000	1010
Golbasi		10		1000	1010
Inekli		10		600	610
Abdulharap		10			10
Cataltepe	20	10	448		478
Dot reservoir	20	10	448		478
Total	40	60	896	2600	3596

Source: Provincial Directorate of Adiyaman

Table A.36 Cultivated Area, Production and Yield by Crop in the GAP Region, 1985

Crop	Cultivated area 10^3 ha	Production 10^3 tons	Yield ton/ha
Wheat	1,109.5	1,748.8	1.58
Barley	587.5	1,103.8	1.88
Maize	3.6	8.3	2.32
Rice	3.6	6.4	1.78
Millet	4.0	6.4	1.61
Chick peas	62.3	69.8	1.12
Lentils	408.0	464.7	1.13
Cow vetch	0.6	0.4	0.72
Vetch	3.1	3.6	1.16
Beans	1.0	2.0	1.98
Cotton	85.0	160.6	1.89
Sesame	48.4	18.3	0.38
Sunflower	5.3	5.5	1.04
Tobacco	12.5	16.2	1.30
Sugarbeet	0.2	6.3	26.87
Potatoes	0.3	4.6	16.84
Dry onions	4.5	75.1	16.81
Pistachios	144.8	33.0	0.23
Grapes	141.0	698.6	4.95
Tomatoes	70.0	192.7	-
Other vegetables		1,092.1	-
Fodder crops	2.7	-	-
Others	36.0	-	-
Fallow	347.6	-	-
Total	3,081.2	-	-

Source: Agricultural Structure and Production 1985 (published in 1987).

Table A.37 Value-Added by Crop in the GAP Region, 1985

Crop	Unit Value-Added 10^3 TL/ha	Value-Added 10^9 TL
Wheat	57.2	63.5
Barley	54.9	32.3
Maize	160.2	0.6
Rice	811.8	5.0
Millet	143.9	1.6
Lentils	539.4	231.0
Beans	1,728.6	1.7
Cotton	542.6	46.1
Sesame	400.9	19.6
Sunflower	256.6	1.4
Potatoes	4,645.4	1.4
Pistachios	822.0	121.7
Grapes	2,051.0	290.4
Tomatoes	4,367.6	54.6
Other vegetables	2,065.8	118.6
Others	600.0	78.6
Total		1,068.1

* Estimated by the Consultant

Table A.38 Production and Value-Added in Livestock, 1985

	Production ton 10^3	Price TL 10^3/kg	Production value TL 10^9	V A ratio	Value-added TL 10^9
Red meat	62.94	2.90	182.53		
White meet	12.72	1.80	22.90		
Milk	394.79	0.45	177.65		
Egg	18.50	1.00	18.50		
Wool	8.94	2.80	25.03		
Mohair	0.31	9.95	3.07		
Hair	1.04	1.08	1.12		
Raw leather			12.00		
Intestine			1.00		
Animal manure	11,871.79	0.01	118.72		
Leather of mort animals			8.10		
Change in inventory			94.50		
Total			665.13	0.55	365.82

* Estimated by the Consultant

Table A.39 Estimated Value-Added in Agriculture, 1985

Sector	Value-Added 10^9 TL
Crop cultivation	1,068.1
Livestock	365.8
Fishery, Forestry and others	33.2
Total	1,467.1

Sources: Tables A.37 and A.38

Table A.40 Value-added Estimate by Irrigation Scheme, 2005 [1/6]

SCHEME Crop	Cropping pattern %	Gross cultivated area ha 10^3	Net cultivated area ha 10^3	Value-added per ha TL 10^3	VA at full development TL 10^9
URFA-HARRAN[Total irrigated area:141,535 ha]					
Wheat	25.00	35.38	33.61	349.24	11.74
Barley	10.00	14.15	13.45	152.04	2.04
Dry beans	3.00	4.25	4.03	1690.74	6.82
Lentil	5.00	7.08	6.72	723.74	4.87
Cotton	20.00	28.31	26.89	1050.58	28.25
Sesame	5.00	7.08	6.72	1537.94	10.34
Tomato	4.00	5.66	5.38	5703.55	30.68
Potato	2.00	2.83	2.69	2165.78	5.82
Maize	5.00	7.08	6.72	397.54	2.67
Feed grains	10.00	14.15	13.45	265.03	3.56
Other vege.	2.00	2.83	2.69	3390.28	9.12
Soybean	10.00	14.15	13.45	486.84	6.55
Groundnut	5.00	7.08	6.72	1395.74	9.38
Sunflower	5.00	7.08	6.72	513.12	3.45
Fodder crops	3.00	4.25	4.03		
Perennial cr.	20.00	28.31	26.89	1800.00	48.40
Total	134.00	189.66	180.17		183.70
MARDIN-CEYLANPINAR 1ST STAGE[Total irrigated area:230,130 ha]					
Wheat	25.00	57.53	54.66	349.24	19.09
Barley	10.00	23.01	21.86	152.04	3.32
Dry beans	3.00	6.90	6.56	1690.74	11.09
Lentil	5.00	11.51	10.93	723.74	7.91
Cotton	20.00	46.03	43.72	1050.58	45.94
Sesame	5.00	11.51	10.93	1537.94	16.81
Tomato	4.00	9.21	8.74	5703.55	49.88
Potato	2.00	4.60	4.37	2165.78	9.47
Maize	5.00	11.51	10.93	397.54	4.35
Feed grains	10.00	23.01	21.86	265.03	5.79
Other vege.	2.00	4.60	4.37	3390.28	14.82
Soybean	10.00	23.01	21.86	486.84	10.64
Groundnut	5.00	11.51	10.93	1395.74	15.26
Sunflower	5.00	11.51	10.93	513.12	5.61
Fodder crops	3.00	6.90	6.56		
Perennial cr.	20.00	46.03	43.72	1800.00	78.70
Total	134.00	308.37	292.96		298.68
MARDIN-CEYLANPINAR 2ND STAGE[Total irrigated area:104,809 ha]					
Wheat	25.00	26.20	24.89	349.24	8.69
Barley	10.00	10.48	9.96	152.04	1.51
Dry beans	3.00	3.14	2.99	1690.74	5.05
Lentil	5.00	5.24	4.98	723.74	3.60
Cotton	20.00	20.96	19.91	1050.58	20.92
Sesame	5.00	5.24	4.98	1537.94	7.66
Tomato	4.00	4.19	3.98	5703.55	22.72
Potato	2.00	2.10	1.99	2165.78	4.31
Maize	5.00	5.24	4.98	397.54	1.98
Feed grains	10.00	10.48	9.96	265.03	2.64
Other vege.	2.00	2.10	1.99	3390.28	6.75
Soybean	10.00	10.48	9.96	486.84	4.85
Groundnut	5.00	5.24	4.98	1395.74	6.95
Sunflower	5.00	5.24	4.98	513.12	2.55
Fodder crops	3.00	3.14	2.99		
Perennial cr.	20.00	20.96	19.91	1800.00	35.84
Total	134.00	140.44	133.42		136.03

Table A.40 Value-added Estimate by Irrigation Scheme, 2005 [2/6]

SCHEME Crop	Cropping pattern	Gross cultivated area	Net cultivated area	Value-added per ha	VA at full development
	%	ha 10^3	ha 10^3	TL 10^3	TL 10^9
SIVEREK-HILVAN PUMPED[Total irrigated area:160,105 ha]					
Wheat	25.00	40.03	38.02	349.24	13.28
Barley	10.00	16.01	15.21	152.04	2.31
Dry beans	3.00	4.80	4.56	1690.74	7.71
Lentil	5.00	8.01	7.60	723.74	5.50
Cotton	20.00	32.02	30.42	1050.58	31.96
Sesame	5.00	8.01	7.60	1537.94	11.70
Tomato	4.00	6.40	6.08	5703.55	34.70
Potato	2.00	3.20	3.04	2165.78	6.59
Maize	5.00	8.01	7.60	397.54	3.02
Feed grains	10.00	16.01	15.21	265.03	4.03
Other vege.	2.00	3.20	3.04	3390.28	10.31
Soybean	10.00	16.01	15.21	486.84	7.40
Groundnut	5.00	8.01	7.60	1395.74	10.61
Sunflower	5.00	8.01	7.60	513.12	3.90
Fodder crops	3.00	4.80	4.56		
Perennial cr.	20.00	32.02	30.42	1800.00	54.76
Total	134.00	214.54	203.81		207.80
BOZOVA PUMPED[Total irrigated area:69,702 ha]					
Wheat	25.00	17.43	16.55	349.24	5.78
Barley	10.00	6.97	6.62	152.04	1.01
Dry beans	3.00	2.09	1.99	1690.74	3.36
Lentil	5.00	3.49	3.31	723.74	2.40
Cotton	20.00	13.94	13.24	1050.58	13.91
Sesame	5.00	3.49	3.31	1537.94	5.09
Tomato	4.00	2.79	2.65	5703.55	15.11
Potato	2.00	1.39	1.32	2165.78	2.87
Maize	5.00	3.49	3.31	397.54	1.32
Feed grains	5.00	3.49	3.31	265.03	0.88
Other vege.	4.00	2.79	2.65	3390.28	8.98
Soybean	10.00	6.97	6.62	486.84	3.22
Groundnut	5.00	3.49	3.31	1395.74	4.62
Sunflower	5.00	3.49	3.31	513.12	1.70
Fodder crops	3.00	2.09	1.99		
Perennial cr.	20.00	13.94	13.24	1800.00	23.84
Total	131.00	91.31	86.74		94.08
SURUC-BAZIKI[Total irrigated area:146,500 ha]					
Wheat	25.00	36.63	34.79	349.24	12.15
Barley	10.00	14.65	13.92	152.04	2.12
Dry beans	3.00	4.40	4.18	1690.74	7.06
Lentil	5.00	7.33	6.96	723.74	5.04
Cotton	20.00	29.30	27.84	1050.58	29.24
Sesame	5.00	7.33	6.96	1537.94	10.70
Tomato	4.00	5.86	5.57	5703.55	31.75
Potato	2.00	2.93	2.78	2165.78	6.03
Maize	5.00	7.33	6.96	397.54	2.77
Feed grains	5.00	7.33	6.96	265.03	1.84
Other vege.	4.00	5.86	5.57	3390.28	18.87
Soybean	10.00	14.65	13.92	486.84	6.78
Groundnut	5.00	7.33	6.96	1395.74	9.71
Sunflower	5.00	7.33	6.96	513.12	3.57
Fodder crops	3.00	4.40	4.18		
Perennial cr.	20.00	29.30	27.84	1800.00	50.10
Total	131.00	191.92	182.32		197.73

Table A.40 Value-added Estimate by Irrigation Scheme, 2005 [3/6]

Scheme Crop	Cropping pattern	Gross cultivated area	Net cultivated area	Value-added per ha	VA at full development
	%	ha 10^3	ha 10^3	TL 10^3	TL 10^9
ADIYAMAN-KAHTA[Total irrigated area:77,409 ha]					
Wheat	25.00	19.35	18.38	349.24	6.42
Barley	10.00	7.74	7.35	152.04	1.12
Dry beans	3.00	2.32	2.21	1690.74	3.73
Lentil	5.00	3.87	3.68	723.74	2.66
Cotton	25.00	19.35	18.38	1050.58	19.31
Sesame	5.00	3.87	3.68	1537.94	5.65
Tomato	4.00	3.10	2.94	5703.55	16.78
Potato	2.00	1.55	1.47	2165.78	3.19
Rice	5.00	3.87	3.68	1777.65	6.54
Feed grains	10.00	7.74	7.35	265.03	1.95
Other vege.	2.00	1.55	1.47	3390.28	4.99
Soybean	5.00	3.87	3.68	486.84	1.79
Groundnut	5.00	3.87	3.68	1395.74	5.13
Sunflower	5.00	3.87	3.68	513.12	1.89
Fodder crops	3.00	2.32	2.21		
Perennial cr.	20.00	15.48	14.71	1800.00	26.47
Total	134.00	103.73	98.54		107.62
ADIYAMAN-GOKSU-ARABAN[Total irrigated area:71,598 ha]					
Wheat	25.00	17.90	17.00	349.24	5.94
Barley	10.00	7.16	6.80	152.04	1.03
Dry beans	3.00	2.15	2.04	1690.74	3.45
Lentil	5.00	3.58	3.40	723.74	2.46
Cotton	20.00	14.32	13.60	1050.58	14.29
Sesame	5.00	3.58	3.40	1537.94	5.23
Tomato	4.00	2.86	2.72	5703.55	15.52
Potato	2.00	1.43	1.36	2165.78	2.95
Maize	5.00	3.58	3.40	397.54	1.35
Feed grains	5.00	3.58	3.40	265.03	0.90
Other vege.	4.00	2.86	2.72	3390.28	9.22
Soybean	10.00	7.16	6.80	486.84	3.31
Groundnut	5.00	3.58	3.40	1395.74	4.75
Sunflower	5.00	3.58	3.40	513.12	1.75
Fodder crops	3.00	2.15	2.04		
Perennial cr.	20.00	14.32	13.60	1800.00	24.49
Total	131.00	93.79	89.10		96.64
GAZIANTEP[Total irrigated area:81,670 ha]					
Wheat	25.00	20.42	19.40	349.24	6.77
Barley	10.00	8.17	7.76	152.04	1.18
Dry beans	3.00	2.45	2.33	1690.74	3.94
Lentil	5.00	4.08	3.88	723.74	2.81
Cotton	20.00	16.33	15.52	1050.58	16.30
Sesame	5.00	4.08	3.88	1537.94	5.97
Tomato	4.00	3.27	3.10	5703.55	17.70
Potato	2.00	1.63	1.55	2165.78	3.36
Maize	5.00	4.08	3.88	397.54	1.54
Feed grains	5.00	4.08	3.88	265.03	1.03
Other vege.	4.00	3.27	3.10	3390.28	10.52
Soybean	10.00	8.17	7.76	486.84	3.78
Groundnut	5.00	4.08	3.88	1395.74	5.41
Sunflower	5.00	4.08	3.88	513.12	1.99
Fodder crops	3.00	2.45	2.33		
Perennial cr.	20.00	16.33	15.52	1800.00	27.93
Total	131.00	106.99	101.64		110.23

Table A.40 Value-added Estimate by Irrigation Scheme, 2005 [4/6]

SCHEME Crop	Cropping pattern	Gross cultivated area	Net cultivated area	Value-added per ha	VA at full development
	%	ha 10^3	ha 10^3	TL 10^3	TL 10^9
DICLE-RIGHT BANK[Total irrigated area:52,033 ha]					
Wheat	25.00	13.01	12.36	349.24	4.32
Barley	10.00	5.20	4.94	152.04	0.75
Dry beans	3.00	1.56	1.48	1690.74	2.51
Lentil	5.00	2.60	2.47	723.74	1.79
Cotton	20.00	10.41	9.89	1050.58	10.39
Sesame	5.00	2.60	2.47	1537.94	3.80
Tomato	4.00	2.08	1.98	5703.55	11.28
Potato	2.00	1.04	0.99	2165.78	2.14
Maize	5.00	2.60	2.47	397.54	0.98
Feed grains	5.00	2.60	2.47	265.03	0.66
Other vege.	7.00	3.64	3.46	3390.28	11.73
Soybean	5.00	2.60	2.47	486.84	1.20
Groundnut	5.00	2.60	2.47	1395.74	3.45
Sunflower	5.00	2.60	2.47	513.12	1.27
Rice	10.00	5.20	4.94	1777.65	8.79
Fodder crops	10.00	5.20	4.94		
Perennial cr.	10.00	5.20	4.94	1800.00	8.90
Total	136.00	70.76	67.23		73.94
DICLE-RIGHT BANK PUMPED[Total irrigated area:74,047 ha]					
Wheat	25.00	18.51	17.59	349.24	6.14
Barley	10.00	7.40	7.03	152.04	1.07
Dry beans	3.00	2.22	2.11	1690.74	3.57
Lentil	5.00	3.70	3.52	723.74	2.55
Cotton	20.00	14.81	14.07	1050.58	14.78
Sesame	5.00	3.70	3.52	1537.94	5.41
Tomato	4.00	2.96	2.81	5703.55	16.05
Potato	2.00	1.48	1.41	2165.78	3.05
Maize	5.00	3.70	3.52	397.54	1.40
Feed grains	5.00	3.70	3.52	265.03	0.93
Other vege.	7.00	5.18	4.92	3390.28	16.69
Soybean	5.00	3.70	3.52	486.84	1.71
Groundnut	5.00	3.70	3.52	1395.74	4.91
Sunflower	5.00	3.70	3.52	513.12	1.80
Rice	10.00	7.40	7.03	1777.65	12.50
Fodder crops	10.00	7.40	7.03		
Perennial cr.	10.00	7.40	7.03	1800.00	12.66
Total	136.00	100.70	95.67		105.23
BATMAN-RIGHT BANK[Total irrigated area:18,758]					
Wheat	25.00	4.69	4.46	349.24	1.56
Barley	10.00	1.88	1.78	152.04	0.27
Dry beans	3.00	0.56	0.53	1690.74	0.90
Lentil	5.00	0.94	0.89	723.74	0.64
Cotton	25.00	4.69	4.46	1050.58	4.68
Sesame	5.00	0.94	0.89	1537.94	1.37
Tomato	4.00	0.75	0.71	5703.55	4.07
Potato	2.00	0.38	0.36	2165.78	0.77
Rice	5.00	0.94	0.89	1777.65	1.58
Feed grains	10.00	1.88	1.78	265.03	0.47
Other vege.	2.00	0.38	0.36	3390.28	1.21
Soybean	5.00	0.94	0.89	486.84	0.43
Groundnut	5.00	0.94	0.89	1395.74	1.24
Sunflower	5.00	0.94	0.89	513.12	0.46
Fodder crops	3.00	0.56	0.53		
Perennial cr.	20.00	3.75	3.56	1800.00	6.42
Total	134.00	25.14	23.88		26.08

Table A.40 Value-added Estimate by Irrigation Scheme, 2005 [5/6]

SCHEME Crop	Cropping pattern	Gross cultivated area	Net cultivated area	Value-added per ha	VA at full development
	%	ha 10^3	ha 10^3	TL 10^3	TL 10^9
BATMAN-LEFT BANK[Total irrigated area:18,986 ha]					
Wheat	25.00	4.75	4.51	349.24	1.57
Barley	10.00	1.90	1.80	152.04	0.27
Dry beans	3.00	0.57	0.54	1690.74	0.91
Lentil	5.00	0.95	0.90	723.74	0.65
Cotton	25.00	4.75	4.51	1050.58	4.74
Sesame	5.00	0.95	0.90	1537.94	1.39
Tomato	4.00	0.76	0.72	5703.55	4.11
Potato	2.00	0.38	0.36	2165.78	0.78
Rice	5.00	0.95	0.90	1777.65	1.60
Feed grains	10.00	1.90	1.80	265.03	0.48
Other vege.	2.00	0.38	0.36	3390.28	1.22
Soybean	5.00	0.95	0.90	486.84	0.44
Groundnut	5.00	0.95	0.90	1395.74	1.26
Sunflower	5.00	0.95	0.90	513.12	0.46
Fodder crops	3.00	0.57	0.54		
Perennial cr.	20.00	3.80	3.61	1800.00	6.49
Total	134.00	25.44	24.17		26.39
BATMAN-SILVAN[Total irrigated area:213,000 ha]					
Wheat	25.00	53.25	50.59	349.24	17.67
Barley	10.00	21.30	20.24	152.04	3.08
Dry beans	3.00	6.39	6.07	1690.74	10.26
Lentil	5.00	10.65	10.12	723.74	7.32
Cotton	25.00	53.25	50.59	1050.58	53.15
Sesame	5.00	10.65	10.12	1537.94	15.56
Tomato	4.00	8.52	8.09	5703.55	46.16
Potato	2.00	4.26	4.05	2165.78	8.76
Rice	5.00	10.65	10.12	1777.65	17.99
Feed grains	10.00	21.30	20.24	265.03	5.36
Other vege.	2.00	4.26	4.05	3390.28	13.72
Soybean	5.00	10.65	10.12	486.84	4.93
Groundnut	5.00	10.65	10.12	1395.74	14.12
Sunflower	5.00	10.65	10.12	513.12	5.19
Fodder crops	3.00	6.39	6.07		
Perennial cr.	20.00	42.60	40.47	1800.00	72.85
Total	134.00	285.42	271.15		296.12
GARZAN[Total irrigated area:60,000 ha]					
Wheat	25.00	15.00	14.25	349.24	4.98
Barley	10.00	6.00	5.70	152.04	0.87
Dry beans	3.00	1.80	1.71	1690.74	2.89
Lentil	5.00	3.00	2.85	723.74	2.06
Cotton	25.00	15.00	14.25	1050.58	14.97
Sesame	5.00	3.00	2.85	1537.94	4.38
Tomato	4.00	2.40	2.28	5703.55	13.00
Potato	2.00	1.20	1.14	2165.78	2.47
Rice	5.00	3.00	2.85	1777.65	5.07
Feed grains	10.00	6.00	5.70	265.03	1.51
Other vege.	2.00	1.20	1.14	3390.28	3.86
Soybean	5.00	3.00	2.85	486.84	1.39
Groundnut	5.00	3.00	2.85	1395.74	3.98
Sunflower	5.00	3.00	2.85	513.12	1.46
Fodder crops	3.00	1.80	1.71		
Perennial cr.	20.00	12.00	11.40	1800.00	20.52
Total	134.00	80.40	76.38		83.41

Table A.40 Value-added Estimate by Irrigation Scheme, 2005 [6/6]

SCHEME Crop	Cropping pattern	Gross cultivated area	Net cultivated area	Value-added per ha	VA at full development
	%	ha 10^3	ha 10^3	TL 10^3	TL 10^9
SILOPI[Total irrigated area:32,000 ha]					
Wheat	25.00	8.00	7.60	349.24	2.65
Barley	10.00	3.20	3.04	152.04	0.46
Dry beans	3.00	0.96	0.91	1690.74	1.54
Lentil	5.00	1.60	1.52	723.74	1.10
Cotton	20.00	6.40	6.08	1050.58	6.39
Sesame	5.00	1.60	1.52	1537.94	2.34
Tomato	4.00	1.28	1.22	5703.55	6.94
Potato	2.00	0.64	0.61	2165.78	1.32
Maize	5.00	1.60	1.52	397.54	0.60
Feed grains	10.00	3.20	3.04	265.03	0.81
Other vege.	2.00	0.64	0.61	3390.28	2.06
Soybean	10.00	3.20	3.04	486.84	1.48
Groundnut	5.00	1.60	1.52	1395.74	2.12
Sunflower	5.00	1.60	1.52	513.12	0.78
Fodder crops	3.00	0.96	0.91		
Perennial cr.	20.00	6.40	6.08	1800.00	10.94
Total	134.00	42.88	40.74		41.53
NUSAYBIN-CIZRE-IDIL[Total irrigated area:89,000 ha]					
Wheat	25.00	22.25	21.14	349.24	7.38
Barley	10.00	8.90	8.46	152.04	1.29
Dry beans	3.00	2.67	2.54	1690.74	4.29
Lentil	5.00	4.45	4.23	723.74	3.06
Cotton	20.00	17.80	16.91	1050.58	17.77
Sesame	5.00	4.45	4.23	1537.94	6.50
Tomato	4.00	3.56	3.38	5703.55	19.29
Potato	2.00	1.78	1.69	2165.78	3.66
Maize	5.00	4.45	4.23	397.54	1.68
Feed grains	10.00	8.90	8.46	265.03	2.24
Other vege.	2.00	1.78	1.69	3390.28	5.73
Soybean	10.00	8.90	8.46	486.84	4.12
Groundnut	5.00	4.45	4.23	1395.74	5.90
Sunflower	5.00	4.45	4.23	513.12	2.17
Fodder crops	3.00	2.67	2.54		
Perennial cr.	20.00	17.80	16.91	1800.00	30.44
Total	134.00	119.26	113.30		115.51
Grand total		2190.76	2081.22		2200.73

* Projection by the Consultant

Table A.41 Projections of Livestock Products for Alternative Production Levels [1/2]

(1) Prevailing conditions

Product	Price	1987 Quantity 10^3 tons	1987 Value 10^9 TL	1989 Quantity 10^3 tons	1989 Value 10^9 TL	1994 Quantity 10^3 tons	1994 Value 10^9 TL	1999 Quantity 10^3 tons	1999 Value 10^9 TL	2004 Quantity 10^3 tons	2004 Value 10^9 TL	2009 Quantity 10^3 tons	2009 Value 10^9 TL
Red Meat	2.750	65.3	179.5	68.3	187.9	87.6	24.0	90.6	249.2	85.5	235.1	82.4	226.6
White Meat	1.400	13.2	18.5	13.0	18.2	16.0	22.3	19.2	26.9	20.1	28.2	23.4	32.7
Total of Meat		78.5	198.0	81.3	206.1	10^3.6	263.3	10^9.8	276.1	105.6	263.3	105.8	259.3
Milk	300	409.3	122.8	435.4	130.6	506.4	151.9	659.1	197.7	1.130.7	339.2	1.658.8	497.6
Egg(1.000.020 TL/ton)	60	19.2	19.2	19.1	19.1	21.0	21.1	23.5	23.5	26.5	26.5	33.0	33.0
Wool	3.600	9.3	33.4	11.5	41.5	12.0	44.5	11.4	41.1	9.7	34.9	8.6	31.1
Mohair	4.500	0.3	1.4	3.0	1.4	3.0	1.5	0.3	1.3	0.3	1.2	0.2	1.1
Hair	1.080	1.3	1.4	1.6	1.7	1.0	1.7	1.5	1.6	1.3	1.4	1.2	1.3
Raw Leather			12.0		11.9		14.5		13.3		11.8		10.7
Intestini			1.0		1.9		3.1		1.1		9.0		0.9
Animal Power													
Manure (1000 tons)		12.3	123.1	14.0	140.3	15.3	153.1	16.7	167.1	17.4	174.4	18.5	185.3
Leather of Mort Animals			8.1		9.6		9.8		8.8		7.6		7.0
Changing of Inventory			94.5		120.8		48.6		12.7		26.5		9.9
Total			614.8		685.1		712.8		744.3		834.7		1,037.2

(2) Productivity Level I

Product	Price	1987 Quantity 10^3 tons	1987 Value 10^9 TL	1989 Quantity 10^3 tons	1989 Value 10^9 TL	1994 Quantity 10^3 tons	1994 Value 10^9 TL	1999 Quantity 10^3 tons	1999 Value 10^9 TL	2004 Quantity 10^3 tons	2004 Value 10^9 TL	2009 Quantity 10^3 tons	2009 Value 10^9 TL
Red Meat	2.750	65.3	179.5	68.4	188.2	91.0	250.2	117.7	323.7	134.9	371.0	139.0	382.4
White Meat	1.400	13.2	18.5	13.4	18.8	16.4	23.0	19.8	27.7	20.7	29.0	24.0	33.1
Total of Meat		78.5	198.0	81.8	207.0	107.4	273.2	137.5	351.4	155.6	400.0	163.1	416.0
Milk	300	409.4	122.8	473.1	141.9	553.5	166.0	704.6	211.4	1.178.1	353.4	1.718.3	515.5
Egg(1.000.020 TL/ton)	60	19.2	19.2	19.7	19.7	21.7	21.6	24.1	24.1	27.3	27.3	34.0	33.3
Wool	3.600	9.3	33.4	11.5	41.5	12.3	44.3	11.4	41.1	9.7	34.9	8.6	31.1
Mohair	4.500	0.3	1.4	0.3	1.4	0.3	1.5	0.3	1.3	0.3	1.2	0.2	1.1
Hair	1.080	1.3	1.4	1.6	1.7	1.6	1.7	1.5	1.6	1.3	1.4	1.2	1.3
Raw Lether			12.0		11.9		14.5		13.3		11.8		10.7
Intestini			1.0		1.9		3.1		1.1		0.9		0.9
Animal Power													
Manure (1000 tons)	10.000	12.3	123.1	14.4	140.3	15.7	153.1	17.2	167.1	17.9	174.4	19.1	185.3
Leather of Mort Animals			8.1		9.6		9.8		8.9		7.6		7.0
Changing of Inventory			94.5		120.8		48.6		12.7		26.5		9.9
Total			614.8		697.8		737.4		833.9		986.4		1,212.0

Table A.41 Projections of Livestock Products for Alternative Production Levels (2/2)

(3) Productivity Level II

Product	Price	1987 Quantity 10^3 tons	1987 Value 10^9 TL	1989 Quantity 10^3 tons	1989 Value 10^9 TL	1994 Quantity 10^3 tons	1994 Value 10^9 TL	1999 Quantity 10^3 tons	1999 Value 10^9 TL	2004 Quantity 10^3 tons	2004 Value 10^9 TL	2009 Quantity 10^3 tons	2009 Value 10^9 TL
Red Meat	2.750	65.3	179.5	72.6	199.7	97.3	267.5	128.7	353.8	147.8	406.3	154.5	424.7
White Meat	1.400	13.2	18.5	13.9	19.4	17.0	23.8	20.5	28.6	21.4	30.0	24.0	33.6
Total of Meat		78.5	198.0	86.5	219.1	114.3	291.3	149.1	382.5	169.2	436.3	178.3	459.6
Milk	300	409.4	122.8	502.6	151.1	589.1	176.7	750.0	225.0	1.252.4	376.0	1.827.9	548.4
Egg(1.000.020 TL/ton)	60	19.2	19.2	20.3	20.3	22.4	22.4	25.0	25.0	28.2	28.2	35.1	35.1
Wool	3.600	9.3	33.4	11.5	41.5	12.3	44.3	11.4	41.1	9.7	34.9	8.6	31.1
Mohair	4.500	0.3	1.4	0.3	1.4	0.3	1.5	0.3	1.3	0.3	1.2	0.2	1.1
Hair	1.080	1.3	1.4	1.6	1.7	1.6	1.7	1.5	1.6	1.3	1.4	1.2	1.3
Raw Lether			12.0		11.9		14.5		13.8		11.8		10.7
Intestini			1.0		1.9		3.1		1.1		0.9		
Animal Power													
Manure (1000 tons)	10.000	12.3	123.1	14.9	149.3	16.3	162.9	17.8	177.8	18.6	185.5	19.7	197.1
Leather of Mort Animals			8.1		9.6		9.8		8.8		7.6		7.0
Changing of Inventory			94.5		120.8		48.6		12.7		26.5		9.9
Total			614.8		728.7		776.8		890.6		1.057.4		1.382.1

(4) Productivity Level III

Product	Price	1987 Quantity 10^3 tons	1987 Value 10^9 TL	1989 Quantity 10^3 tons	1989 Value 10^9 TL	1994 Quantity 10^3 tons	1994 Value 10^9 TL	1999 Quantity 10^3 tons	1999 Value 10^9 TL	2004 Quantity 10^3 tons	2004 Value 10^9 TL	2009 Quantity 10^3 tons	2009 Value 10^9 TL
Red Meat	2.750	65.3	179.5	74.9	205.9	106.8	293.8	141.1	388.0	160.8	442.3	172.4	474.0
White Meat	1.400	13.2	18.5	14.3	20.0	17.5	24.5	21.1	29.5	22.1	30.9	25.6	35.8
Total of Meat		78.5	198.0	89.1	225.9	124.3	318.2	162.2	417.5	182.9	473.2	198.0	509.8
Milk	300	409.4	122.8	550.9	165.3	643.0	192.9	815.3	244.6	1.343.9	403.2	1.989.5	596.8
Egg(1.000.020 TL/ton)	60	19.2	19.2	20.9	20.9	23.1	23.1	25.7	25.7	29.0	29.0	36.1	36.1
Wool	3.600	9.3	33.4	11.5	41.5	12.3	44.3	11.4	41.1	9.7	34.9	8.6	31.1
Mohair	4.500	0.3	1.4	0.3	1.4	0.3	1.5	0.3	1.3	0.3	1.2	0.2	1.1
Hair	1.080	1.3	1.4	1.6	1.7	1.6	1.7	1.5	1.6	1.3	1.4	1.2	1.3
Raw Lether			12.0		11.9		14.5		13.8		11.8		10.7
Intestini			1.0		1.9		3.1		1.1		0.9		0.8
Animal Power													
Manure (1000 tons)	10.000	12.3	123.1	15.4	153.7	16.8	167.6	18.3	183.0	19.1	190.9	20.3	203.5
Leather of Mort Animals			8.1		9.6		9.8		8.8		7.6		7.0
Changing of Inventory			94.5		120.8		48.6		12.7		26.5		9.9
Total			614.8		754.6		825.3		951.2		1.127.6		1.407.5

* Projection by the Consultant

Table A.42 Agricultural Value-Added under Alternatives A, B and C, 2005*

Crop/activity	Alternative A Production 10^3 tons	Alternative A Value-Added 10^9 TL	Alternatives B/C Production 10^3 tons	Alternatives B/C Value-Added 10^9 TL
Crop Cultivation				
Wheat	3,279.2	189.7	3,270.2	150.7
Barley	1,475.9	50.9	1,624.6	51.7
Drybeans	95.1	80.6	53.3	45.3
Lentils	566.2	251.2	704.6	308.7
Cotton	858.7	347.0	477.8	193.1
Sesame	107.0	136.4	70.3	89.0
Tomatoes	1,584.4	401.7	1,024.4	259.9
Potatoes	590.0	68.7	325.4	38.6
Other vegetables	1,367.8	249.8	1,181.5	225.9
Maize	281.4	24.2	150.0	12.2
Rice	108.3	58.2	96.4	51.3
Feed grains	424.9	36.4	265.4	21.9
Soy bean	316.0	64.1	158.0	32.0
Groundnut	155.9	108.8	85.1	59.4
Sunflower	160.1	41.2	91.1	23.5
Pistachios	-	--	-	--
Grapes	-	-953.4	-	-874.9
Others	-	--	-	--
Sub-total	-	3,062.3	-	2,438.1
Livestock				
Milk	1,253.7	-	1,253.7	-
Meat	162.0	-	162.0	-
Other products**		-		-
Sub-total		648.0		648.0
Fishery, Forestry and others		100.0		100.0
Total agricultural Value-Added		3,810.3		3,186.1

* Projection by the Consultant

** Includes egg, wool, mohair, hair, raw leather, intestine, animal manure and leather of mort animals.

Table A.43 Farm Budgets for 2 ha

(1) Farm budget

(Unit : 10^3 TL/year)

	Without project	With project
Incomes		
Milk sales	0	146
Animal sales	0	250
Other livestock products	0	203
Crop sales	1,016	2,562
Total	1,016	3,160
Expenditures		
Concentrate feed	0	84
Medicine/veterinary expenses	0	15
Crop production expenditure	394	925
Others	150	1,000
Total	544	2,024
Net income	472	1,136

(2) Crop budget

(Unit : 10^3 TL/year)

Crop	Area (da)	Incomes	Expenditure	Net income
Without project				
Wheat	8	256	156	100
Barley	3	90	49	41
Lentil	6	401	121	280
Water melon	1	269	63	205
Fallow	3	-	5	
Total		1,016	394	621
With project				
Wheat	6	376	164	211
Barley	4	168	107	61
Cotton	8	1,188	347	840
Soybean	2	148	50	97
Maize	3	205	86	119
Potato	1	331	114	217
Pistachio	2	147	55	92
Total		2,562	925	1,638

* Estimated by the Consultant

Table A.44 Farm Budgets for 5 ha

(1) Farm budget

(Unit : 10^3 TL/year)

	Without project	With project
Incomes		
Milk sales	194	389
Animal sales	333	666
Other livestock products	270	540
Crop sales	2,802	7,351
Total	3,599	8,945
Expenditures		
Concentrate feed	412	825
Medicine/veterinary expenses	20	40
Crop production expenditure	1,068	2,115
Others	350	1,600
Total	1,850	4,580
Net income	1,749	4,366

(2) Crop budget

(Unit : 10^3 TL/year)

Crop	Area (da)	Incomes	Expenditure	Net income
Without project				
Wheat	16	513	312	201
Wheat(irrig.)	4	249	110	140
Barley	8	240	130	110
Lentil	10	668	202	466
Watermelon	2	538	127	411
Cotton	4	594	174	420
Fallow	8	-	14	
Total		2,802	1,068	1,734
With project				
Wheat	15	935	411	524
Barley	10	420	268	152
Lentil	4	407	117	289
Watermelon	2	768	90	678
Cotton	17	2,524	738	1,786
Soybean	5	370	126	243
Maize	6	410	171	239
Tomato	2	1,224	83	1,141
Pistachio	4	294	110	184
Total		7,351	2,115	5,236

* Estimated by the Consultant

Table A.45 Farm Budgets for 10 ha

(1) Farm budget

(Unit : 10^3 TL/year)

	Without project	With project
Incomes		
Milk sales	1,277	2,553
Animal sales	1,664	3,328
Other livestock products	1,435	2,870
Crop sales	6,987	14,511
Total	11,362	23,262
Expenditures		
Concentrate feed	2,198	4,396
Medicine/veterinary expenses	105	256
Crop production expenditure	2,343	4,496
Others	840	2,400
Total	5,486	11,542
Net income	5,876	11,720

(2) Crop budget

(Unit : 10^3 TL/year)

Crop	Area (da)	Incomes	Expenditure	Net income
Without project				
Wheat	30	962	585	377
Wheat(irrig.)	5	312	137	175
Barley	10	300	163	137
Sesame	7	665	306	359
Lentil	17	1,135	341	792
Watermelon	2	538	127	411
Cotton	10	1,485	434	1,051
Pistachio	5	367	138	229
Tomato	2	1,224	83	1,141
Fallow	8	-	28	-
Total		6,987	2,343	4,644
With project				
Wheat	30	1,870	822	1,048
Barley	15	630	402	228
Lentil	10	1,017	293	724
Watermelon	2	768	90	678
Cotton	35	5,196	1,519	3,677
Pistachio	5	367	138	229
Tomato	2	1,224	83	1,141
Soybean	10	739	252	487
Maize	10	684	286	398
Groundnut	5	859	161	698
Potato	2	662	229	433
Sugarbeet	5	495	220	275
Total		14,511	4,496	10,015

* Estimated by the Consultant

Table A.46 Farm Budgets for 25 ha

(1) Farm budget

(Unit : 10^3 TL/year)

	Without project	With project
Incomes		
Milk sales	2,219	3,953
Animal sales	5,496	10,160
Other livestock products	2,450	3,841
Crop sales	16,047	31,253
Total	26,212	49,207
Expenditures		
Concentrate feed	3,773	6,175
Medicine/veterinary expenses	175	300
Crop production expenditure	5,430	10,105
Others	2,000	4,000
Total	11,378	20,580
Net income	14,834	28,627

(2) Crop budget

(Unit : 10^3 TL/year)

Crop	Area (da)	Incomes	Expenditure	Net income
Without project				
Wheat	85	2,725	1,658	1,067
Wheat(irrig.)	10	623	274	349
Barley	60	1,800	977	823
Lentil	35	2,337	707	1,630
Water melon	10	2,688	633	2,055
Cotton	15	2,227	651	1,576
Tomato	5	3,060	208	2,852
Pistachio	10	587	261	326
Fallow	35	0	61	-61
Total		16,047	5,430	10,617
With project				
Wheat	85	5,297	2,329	2,968
Barley	45	1,890	1,206	684
Lentil	25	2,543	733	1,810
Water melon	5	1,920	225	1,695
Sesame	10	1,753	215	1,538
Cotton	60	8,908	2,604	6,304
Tomato	5	3,060	208	2,852
Soybean	25	1,848	631	1,217
Maize	20	1,368	573	795
Feed Grains	20	0	360	-360
Sunflower	20	1,089	319	770
Sugarbeet	10	990	441	549
Pistachio	10	587	261	326
Total		31,253	10,105	21,148

* Estimated by the Consultant

Table A.47 Farm Budgets for 60 ha

(1) Farm budget (Unit : 10^3 TL/year)

	Without project	With project
Incomes		
Milk sales	3,953	9,428
Animal sales	10,160	27,820
Other livestock products	3,841	9,301
Crop sales	32,684	67,610
Total	50,638	114,159
Expenditures		
Concentrate feed	6,175	14,392
Medicine/veterinary expenses	300	650
Crop production expenditure	12,166	23,261
Others	3,000	6,500
Total	21,641	44,803
Net income	28,997	69,356

(2) Crop budget (Unit : 10^3 TL/year)

Crop	Area (da)	Incomes	Expenditure	Net income
Without project				
Wheat	240	7,694	4,680	3,014
Wheat(irrig.)	25	1,402	685	717
Barley	120	3,600	1,954	1,646
Lentil	80	5,343	1,615	3,728
Water melon	10	2,688	633	2,055
Sesame	10	950	437	513
Cotton	25	3,712	1,085	2,627
Tomato	10	6,120	417	5,703
Pistachio	20	1,175	522	653
Fallow	80	0	138	-138
Total		32,684	12,166	20,518
With project				
Wheat	180	10,096	4,931	5,165
Barley	70	2,646	1,876	770
Lentil	35	3,204	1,026	2,178
Water melon	10	3,456	450	3,006
Sesame	20	3,156	404	2,752
Cotton	180	24,051	7,812	16,239
Tomato	10	5,508	417	5,091
Soybean	60	3,992	1,514	2,478
Maize	35	2,155	1,003	1,152
Feed Grains	50	0	864	-864
Sunflower	30	1,190	639	1,321
Groundnut	20	3,092	645	2,447
Sugarbeet	35	3,119	1,542	1,577
Pistachio	20	1,175	138	653
Total		67,610	23,261	43,965

* Estimated by the Consultant

Table A.48 Livestock Budgets and Models for Farm Budget Analysis

(1) Livestock Budgets

(UNIT : 10^3 TL/year)

Incomes	Sheep						Dairy Cattle			
	15 Heads	20 Heads	100 Heads	150 Heads	250 Heads	500 Heads	2 Heads	5 Heads	10 Heads	30 Heads
Animal Sales	250	333	1.664	2.496	64.160	8.320	0	750	1.500	6.000
Livestock Prod.sales										
- Wool	108	144	720	1.080	1.800	3.600	0	0	0	0
- Milk	146	194	972	1.458	2.430	4.860	304	761	1.523	4.564
- Manure	95	126	630	945	1.576	3.151	85	425	765	1.550
- Calves	0	0	0	0	0	0	0	2,250	4,500	13.500
Total	599	797	1.664	5.979	9.966	19.931	389	4.186	8.288	26.618
Expenditures										
Concentrate Feed	84	412	2.062	3.093	5.155	10.309	136	380	1.021	4.082
Medi./Veteri. Expenses	15	20	100	150	250	500	5	25	50	150
Others	84	100	502	753	1.255	2.511	125	400	750	2.500
Total	183	532	2.664	3.996	6.660	13.320	266	805	1.821	6.232

(2) Livestock Models

Farm Size (ha)	Case	Livestock Model
2	Without project	
5	Without project	20 Sheep
10	Without project	100 Sheep + 2 Cattle
25	Without project	150 Sheep + 5 Cattle
60	Without project	250 Sheep + 10 Cattle
2	With Project	15 Sheep
5	With Project	40 Sheep + 4 Cattle
10	With Project	200 Sheep + 10 Cattle
25	With Project	250 Sheep + 10 Cattle
60	With Project	500 Sheep + 30 Cattle

* Estimated by the Consultant

B

APPENDIX B
PRESENT CONDITIONS AND PROSPECTS OF INDUSTRY

CONTENTS

TABLES

FIGURES

Appendix B: PRESENT CONDITIONS AND PROSPECTS OF INDUSTRY

B-1. Present Conditions of Manufacturing, Mining and Tourism

1. Manufacturing

(1) Establishments, value-added and employment

Establishments

The GAP region in 1985 had 11,378 manufacturing establishments, of which only 243 were classified as large ones employing 10 or more workers (Table B.1). The Region's share of small establishments in the Nation decreased from 7.1% in 1980 to 6.0% in 1985. The share of large establishments shows an increase from 1.8% in 1980 to 2.6% in 1985.

In 1985, 50% of all the manufacturing establishments, including 81% of large ones, were in Gaziantep. Diyarbakir and Sanliurfa follow with 13% share respectively, the three other provinces making up the balance: 8% in Mardin, 7% in Adiyaman and 6% in Siirt.

Of the small establishments, 32% are in textiles and apparel industry, 21% in metal products, 19% in food and beverages, and 15% in wood products and furniture (Tables B.2 and B.3). The last one is concentrated in Gaziantep. A sectoral breakdown of large establishments in Gaziantep and Diyarbakìr indicates the predominance of food and beverages with 62 establishments and textile and apparel with 68, followed by chemical, rubber and plastics (35) and metal products (32) (Tables B.4 and B.5).

Employment

The total manufacturing employment in the Region has been reported at 46,418 by the Census of Business and Industrial Establishments (CBIE) and 76,437 by the Census of the Social and Economic Characteristics of the Population (SECP) (Tables B.6 and B.7). The former is believed to be an underestimate, as a large number of very small establishmens in the informal sector tend to elude formal surveys from employers' side. The manufacturing sector employment accounts for 5% of the labour force within the Region, much lower than the 16% share at the national level.

Value-added

The manufacturing sector in the Region contributed in 1985 to only 1.9% of the total manufacturing value-added in Turkey, and 11.7% of the gross regional products of the Region (Table 2.4, The Master Plan). It grew from TL 327.5 million (in 1988 price) in 1975 to TL 433.3 million in 1985 at the average annual growth rate of 2.8%. The corresponding figure at the national level was 5.6%.

and other services.

The state enterprises in the province are:

- Cheese, butter and milk factory,
- Feed plant,
- Cement factory, and
- TPAO, Batman refinery.

Establishments in the private sector are:

- Flour mill,
- Pistachio processing factory,
- Tabacco processing plant, and
- Brick and tile manufacturing factory.

There were 686 small manufacturing establishments in 1985. An industrial estate is being planned.

Sanliurfa

This province has not developed its industrial potential. Most of the existing establishments are family owned and operated. Major industries are State enterprises:

- CITOSAN, Cement factory,
- TZDK, Agricultural machinery and equipment,
- TURKIYE YAPAGI TIFTIK, Carpet and woolyarn,
- SANLIURFA TEKEL SARAP FABRIKASI, Winery,
- HILVAN YEM SANAYI, Feed,
- TSEK, Siverek milk products (not operational at present),
- CEYLANPINAR PEYNIR VE TEREYAG FABRIKASI, Milk and butter, and
- SANLIURFA MEZBAHA, Slaughterhouse.
- EBK, Meat combine

The most important private enterprise is UPISAS cotton yarn factory having a production capacity of 3,200 tons/year and employing 456 workers. There are six flour mills with total production capacity of 136,240 tons/year. The URFASAN irrigation equipment industry is being established with a production capacity of 33,680 cement pipes and 16,800 canalettes annually. The local government is the largest shareholder of this firm. Another on-going investment is a fresh fruits and vegetables drying establishment.

The Central Government decision to place this province in the second priority development category is seen as a restrictive element in the current efforts for industrial development. Nevertheless, it is observed that Urfa-Harran irrigation has increased the expectations of local entrepreneurs.

(3) Legal status of manufacturing establishments

The most common form of ownership in the small industry segment of the Region's manufacturing industry is individual proprietorship, followed by simple partnership (Table B.8). Even in Gaziantep, the tendancy towards forming companies seems to be low.

The large industry category is also based on individual proprietorship and partnership (Table B.9). Establishments employing 10-25 workers are more frequently organized as partnerships, usually between a master craftsman (usta) and a trader who provides marketing ability, trade contracts and capital. Joint stock companies are found particularly among large industries employing more than 25 workers, but they are by and large family controlled. Enterprises employing 100 workers or more are getting organized as joint stock companies.

A recent development, mostly in Gaziantep, has been the promotion of medium size (employing fewer than 100 workers) joint stock companies by young professionals with equity provided by Turkish workers abroad. Appreciation of the fact that joint stock companies provide better access to institutional credit and continuity than individual family businesses seems to have prompted the adoption of corporate form of business organization among the establishments in the large industry category.

(4) Labour force

Employment in the GAP region in small establishments mainly comprises:

1. self-employed proprietors and partners in small workshops and factories,
2. dependent workers such as apprentices and jouneymen, and
3. seasonal labourers with fixed-term contracts.

In the large industry category, particularly in establishments employing more than 20 workers, workers are usually hired with work contracts. Seasonal and casual labour is also employed by these establishments. Workers in these establishments are usually members of unions, have set work hours and are covered with social security insurance.

Casual labour is drawn from a pool which would be best described as the unemployed. Family members paid or unpaid can be found in all but the largest individually owned enterprises. Female participation is generally low. Ready-made garment and weaving industries are the main employer of female labour. Child employment is common, particularly in small industries employing fewer than 10 persons.

The Region's share of the manufacturing sector employment in the

national manufacturing employment is similar to the ratio of the Region's share of the number of establishments within the national manufacturing sector. Therefore, it may be stated that the general level of technology adopted by the Region's manufacturing industry is similar to the national structure and that the technological level of the Region is more or less similar to that of the national average.

(5) Entrepreneurs

Most owners of small enterprises employing fewer than 10 workers in the Region have originated from the shop floor. This is especially true in the metalworking, shoemaking and woodworking industries and to some extent, in the garment industry. In some branches of the textile, chemical, plastic, rubber industries and some branches of the food industry where the required initial investment is larger, the entrepreneur is generally a trader with commercial experience having accumulated capital from wholesaling or retailing operations.

In the case of relatively large enterprises (employing 40 or more workers), entrepreneurs are usually businessmen or professionals with considerable industrial experience. However, many small enterprises have been able to graduate into medium size operations through successive expansion. This development is particularly evident in Gaziantep. A new development which is being observed has been the increasing number of establishments in the Region formed by young engineers with equity participation of the Turkish workers abroad and relying on imported technology.

Particularly in Gaziantep, which is the industrial center of the Region, the owners of the small and medium scale enterprises appear to be energetic, resourceful and good at improvising and copying. They display initiative, deep knowledge of their trade and in certain instances considerable ingenuity in the development of machines.

Small manufacturing firms seem to demonstrate an ability to improvise and add to their capital stock by manufacturing machinery in their own machine shops by reconditioning old equipment. In certain other respects however, they remain traditional and are less amenable to the new ways of doing things. This is true especially in provinces other than Gaziantep. The low level of entrepreneurial potential faced in the Region, excluding Gaziantep, is in part the result of the out-migration of those people who have enough capital and ability to invest to the larger and more affluent cities of Istanbul and Ankara.

The most common characteristics of many small manufacturing units is the concentration of the production management and marketing responsibilities upon the owners. The proprietor carries out all

the activities, except the actual production operations (in the artisans field this function is also done by the owner), involved in the running of his business. Clearly, these individuals have neither the expertise nor the time to carry out adequately all the required tasks. In most cases they come from apprenticeships and possess only primary school education.

The critical point in the development of an industrial establishment is reached when it becomes essential to delegate managerial functions. Many entrepreneurs in the Region are incapable of, or at least, find it very difficult to take this step. Therefore, the growth potential of their establishments remains limited. Specialization in management functions, observed in Gaziantep to a limited extent, starts in general when enterprises reach the 15-20 employment bracket.

(6) Technical training

Entrepreneurs in the traditional workshops generally start their industrial careers as an apprentice at age 10-15. After gaining sufficient experience they become journeyman. Thereafter one attains the status of a master (usta). There are no formal demarcations between successive phases of this learning process.

As an alternative to this traditional training system, after completing secondary school, one can attend vocational schools where study and work experience are combined. The vocational school graduate can then start one's own business. The majority of the graduates of these institutions prefer to work at medium and large scale industries which offer them job security and social insurance.

Although the traditional system of training manifested in the master-journeyman-apprentice relationship is a common practice in the Region, it is increasingly coming under strain. Due to increased mechanization and mass production methods, skilled craftsmen are increasingly being displaced with less trained production line workers. This is particularly more apparent in Gaziantep, because of the changing structure of the economy.

Formal training of potential technicians and craftsman is limited. The Small Industry Development Organization (KUSGET) has been established as a pilot project. It has been very successful and it is taken as an example in which formal and practical work training programs are conducted simultaneously.

(7) Capital equipment

The machinery and equipment in the Region is highly diversified. Some are locally manufactured and some are imported used equipment. Those that use modern equipment are found only in Gaziantep. Generally, in metal products, wood products and

textile manufacturing, machinery and equipment are outmoded.

(8) Procurement of inputs

Procurement of manufacturing inputs is mostly from within the Region. Diyarbakir utilizes 92% of its manufacturing production inputs from its own hinterland within the province, but Gaziantep utilizes only 35%.

Majority of inputs used in manufacturing activities in the Region rely on suppliers located in Adana, Kahramanmaras and Hatay (Antakya). As a province develops, its input procurements tend to be from primary producers sometimes located in more distance provinces. Thus, Gaziantep's industry relies more on primary producers and importers, while the other GAP provinces rely on secondary sources located in closer provinces.

(9) Marketing

Marketing areas

Marketing of manufactured goods from the GAP provinces may be summarized as follows (SPO, "The Industrial Structure of Regional Centers", July (1983).

Much of the manufacturing in the GAP region is for local use. Estimates for Gaziantep and Diyarbakir indicates that 57% and 48% of manufactured goods are marketed within each respective province. The other GAP provinces absorb most of the remaining manufactured outputs.

Gaziantep has the opportunity to market its products, though in small quantities, to a large number of provinces, especially in East Mediterranean and Marmara regions, owing much to its industrialization stage.

Foreign markets have an increasing importance in the marketing of manufactured goods, especially for Gaziantep. Most of the exports from Gaziantep is directed to the Middle East. The share of industrial goods in the aggregate exports from Gaziantep in 120 different types of goods to over 40 countries is progressively increasing (Chamber of Commerce and Industry, Gaziantep).

Marketing institutions

The Region's manufacturers are organized into Provincial Chambers of Commerce and Industries and Manufacturers Associations. Membership to these organizations are voluntary. These organizations act on behalf of the manufacturers to assist them with bureaucratic formalities and as pressure groups to influence government policies.

At the national level IGEME (Export Promotion Center), a small governmental department associated with the Treasury and Foreign

Trade, systematically collects information from the Turkish Trade Attaches internationally and disseminates this information nationally through periodicals and journals which are sent to the local Chambers and Associations and members. All of their information are oriented to the international markets.

The overall regional marketing institutions, similar to the national structure, have deficiency in up-to-date information gathering, promotional marketing and related consumer research.

(10) Investment incentives

Existing incentive systems

During the early 1960's incentives were granted to direct investments toward the desired sub-sectors and regions indicated in the five year plans and annual programs. The essential elements of these policies had been:

a) income and corporation tax allowances,

b) tariff and duty deferrals or exemptions in capital goods importation, and

c) interest rebates.

Main features of these investment policies have been to vary the rates of benefit from sector to sector and also to differentiate them according to location.

Since 1980 a series of policy reforms had been introduced to stabilize the economy. These reforms include:

a) an initial large devaluation of the Turkish Lira in 1980 followed by daily adjustments of the exchange rate;

b) higher export incentives: subsidized credit, priority and duty free access to imported inputs for export production, tax rebates, elimination of licencing and relaxation of price controls in exports and the simplification of regulations and the centralization of the administration; and

c) partial import liberalization: elimination of the quota list, shifting imports to the more liberalized list, and reduction in guarantee deposits.

The most important factor in the growth of industrial investments just before 1980 had been the general economic policies (low loan interests, protective measures, low exchange rate policy, state subsidies for inputs) that had been implemented. The special incentives offered by the State (the incentive certificates) had selectively alleviated some of the bottlenecks that had been

created by national economic development policies such as foreign currency and credit allocation.

Since 1980 many of the bureaucratic barriers have been eliminated. More liberal foreign exchange policies have been implemented and potential exporters have been encouraged by providing incentives. A breakdown of manufacturing industry incentives granted in the GAP region by province since 1980 are presented in Tables B.10 and B.11.

Current investment policies have become more comprehensive. As in the earlier versions of the incentive policies, the Government introduced direct incentives to enable investors to market their products competitively in the national (in the case of investors in the less developed provinces) and also in the international markets. The general framework of these incentive policies are:

a) exemptions from customs duties on imported machinery,
b) rebates for the use of domestically produced machinery,
c) investment support premium,
d) interest rate subsidy,
e) investment tax allowance,
f) exemption from stamp duties, transaction and other taxes, and
g) export tax allowance.

All of these, except the last item are related to the investment phase.

In order to facilitate the development of relatively under-developed regions within the framework of the incentive system, the provinces have been classified according to their development levels and a distinction has been made to determine appropriate incentive measures relevant to the characteristics of these less developed provinces.

Within the provinces covered under the GAP, Adiyaman, Diyarbakir, Mardin and Siirt have been classified as first priority provinces. Sanliurfa has been classified as a second priority province. Gaziantep has been excluded from this policy framework since it has been evaluated and determined as a developed province (Table B.12). However this distinction between the provinces which are located in the same region has been the object of complaints.

Main objective of the incentives for the development of priority provinces have been :

- to maintain lower minimum investment requirements,
- to maintain lower credit rates,
- to give tax advantages, and
- to grant custom exemptions for necessary imports.

The lack of monitoring and evaluation of the results of the implementation of the incentives granted make policy adjustment and formulation difficult. Changes and the additional incentives that are established without sufficient analysis of their past performance and expected effectiveness remain to be the primary weakness of this policy.

Incentive requests

The effect of these policies on the investment decisions within the priority development provinces have not been all too encouraging. Incentives have not been effective in attracting investors. General economic policies and conjuncture are seen to be more effective in this matter. Level of the socio-economic development of each of the provinces is seen as a more relevant indicator for attracting investors.

An analysis of the sectoral distribution of the incentives also shows the importance of the natural tendency of development as being the prime motivation for seeking incentive certificates (Tables B.13 and B.14). In the GAP provinces there has been a higher share of food and beverage and textiles industry incentives in line with the natural development trends of the provinces in the Region. The observations are also relevant for the other priority development provinces. In this context, such indicators as the number of the incentive certificate which have been granted are used primarily in the evaluation of general conditions of respective provinces rather than the effectiveness of these incentive policies.

Between the years 1980 and 1986 the number of incentive certificates for manufacturing activities granted in the GAP Region has increased from 14 to 62 with corresponding figures of 3,501 and 88,811 employment creation and TL 1,884 million and TL 3,947 million of investment value. These are annual average increases of 28, 71 and 13 % for the number of certificates, employment and investment values respectively. The corresponding figures for the national total are 22, 52 and 4 % for the corresponding items. It may be deduced that investment anticipation within the Region had grown at higher rates than the Nation as a whole.

2. Mining

(1) Geology and mineral occurrence

Geology

The geological structure of Turkey is characterized by folds and faults running generally in east-west directions. It is divided, from the north to the south, into the following four tectonic units (Figure B.1):

1) Pontids,

2) Anatolids,
3) Taurids, and
4) Region of border folds.

The GAP region is geologically classified into the Taurids and the region of border folds. The Taurids unit has been thrust over the region of border folds by a large-scale overthrust lying along the southern boundaries of the unit.

There is a thick covering of Mesozoic rocks composed of marine sediments and an ophiolitic complex related to the basic igneous activity over the basement of metamorphic (age unknown) and unmetamorphosed Palaeozoic rocks. Partially distributed are the Cenozoic rocks composed of marine, shallow-sea and lagoon sediments, and volcanic rocks.

The border folds unit is located in the lowlands of the Region, which is part of the marginal submergence zone of the Arabian block to the southeast, and contains part of the Iran-Syria geosynclinal belt. The latter is the area where petroleum deposits are found. In this unit a partial distribution of Palaeozoic rocks can be observed, but the greater portion is made up of the strata composed of marine and lagoon sediments formed in the Mesozoic era or later in the Palaeozoic period. With the exception of the basalic rocks of the Neogene period, found near Diyarbakir, the strata in this unit have practically no products of igneous activity.

Mineral occurrence

Particularly important in the Taurids unit is the magmatic chromium deposits within the ultrabasic rocks such as peridotite and serpentinite, and the cupriferous iron sulphide deposits related to basic igneous activity of the late Cretaceous period (Figure B.2). The Ergani and the Guleman deposits are the most well-known of the cupriferrous iron sulphide and magmatic chromium.

In addition, there are contact metasomatic deposits, vein deposits and pegmatite-type deposits accompanying granite, granodiorite and other intrusive rocks. However, these are rarely of any economic importance.

The main features of the mineralization in the border folds unit are the petroleum deposits embedded in the middle Eocene limestone and the Jurassic to the middle Cretaceous limestone. Other important mineral resources are the evaporite-type phosphate deposits embedded in the upper Cretaceous strata. The Mazidag deposit is the most well-known of this type.

(2) Production

The GAP region contributed in 1985 to 4.4% of the total value-

added in the mining sector of Turkey (Table 2.4, The Master Plan). Crude oil leads the sector, followed by asphaltite, copper, phosphate and coal. The mining value-added in the Region accounted for 3.6% of the GRP in 1985.

A copper smelter operates in Ergani-Diyarbakir with an installed capacity of 18,000 tons/year. Due to shortage of raw materials, the recent blister copper production is 8,000 tons/year. The General Directorate of Mineral Research and Exploration Institute (MTA) has contracted with the Etibank General Directorate to launch a comprehensive survey project, to search additional deposits. Technical performance of the smelter is poor due to low standards, resulting in high production costs. The plant employs about 1,200 workers. A sulfuric acid unit with capacity of 110,000 tons/year was closed recently, since there is no demand for the product in local markets.

Siirt Madenkoy Copper Mining, a new project not yet in operation, aims at producing 60,000 tons/year of copper concentrate and 220,000 tons/year of pyrite concentrate for the needs of Ergani Copper and of the fertilizer plant to be erected at the phosphate plant in Mazidagi.

Concentrate phosphate production commenced in 1987 in Mazidagi with a 500,000 tons/year of output for fertilizer factories in Iskenderun and Samsun. The cost of transportation by road is a handicap for local production to compete in international markets.

The Turkish Coal Enterprises (TKI) exploits asphaltite reserves to produce 700,000 tons/year by open pit mining near Sirnak-Siirt.

Crude oil production in the Region is 2.5 million tons/year from 400 wells belonging to Turkish Petroleum Corporation (TPAO), 170 to Shell and 20 to Mobil Oil.

Each province in the Region has one cement plant established in 1985/86 at minimum economic capacities of about 550,000 tons/year. From the Region, 400,000 tons of clinker is being exported to a factory in Iskenderun. Estimated demand for cement in the Region will exceed the present supply capacity toward 1995, and expansion of installed capacity at Gaziantep and Adiyaman plants will be required.

The production and value in 1986 of major mining products in the Region are summarized and compared with those in Turkey.

Product	GAP Region Production 10^3 t/y	GAP Region Value 10^6 TL	Turkey Production 10^3 t/y	Turkey Value 10^6 TL	Region's Share Product. %	Region's Share Value %
Copper	583	11,193	2,500	39,000	23.3	28.7
Phosphate	349	5,414	349	5,414	100	
Asphaltite	630	12,691	41,391	384,357	1.5	3.3(*)
Crude oil	2600	267,457	2,650	270,600	98	99

(*) compared with lignite/coal production in Turkey.

(3) Reserves

Of the total domestic demand for crude oil, 13% is supplied from the reserves in the Region. On the basis of the known reserves, the present production level can be maintained for 20 years.

Asphaltite reserves are concentrated in the Region around Silopi area in Mardin and Sirnak area in Siirt. The total reserves are large enough to meet the regional demand for about 60 years.

The Government has planned a large phosphate complex to capitalize on the large reserves in the Region. The existing reserves will meet the requirements of this project for 40 years.

The Ergani copper mine, in operation since 1924, has mostly exhausted the reserves there with estimated 5 million tons remaining, sufficient to maintain the present production level for only a few more years. The second copper mine is in the Madenkoy-Siirt with 14 million tons of estimated reserves to be exploited soon by a private company.

Cement raw materials are abundant in the Region. Also clay reserves have been explored in the Kahta, Adiyaman and the Kiziltepe-Mardin areas for possible development for brick manufacturing.

Reserves of major mining resources in the Region are summarized below. More details are contained in Table B.15 (Figure B.3).

Raw Materials	GAP Region 1000 tons	Turkey 1000 tons	Region's share %
Copper	37,700	168,500	22.4
Phosphate	70,700	70,000	100
Asphaltite	75,000	7,987,000	1.2(*)
Crude oil	20,000	20,000	100

(*) Compared with lignite production in Turkey.

(4) Organization and institutions

Exploration and exploitation licenses/permits for mineral resources are issued and controlled by the Ministry of Energy and Natural Resources. Establishments of any type -public or private, individuals or companies, domestic or foreign - that have been set up in accordance with the Turkish Commercial Law, are awarded licenses upon request without any discrimination. They are awarded pre-operation and post-operation permits, if requested. Fees that are paid for these permits are deposited in a fund, from which credits are given to eligible prospective investors in the mining sector.

Ergani copper and Mazidagi phosphate firms are owned by the Etibank General Directorate. The asphaltite/coal establishment is administered by TKI and linked to the Ministry of Energy and Natural Resources. The new copper project in Madenkoy-Siirt will be operated as a joint-venture of Etibank and a West German company (Preusag) with the private sector status.

All the cement plants in the Region are managed by the Turkish Cement Company (CITOSAN). The regional petroleum operations are under the management of TPAO.

All of these corporations are State Economic Enterprises. Their operation and investment plans and programmes are prepared and proposed by themselves. Their proposals are sent to respective Ministries and also through SPO to the High Planning Council for incorporation into the general policies and programmes of the State.

Formerly, prices of the products of the SEE's were set by the Government on the "cost plus" basis, but recently they have been set free to be determined by the SEE's in view of market mechanism. Copper prices, for instance, are set by Etibank and the Blacksea Copper Company (SEE) in collaboration and in consideration of world market prices.

Phosphate prices are fixed at the CIF parity levels at Iskenderun and Samsun (Black Sea). At present, such prices have resulted in losses to the firm. Cement and asphaltite prices are determined by the respective companies. Both the domestic production and imports of crude oil are made by TPAO, who sets the prices of crude oil to refineries.

3. Tourism

(1) Tourist sites, arrivals and value-added

Tourist sites

There exist 17 national parks in Turkey covering 270,728 ha. They collectively host some 3 million domestic and 30,000

foreign visitors annually. The Forest Recreation Areas, 250 in total number covering 8,366 ha, are open to domestic and foreign visitors. In addition, there are 91 hunting preservation and reproduction sites and 27 hunting reproduction stations created under Law No: 3167 on Land Hunting, as well as nine areas identified as natural preservation sites including biogenetical reservations and biospherical reserves. Studies are under way to increase the number of national parks with 14 areas so far identified and also to delineate 26 more natural preservation sites.

The Department of National Parks, General Directorate of Forestry, Ministry of Agriculture, Forestry and Rural Affairs (MAFRA) has decided to create a national park at Nemrut in the province of Adiyaman covering 14,225 ha. In addition, two forest recreation areas exist at Dollukbaba 19 km away from Gaziantep and at Golpinar 8 km from Sanliurfa, and two preservation sites at Kelaynaklar in Birecik and the deer protection area at Ceylanpinar.

Numerous historic sites and many museums are found all over the Country, hosting various civilizations and historic wealth. In 1987, these places were visited by 5.2 million domestic and 6.4 million foreign visitors, an increase of 25% and 15% respectively from the previous year.

Tourist arrivals

Tourist arrivals in the GAP region have not increased much in recent years, and accounted only for 2.8% of the total tourist arrivals in Turkey in 1986 (Table B.16). Of the total foreign tourists arrived in Turkey, 1.8% visited the GAP region in 1986. The ratio of foreign tourists to the total was 27% in the Region in 1986, while the corresponding ratio for the country was 44% in the same year. Of the total foreign tourist arrivals in 1987, 49.5% was by air.

Breakdown of Foreign Tourist Arrivals to Turkey by Mode of Travel, 1987

	Air	Land	Train	Sea	Total
Arrivals	1,414,710	814,055	62,417	564,364	2,855,346
Share(%)	44.5	28.5	2.2	19.8	100

Source: Ministry of Culture and Tourism, Tourism Statistics, 1987.

Value-added

The value-added in the tourism sector has been estimated at 0.3% of the GRP in the GAP region.

Support system

As of December 1986, there were 13 five-star, 21 four-star and 75 three-star hotels in Turkey. The aggregate share of three to five-star hotels is 16% of the total facilities and 30% of the total number of beds. There is only one three-star hotel in Sanliurfa with 120 beds and no four- or five-star hotels.

The total number of beds in the Region was 1,440 in 1986, practicall at the same level in the past several years. The occupancy ratio of available beds had increased slightly to reach 37% in 1986, approaching the national average (Table B.16).

Tourism activities in Turkey are coordinated by the Ministry of Tourism and Culture. Private investments in tourism that require public investments are evaluated and supervised by SPO. Other public organizations related to tourism include MAFRA, the Ministry of Customs and State Monopolies, the Ministry of Interior, the Ministry of Transport and Communication, the General Directorate of Environment, State Hydraulic Works (DSI), the Department of State Highways, the Ministry of Health and Social Assistance and municipalities. The extent to which these organizations are involved in tourism depends on relevant legislation such as the Law for Promotion of Tourism and the Law for the Safeguarding of Culture and Natural Assets.

Tourism Associations are non-governmental organizations promoting tourism in Turkey under the Law on Associations. There are also tourism-oriented foundations or similar organizations which have been quite effective in working with the associations for integration of the infrastructure and in superstructure. There are travel agencies, affiliated with the Union of Travel Agencies (TURSAB), carrying out day-to-day activities.

Development of tourism from an individual behavior to a planned sectoral activities was made possible by the First Five-year Development Plan (1963-67). In addition to broad principles, the Plan stated that as much emphasis will be placed on publicity, services and souvenir goods industry as accommodation facilities in tourism investments.

At present, credits are made available to tourism investors both by the Ministry of Tourism and Culture and the Tourism Bank. The Tourism Bank has identified areas of primary, secondary and tertiary priority. In the GAP region, the provinces of Gaziantep and Diyarbakir fall in the tertiary priority category.

Credits may be available to the extent of 50-75% of the investment costs for certain facilities which will make positive contribution to the Turkey's tourism sector, regardless of geographical factors.

Turkey has signed the Convention for the Protection of Wildlife

B-2 Assessment of Establishment Conditions of Industries

1. Prospective industries

For the purpose of identifying industries of strategic importance, prospective manufacturing industries that may be newly introduced or much enhanced in the GAP region are first enumerated. The results are summarized in Table 8.18.

2. Assessment of industries

The prospective industries have been assessed by the five criteria (Section 3.3, The Master Plan). For each criterion, a score between 5 and -5 has been given by industry to each of the six GAP provinces, depending on the degree of sufficiency/insufficiency to which the criterion is satisfied. Thus the maximum possible score for any industry is 180 (6 criteria x 6 provinces x 5 points). The results are given in Table B.19.

B-3 Production and Vale-Added Estimate for Industry

1. Manufacturing

(1) Introduced/enhanced industries

The prospective industries that will be introduced or much enhanced in the GAP region have been identified. The value-added in the manufacturing sector is estimated separately for these industries. For each of the agro-processing industries, the availability of raw materials is examined on the basis of envisioned increase in agricultural and livestock production, the input-output ratio and prices of main inputs and outputs are determined, and the value-added is calculated. Value-added is estimated also for cement and phosphate fertilizer industries.

The calculation of the production and value-added is shown in Table B.20. Results are summarized in Table B.21.

(2) Other manufacturing

Other manufacturing industries consist mainly of consumer goods and construction materials industries. These industries will grow following the population growth, the increase in per capita income and the urbanization. If the regional income grows at 6.0% per annum, the demand for consumer goods tend to grow at a rate smaller than 6.0%. The demand for construction materials may grow at a higher rate, as the urbanization proceeds. Assuming the average annual growth of 6.0% for all the existing industries, the value-added of these industries combined will grow from TL 433.3 billion in 1985 to TL 1.390 billion in 2005.

2. Other industries

(1) Mining

The main mining activities in the Region will be the extractions of petroleum in Batman, asphaltite in Siirt and Mardin, copper at Madenkoy-Siirt, and phosphate at Mazidag-Mardin. The production of petroleum and asphaltite will increase at 4.0% per annum respectively (Section 5.2, The Master Plan). The extractions of copper at Madenkoy and phosphate at Mazidag are new activities that will add to the mining value-added. Overall the mining value-added is assumed to grow from TL 95.5 billion in 1985 to TL 306 billion in 2005 at the average annual rate of 6.0%.

(2) Tourism

The value-added in tourism sector can be estimated on the basis of number of foreign and local tourist arrivals and average expenditure per arrival. The following summarizes the results.

Year	No. of arrivals		Average expenditure		Total expenditure	
	Foreign	Local	Foreign	Local	Foreign	Local
1985	35,680	95,653	US $ 400	TL.15,000	14.3×10^6	1.43×10^9
2005	158,350	198,609	600	30,000	95.0×10^6	5×10^9

The total expenditure, including foreign and local tourism, will increase from TL 20.7 billion in 1985 to TL 133.3 billion in 2005 at the average annual rate of 9.8%. If the value-added ratio for tourism is 50%, the contribution of tourism sector to GRP will increase from 0.3% in 1985 to 0.6% in 2005.

(3) Utilities

The utility sector in the GAP region will be dominated by the electricity subsector, as the planned GAP hydropower schemes are implemented. Unit value-added of electricity generation has been determined to be TL 47 per kwh based on the financial statements of the Turkish Electricity Authority. This is multiplied by the annual hydroelectric energy production under Alternatives A, B and C to calculate the respective value-added. The utility sector value-added will be TL 1,236 billion, TL 1,370 billion and TL 886 billion under Alternatives A, B and C.

3. Industrial value-added in 2005

The available data on the industrial value-added include the utility sector for electricity, gas and water, but not the tourism sector. By adding the value-added of manufacturing, mining and utilities the industrial value-added is obtained: TL 3,922 billion, TL 3,790 billion and TL 3,307 billion under Alternatives A, B and C. These represent the average annual growth of 10.0%, 9.8% and 9.1%, respectively. The results are summarized in Table B.22.

B-4 Present Conditions and Needs of Trade and Commerce

1. Introduction

Trade and commerce activities are an integral part of urban and regional economic structure. They provide services that are essential for the viability of the local businesses and the subsistence of the households. It would be extremely difficult to maintain productive activities without complementary services such as ; banking/finance, wholesale and retail trade, hotel/restaurant and real estate/insurance (trade and commerce).

Urban and regional economies rely on this sector for marketing and finance and other supportive services. Some of the locally produced goods are sold through local traders as well as shipped by them to be sold in other locations. Financial affairs are handled by local branches of National banks. Restaurants and hotels provide accommodations to visiting businessmen. Without these supportive services local entrepreneurs can not maintain efficiently operating production and marketing activities.

Regional economic growth can be explained by the basic activities which lead and determine the Region's overall development; while other (non-basic) activities are simply consequences of the Region's overall development. Trade and commerce activities most often are explained as non-basic activities that grow due to the needs of the primary and secondary forms of production activities.

2. Present conditions

(1) Employment

Trade and commerce activity in the GAP region, employing over 90,000 persons, makes up 6 % of the total employment (1985). It employs more persons than the Region's manufacturing sector. Within the sector, retail trades (55,803) form the bulk of its composition with restaurants/hotels (17,760) being of secondary importance. Wholesale trades and banking/finance activities, with employment sizes of 5,733 and 5,276 respectively are next in importance.

Gaziantep has the highest concentration of trade and commerce activities. Of the Region's 90,074 employment in this sector 32,798, or 36% are located there. Together with Diyarbakir, the second important province, approximately 58% of the sector's employment are located in these two provinces (Table B.23, B.24 and B.25).

(2) Sectoral GRP

The Region's trade and commerce activities, based on the

estimates of the wholesale and retail trade and banking/finance sub-sectors, make up approximately 14 % of the total gross regional product (GRP). Within the Region's provinces Gaziantep's share is highest with 65 % of the trades and 30 % of the banking/finance sectors' GRP being produced. Diyarbakir, Adiyaman, and Sanliurfa are next in importance, but they have by no means the concentration that Gaziantep possesses.

In the SPO study : "The Hierarchy of the National Settlement Structures" published in 1982, the role of Gaziantep as the Region's primary trade center had been determined by a detailed socio-economic survey. The most recent employment and GRP figures (1985) continue to support the findings of this study. It is expected that Gaziantep will continue to be the major trading center of the GAP region in the future as well (Table B.26).

(3) Banking services

Banking services, which provide essential financial services to the Region's businesses are not well dispersed. Most major National banks do not have branches (1988) in each of the 59 administrative centers (as determined in the 1985 Census). The Agricultural Bank (TCZB) is the only bank with branches in each of these centers. The Turkish Halk Bank (THB) which is the primary lending bank for small and medium size business and manufacturing establishments has branches only in 30 centers. The Turkish Is Bank (TIB), the largest private National bank has branches in only 25 of the centers.

Banking services are an essential requirement for the establishment of entrepreneurial activity in the Region. All administrative centers have at least one bank branch and of these 30 have a single bank, TCZB.

Present demands in those centers lacking THB branches may not be sufficient to validate the establishment of branches. Future expansion of branches will be needed as a consequence of the GAP region's development. THB, oriented specifically for the needs of the small entrepreneur should establish guidelines concerning the arising needs in some of the centers of the Region. Ideally all administrative centers should have a THB branch, or TCZB should be allowed to accommodate the needs of the local non-agricultural entrepreneurs as well. These are policy decisions which can be suited to the needs of the entrepreneurs (Table B.27).

(4) Literacy levels

The quality of services of the trade and commerce sector can be measured by the educational level of those that are employed in these activities. At the regional level the literacy level of this sector is lower than the remaining sectors (agricultural sector is excluded from evaluation). The number of employees

that are illiterate is 12,663, which is 14.1 % of the total sectoral employment compared to the 9.4 % in the remaining sectors. The percentage of those employed in this sector with higher education is 4.1 % compared to the 7.8 % in the other sectors. The percentage of employees with vocational high school education is 2.1 % compared to the 6.4 % in the remaining sectors.

Gaziantep, as the Region's trading center is the only exception with the least illiteracy, with 9.5 % of the total trade and commerce employment. Gaziantep has the highest ratio 5.1% of employees in this sector with higher education. Siirt and Mardin rank the lowest, both with 2.8 % of the sectoral employment with higher education.

At the sub-sectoral level it is striking to see the large number of university educated employees, 1,353 of the 3,711 total sectoral employed, who work in the retail trade occupations while in the banking/finance services the corresponding figure is merely 420. Vocational high school educated employees which total 1,920 in the whole sector also concentrate in the retail trade sub-sector. Of the total sectoral employment 873 of the 1,920 vocational high school graduates are employed in the retail trade sub-sector while only 434 and 133 of the same total are in the banking/finance and restaurant/hotel sub-sectors respectively.

3. Recommendations

Development of the Region's economy can best function with the availability of appropriate complementary business activities. Trade and commerce will grow in parallel with the basic productive capacities. Although minimum levels of trade and commerce requirements can suffice, improved business atmosphere with efficient banking and finance, trade, accommodation, real estate and other essential business services can provide the local entrepreneur an advantage over competing alternative centers.

Some issues confronting the GAP region's trade and commerce activities are; excessive polarization of the trades in Gaziantep, inappropriate use of available skilled (educated) personnel (Tables B.28, B.29 and B.30) and the insufficient geographical distribution of banking services - especially of THB.

Policies oriented to this sector should consider the consequences of developments that will be taking place due to the implementation of the GAP. Increased agricultural productivity, diversification of production needs and urbanization will necessitate more efficient trade and commerce services for the local entrepreneur and the inhabitants of the Region.

Major issues needing immediate attention are :

- to establish bank branches and financial advisory services in those centers lacking THB,

- encourage and support on-the-job training programs for employees of banks/finance and restaurant/hotel services and

- to re-evaluate the curriculum of the Region's vocational high schools and develop lines of specialization with relevant regional needs.

Long term planning policies need to consider the development of more trading centers, preferably in Diyarbakir, Sanliurfa and Mardin. This would alleviate the need to travel long distances by the Region's entrepreneur to market their products and to periodically research the market place for new ideas and trends.

The national planning process does not cover the investment activities of this sector. The sector's activities are assumed to be the secondary effects of primary and secondary production activities. At the regional and local level the implications of these policies are reflected in the economic activities of those places.

National planning policies can be instrumental in enhancing the development of the trade and commerce activities. Specific investment decisions can be associated with related policies that need to be implemented in the trade and commerce sector. Such policies could include the establishment of training programs associated with expected growth in personnel needs, to form associations which could monitor the quality of services rendered and to formulate effective incentive policies to improve business methods of the specific trade and commerce activities.

The Chambers of Commerce, financial advisory services, marketing institutions, banks, training institutions associated with public and private enterprises and voluntary organizations etc., need to establish specific goals and to work in a coordinated manner with producers of goods.

Table B.1 Number of Establishments in Manufacturing Sector

	Large Industry				Small Industry			
	1980		1985		1980		1985	
Province	(%)		(%)		(%)		(%)	
Adiyaman	(2)	4	(2)	5	(6)	669	(8)	839
Diyarbakir	(7)	13	(9)	22	(10)	1,058	(13)	1,473
Gaziantep	(81)	140	(81)	198	(56)	5,464	(49)	5,435
Mardin	(1.7)	3	(2)	5	(8)	753	(8)	917
Siirt	(2)	4	(3)	5	(5)	480	(6)	687
Sanliurfa	(4)	8	(3)	8	(13)	1,347	(16)	1,784
Regional Total	(100)	172	(100)	243	(100)	9,771	(100)	11,135
National Total		8,710		9,193		137,337		183,337
Reg./Nat. (%)		1.9		2.6		7.1		6.0

Source : State Institute of Statistics (SIS), Census of Business and Industrial Establishments, 1980 and 1985.

Note : The figures in paranthesis represent the percentage share of the province in the region.

Table B.2 Number of Small Scale Establishments in Manufacturing Industry by Province and by Sub-sector

Product	ADIYAMAN		DIYARBAKIR		GAZIANTEP		MARDIN		SIIRT		SANLIURFA		REGIONAL TOTAL	
	1980	1985	1980	1985	1980	1985	1980	1985	1980	1985	1980	1985	1980	1985
Manufacture of food, beverage and tobacco	106	191	166	333	758	896	129	198	37	135	210	421	1406	2174
Textile, wearing apparel and leather industries	251	247	296	472	1787	1902	128	222	185	233	301	504	2948	3580
Manufacture of wood products including furniture	120	134	207	219	773	821	138	172	51	97	318	295	1386	1738
Manufacture of paper and paper products, printing and publishing	0	10	0	25	31	60	0	8	0	11	15	16	46	130
Manufacture of chemicals, petroleum, coal, rubber and plastic products	1	29	2	58	210	334	1	84	1	24	1	74	216	603
Manufacture of non-metallic mineral products	0	52	0	29	165	134	0	4	0	8	0	46	165	273
Basic metal industries	0	9	0	12	22	49	0	3	0	9	0	20	22	102
Manufacture of fabricated metal products, machinery and equipment, transportation vehicles, scientific and professional measuring equipment	191	155	387	310	1688	1137	344	211	190	165	462	370	3262	2348
Other manufacturing industries	0	12	0	15	30	102	13	15	17	5	40	38	100	187
Regional Total	669	839	1058	1473	5464	5435	753	917	481	687	1347	1784	9551	11135

Source : State Institute of Statistics, Census of Business and Industrial Establishments.

Table B.3 Sectoral Distribution of Small Industry Establishments in the GAP Region

Sector	1980 (%)	1985 (%)	1980	1985
Food-Bevareges	(15)	(19)	1503	2174
Textile-Clothing	(30)	(32)	2912	3580
Wood products	(14)	(15)	1386	1738
Paper and paper products	(1)	(1)	96	130
Chemicals,rubber and plastic product	(3)	(5)	301	603
Non-metallic mineral products	(2)	(2)	185	273
Basic Metal industries	(0.4)	(0.9)	42	102
Metal products, machinery and equipment,measuring devices	(24)	(21)	2347	2348
Other manufacturing	(2)	(1.6)	187	187
Regional Total	(100)	(100)	9581	11135
National Total			173337	183572

Source : SIS

Table B.4 Sectoral Distribution of Manufacturing Industry Establishments in Gaziantep

Sector	1985 Large Industry (%)		1985 Small Industry (%)	
Food-beverages	(25)	50	(16)	896
Textile-clothing	(33)	66	(35)	1902
Wood products	(2)	4	(15)	821
Paper and paper products	(2.5)	5	(1)	60
Chemicals,rubber and plastic products	(18)	35	(6)	334
Non-metallic mineral products	(1.5)	3	(2)	134
Basic metal industries	(3)	6	(1)	49
Metal products, machinery and equipment, measuring devices	(15)	29	(20)	1137
Other manufacturing			(2)	102
Province Total	(100)	198	(100)	5435
Regional Total		243		11153

Source : SIS

Table B.5 Sectoral Distribution of Manufacturing Industry Establishments in Diyarbakir

Sector	1985 Large Industry (%)		1985 Small Industry (%)	
Food-beverages	(54)	12	(22)	333
Textile-clothing	(9)	2	(32)	472
Wood products			(14)	219
Paper and paper products	(4)	1	(1.6)	25
Chemicals,rubber and plastic products			(3.9)	58
Non-metallic mineral products	(18)	4	(1.9)	29
Basic metal industries			(0.8)	12
Metal products, machinery and equipment, measuring devices	(13)	3	(21)	310
Other manufacturing			(1)	15
Province Total	(100)	22	(100)	1473
Regional Total		243		11153

Source : SIS

Table B.6 GAP Region Sectoral Employment - (1975-1980-1985)

Economic Sector	Total GAP Employment			Percent of Total Employ.			Annual Growth Rate (%)		
	1975	1980	1985	1975	1980	1985	1975 -1980 (5 yrs)	1980 -1985 (5 yrs)	1975 -1985 (10 yrs)
Agriculture	966023	920829	1086676	76.88	71.67	71.12	-0.95	3.37	1.18
Mining	3121	4529	3079	0.25	0.35	0.20	7.73	-7.43	-0.13
Manufacturing	49660	67700	76437	3.95	5.27	5.00	6.39	2.46	4.41
Elec./Gas/Water	436	909	1221	0.03	0.07	0.08	15.83	6.08	10.85
Construction	54408	43778	49322	4.33	3.41	3.23	-4.25	2.41	-0.98
Trades	37097	47883	61802	2.95	3.73	4.05	5.24	5.24	5.24
Transp./Commun.	26183	30275	37861	2.08	2.36	2.48	2.95	4.57	3.76
Banks/Insur.	2961	6398	5891	0.24	0.50	0.39	16.66	-1.64	7.12
Business/Pers. Serv.	28535	35826	50784	2.27	2.79	3.32	4.66	7.23	5.93
Public Services	88058	126722	154771	7.01	9.86	10.13	7.55	4.08	5.80
TOTAL EMPLOYMENT	1256481	1284849	1527845	100.00	100.00	100.00	0.45	3.53	1.97
TOTAL POPULATION	3212531	3567628	4303567				2.12	3.82	2.97
PERCENT IN WORK FORCE	39.11	36.01	35.50						

Note : Employment not adequately identified have been dispersed proportionately to the remaining sectors.

Source : Census of the Social and Economic Characteristics of the Population, SIS.

Table B.7 GAP Provincial Employment (CBIE)

Province	Large Industry		Small Industry	
	1980	1985	1980	1985
Adiyaman	1123	1640	1629	1909
Diyarbakir	1812	2757	2865	3767
Gaziantep	1780	10260	16952	16089
Mardin	527	713	2106	1878
Sanliurfa	883	940	3326	4067
Siirt	3671	868	1027	1530
Region	9796	17178	27905	29240
Nation	786995	927595	493666	475198
Region's share(%)	1.24	1.85	5.65	6.15

Source : Census of Business and Industrial Establishments, SIS.

Table B.8 Number of Small Establishments by Legal Status

(1980)

Province	Individual Proprietorship	Simple Partnership	Limited Corp.	Joint stock corp	Cooperative Corp.	Other	Total
ADIYAMAN	645	55				3	703
DIYARBAKIR	998	52		1		2	1053
GAZIANTEP	4028	593	1	7	8	73	4710
MARDIN	838	59				0	897
SIIRT	523	40					503
SANLIURFA	1569	84			1	1	1655
Regional Total	8601	883	1	8	9	79	9581

Source :SIS, Census of Manufacturing, 1980.

Table B.9 Number of Large Establishments by Legal Status

(1988)

Province	Individual Proprietorship	Simple Partnership	Limited Corp.	Joint stock corp	Cooperative Corp.	Other	Total
ADIYAMAN	13	2	5		2		22
DIYARBAKIR	11	4	8		1	5	29
GAZIANTEP	397	94	113	2		38	644
MARDIN	6	1	8		1	1	17
SIIRT	3	1	4		1	1	10
SANLIURFA	20	4	5	1	2	2	34
Regional Total	450	106	143	3	7	47	749

Source :Union of Chamber of Industry and Commerce, 1988.

Table B.10 Incentive Certificates Granted by Province

		1980	1981	1982	1983	1984	1985	1986	1987
	A	1	4	2	2		2	2	6
ADIYAMAN	B	30	945	378	443		153	612	2561
	C	0	160	110	72		70	20	385
	A		3	1	2	1	1	12	10
DIYARBAKIR	B		1158	1790	507	530	700	23114	47275
	C		130	170	135	32	30	1473	659
	A	8	22	14	10	24	33	37	52
GAZIANTEP	B	1863	13217	19690	8840	138659	94281	59443	214844
	C	459	2025	1472	486	2451	2589	2091	3862
	A	1	4	1	1		6	5	5
MARDIN	B	60	1045	231	86		9632	2398	3524
	C	1000	175	60	5		267	150	177
	A	1		1	2	1		4	4
SIIRT	B	250		96	79	450		2833	2882
	C	30		26	30	60		150	212
	A	3	2		3	2	6	2	8
S.URFA	B	1298	345		1739	1190	3848	411	68846
	C	395	40		238	40	310	63	1937
REGIONAL	A	14	35	19	20	28	48	62	85
TOTAL	B	3501	16710	22185	11694	140829	108614	88811	339932
	C	1884	2530	1838	966	2583	3266	3947	7232
NATIONAL	A	399	1033	428	385	543	956	1320	
TOTAL	B	161595	502953	210409	270981	557723	918520	1986555	
	C	60201	57545	32258	27071	36116	52264	74593	

A :Number of Certificates
B :Total Investment (TL million)
C :Employment (person)

Source :SPO

Table B.11 Distribution of Incentive Certificates Granted by Province

(%)

		1980	1981	1982	1983	1984	1985	1986	1987
	A	7.1	11	10	10		4.1	3.2	7.1
ADIYAMAN	B	0.8	5.6	1.7	3.7		0.1	0.6	0.7
	C	0	6.3	5.9	7.4		2.1	0.5	5.3
	A		8.5	5.2	10	3.5	2	19	11
DIYARBAKIR	B		6.9	8	4.3	0.3	0.6	26	14
	C		5.1	9.2	13	1.2	0.9	37	9.1
	A	57	62	73	50	85	68	59	61
GAZIANTEP	B	53	79	88	75	98	86	66	62
	C	24	80	80	50	94	79	52	53
	A	7.1	11	5.2	5		12	8	5.9
MARDIN	B	1.7	6.2	1	0.7		8.8	2.7	1
	C	53	6.9	3.2	0.5		8.1	3.8	1.6
	A	7.1		5.2	10	3.5		6.4	4.7
SIIRT	B	7.1		0.4	0.6	0.3		3.1	0.8
	C	1.5		1.4	3.1	2.3		3.8	2.9
	A	21	5.7		15	7.1	12	3.2	9.5
S.URFA	B	37	2		14	0.8	3.5	0.4	20
	C	20	1.5		24	1.5	9.4	1.5	27
REGIONAL	A	100	100	100	100	100	100	100	100
TOTAL	B	100	100	100	100	100	100	100	100
	C	100	100	100	100	100	100	100	100

* Figures for the Regional Totals have been rounded off to the nearest whole number.

A :Number of Incentive Certificates
B :Total Investment
C :Employment (person)

Source :SPO

Table B.12 Type of Incentives Granted to the Manufacturing Industry During 1980-1987 Period

(%)

Development Priority	Incentive	1980	1981	1982	1983	1984	1985	1986	1987
First Priority Provinces in Development (Adiyaman, Diyarbakir, Mardin, Siirt)	-Investment Allowance	40-100	60-100	60-100	60-100	100	100	100	100
	-Exemption of Customs Duty	100	100	100	100	100	100	100	100
	-Exemption of certain taxes and duties								
	-Rebates of interest rate differential								
	-Resource use support premium					20	20	20	20
	-Support premium						15	15	20
Second Priority Provinces (Sanliurfa)	-Investment Allowance	60	60	60	60	60	60	60	60
	-Exemption of Customs Duty	100	100	100	100	100	100	100	100
	-Exemption of certain taxes and duties								
	-Rebates of interest rate differential								
	-Resource use support premium					15	15	15	15
	-Support premium						15	15	20
Other provinces (Gaziantep)	-Investment Allowance	60	60	40	40	40	40	40	40
	-Exemption of Customs Duty	100	100	100	100	100	100	100	100
	-Exemption of certain taxes and duties								
	-Rebates of interest rate differential								
	-Resource use support premium					7	7	7	7
	-Support premium						15	15	20

Source : SPO

Table B.13 Incentive Certificates Granted by Sub-sectors

Product		1980	1981	1982	1983	1984	1985	1986	1987
Food and beverage	A	8	21	8	8	6	12	15	12
	B	1408	7291	1332	7120	11719	11307	25712	27378
	C	400	900	390	584	295	673	1286	555
Textiles and clothing	A	3	5	5	4	14	20	26	33
	B	375	5944	18169	1900	122024	70658	50778	194939
	C	1193	1075	1033	178	1826	2020	1640	4305
Leather and leather products	A		1	1			3	2	1
	B		162	96			2056	1356	315
	C		112	15			51	158	96
Wood products	A		2	1					1
	B		1719	43					223
	C		279	35					35
Paper and paper products. printing and publishing	A								1
	B								2400
	C								0
Chemicals	A				1	1		1	1
	B				187	2380		111	336
	C				15	67		16	10
Rubber products	A						4	1	3
	B						973	248	7082
	C						46	28	348
Ceramics and clay products	A	1	1		3	1	3	7	7
	B	1100	82		694	555	6831	4189	21970
	C	225	40		77	154	122	502	625
Cement	A		1				2	4	9
	B		755				1344	2790	25325
	C		25				45	100	429
Iron and steel	A			1					2
	B			148					7791
	C			95					126
Non-ferrous Metals	A							1	1
	B							499	698
	C							0	25
Fabricated metal products. machinary and equipment.measuring and controlling devices	A	2	2	2			1	4	5
	B	118	342	1886			100	1947	40883
	C	66	79	196			25	165	495
Transport vehicles	A				1			1	
	B				640			1081	
	C				23			52	
Other manufacturing	A		2	1	3	6	3		8
	B		415	511	1153	4151	15345		12374
	C		20	74	89	241	284		208
Regional total for the manufacturing industry	A	14	35	19	20	28	48	62	84
	B	3501	16710	22185	11694	140329	108614	88811	341716
	C	1884	2530	1338	966	2583	3266	3947	7408
National total for the manufacturing industry	A	399	1033	428	385	543	956	1320	
	B	161395	502953	210409	270981	557723	918520	1986555	
	C	60201	57545	32258	27071	36116	52264	74593	

A: Number of certificates
B: Total investment
C: Employment

Table 8.14 Distribution of Incentive Certificates Granted by Sub-sectors

(%)

Product		1980	1981	1982	1983	1984	1985	1986	1987
Food and Beverage	A	57	60	42	40	21	25	24	14
	B	40	44	6	61	8	10	29	8
	C	21	36	21	60	11	21	33	7.5
Textiles and Clothing	A	21	14	26	20	50	42	42	39
	B	25	36	32	16	87	65	57	57
	C	63	42	56	13	71	62	42	58
Leather and Leather products	A		3	5			6	3	1
	B		97	0.9			2	1.5	0.1
	C		4	0.8			2	4	1
Wood Products	A		6	5					1
	B		103	0.2					0.1
	C		11	2					0.5
Paper and Paper products, Printing and Publishing	A								1
	B								0.7
	C								0
Chemicals	A				5	4		2	1
	B				2	2		0.1	0.1
	C				1.5	3		0.4	0.1
Rubber Products	A						8	2	4
	B						1	0.3	2
	C						1	0.7	4.5
Ceramics and Clay products	A	7	33		15	4	6	11	8
	B	31	0.5		6	0.4	6	5	6
	C	12	1.6		8	6	4	13	8
Cement	A		3				4	6.5	11
	B		4.5				1	3	7
	C		1				1	2.5	6
Iron and Steel	A			5					2
	B			0.7					2
	C			5					2
Non-Ferrous Metals	A							2	1
	B							1	0.2
	C							0	0.3
Fabricated metal products, machinery and equipment, measuring and controlling devices	A	14	5.7	10			2	6.5	6
	B	3	2	8.5			0.1	2	12
	C	3.5	3	11			0.8	4	7
Transport vehicles	A				5			2	
	B				5.5			1	
	C				2			1	
Other manufacturing	A		5.7	5	15	21	6		9.5
	B		2.5	2	10	3	14		4
	C		0.8	4	9	9	1.5		3
Regional Total for the manufacturing industry	A	100	100	100	100	100	100	100	100
	B	100	100	100	100	100	100	100	100
	C	100	100	100	100	100	100	100	100

A :Number of Certificates
B :Total Investment
C :Employment (person)

* Total percentages have been rounded off to the nearest whole numbers.

Table B-15 Main Mining Reserves in the GAP Region (1/4

Location	Raw material	Reserves 10^6 tons	Quality	Note
Adiyaman				
Celikhan district-Bulan location	Apatite Magnetite	31.1	2.01% P2O5 28.6% Fe	
Besni district-Tut sub-district, Pembegli location	Phosphate	8.4 (probable +possible)	7.11% P2O5	Not economical
Golbasi district-Meryunusagi location	Manganese	0.0045 (visible +probable)	28.39% Mn 0.78% Fe	
Golbasi district-Kucuk hacivert location	Manganese	0.0075 (visible +probable)	21% Mn	
Merkez-Borkenez, Kullum,Agdiken	Marn Clay Limestone	23 100 92.5		
Golbasi,Kahta, Samsat	Bricks and tiles raw materials	25-27		
Golbasi	Lignite	53.1	50% water 21% ash 1.16% S	1.385 kcal/kg
Diyarbakir				
Dicle district-Kursunlu village		0.044 (visible,probable, possible)	3-35% Pb+Zn	Suitable only for small establishments
Dicle district-Asagisingirek village	Chromium	0.002 (probable +possible)	40-45% Cr2O3	Not feasible
Ergani-Hosan location	Limestone	463 (visible +probable)		Economical
Ergani-Ahurlar location		59 (visible +probable)		Economical

Table B.15 Main Mining Reserves in the GAP Region (2/4)

Carikli and Patrik villages	Bricks and tiles raw materials	4.5-5.5		
Kavs village	Bricks and tiles raw materials	10		Detailed research is necessary
Hani	Powder lime	40 (visible +probable)		Economical
Gaziantep				
Islahiye	Bauxite	95.8 (possible)	40.64% Al2O3	
Islahiye-Kurudag	Iron	80 (possible)	21-38% Fe 21-38% Al2O3 3-8 % SiO2 2-6 % TiO2	Suitable only for small establishments
Islahiye-Cabbardag	Iron	10 (possible)	21-35% Fe 4-14% SiO2 33-61% Al2O3 2-8 % TiO2	Suitable only for small establishments
Burc-Semlik	Iron	0.013 (visible +probable)	59-25% Fe 3.97% SiO2	Suitable only for small establishments
Burc-Semlik	Iron	0.268 (visible +probable)	31-12% Fe 45.35% SiO2	Suitable only for small establishments
Kilis-Musabeyli -Karaboluk	Iron	0.48 (visible +probable)	50-65% Fe	Suitable only for small establishments
Burc-Dostalli	Manganese	0.0025 (visible +probable)	45.30% Mn 22.70% SiO2	
Burc-Nallica	Manganese	0.0084 (visible +probable)	34.73% Mn	
Burc-Sipke	Manganese	0.0075 (visible +probable)	32.21% Mn 47.30% SiO2	
Burc-Yeniyapan	Manganese	0.0056 (visible +probable)	30% Mn	

Table B.15 Main Mining Reserves in the GAP Region (3/4)

Kilis-Musabeyli -Yukari Kalecik	Manganese	0.0278 (visible +probable)	30-48% Mn 15.40% SiO2	
Kilis-Musabeyli -Belekentepe	Manganese	0.0283 (visible +probable)	29.14% Mn 49% SiO2	
Kilis-Musabeyli -Kocamustafapasa	Manganese	0.145 (visible +probable)	53.65% Mn 21.50% SiO2	
Kilis-Musabeyli -Burunsuzlar	Manganese	0.0168 (visible +probable)	35% Mn 40% SiO2	
Kilis-Musabeyli -T.Karadut	Manganese	0.107 (visible +probable)	12-26% Mn	
Kilis-Musabeyli. Burc	Manganese	0.407	12-53% Mn	
Beylerbeyi-Taslik location	Limestone	8		Economic for lime production
Islahiye-Pevzipasa	Dolomite	40 (visible +probable)		Economical: used in Iskenderun iron and steel factory
Mardin				
Kiziltepe-Kocalar village	Limestone	30 (probable)		Economical for cement production
Nusaybin-Durakbasi village	Limestone	30 (probable)		Economical for cement production
Nusaybin-Yesilkoy	Limestone Marn	20 (probable) 20 (probable)		Economical for cement production
Mazidagi-Kasrik and Semikan	Phosphate	70.5 (visible)	13-25% P2O5	Economical
Mazidagi-Tasit		259.6 (visible +probable)	8-15% P2O5	Not economical
Kiziltepe-Zorkan location	Bricks and tiles raw materials	3		Economical
Silopi-Aksu (Harbul)	Asphaltite	25.8 (visible +probable)	1.2% water 35% ash 7.7% S	5,536 kcal/kg

Table B.15 Main Mining Reserves in the GAP Region (4/4)

Silopi-Uckardesler	Asphaltite	20.4 (visible +probable)	1.2% water 36% ash 7.7% S	5,474 kcal/kg
Siirt				
Sirvan Madenkoy location	Copper	25.4 (visible) 0.4 (probable)	2.1% Cu	
Kurtalan	Limestone Clay+limestone	54 (limestone) 11.4 (visible +probable)		Economical for cement production
Batman	Bricks and tiles raw materials	3		Economical
Sirnak	Asphaltite	29		Several deposits of varying quality 3,250-4,500 kcal/kg
Sanliurfa				
Buyukkargili-Kizimtepe	Cement raw materials	36.2 (visible)		
Kilavuztepe	Cement raw materials	72.2 (visible)		
Harran-Akcakale-Birecik	Bricks and tiles raw materials	39.2 (visible)		Economical

Source : MTA (G.D. Mineral Research and Exploration Institute)

Table B.16 Number of Arrivals, Nights Spent, Average Length of Stay, Number of Beds and Occupanc Ratio

Year	Number of Arrivals			Nights Spent			Average Length of Stay(days)			Occupancy Ratio (%)	Number of Beds
	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total		
GAP Region											
1981	3,620	47,883	51,503	4,725	56,334	61,059	1.31	1.18	1.19	13.4	1,249
1982	18,836	108,392	127,228	25,787	132,706	158,493	1.37	1.22	1.25	32.6	1,330
1983	21,109	105,807	126,916	37,627	133,392	171,019	1.78	1.26	1.35	32.1	1,460
1984	29,070	97,127	126,197	43,667	136,436	180,103	1.50	1.40	1.43	33.2	1,485
1985	35,680	95,653	131,333	50,384	133,617	184,001	1.41	1.40	1.40	32.6	1,545
1986	35,710	95,048	130,758	57,371	135,405	192,776	1.61	1.42	1.47	36.7	1,440
TURKEY											
1986	2,010,529	2,580,920	4,591,449	5,931,976	4,883,453	10,815,434	2.95	1.89	2.36	39.20	80,584

Source: Ministry of Culture and Tourism, Tourism Statistics Bulletin 1986.

Table B.17 Additional List of Potential Tourism Sites in the Region

Province	Potential Tourism Site
Adiyaman	Adiyaman center; Old and new Kahta; Nemrut hills; Besni center; Forts of Samsat, Kahta, Besni; Candere bridge; Karakus hill; Tumulus in the Goksu valley and near Golbasi
Diyarbakir	Diyarbakir center; Eshabikeyf case; Hilar ruins and the first settlement village of Cayonu near Ergani; Cermik hot water springs
Gaziantep	Gaziantep center; Dolukbaba forest (Roman tombs); Sof mountain; Museum of Yusa; Gaziantep fortress; Rumkale, the tomb of Yunama in Yavuzeli; Nizip, host town of Karkamis; Kilis with Canpolat Bey mosque, tomb of Bilali Habes, Tilhabes and Kuzeyne village
Mardin	Mardin center (Deyrulzaferan monastry); Midyat center (Deyrulumur monastry); Nusaybin center (Nerdis-Mariis-Marin ruins)
Siirt	Siirt center with Veysel Karani's tomb, tomb of Ismail Hakki; hot water springs of Billuris and Hista
Sanliurfa	Urfa center (city of Suayb); Birecik (natural presentations); Ceylanpinar state farm

Table B.18 Enumeration of Prospective Industries [1/2]

Industries Food. beverage. Tobacco	Adiyaman	Diyarbakir	Gaziantep	Mardin	Sanliurfa	Siirt
						Newly Established (NE)
Slaughtering (red meat)	Exist (EX)	Enhanced(E)	Enhanced(E)	Enhanced(E)	Enhanced(E)	
Poultry meat	EX (Not act.)	E	E	E	E	NE
Milk processing	EX (Not act.)	EX	E	EX (Not act.)	EX (Not act.)	
Dried fruits		E	EX	E	E	
Tomato sauce		NE			NE	
Canned vegetables		NE			NE	
Raw edible oil		NE	E		NE	
Refined edible oil			E		NE	
Wheat flour	EX	E	E	E	E	E
Macaroni		NE	E		NE	
Pistachio processing	NE		EX		NE	NE
Refined salt	E					NE
Soft drink bottling	NE	NE	EX		E	
Mineral water						
Tobacco processing		EX				NE
Ginnig	EX	E	E	NE	E	NE
Carded cotton yarn	EX	E	E		E	
Mercerized cotton yarn			E		E	
Mixed cotton yarn			NE			
Cotton fabrics	EX	NE	E		NE	
Towel and similar fab.			EX		NE	
Semi-kamgharn yarn	NE		NE and E			
Kamgharn yarn			NE			
Sewing thread			NE			
Jut yarn			NE			
Ready made towel and bath robe	E		EX		NE	
Sacks, textile bag (made of poliprophilen)	EX		EX		NE	
Pure cot.knit.yarn						
Knitting fabrics	E		E		NE	
Knit.ready made clothes	E		E			
Embrodied fabrics			NE			
Wearing apparel	E		E			
Hand made carpets	NE		EX	E		NE
Undressed skin		NE	NE		NE	NE
Hand made carp.(silk)	NE	NE	EX			
Felt and felt prod.				NE	NE	
Leather clothes	NE					
Tanneries		NE			NE	
Shoes made of leathers		NE	E			
Slippers and sporting shoes		NE	E			
Soinery products		NE	E		NE	

Table B.18 Enumeration of Prospective Industries [2/2]

Industries Food. beverage. Tobacco	Adiyaman	Diyarbakir	Gaziantep	Mardin	Sanliurfa	Siirt
Furniture		NE	EX			
Printing and publishing		E	E		E	
Fertilizer				NE		
Rose water					NE	
Plastic shoes		NE	EX			
Hard pipes made of plastic			EX		NE	
Plast.shoes + slippers		E	E		NE	
Plastic recepticle		NE	EX		NE	
Tiles and bricks	E	EX	EX	EX	E	EX
Quick lime (calcium oxide)			NE	EX		
Concrete briquette	E	E	E	E	E	E
Pipes made of cement		NE	NE		NE	
Pipes made of asbestos cement				EX	NE	
Concrete columns		NE	E		NE	
Construction materials made of cement		NE		EX	NE	
Ready made concrete	NE	NE	E	E	NE	NE
Seeding machine			EX		NE	
Agricul. insectisides pulverize					NE	
Air conditioning eqp.		NE			NE	
Furniture and fixture made of metal			E		NE	
Tank for water. gas. fuel	EX	EX	EX	EX	EX	NE
Tin boxes		NE	EX		NE	
Barby wire. bra. wire. steel wire					NE	
Nails			E			EX
Bottle cap and lids			NE			
Asbestos cement sheet				NE		
Marble plate			EX			NE
Auto parts			E			
Cotton wool			E		NE	

Note: EX - Existing
E - Further enhanced
NE - Newly established

Table B.19 *Assesment of Establishment Conditions for Industries (1/2)*

Assessment criteria	Ranking
R: Raw material availability	S: Sufficient
L: Labour requirement	I: Insufficient
C: Capital requirement	1: lowest degree
M: Marketing prospect	5: highest degree
U: Need for utilities	2,3,4: intermediate degree
O: Other conditions	

	ADIYAMAN						DIYARBAKIR						GAZIANTEP						MARDIN						SIIRT						SANLIURFA					
INDUSTRY	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O
Slaugthering (red meat)							S4	S3	S1	S2	S3	S1							S3	S3	I1	S3	S1	S1	S1	S3	I4	S2	I1	S1	S5	S3	S2	S2	S3	S2
Poultry meat							S1	S3	I1	S1	S3	S1	S2	S4	S1	S3	S4	S3	S1	S3	I1	S1	S1	S1	I3	S3	I2	S1	I1	I1	S1	S3	I1	S2	S3	S1
Milk processing													S2	S4	S2	S3	S4	S3	S3	S3	S1	S1	S1	I1												
Dried fruits							S1	S3	I1	I1	S3	S3																			S1	S3	I1	I1	S3	
Sauce							S1	S3	I2	S1	S3	S1																			S2	S3	I1	S1	S3	S1
Canned vegetebles							S1	S3	I2	I1	S1	S1							S2	S3	I2	I1	S2	S2							S2	S3	I2	I1	S2	S2
Raw edible oil							S2	S2	S3	S5	S2	S3	S3	S4	S4	S5	S5	S4													S5	S4	S3	S5	S2	S3
Refined edible oil													S3	S4	S4	S5	S5	S4													S5	S4	S3	S5	S2	S2
Wheat flour							S4	S3	S3	S3	S3	S3	I4	S4	S4	S3	S4	S3	S4	S3	S3	S2	S4	S3	S3	S3	S3	S2	S3	S3	S5	S3	S3	S3	S3	S3
Macaroni							S3	S2	S1	S1	S2	S1	S3	S4	S3	S3	S3	S3													S5	S3	S2	S3	S3	S3
Pistachio processing	S4	S3	S3	S5	S3	S2																			S4	S3	S3	S5	S3	S2	S5	S3	S4	S5	S3	S2
Refined salt	S3	S2	S2	S3	S3	S2																			S3	S2	S1	S3	S2	S2						
Soft drink bottling							I1	S3	S3	S3	I1	S3	S3	S3	S3	S3	S3	S3																		
Mineral water	S3	S3	I1	S3	S3	S2																														
Tobacco processing																									S3	S3	I1	S3	S2	S1						
Ginning							S2	S3	S3	S3	S3	S3	I4	S3	S3	S3	S3	S3	S1	S2	S3	S3	S3	S2	S1	S2	S3	S3	S2	S2	S4	S3	S3	S3	S2	S3
Carded cotton yarn							S2	S3	S2	S3	S3	S3	S3	S3	S3	S3	S3	S3													S2	S2	S2	S3	S2	S3
Mercerized cotton yarn													S3	S3	S3	S3	S3	S3													S1	S2	S1	S2	S2	S2
Mixed cotton yarn													S3	S3	S1	S2	S3	S3																		
Cotton fabrics							S2	S2	S2	S2	S2	S1	S3	S3	S3	S3	S3	S3													S2	S2	S1	S1	S1	S2
Towel and similar fabrics																															S2	S2	S1	S1	S2	S2
Semi Kongharn yarn	I3	S2	I3	S3	S3	S3							S3	S3	S3	S3	S3	S3																		
Kongharn yarn													S2	S3	S3	S3	S3	S3																		
Sewing thread													S3	S3	S3	S3	S3	S3																		
Jute Yarn													S3	S3	S3	S3	S3	S3																		
Ready made towel and bath robe																															S2	S2	S1	S1	S2	S2
Sacks,textile bag made of polyprophilen	I3	S2	S3	S3	S3	S3																									I3	S2	S1	S2	S2	S2
Pure cotton knitting yarn													S3	S3	S2	S3	S3	S3																		
Knitting fabrics	I3	S3	S2	S3	S3	S3							S3	S3	S3	S3	S3	S3													S2	S2	S1	S2	S2	S2
Knitting ready made clothes	S1	S3	S1	S2	S3	S3							S3	S3	S3	S3	S3	S3																		
Embroidied fabrics													S3	S3	S3	S3	S3	S3																		
Wearing apparel	I3	S3	S3	S3	S3	S3							S3	S3	S3	S3	S3	S3																		

Table B.19 Assesment of Establishment Conditions for Industries (2/2)

INDUSTRY	ADIYAMAN						DIYARBAKIR						GAZIANTEP						MARDIN						SIIRT						SANLIURFA					
	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O	R	L	C	M	U	O
Hand made carpets (wool)	I3	S3	S3	S3	S3	S3													S3	S3	S3	S3	S3	S3	S3	S2	S3	S3	S3	S3						
Hand made carpets (silk)	I3	S3	S3	S3	S3	S3	S4	S3	S3	S3	S3	S3																								
Felt and felt products																			S3	S3	S2	S3	S2	S2							S3	S3	S2	S3	S2	S2
Tannery							S4	S2	S2	S4	S2	S3																			S4	S2	S3	S4	S3	S3
Leather clothes	I3	S3	S2	S3	S3	S3																														
Shoes made of leather							S2	S2	S2	S3	S3	S3	S3	S3	S3	S3	S3	S3																		
Slippers and sporting shoes							I3	S3	S3	S3	S3	S2	I3	S3	S3	S3	S3	S3																		
Soinary products							I3	S2	S3	S3	S3	S2	I3	S3	S3	S3	S3	S3													I3	S2	S2	S3	S3	S2
Furniture							S2	I1	S3	S2	S3	S2																								
Chip plate													S2	S3	S3	S3	S3	S3																		
Printing and publishing							I3	S3	S3	S2	S3	S2	I3	S3	S3	S3	S3	S3													I3	S3	S3	S2	S3	S2
Fertilizer																			S3	S3	S3	S3	S3	S3												
Rose water and oil																															S2	S2	S2	S3	S2	S2
Plastic shose	I2	S2	S2	S3	S3	S3	I3	S2	S2	S3	S3	S3																								
Hard pipes made of plastics													S3	S3	S3	S3	S3	S3													I3	S2	S2	S3	S2	S2
Plastic receptacle (bucket etc)							I3	S2	S2	S3	S3	S3																			I3	S2	S2	S3	S2	S2
Tiles and bricks	S1	S1	S1	S1	S1	S1	S2	S2	S2	S2	S2	S2							S2	S2	S2	S2	S2	S2	S1	S1	S1	S1	S1	S1						
Quick and slaked lime													S3	S3	S3	S3	S3	S3							S3	S2	S2	S3	S2	S2						
Concrete briquette	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S2	S2	S2	S2	S2	S2	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1	S1
Pipes made of cement							S2	S2	S2	S2	S1	S1	S2	S2	S2	S2	S2	S2													S2	S2	S2	S2	S2	S2
Pipes made of asbestos cement																															S3	S2	S3	S3	S2	S2
Concrete columns							S1	S1	S1	S1	S1	S1	S2	S2	S2	S2	S2	S2													S2	S2	S2	S2	S2	S2
Construction material made of cement							S2	S2	S2	S2	S2	S2																			S2	S2	S2	S2	S2	S2
Ready made concrete							S2	S2	S2	S2	S2	S2	S3	S3	S3	S3	S3	S3													S2	S2	S2	S2	S2	S2
Seeding machine													S3	S3	S3	S3	S3	S3													I3	S2	S2	S3	S3	S3
Agricultural insectisides pulverizer																															I3	S2	S2	S2	S2	S2
Air conditioning equipment							I3	S2	S2	S2	S3	S3																			I3	S2	S2	S2	S2	S2
Furniture and fixture made of metal													S3	S3	S3	S3	S3	S3													I3	S2	S2	S2	S2	S2
Tanks for water,gas and fuels																									I3	S2	S3	S3	S2	S2						
Tin boxes							I3	S2	S2	S2	S3	S3																			I3	S2	S2	S2	S2	S2
Barbed wire,braced wire steel wire																															I3	S2	S2	S2	S2	S2
Nails													S3	S3	S3	S3	S3	S3																		
Bottle cap and lids													S3	S3	S3	S3	S3	S3																		
Asbestos cement sheets																			S3	S3	S3	S3	S3	S3												
Marble plate																									S3	S2	S2	S3	S3	S2						
Auto parts													S3	S3	S3	S3	S3	S3																		
Cotton wool													S3	S3	S3	S3	S3	S3													S2	S2	S2	S3	S2	S2
Bijouterie	S3	S2	S3	S3	S3	S3																									S3	S2	S3	S3	S3	S3

Table B.20 Value-added Estimate by Major Industry, 2005, Scenario A [1/2]

Industry	Raw material	Input ton 10^3		I/O ratio	Output production ton 10^3	Price TL*10^3/ton	Produc. value TL*10^9	Produc. cost TL*10^9	Value-added TL*10^9
Raw edible oils	Sunflower	128.09	oil	0.40	51.24	645.00	33.05	41.21	9.67
			cake	0.58	74.29	240.00	17.83		
	Cottonseed	515.24	oil	0.17	85.01	535.00	45.48	83.72	63.16
			cake	0.82	422.50	240.00	101.40		
	Soybean	189.58	oil	0.18	34.12	645.00	22.01	62.78	7.76
			cake	0.80	151.67	320.00	48.53		
	Groundnut	124.74	oil	0.45	56.13	1290.00	72.41	83.04	15.82
			cake	0.53	66.11	400.00	26.44		
	Sesame	85.62	oil	0.32	27.40	2420.00	66.31	83.72	9.30
			cake	0.65	55.66	480.00	26.71		
	Maize	140.69	oil	0.08	11.25	645.00	7.26	27.98	9.33
			cake	0.89	125.21	240.00	30.05		
	Safflower	50.00	oil	0.60	30.00	645.00	19.35	12.85	10.94
			cake	0.37	18.50	240.00	4.44		
	Total	1233.95			1209.09		521.28	395.30	125.97
Refined edible oils	Sunflower oil	25.62	oil	0.70	17.93	965.00	17.30	17.36	4.07
			residual	0.25	6.40	645.00	4.13		
	Cotton seed oil	42.51	oil	0.70	29.75	805.00	23.95	23.67	6.29
			residual	0.25	10.63	565.00	6.00		
	Total	68.12			64.72		51.39	41.03	10.36
Wheat flour	Soft wheat grain	1557.63	flour	0.80	1246.11	320.00	398.75	267.51	163.96
			bran	0.20	311.53	105.00	32.71		
	Total	1557.63			1557.63		431.46	267.51	163.96
Semolina	Hard wheat grain	163.96	semolina	0.65	106.57	395.00	42.10	35.11	18.09
			flour	0.17	27.87	250.00	6.97		
			bran	0.18	29.51	140.00	4.13		
	Total	163.96			134.45		49.07	35.11	18.09
Macaroni	Semolina	85.26		1.12	95.49	565.00	53.95	42.08	11.87
	Total	85.26			95.49		53.95	42.08	11.87
Cotton ginning	Seed cotton	858.73	lint	0.39	334.90	2740.00	917.64	831.20	170.25
			seed	0.61	523.83	160.00	83.81		
	Total	858.73			858.73		1001.45	831.20	170.25
Cotton products	Lint cotton	334.90	yarn	0.85	284.67	4830.00	1374.95	1126.73	264.30
			residual	0.15	50.24	320.00	16.08		
	Total	334.90			334.90		1391.03	1126.73	264.30
Slaughtering and meat processing	Cattle	101.33	meat	0.60	60.80	4510.00	274.20	285.41	66.95
			edible fat	0.12	12.16	2900.00	35.26		
			inedible fat	0.10	10.13	1450.00	14.69		
			blood	0.03	3.04	805.00	2.45		
			punch		0.63	20.00 [per punch]	0.01		
			skin	0.07	7.09	3630.00	25.75		
	Sheep	83.29	meat	0.50	41.64	5320.00	221.55	235.70	58.93
			edible fat	0.06	5.00	2900.00	14.49		
			inedible fat	0.04	3.33	1450.00	4.83		
			blood	0.08	6.66	805.00	5.36		
			punch		4.16	3.00 [per punch]	0.01		
			skin	0.16	13.33	3630.00	48.37		
	Total	184.62			167.99		646.99	521.11	125.87
Hides and skins	Raw leather		1 kg raw tin(dm^2)	13.40	273.62	[TL/dm^2] 520.00	142.28	96.04	64.03
		20.42	split	6.70	136.81	130.00	17.79		
	Total	20.42			410.43		160.07	96.04	64.03
Fruits/ vegetables processing	Tomato	316.88	paste	0.80	253.50	695.00	176.18	140.95	35.24
	Total	316.88			253.50		176.18	140.95	35.24
Cement					3665.00	58.00	212.57	180.68	31.89
	Total	0.00			3665.00		212.57	180.68	31.89
Phosphate fertilizer					360.00	285.00	102.60	66.69	35.91

Table B.20 Value-added Estimate by Major Industry, 2005, Scenario B/C [2/2]

Industry	Raw material	Input ton 10^3		I/O ratio	Output production ton 10^3	Price TL*10^3/ton	Produc. value TL*10^9	Produc. cost TL*10^9	Value-added TL*10^9
Raw edible oils	Sunflower	72.89	oil	0.40	29.16	645.00	18.81	23.45	5.50
			cake	0.58	42.28	240.00	10.15		
	Cottonseed	286.69	oil	0.17	47.30	535.00	25.31	46.59	35.14
			cake	0.82	235.09	240.00	56.42		
	Soybean	94.81	oil	0.18	17.07	645.00	11.01	31.40	3.88
			cake	0.80	75.85	320.00	24.27		
	Groundnut	68.10	oil	0.45	30.65	1290.00	39.53	45.34	8.64
			cake	0.53	36.10	400.00	14.44		
	Sesame	56.25	oil	0.32	18.00	2420.00	43.56	55.00	6.11
			cake	0.65	36.56	480.00	17.55		
	Maize	74.98	oil	0.08	6.00	645.00	3.87	14.91	4.97
			cake	0.89	66.73	240.00	16.01		
	Safflower	27.50	oil	0.60	16.50	645.00	10.64	7.07	6.02
			cake	0.37	10.18	240.00	2.44		
	Total	681.22			667.44		294.01	223.75	70.26
Refined edible oils	Sunflower oil	14.58	oil	0.70	10.20	965.00	9.85	9.88	2.32
			residual	0.25	3.64	645.00	2.35		
	Cotton seed oil	23.65	oil	0.70	16.56	805.00	13.33	13.17	3.50
			residual	0.25	5.91	565.00	3.34		
	Total	38.23			36.32		28.87	23.05	5.82
Wheat flour	Soft wheat grain	1553.35	flour	0.80	1242.68	320.00	397.66	266.77	163.51
			bran	0.20	310.67	105.00	32.62		
	Total	1553.35			1553.35		430.28	266.77	163.51
Semolina	Hard wheat grain	163.51	semolina	0.65	106.28	395.00	41.98	35.01	18.04
			flour	0.17	27.80	250.00	6.95		
			bran	0.18	29.43	140.00	4.12		
	Total	163.51			163.51		53.05	35.01	18.04
Macaroni	Semolina	85.03		1.12	95.23	565.00	53.80	41.97	11.84
	Total	85.03			95.23		53.80	41.97	11.84
Cotton ginning	Seed cotton	477.82	lint	0.39	186.35	2740.00	510.60	462.50	94.73
			seed	0.61	291.47	160.00	46.64		
	Total	477.82			477.82		557.23	462.50	94.73
Cotton products	Lint cotton	186.35	yarn	0.85	158.40	4830.00	765.06	626.94	147.06
			residual	0.15	27.95	320.00	8.94		
	Total	186.35			186.35		774.00	626.94	147.06
Slaughtering and meat processing	Cattle	101.33	meat	0.60	60.80	4510.00	274.20	285.41	66.95
			edible fat	0.12	12.16	2900.00	35.26		
			inedible fat	0.10	10.13	1450.00	14.69		
			blood	0.03	3.04	805.00	2.45		
			punch		0.63	20.00	0.01		
						[per punch]			
			skin	0.07	7.09	3630.00	25.75		
	Sheep	83.29	meat	0.50	41.64	5320.00	221.55	235.70	58.93
			edible fat	0.06	5.00	2900.00	14.49		
			inedible fat	0.04	3.33	1450.00	4.83		
			blood	0.08	6.66	805.00	5.36		
			punch		4.16	3.00	0.01		
						[per punch]			
			skin	0.16	13.33	3630.00	48.37		
	Total	184.62			167.99		646.99	521.11	125.87
Hides and skins	Raw leather		1 kg raw			[TL/dm^2]			
		20.42	tin(dm^2)	13.40	273.62	520.00	142.28	96.04	64.03
			split	6.70	136.81	130.00	17.79		
	Total	20.42			410.43		160.07	96.04	64.03
Fruits/ vegetables processing	Tomato	204.89	paste	0.80	163.91	695.00	113.92	91.13	22.78
	Total	204.89			163.91		113.92	91.13	22.78
Cement					3665.00	58.00	212.57	180.68	31.89
	Total				3665.00		212.57	180.68	31.89
Phosphate fertilizer					360.00	285.00	102.60	66.69	35.91

Table B.21 Estimated Production and Value-Added of Major Industries under Alternatives A, B and C, 2005

Industry	Alternative A Production 10^3 tons	Alternative A Value-Added 10^9 TL	Alternatives B/C Production 10^3 tons	Alternatives B/C Value-Added 10^9 TL
Raw edible oils	295.2	126.0	164.7	70.3
Oil cakes	913.9		502.8	
Refined edible oils	47.7	10.4	26.8	5.8
Wheat flour	1,246.1	164.0	1,242.7	163.5
Semolina	106.6	18.1	106.3	18.0
Macaroni	95.5	11.9	95.2	11.8
Cotton ginning	334.9	170.3	186.4	94.7
Cotton products	284.7	264.3	158.4	147.1
Slaughtering and meat processing (meat)	102.4	125.9	102.4	125.9
Hides and skins (leather)		64.0		64.0
Fruits/vegetables processing	253.5	35.2	163.9	22.8
Sub-total		990.1		723.9
Cement	3,665.0	31.9	3,665.0	31.9
Phosphate Fertilizer	360.0	35.9	360.0	35.9
TOTAL		1,057.9		791.7

* Estimated by the Consultant

Table B.22 Growth of Industrial Value-Added in the GAP Region under Alternatives A, B and C

(Unit: 10^9 TL in mid-1988 price)

Sector	1985	2005 Alternative A	2005 Alternative B	2005 Alternative C
Manufacturing				
Existing	433.3	1,390	1,390	1,390
Introduced/ Enhanced	0	990	724	724
Mining	95.5	306	306	306
Utilities	53.1	1,236	1,370	887
Total Industrial Value-Added	581.9	3,922	3,790	3,307
Average Annual Growth Rate 1985-2005, %	-	10.0	9,8	9.1

* Estimated by the Consultant

Table B.23 GAP Provinces Trade and Commerce Employment (1975)

1975

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	97	392	797	264	290	876	2716
Retail Trade	1410	6697	13003	4047	2855	6206	34218
Restaurants/Hotels	546	2193	4440	863	626	1706	10374
Finance/Banking	179	585	948	268	248	355	2583
Insurance	6	131	180	10	29	9	365
Business services/Real estate	64	390	881	167	95	332	1929
Sub.Total	2302	10388	20249	5619	4143	9484	52185
Other Sectors	138676	247612	247246	212752	137078	220932	1204296
Total	140978	258000	267495	218371	141221	230416	1256481

Source : SIS

Share of Total Employment (%)

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	0.07	0.15	0.30	0.12	0.21	0.38	0.22
Retail Trade	1.00	2.60	4.86	1.85	2.02	2.69	2.72
Restaurants/Hotels	0.39	0.85	1.66	0.40	0.44	0.74	0.83
Finance/Banking	0.13	0.23	0.35	0.12	0.18	0.15	0.21
Insurance	0.00	0.05	0.07	0.00	0.02	0.00	0.03
Business services/Real estate	0.05	0.15	0.33	0.08	0.07	0.14	0.15
Sub.Total	1.63	4.03	7.57	2.57	2.93	4.12	4.15
Other Sectors	98.37	95.97	92.43	97.43	97.07	95.88	95.85
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Percentage Share of Total Employment in Region %

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	3.57	14.43	29.34	9.72	10.68	32.25	100
Retail Trade	4.12	19.57	38.00	11.83	8.34	18.14	100
Restaurants/Hotels	5.26	21.14	42.80	8.32	6.03	16.44	100
Finance/Banking	6.93	22.65	36.70	10.38	9.60	13.74	100
Insurance	1.64	35.89	49.32	2.74	7.95	2.47	100
Business services/Real estate	3.32	20.22	45.67	8.66	4.92	17.21	100
Sub.Total	4.41	19.91	38.80	10.77	7.94	18.17	100
Other Sectors	11.52	20.56	20.53	17.67	11.38	18.35	100
Total	11.22	20.53	21.29	17.38	11.24	18.34	100

Table B.24 GAP Provinces Trade and Commerce Employment (1980)

1980

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	271	948	1818	328	386	1450	5201
Retail Trade	2794	7889	16500	4448	3145	7115	41891
Restaurants/Hotels	727	3134	5788	980	893	1804	13326
Finance/Banking	413	1148	2415	607	406	700	5689
Insurance	34	187	250	15	68	49	603
Business services/Real estate	107	340	954	251	65	338	2055
Sub Total	4346	13646	27725	6629	4963	11456	68765
Other Sectors	139419	256565	249238	209454	158802	202606	1216084
Total	143765	270211	276963	216083	163765	214062	1284849

Source : SIS

Share of Total Employment (%)

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	0.19	0.35	0.66	0.15	0.24	0.68	0.40
Retail Trade	1.94	2.92	5.96	2.06	1.92	3.32	3.26
Restaurants/Hotels	0.51	1.16	2.09	0.45	0.55	0.84	1.04
Finance/Banking	0.29	0.42	0.87	0.28	0.25	0.33	0.44
Insurance	0.02	0.07	0.09	0.01	0.04	0.02	0.05
Business services/Real estate	0.07	0.13	0.34	0.12	0.04	0.16	0.16
Sub Total	3.02	5.05	10.01	3.07	3.03	5.35	5.35
Other Sectors	96.98	94.95	89.99	96.93	96.97	94.65	94.65
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Percentage Share of Employment in Region %

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	5.21	18.23	34.95	6.31	7.42	27.88	100
Retail Trade	6.67	18.83	39.39	10.62	7.51	16.98	100
Restaurants/Hotels	5.46	23.52	43.43	7.35	6.70	13.54	100
Finance/Banking	7.26	20.18	42.45	10.67	7.14	12.30	100
Insurance	5.64	31.01	41.46	2.49	11.28	8.13	100
Business services/Real estate	5.21	16.55	46.42	12.21	3.16	16.45	100
Sub Total	6.32	19.84	40.32	9.64	7.22	16.66	100
Other Sectors	11.46	21.10	20.50	17.22	13.06	16.66	100
Total	11.19	21.03	21.56	16.82	12.75	16.66	100

Table B.25 GAP Provinces Trade and Commerce Employment (1985)

1985

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	159	1142	2353	347	333	1399	5733
Retail Trade	3635	10864	20085	6417	4475	10327	55803
Restaurants/Hotels	957	3866	6917	1774	1275	2971	17760
Finance/Banking	449	1208	1653	676	441	849	5276
Insurance	47	211	195	19	69	49	590
Business services/Real estate	150	1559	1595	395	641	572	4912
Sub Total	5397	18850	32798	9628	7234	16167	90074
Other Sectors	166823	307648	283779	237639	170632	271250	1437771
Total	172220	326498	316577	247267	177866	287417	1527845

Percentage Share of Total Employment (%)

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	0.09	0.35	0.74	0.14	0.19	0.49	0.38
Retail Trade	2.11	3.33	6.34	2.60	2.52	3.59	3.65
Restaurants/Hotels	0.56	1.18	2.18	0.72	0.72	1.03	1.16
Finance/Banking	0.26	0.37	0.52	0.27	0.25	0.30	0.35
Insurance	0.03	0.06	0.06	0.01	0.04	0.02	0.04
Business services/Real estate	0.09	0.48	0.50	0.16	0.36	0.20	0.32
Sub Total	3.13	5.77	10.36	3.89	4.07	5.62	5.90
Other Sectors	96.87	94.23	89.64	96.11	95.93	94.38	94.10
Total	100	100	100	100	100	100	100

Percentage Share of Total Employment in Region (%)

Sector	ADIYAMAN	DIYARBAKIR	GAZIANTEP	MARDIN	SIIRT	SANLIURFA	GAP REGION
Wholesale Trade	2.77	19.92	41.04	6.05	5.81	24.40	100
Retail Trade	6.51	19.47	35.99	11.50	8.02	18.51	100
Restaurants/Hotels	5.39	21.77	38.95	9.99	7.18	16.73	100
Finance/Banking	8.51	22.90	31.33	12.81	8.36	16.09	100
Insurance	7.97	35.76	33.05	3.22	11.69	8.31	100
Business services/Real estate	3.05	31.74	32.47	8.04	13.05	11.64	100
Sub Total	5.99	20.93	36.41	10.69	8.03	17.95	100
Other Sectors	11.60	21.40	19.74	16.53	11.87	18.87	100
Total	11.27	21.37	20.72	16.18	11.64	18.81	100

Source : SIS

Table B.26 Trade and Commerce GRP

PROVINCE	SECTOR	Gross Provincial Product (TL 1988 MILL.) 1980	1985	Regional Sectoral Percentage (%) 1980	1985	Provincial Sectoral Percentage (%) 1980	1985	Annual Increase (%) 1980/1985
ADIYAMAN	TRADES	20859.8	30315.2	7.54	8.33	8.40	11.22	7.76
	BANKING/INSURANCE	6212.0	8123.1	8.43	7.46	2.50	3.01	5.51
	OTHER	221245.4	231652.5	9.19	7.64	89.10	85.77	0.92
	TOTAL	248317.2	270090.7	9.00	7.70	100	100	1.70
DIYARBAKIR	TRADES	32936.5	43079.3	11.90	11.84	5.75	5.93	5.52
	BANKING/INSURANCE	14881.5	22422.9	20.20	20.59	2.60	3.09	8.54
	OTHER	525098.7	661221.7	21.81	21.80	91.65	90.99	4.72
	TOTAL	572916.6	726723.9	20.77	20.73	100	100	4.87
GAZIANTEP	TRADES	171271.2	237734.4	61.90	65.35	20.82	23.69	6.78
	BANKING/INSURANCE	23518.0	32364.4	31.92	29.72	2.86	3.22	6.59
	OTHER	627865.1	733531.7	26.08	24.19	76.32	73.09	3.16
	TOTAL	822654.3	1003630.5	29.83	28.63	100	100	4.06
MARDIN	TRADES	12076.7	12764.2	4.37	3.51	3.16	2.82	1.11
	BANKING/INSURANCE	9133.7	13313.6	12.40	12.23	2.39	2.94	7.83
	OTHER	360543.1	426525.7	14.98	14.06	94.44	94.24	3.42
	TOTAL	381753.5	452603.4	13.84	12.91	100	100	3.46
SIIRT	TRADES	13174.6	15955.4	4.76	4.39	3.85	4.08	3.90
	BANKING/INSURANCE	9513.9	12397.3	12.91	11.39	2.78	3.17	5.44
	OTHER	319951.1	363023.4	13.29	11.97	93.38	92.76	2.56
	TOTAL	342639.6	391376.1	12.42	11.16	100	100	2.70
SANLIURFA	TRADES	26349.2	23933.1	9.52	6.58	6.76	3.62	-1.91
	BANKING/INSURANCE	10417.5	20258.1	14.14	18.61	2.67	3.06	14.23
	OTHER	352736.2	616991.3	14.65	20.34	90.56	93.32	11.83
	TOTAL	389502.9	661182.5	14.12	18.86	100	100	11.16
GAP REGION	TRADES	276667.9	363781.5	100	100	10.03	10.38	5.63
	BANKING/INSURANCE	73676.6	108879.4	100	100	2.67	3.11	8.12
	OTHER	2407439.6	3032946.3	100	100	87.30	86.52	4.73
	TOTAL	2757784.1	3505607.2	100	100	100	100	4.92

Note : Rental income, banking expenditures and import taxation are not included.
Source : Istanbul Chamber of Commerce and Industry, 1988.

Table B.27 Banks in the GAP Region

PROVINCE	DISTRICT	(1) TCIB	(2) TEKB	(3) THB	(4) TIB	(5) PB	(6) SEB	(7) SUB	OTHER	TOTAL
ADIYAMAN	MERKEZ	1	1	1	1				5	9
	BESNI	1		1	1					3
	CELIKHAN	1								1
	GERGER	1								1
	GOLBASI	1	1	1	1					4
	KAHTA	1		1	1					3
	SAMSAT	1								1
	TOTAL	7	2	4	4	0	0	0	5	22
DIYARBAKIR	MERKEZ	4	2	2	1	1	1	1	13	25
	BISMIL	1		1	1				1	1
	CERMIK	1		1						2
	CINAR	1								1
	CUNGUS	1		1						2
	DICLE	1								1
	ERGANI	1	1	1	1				1	5
	HANI	1								1
	HAZRO	1								1
	KULP	1								1
	LICE	1								1
	SILVAN	1	1	1	1				2	6
	TOTAL	15	4	7	4	1	1	1	17	47
GAZIANTEP	MERKEZ	6	2	2	5	3	1	1	27	47
	ARABAN	1								1
	ISLAHIYE	1		1	1				2	5
	KILIS	1	1	1	1				4	8
	NIZIP	1	1	1	1				4	8
	OGUZELI	1		1	1					3
	YAVUZ	1								1
	TOTAL	12	4	6	9	3	1	1	37	73
MARDIN	MERKEZ	1	1	1	1	1			5	10
	CIZRE	1		1	1					3
	DERIK	1								1
	GERCUS	1								1
	IDIL	1								1
	KIZILTEPE	1		1	1				3	6
	MAZIDAGI	1								1
	MIDYAT	2		2	2					8
	NUSAYBIN	1		1	1				2	5
	OMERLI	1								1
	SAVUR	1								1
	SILOPI	1								1
	TOTAL	12	1	6	6	1	0	0	10	39
SIIRT	MERKEZ	1	1	1	1				5	9
	BATMAN	1	1	1	1				5	9
	BAYKAN	1								1
	BESIRI	1								1
	ERUH	1								1
	KOZLUK	1		1						2
	KURTALAN	1		1						2
	PERVARI	1								1
	SASON	1								1
	SIRNAK	1								1
	SIRVAN	1								1
	TOTAL	11	2	4	2	0	0	0	10	29
SANLIURFA	MERKEZ	2	1	1	1	1	1		7	14
	AKCAKALE	1								1
	BIRECIK	1		1	1				3	6
	BOZOVA	1								1
	CEYLANPINAR	1		1						2
	HALFETI	1								1
	HILVAN	1								1
	SIVEREK	1	1	1	1				1	5
	SURUC	1		1	1				1	4
	VIRANSEHIR	1	1	1	1					4
	TOTAL	11	3	6	5	1	1	0	12	39
GAP REGION TOTAL		68	16	33	30	6	3	2	91	249

NOTE:(1) TCIB:Turkiye Cumhuriyeti Ziraat Bankasi (Agricultural Bank)
(2) TEKB:Turkiye Emlak Kredi Bankasi (Housing Credit Bank)
(3) THB:Turkiye Halk Bankasi (Small Business Credit)
(4) TIB:Turkiye Is Bankasi (Private Commercial Bank)
(5) PB:Pamukbank (Private Commercial Bank)
(6) SEB:Sekerbank (Public Commercial Bank)
(7) SUB:Sumerbank (Public Private Bank)

SOURCE: Union of Banks

Table B.28 Educational Status in the Trade and Commerce Sector (1985)

PROVINCE	Sector	Employment	Illiterate	Literate					
				Total Literate	W/out Schooling	High School	Vocational High School	Higher education and faculty	Other Schooling
ADIYAMAN	Trades and Commerce	5397	636	4761	349	709	137	194	3372
	Other	23595	2064	21530	1021	2318	1806	2672	13713
	Total	28992	2700	26291	1370	3027	1943	2866	17085
DIYARBAKIR	Trades and Commerce	18880	3019	15831	1936	2354	407	849	10285
	Other	74589	7306	67308	3689	7588	6470	6730	42831
	Total	93469	10325	83139	5625	9942	6877	7579	53116
GAZIANTEP	Trades and Commerce	32798	3106	29692	2455	3268	581	1666	21722
	Other	116001	8849	107143	5824	7135	5094	6669	82421
	Total	148799	11955	136835	8279	10403	5675	8335	104143
MARDIN	Trades and Commerce	9628	1917	7711	1120	1037	225	269	5060
	Other	44812	5001	39806	2234	4024	2913	3782	26853
	Total	54440	6918	47517	3354	5061	3138	4051	31913
SANLIURFA	Trades and Commerce	16167	2991	13176	1555	1502	325	530	9264
	Other	60438	7279	53156	2594	5163	3323	4646	37430
	Total	76605	10270	66332	4149	6665	3648	5176	46694
SIIRT	Trades and Commerce	7234	994	6240	840	765	245	203	4187
	Other	36300	3080	33206	2172	3256	2991	3170	21617
	Total	43534	4074	39446	3012	4021	3236	3373	25804
GAP REGION	Trades and Commerce	90104	12663	77411	8255	9635	1920	3711	53890
	Other	355735	33579	322149	17534	29484	22597	27669	224865
	Total	445839	46242	399560	25789	39119	24517	31380	278755

Source; SIS

Table B.29 Educational Status of Sectoral Employment

(%)

PROVINCE	Sector	Employment	Illiterate	Literate					
				Total Literate	W/out Schooling	High School	Vocational High School	Higher education and faculty	Other Schooling
ADIYAMAN	Total (Trades and Commerce)	5397	23.56	18.11	25.47	23.42	7.05	6.77	19.74
	Other	23595	76.44	81.89	74.53	76.58	92.95	93.23	80.26
	Total	28992	100	100	100	100	100	100	100
DIYARBAKIR	Total (Trades and Commerce)	18880	29.24	19.04	34.42	23.68	5.92	11.20	19.36
	Other	74589	70.76	80.96	65.58	76.32	94.08	88.80	80.64
	Total	93469	100	100	100	100	100	100	100
GAZIANTEP	Total (Trades and Commerce)	32798	25.98	21.70	29.65	31.41	10.24	19.99	20.86
	Other	116001	74.02	78.30	70.35	68.59	89.76	80.01	79.14
	Total	148799	100	100	100	100	100	100	100
MARDIN	Total (Trades and Commerce)	9628	27.71	16.23	33.39	20.49	7.17	6.64	15.86
	Other	44812	72.29	83.77	66.61	79.51	92.83	93.36	84.14
	Total	54440	100	100	100	100	100	100	100
SANLIURFA	Total (Trades and Commerce)	16167	29.12	19.86	37.48	22.54	8.91	10.24	19.84
	Other	60438	70.88	80.14	62.52	77.46	91.09	89.76	80.16
	Total	76605	100	100	100	100	100	100	100
SIIRT	Total (Trades and Commerce)	7234	24.40	15.82	27.89	19.03	7.57	6.02	16.23
	Other	36300	75.60	84.18	72.11	80.97	92.43	93.98	83.77
	Total	43534	100	100	100	100	100	100	100
GAP REGION	Total (Trades and Commerce)	90104	27.38	19.37	32.01	24.63	7.83	11.83	19.33
	Other	355735	72.62	80.63	67.99	75.37	92.17	88.17	80.67
	Total	445839	100	100	100	100	100	100	100

Table B.30 Educational Status of Provincial Sectoral Employment

(%)

PROVINCE	Sector	Employment	Illiterate	Literate					
				Total Literate	W/out Schooling	High School	Vocational High School	Higher education and faculty	Other Schooling
ADIYAMAN	Total (Trades and Commerce)	100	11.78	88.22	6.47	13.14	2.54	3.59	62.48
	Other	100	8.75	91.25	4.33	9.82	7.65	11.32	58.12
	Total	100	9.31	90.68	4.73	10.44	6.70	9.89	58.93
DIYARBAKIR	Total (Trades and Commerce)	100	15.99	83.85	10.25	12.47	2.16	4.50	54.48
	Other	100	9.80	90.24	4.95	10.17	8.67	9.02	57.42
	Total	100	11.05	88.95	6.02	10.64	7.36	8.11	56.83
GAZIANTEP	Total (Trades and Commerce)	100	9.47	90.53	7.49	9.96	1.77	5.08	66.23
	Other	100	7.63	92.36	5.02	6.15	4.39	5.75	71.05
	Total	100	8.03	91.96	5.56	6.99	3.81	5.60	69.99
MARDIN	Total (Trades and Commerce)	100	19.91	80.09	11.63	10.77	2.34	2.79	52.56
	Other	100	11.16	88.83	4.99	8.98	6.50	8.44	59.92
	Total	100	12.71	87.28	6.16	9.30	5.76	7.44	58.62
SANLIURFA	Total (Trades and Commerce)	100	18.50	81.50	9.62	9.29	2.01	3.28	57.30
	Other	100	12.04	87.95	4.29	8.54	5.50	7.69	61.93
	Total	100	13.41	86.59	5.42	8.70	4.76	6.76	60.95
SIIRT	Total (Trades and Commerce)	100	13.74	86.26	11.61	10.58	3.39	2.81	57.88
	Other	100	8.48	91.48	5.98	8.97	8.24	8.73	59.55
	Total	100	9.36	90.61	6.92	9.24	7.43	7.75	59.27
GAP REGION	Total (Trades and Commerce)	100	14.05	85.91	9.16	10.69	2.13	4.12	59.81
	Other	100	9.44	90.56	4.93	8.29	6.35	7.78	63.21
	Total	100	10.37	89.62	5.78	8.77	5.50	7.04	62.52

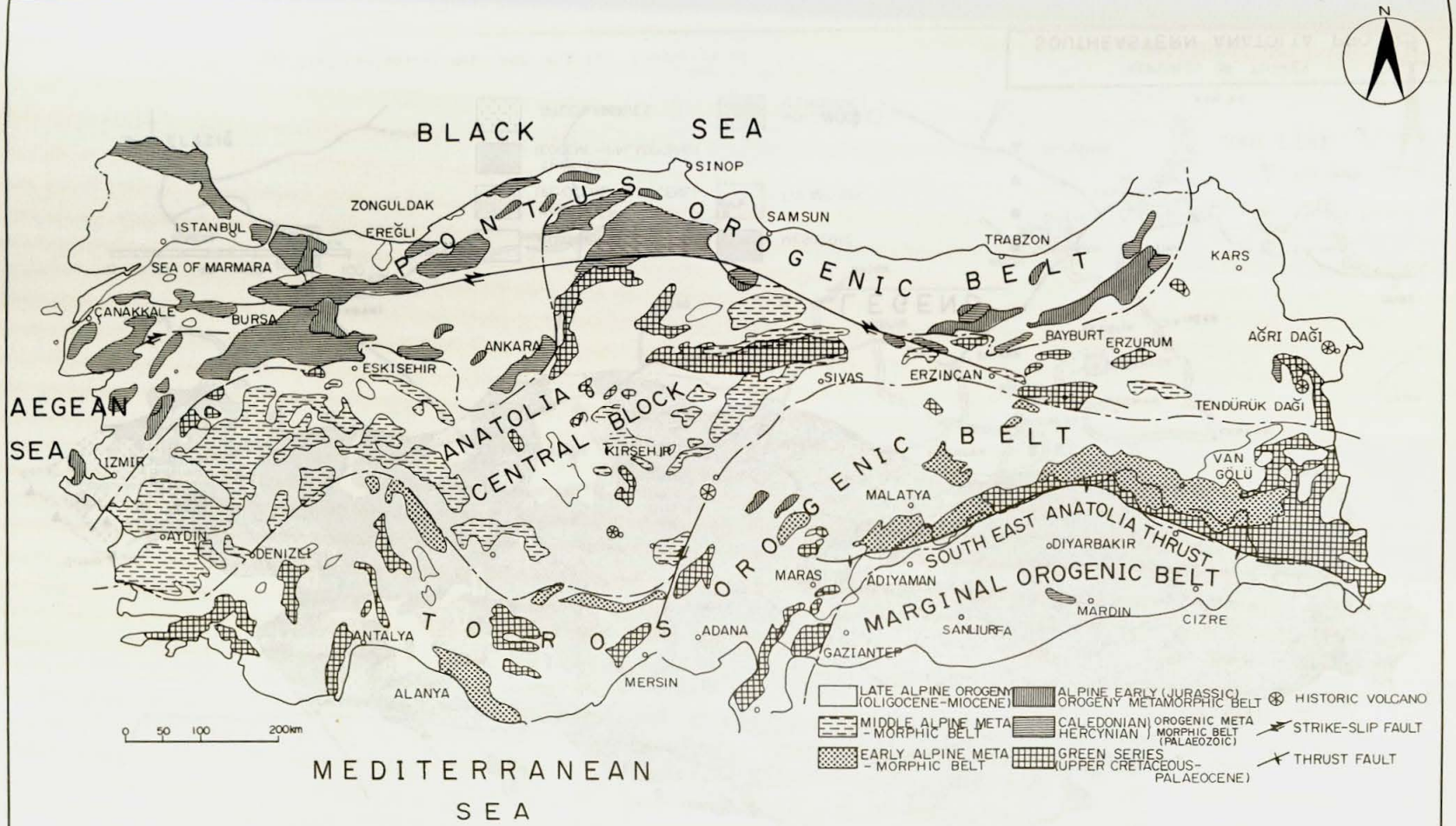

Figure B.1 Geotectonic Units and Distribution of Metamorphic and Green Rocks of Various Ages in Turkey

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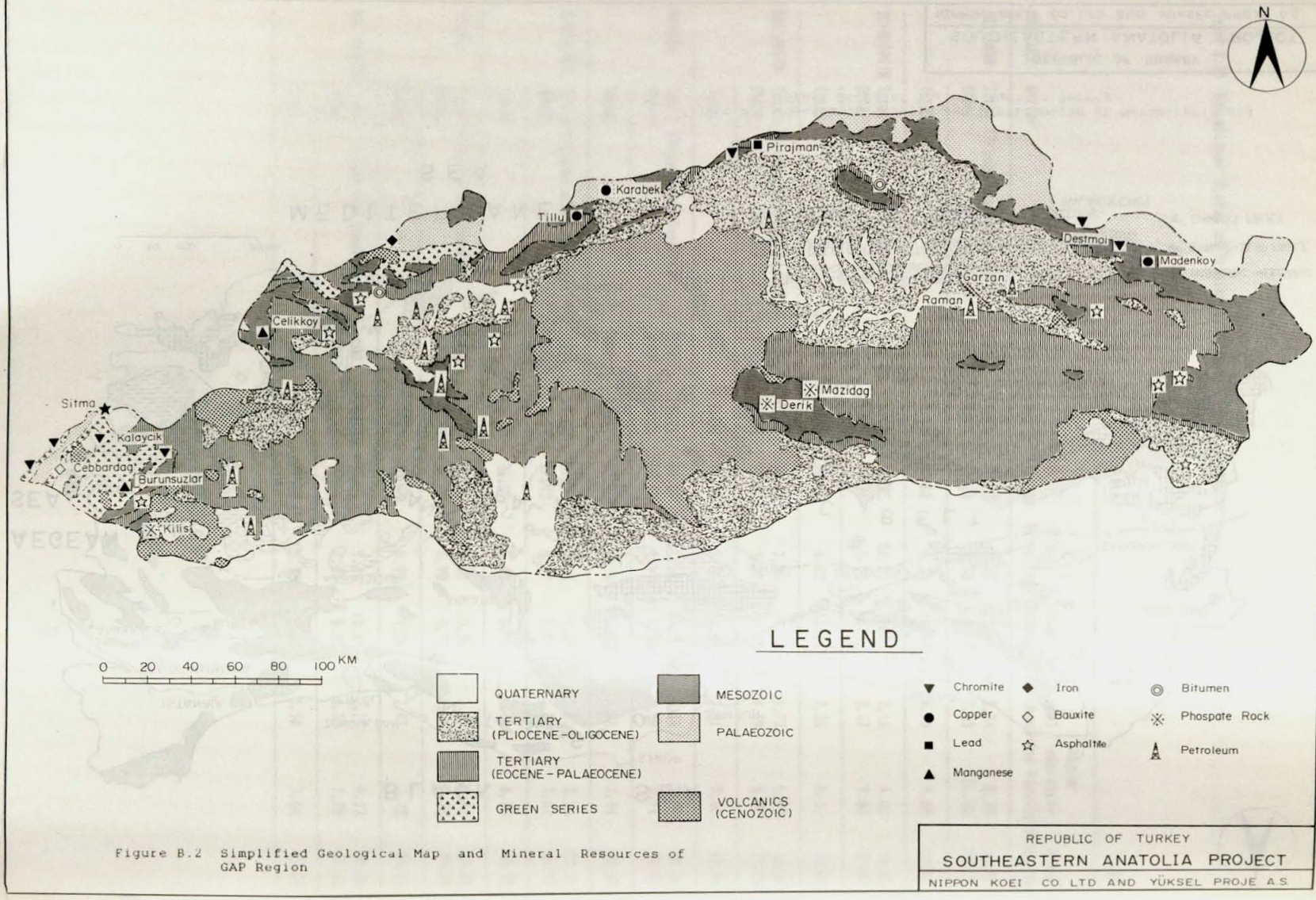

Figure B.2 Simplified Geological Map and Mineral Resources of GAP Region

Source: Mitsui Metal Resources Development Company, Japan

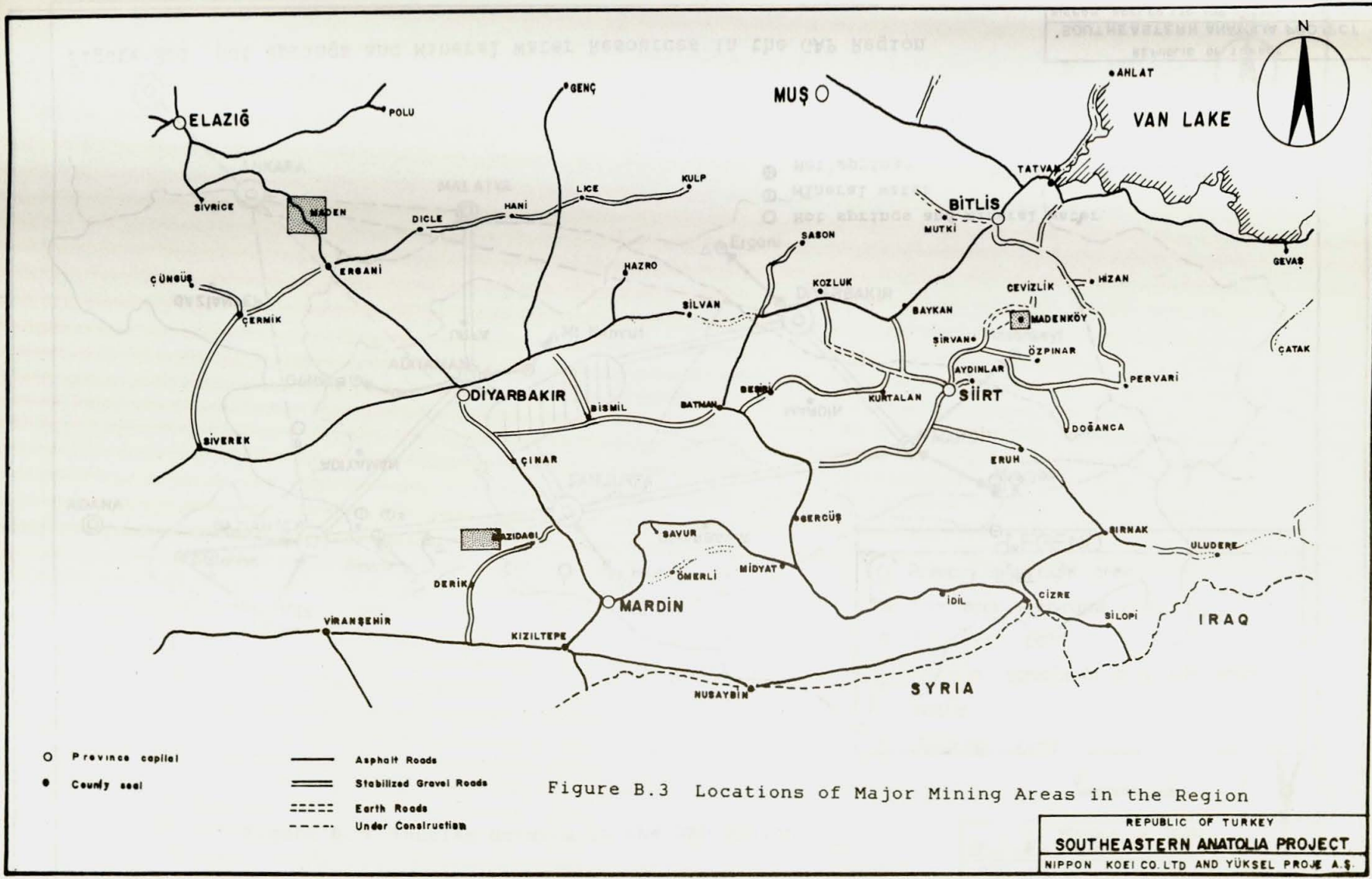

Figure B.3 Locations of Major Mining Areas in the Region

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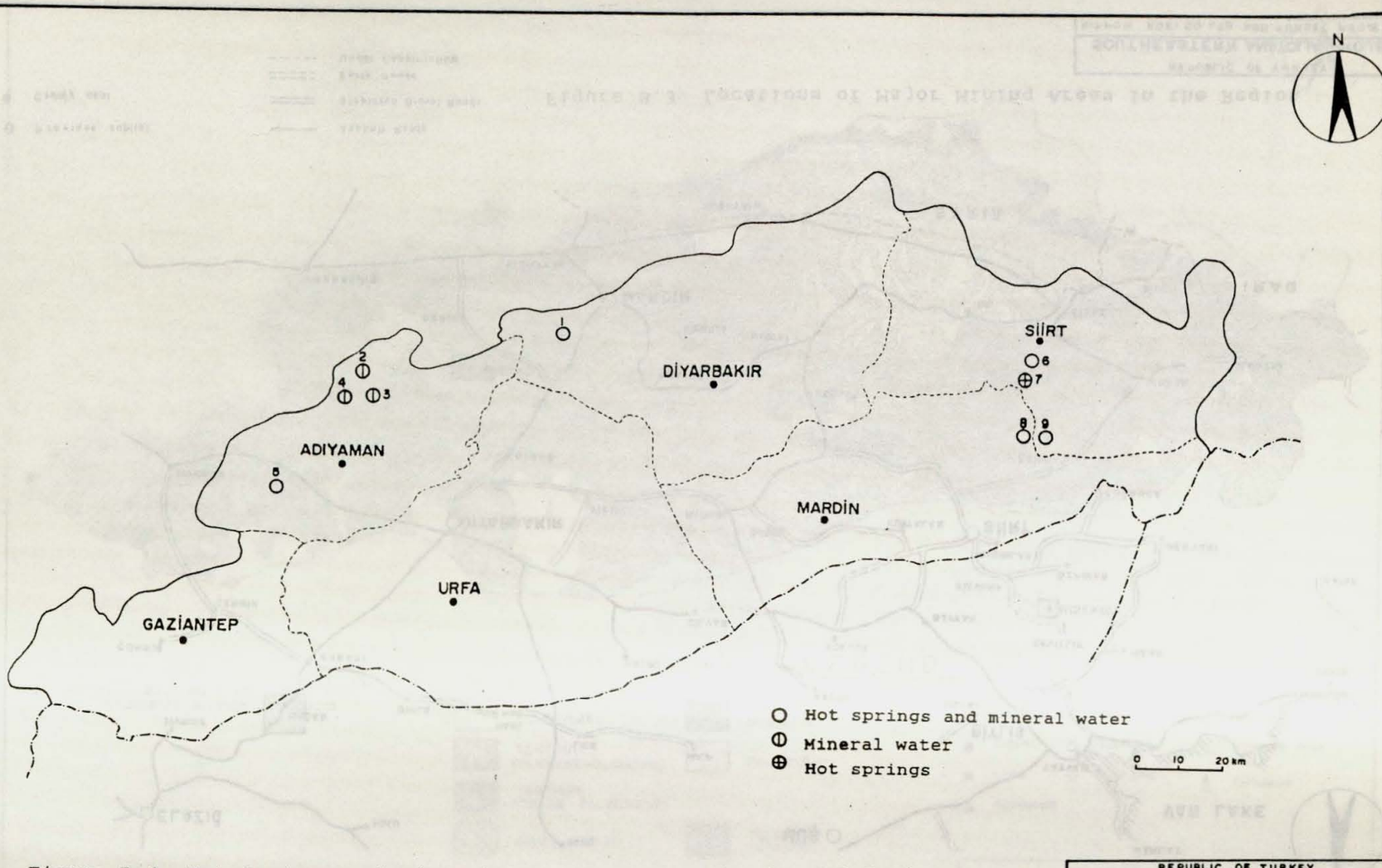

Figure B.4 Hot Springs and Mineral Water Resources in the GAP Region

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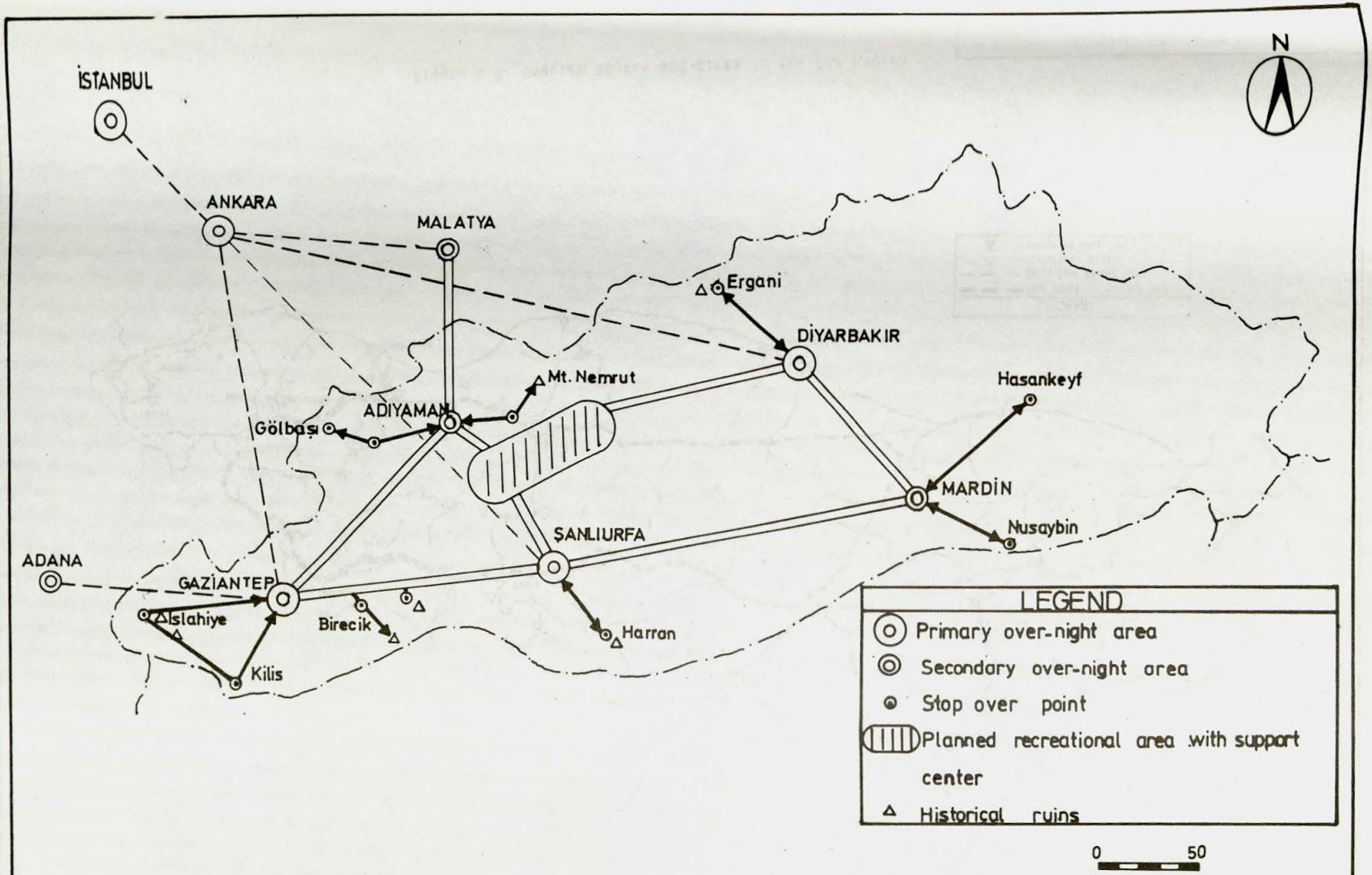

Figure B. 5 Tourism Network in the GAP Region

REPUBLIC OF TURKEY
SOUTHEASTERN ANATOLIA PROJECT
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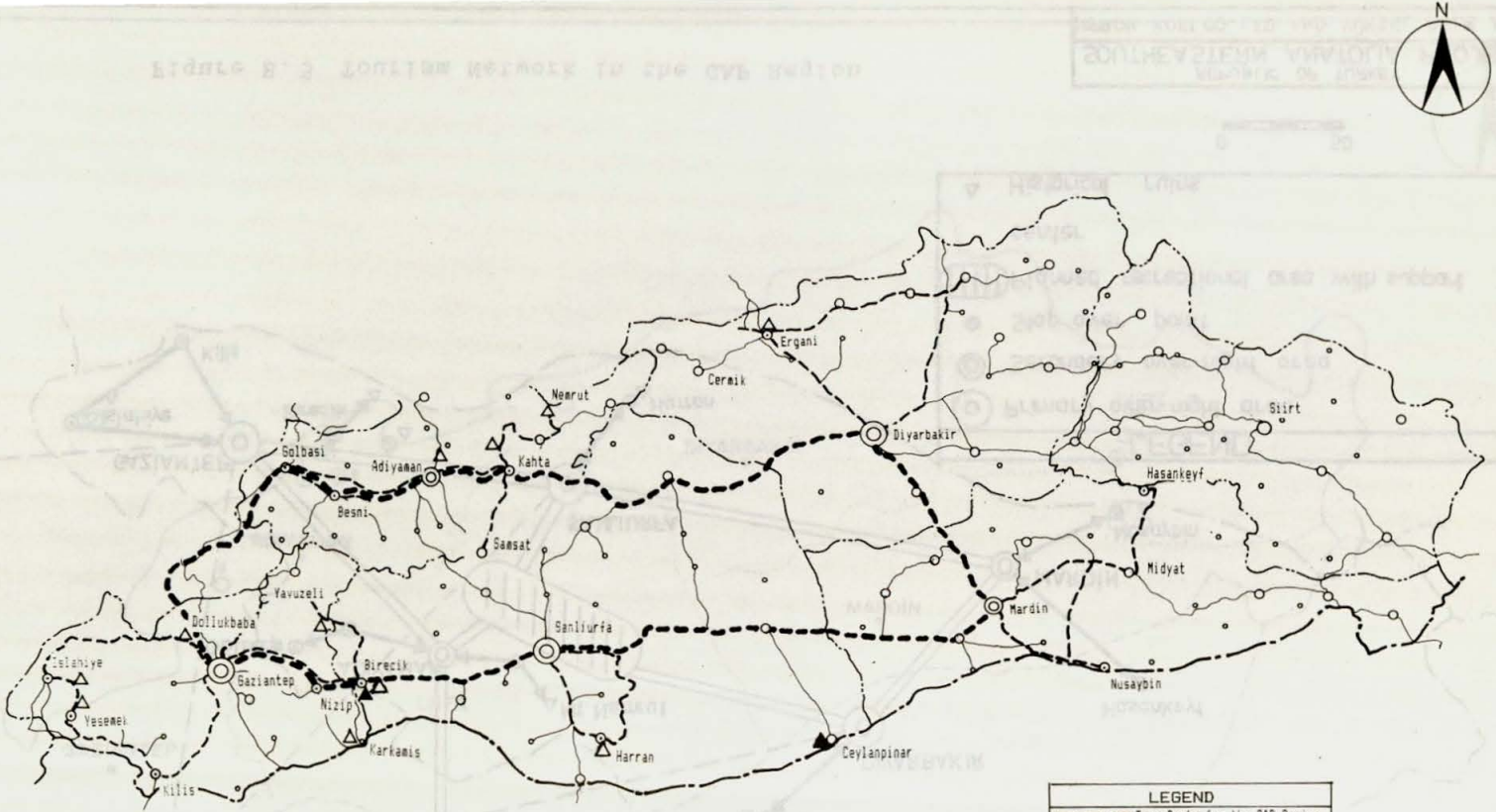

Figure B.6 Tourism Routes and Sites in the GAP Region

REPUBLIC OF TURKEY
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C

APPENDIX C
DATA USED FOR SOCIO-ECONOMIC PROJECTION AND ESTIMATE OF INVESTMENTS

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TABLES

TABLES

Appendix C: DATA USED FOR SOCIO-ECONOMIC PROJECTION AND ESTIMATE OF INVESTMENTS

1. Data used for socio-economic projection

The input data used for socio-economic projection are summarized in Table C.1. Explanations follow.

(1) Initial conditions

The value-added by sector in the base year, 1985, has been taken from the available estimate (Table 2.4, The Master Plan). The population is based on the 1985 census results. The total public investment in the GAP region and the State investment budget allocated to the Region are rounded value determined on the basis of recent allocations. All the monetary terms are expressed in mid-1988 price.

(2) Employment coefficients

Employment coefficient has been estimated by sector from the value-added estimate and the employment statistics. The latter are given in Table C.2. Other data were also used for the purpose of checking the obtained results (Table C.3). The input data finally used are rounded value determined by judgements.

Future increases in labour productivity in different sectors are incorporated in the projection model in the form of rates of increase in employment coefficients. A range of value has been tested under different assumptions and those rates which produce the most desirable yet realistic results have been adopted.

(3) Housing expenditure

The average cost per unit in Turkey was TL 15.4 million per house in 1985 according to the SIS statistics. A lower value has been adopted for the average expenditure for housing per new urban family in the Region. This unit value increases as the per capita income increases.

To convert the population increase to needs for housing units, the average number of urban household members has been taken to be 6.0 from the recent statistics.

(4) Labour force coefficient

The ratio of working age population to the total population was 47% in the Region in 1985, lower than the national average. This will increase as the Region receives more in-migrants including return migrants, that are male dominant, than out-migrants, and 50% is assumed for projection purposes.

Labour force participation ratio was 70% in the Region in 1985, higher than the national average. There are two factors affecting this ratio in the future. First, increasing number of women will participate in the labour force. Second, more people will receive higher education, staying away from the labour force for a longer period of time. For projection purposes, it is assumed this ratio will not change.

The product of these two coefficients is defined as labour force coefficient.

(5) Other coefficient

The value of other coefficients has been determined largely by judgements as reliable data, especially those specific to the Region, are not available.

2. Estimation of investments

(1) Housing

Public investment requirements for housing have been estimated only for those necessary to accommodate government employees. The number of people engaged in government services has been projected following the recent trend, and a set of assumptions have been made. The results as well as the assumptions are shown in Table C.4.

(2) Health services

Development targets

Primary health services should be expanded to meet the criteria established by the Government. Additional numbers of dispensaries required in 1988-2005 are calculated for Alternatives A, B and C. Existing number of medical units would be sufficient in 2005, since villages having population smaller than 2,000 will decrease.

The number of hospital beds per 10,000 population is far below the national average for all the GAP provinces, due to small shares of the State expenditure allocated to the Region in the past. The target is set at 25 hospital beds per 10,000 in 2005 in order to reach the current national average.

Investment needs

For different types of health facilities, unit investment costs have been estimated, and the total investment requirements have been calculated (Table C.5).

(3) Education

Development targets

Past expenditures in education have been comparatively much lower in the GAP region than the national average. As a result, the levels of education in the Region are generally low. Modest targets are set with the view to narrowing the gaps between the education levels in the Region and in the Country.

The national target for the enrollment in pre-schools is 10% for the 1988/89 academic year, which is taken as the target for the Region in 2005. Following the stated policy of the Government, 100% enrollment in primary education is aimed at in the Region. The emphasis is placed on technical education at junior highschool level, and the enrollment ratio will be raised from 2.8% in 1987 (3.6% in 1986) to 20% in 2005. The enrollment ratio in general junior highschools is raised from 24% in 1987 (29% in 1986) to 60% in 2005. The enrollment ratios for highschools are set at 21% for general highschools and 19% for technical highschools. The target enrollment ratio for advanced education has been set at 12%.

Investment needs

The total investment expenditure on the education facilities has been estimated for Alternatives A, B and C (Table C.6). Of the total investment requirements, about 20% is assumed to be provided by the private sector.

(4) Agriculture and energy

Public investments in agriculture and energy will be dominated by the GAP irrigation and hydropower schemes. Investment costs of these schemes have been taken from existing study reports or estimated on the basis of data contained in such reports. On-farm development costs have been calculated by determining the unit cost per ha for each irrigation scheme (Table C.7). Costs of drip irrigation systems have been added, where applicable. Costs of power transmission and distribution as well as other related costs have been added to the investment requirements for energy sector.

(5) Other sectors

For manufacturing and mining sectors, roles of the public sector will diminish. The public investments in these sectors are assumed to increase only at 2.0% per annum. For tourism, the role of public sector will be limited to the provision of basic infrastructure. However, in view of poor tourism facilities in the Region due much to small allocation of public sector resources in the past, the annual growth rate of the public investment in tourism is assumed at 9.0% for the Region.

Growth in public investments in transportation and other services will generally follow the growth of regional economy. The growth rate of GRP was applied directly to other sectors. For transportation sector, the elasticity of public investment requirements to GRP was taken to be 0.75.

(6) Total public investments

For the GAP irrigation and hydropower schemes, investment schedule has been prepared according to broad project prioritization (Section 5.1, The Master Plan). Investment requirements have been found out by year. For other sectors, average annual growth rates were applied to determine the public investment requirements by year. The results are given in Table C.8 for Alternatives A, B and C.

Table C.1 Data used for Socio-Economic Projection Model

Initial conditions		
Base year		1985
Target year		2005
Value-added in agriculture		TL 1,467x10*
Value-added in industry		TL 582x10*
Population - Total		4,304 x 10*
Urban		2,148 x 10*
Rural		2,156 x 10*
State investment budget allocation to the Region		TL.600x10*
Total public investment in the Region		TL. 800 x 10*
Coefficients		
Employment coefficient in agriculture (1985)		TL. 1,350x10*/capita
	agro-industry	7,200
	other industries	7,500
	construction	5,600
	services	4,400
Annual increase of labor productivity in agriculture		0.025
Annual increase of labor productivity in industry		0.03
Annual increase of labor productivity in construction		0.02
Annual increase of labor productivity in services		0.02
Incremental capital output ratio in agro-industry		3.5
Incremental capital output ratio in other industries		4.5
Average expenditure for housing per new urban family:		TL. 10.5 x 10*
Average number of urban household members		6.0
Value-added ratio of construction sector		0.4
Region's share of investment expenditure gained from major projects		0.3
Region's share of investment expenditure gained from other projects		0.7
Region's share of investment expenditure gained from housing		0.6
Region's share of investment expenditure gained from industry		0.5
Service multiplier by agriculture		0.6
Service multiplier by industry		1.2
Service multiplier by construction		0.8
Ratio of working age population to the total		0.50(in 2005)
Labor force participation ratio in rural areas		0.75(in 2005)
Labor force participation ratio in urban areas		0.70(in 2005)

* All the monetary terms are in mid-1988 price.

Table C.2 Employment and Employment Coefficient by Sector in the GAP Provinces, 1985

Sector	Adiyaman	Diyarbakir	Gaziantep	Mardin	Siirt	Sanliurfa	GAP Region	Employment Coefficient 10^3 TL/employee
Agriculture	143,228	233,029	167,778	192,827	134,332	210,812	1,082,006	1,356
Total of Industry	6,201	9,262	43,937	5,448	6,469	9,074	80,391	7,240
Manufacturing	5,077	8,247	43,293	4,834	5,762	8,896	76,109	5,689
Mining	1,102	503	215	578	610	58	3,066	31,148
Utilities	22	512	429	36	97	120	1,216	43,668
Construction	3,381	12,353	12,337	6,516	4,161	10,362	49,110	5,620
Services	18,487	70,969	90,838	41,767	32,138	55,573	309,772	4,468
Unaccounted	923	885	1,687	709	766	1,596	6,566	-
Total	172,220	326,498	316,577	247,267	177,866	287,417	1,527,845	-

Source : SIS

Table C.3 Alternative Estimates of Employment Coefficient

(1) Agriculture

Micro data

Crop	Labour requirement in peak month (October) (man-days/ha)	Approximate cultivated area, 1985 (10^3 ha)	Total labour requirement (10^3 man-days)
Wheat	6	1,100	6,600
Barley	6	600	3,600
Rice	30	5	150
Pulses	12	500	6,000
Soy beans	20	5	100
Groundnuts	20	5	100
Oil crops	16	60	960
Tomatoes	45	5	225
Vegetables	45	50	2,250
Potatoes	35	5	175
Sugarbeet	9	5	45
Maize	30	5	150
Cotton	18	90	1,620
Alfalfa	15	30	450
Fruits	10	10	100
Pistachios	5	15	75
Grapes	9	15	135

TOTAL 22,715 X 10^3 man-days = 900,000 labour units

Value-added in 1985 459,767 x 10^6 TL
= 1,250 x 10^9 TL (in '88 price)

Employment coefficient
1,250 x 10^9/900 x 10^3 = 1,400 x 10^3 TL/employment ('85, in '88 price)

Macro statistics (1985)

Total civilian manpower	18,269 x 10^3
Share of civilian employment in agriculture	58.85 %
Civilian employment in agriculture	10,751 x 10^3
Total value-added in agriculture TL 4,875.5 x 10^9 (1985)	TL 14,822 x 10^6 ('88 price)

Employment coefficient:
14,822 x 10^9 / 10,751 x 10^6 = 1,383x10^3 TL/employment

(2) Manufacturing

Larger establishments		1983	1984	1985
Value-added 10^6 TL	Region	31,648	37,974	86,952
	Turkey	2,477,748	3,559,049	5,656,821
Employment	Region	20,004	18,618	17,178
	Turkey	862,252	891,028	927,595
Employment coefficient 10^3 TL/employ.	Region	1,582	2,040	5,062
	Turkey	2,874	3,994	6,098
In '88 price	Region	8,500	7,800	13,900
	Turkey	15,500	15,500	16,700

Large + small		1980	1985
Value-added 10^6 TL	Region	13,717	129,350
	Turkey	931,113	6,552,312
Employment	Region	37,701	46,418
	Turkey	1,004,629	1,129,423
Employment Coefficient 10^3 TL/employ.	Region	364	2,787
	Turkey	927	5,081
In '88 price	Region	5,400	7,700
	Turkey	13,700	13,900

(3) Services
(1970 census of manufacturing and business)

	Large		Small		Total
	Wholesale	Retail	Wholesale	Retail	
Value-added 10^6 TL	3,327	1,354	534	5,086	10,301
Employment	40,726	25,030	24,794	285,690	376,240
Employment coefficient 10^3 TL/employ.	81.7	54.1	21.5	17.8	27.4
In '88 price	14,700	9,700	3,900	3,200	4,900

(4) Construction

(Turkey	1983	1984	1985	1986
Value-added 10^6 TL	447,589	697,389	951,194	1,410,537
Employment 10^3	586.3	605.6	623.0	651.7
Employment coefficient 10^3 TL/cap	763	1,152	1,527	2,164
In '88 price	4,100	4,400	4,200	4,200

Table C.4 Housing Investment Need (1989 - 2005)

						VI PLAN PERIOD					VII PLAN PERIOD					VIII PLAN PERIOD					
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
No. of Civil Servants (1)	153237	164921	176604	188288	199972	211655	223339	235023	246707	258390	270074	290666	311258	331850	352442	373034	393626	414218	434810	455402	475994
Households (2)	80449	86583	92717	98851	104985	111119	117253	123387	129521	135655	141789	152600	163410	174221	185032	195843	206654	217465	228275	239086	249897
Has Own Housing (3)	20112	21646	23179	24713	26246	27780	29313	30847	32380	33914	35447	38150	40853	43555	46258	48961	51663	54366	57069	59772	62474
Has Government Housing (4)	11263	12122	12980	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839	13839
Housing Need (5)	49074	52816	56558	60299	64900	69500	74101	78701	83302	87902	92502	100611	108719	116827	124935	133043	141151	149259	157367	165475	173584
Incremental Need					4600	4600	4600	4600	4600	4600	4600	8108	8108	8108	8108	8108	8108	8108	8108	8108	8108
Total Investment (TL 10^9, 1988)					19.3	19.3	19.3	19.3	19.3	19.3	19.3	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1
Total Central and Local Government Employee Housing Need ...						Total Inv. During Plan Per 96.6 Average Annual Inv. 19.3					Total Inv. During Plan Per 155.5 Average Annual Inv. 31.1					Total Inv. During Plan Per 170.3 Average Annual Inv. 34.1					
Central Government Employee Housing Need ..... (50 percent of Civil Servants assumed to be Central Gov. Empl						Total Inv. During Plan Per 48.3 Average Annual Inv. 9.7					Total Inv. During Plan Per 77.8 Average Annual Inv. 15.6					Total Inv. During Plan Per 85.1 Average Annual Inv. 17.0					

(1) Employment in Government Services based on 1975 - 1985 trend.
(2) 70 percent are assumed to be married and of those 50 percent are married to other government employees.
(3) 25 percent of households own their own homes.
(4) 14 percent of regional households employed are provided with Government housing. The 1988 figure shows the existing housing stock.
(5) It is assumed that all households up to the end of 1988 are housed one way or another.

Source : Fifth Five Year Development Plan, Regional Development Special Commission's Report, SPO, 1984.

Table C.5 Estimation of Public Fixed Investment Expenditure for Health Service, 1990-2005

(Scenario A)

	No.of exist. beds (1987)	No. of beds under const.	No. of beds to be required	No. of beds to be added	Unit cost TL 10^6	Investments TL 10^6
Univ. hospital	549	1,000	3,000	1,451	44.59	64,702.99
Other hospital	4,477	1,652	20,210	14,081	20.07	282,554.98
sub-total	5,026	2,652	23,210	15,532		347,257.97
	No. of dispens. exist. & under const.		No. of dispens. to be required	No. of dispens. to be added	Unit cost TL 10^6	Investments TL 10^6
Dispensary						
A1	19		66	47	222.96	10,479.12
D1	57		95	38	167.22	6,354.36
Village	181		313	142	114.48	15,830.16
Health unit	1,502		1,502	0		
sub-total	1,759		1,976	227		32,663.64
Total						379,921.61

(Scenario B)

	No.of exist. beds (1987)	No. of beds under const.	No. of beds to be required	No. of beds to be added	Unit cost TL 10^6	Investments TL 10^6
Univ. hospital	549	1,000	2,000	451	44.59	20,110.99
Other hospital	4,477	1,652	18,570	12,441	20.07	249,646.08
sub-total	5,026	2,652	20,570	12,892		269,757.07
	No. of dispens. exist. & under const.		No. of dispens. to be required	No. of dispens. to be added	Unit cost TL 10^6	Investments TL 10^6
Dispensary						
A1	19		60	41	222.96	9,141.36
D1	57		90	33	167.22	5,518.26
Village	181		255	96	114.48	10,702.08
Health unit	1,502		1,502	0		
sub-total	1,759		1,907	170		25,361.70
Total						295,118.77

(Scenario C)

	No.of exist. beds (1987)	No. of beds under const.	No. of beds to be required	No. of beds to be added	Unit cost TL 10^6	Investments TL 10^6
Univ. hospital	549	1,000	2,000	451	44.59	20,110.99
Other hospital	4,477	1,652	17,523	11,394	20.07	228,636.56
sub-total	5,026	2,652	19,523	11,845		248,747.55
	No. of dispens. exist. & under const.		No. of dispens. to be required	No. of dispens. to be added	Unit cost TL 10^6	Investments TL 10^6
Dispensary						
A1	19		59	40	222.96	8,918.40
D1	57		86	29	167.22	4,849.38
Village	181		242	85	114.48	9,475.80
Health unit	1,502		1,502	0		
sub-total	1,759		1,889	154		23,243.58
Total						271,991.13

Table C.6 Estimation of Fixed Investment Expenditure for Education, 1990-2005

Type of school	Population distribution	School age population 1000	Enrolment ratio	No. of student 1000	Student per class	No. of exit. class	No. of classes under construc.	Reqired classes 2005	No. of classes to be added	Investment per unit TL 10^6	Investment TL 10^6	Adjusted mid 88 price TL 10^6
(Scenario A)												
Pre-school education	0.12	1,114.08	0.10	111.41	25	600	0	4456	3856	5.00	19,281.60	21,495.13
Primary school	0.15	1,346.18	1.00	1,346.18	40	28076	635	33655	4943	20.00	98,870.00	110,220.28
Jr.high school(general)	0.08	696.30	0.60	417.78	80	1891	0	5222	3331	20.00	66,625.00	74,273.55
Jr.high school(technical)			0.20	139.26	70	238	0	1989	1751	40.00	70,057.14	78,099.70
Senior high school(gen.)	0.07	640.60	0.21	134.53	60	815	58	2242	1369	30.00	41,072.58	45,787.71
Senior high school(tec.)			0.19	121.71	35	11447	7560	121713	102706	2.00	205,412.48	228,993.83
Hiher education	0.08	752.00	0.12	90.24		11000	0	90240	79240	8.00	633,923.84	706,698.30
Total		4,549.16		2,361.11							1,135,242.64	1,265,568.50
(Scenario B)												
Pre-school education	0.12	987.36	0.10	98.74	25	600	0	3949	3349	5.00	16,747.20	18,669.78
Primary school	0.15	1,193.06	1.00	1,193.06	40	28076	635	29827	1116	20.00	22,310.00	24,871.19
Jr.high school(general)	0.08	617.10	0.60	370.26	80	1891	0	4628	2737	20.00	54,745.00	61,029.73
Jr.high school(technical)			0.20	123.42	70	238	0	1763	1525	40.00	61,005.71	68,009.17
Senior high school(gen.)	0.07	567.73	0.21	119.22	60	815	58	1987	1114	30.00	33,421.86	37,258.69
Senior high school(tec.)			0.19	107.87	35	11447	7560	107869	88862	2.00	177,724.16	198,126.89
Higher education	0.08	666.47	0.12	79.98		11000	0	79976	68976	8.00	551,809.28	615,156.99
Total		4,031.72		2,092.54							917,763.21	1,023,122.43
(Scenario C)												
Pre-school education	0.12	937.08	0.10	93.71	25	600	0	3748	3148	5.00	15,741.60	17,548.74
Primary school	0.15	1,132.30	1.00	1,132.30	40	28076	635	28308	0	20.00	0.00	0.00
Jr.high school(general)	0.08	585.68	0.60	351.41	80	1891	0	4393	2502	20.00	50,031.25	55,774.84
Jr.high school(technical)			0.20	117.14	70	238	0	1673	1435	40.00	57,414.29	64,005.45
Senior high school(gen.)	0.07	538.82	0.21	113.15	60	815	58	1886	1013	30.00	30,386.21	33,874.54
Senior high school(tec.)			0.19	102.38	35	11447	7560	102376	83369	2.00	166,737.98	185,879.50
Higher education	0.08	632.53	0.12	75.90		11000	0	75903	64903	8.00	519,227.84	578,835.20
Total		3,826.41		1,985.98							839,539.16	935,918.26

For senior high(tec.) and higher education, investments were estimated on per student basis.
Two shift system is assumed 100% for junior high, 50% for senior high(gen.)

Table C.7 Summary Table of On Farm Development Cost

(Unit;10^3 TL)

Project	Gross (ha)	Net (ha)	Total Cost	Unit Cost(/ha)
1. Lower Firat Project	852,781	734,907		
Urfa-Harran	141,535	123,560	281,262	1.987
Mardin-Ceylanpinar I	230,130	195,518	250,160	1.087
Mardin-Ceylanpinar II	104,809	89,800	133,876	1.277
Siverek-Hilvan	160,105	140,060	160,105	1.000
Bozova	69,702	60,975	68,702	0.986
Suruc-Baziki	146,500	124,994	219,750	1.500
2. Adiyaman-Kahta Project	77,409	66,324		
Kocali	21,605	18,420	32,407	1.500
Buyukcay	12,322	10,557	18,483	1.500
Gomikan	7,762	6,650	11,643	1.500
Camgazi	6,121	5,244	9,181	1.500
Pumped area	29,599	25,453	44,398	1.500
3. Adiyaman-Goksu-Araban	71,598	61,087	61,360	0.857
Kartalkaya	5,943	5,070		
Golbasi	5,994	5,114		
Araban	20,232	17,263		
Keysun and others	39,429	33,640		
4. Gaziantep Project	81,670	69,093		
Hancagiz	7,330	6,200	5,900	0.805
Kayacik	13,680	11,573	11,800	0.863
Kemlim	3,300	2,792	1,416	0.429
Kilis	1,400	1,184	1,180	0.843
Pumped area	55,960	47,344	48,269	0.863
5. Dicle-Right Bank	52,033	44,395	60,960	1.172
6. Dicle Right Bank Pump	74,047	63,977	87,720	1.185
7. Batman Right Bank	18,758	15,937	18,758	1.000
8. Batman Left Bank	18,986	16,062	18,986	1.000
9. Batman-Silvan Project	213,000	187,099	319,500	1.500
10. Garzan Project	60,000	52,704	90,000	1.500
11. Silopi	32,000	27,648	32,000	1.000
12. Nusaybin-Cizre	89,000	78,178	105,000	1.180
Total	1,641,282		2,092,816	1.275

Source: Project's Feasibility Reports

Table C.8 The Public Investment by Sector

(Unit: Billion TL)
(Constant 1988 Prices)

Scenario A

Sector	Avg 81/85	1986	1987	Total 88/04	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Agriculture	28	32	48	10636	95	206	234	296	378	402	361	935	1287	1355	1249	1078	905	728	518	340	270	92
Energy	334	490	817	6533	542	510	434	358	220	248	328	545	665	531	469	453	435	198	148	207	245	205
Mining *	23	32	33	739	34	35	36	37	38	39	41	42	43	44	46	47	48	50	51	53	54	56
Manufacturing	67	69	71	1593	73	75	78	80	82	85	87	90	93	96	98	101	104	108	111	114	117	121
Transport	160	165	169	6807	184	201	219	238	260	283	309	337	367	400	436	475	518	564	615	671	731	797
Housing	11	3	12	277	12	13	13	14	14	15	15	16	16	17	17	18	18	19	20	20	21	22
Education	4	3	6	686	7	8	10	12	14	17	20	24	29	34	41	48	58	69	82	97	115	137
Health	1	1	2	229	2	3	3	4	5	6	7	8	10	11	14	16	19	23	27	32	38	46
Tourism	1	1	3	52	1	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	6
Other Services	15	22	36	1612	40	44	48	53	58	64	70	77	85	94	103	113	125	137	151	166	183	201
Total	644	818	1197	29163	991	1097	1076	1094	1071	1160	1240	2077	2597	2584	2476	2353	2234	1899	1727	1705	1780	1682

Scenario B

Sector	Avg 81/85	1986	1987	Total 88/04	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Agriculture	28	32	48	5640	88	185	215	292	284	343	317	457	524	580	536	442	403	293	268	243	170	78
Energy	334	490	817	6154	542	510	434	358	220	248	328	434	529	418	433	533	478	224	170	166	129	145
Mining *	23	32	33	739	34	35	36	37	38	39	41	42	43	44	46	47	48	50	51	53	54	56
Manufacturing	67	69	71	1593	73	75	78	80	82	85	87	90	93	96	98	101	104	108	111	114	117	121
Transport	160	165	169	6156	182	197	213	230	248	268	289	313	338	365	394	425	459	496	536	579	625	675
Housing	11	3	12	277	12	13	13	14	14	15	15	16	16	17	17	18	18	19	20	20	21	22
Education	4	3	6	554	7	8	10	11	13	15	18	21	25	29	34	39	46	54	63	74	87	101
Health	1	1	2	205	2	3	3	4	5	5	6	8	9	10	12	15	17	20	24	28	33	39
Tourism	1	1	3	52	1	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	6
Other Services	15	22	36	1612	40	44	48	53	58	64	70	77	85	94	103	113	125	137	151	166	183	201
Total	644	818	1197	22983	982	1072	1051	1081	964	1085	1174	1460	1663	1655	1677	1738	1703	1405	1398	1449	1425	1445

Scenario C

Sector	Avg 81/85	1986	1987	Total 88/04	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Agriculture	28	32	48	5640	88	185	215	292	284	343	317	457	524	580	536	442	403	293	268	243	170	78
Energy	334	490	817	5181	542	510	434	358	194	130	189	256	348	310	364	439	419	224	170	166	129	145
Mining *	23	32	33	739	34	35	36	37	38	39	41	42	43	44	46	47	48	50	51	53	54	56
Manufacturing	67	69	71	1593	73	75	78	80	82	85	87	90	93	96	98	101	104	108	111	114	117	121
Transport	160	165	169	5577	181	193	207	221	237	254	271	290	311	333	356	381	407	436	466	499	534	571
Housing	11	3	12	277	12	13	13	14	14	15	15	16	16	17	17	18	18	19	20	20	21	
Education	4	3	6	449	7	8	9	10	12	14	16	18	21	24	28	32	37	42	49	56	65	
Health	1	1	2	185	2	3	3	4	5	5	6	7	8	10	11	13	15	18	21	25	29	
Tourism	1	1	3	52	1	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	6	
Other Services	15	22	36	1612	40	44	48	53	58	64	70	77	85	94	103	113	125	137	151	166	183	201
Total	644	818	1197	21304	980	1068	1045	1071	926	951	1014	1257	1451	1510	1563	1590	1581	1331	1311	1348	1307	1309

* Note: The 1981/85 average for the Mining Sector excludes the 1983 value since this was not considered representative. The 1987 value is based on the 1986 figure.