Japan International Cooperation Agency (JICA)

State Planning Organization
The Republic of Turkey

THE STUDY ON THE REGIONAL DEVELOPMENT PLAN FOR THE EASTERN BLACK SEA REGION IN THE REPUBLIC OF TURKEY (DOKAP)

Final Report

Volume VIII Project Reports

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US$ 1	=	462,280 TL
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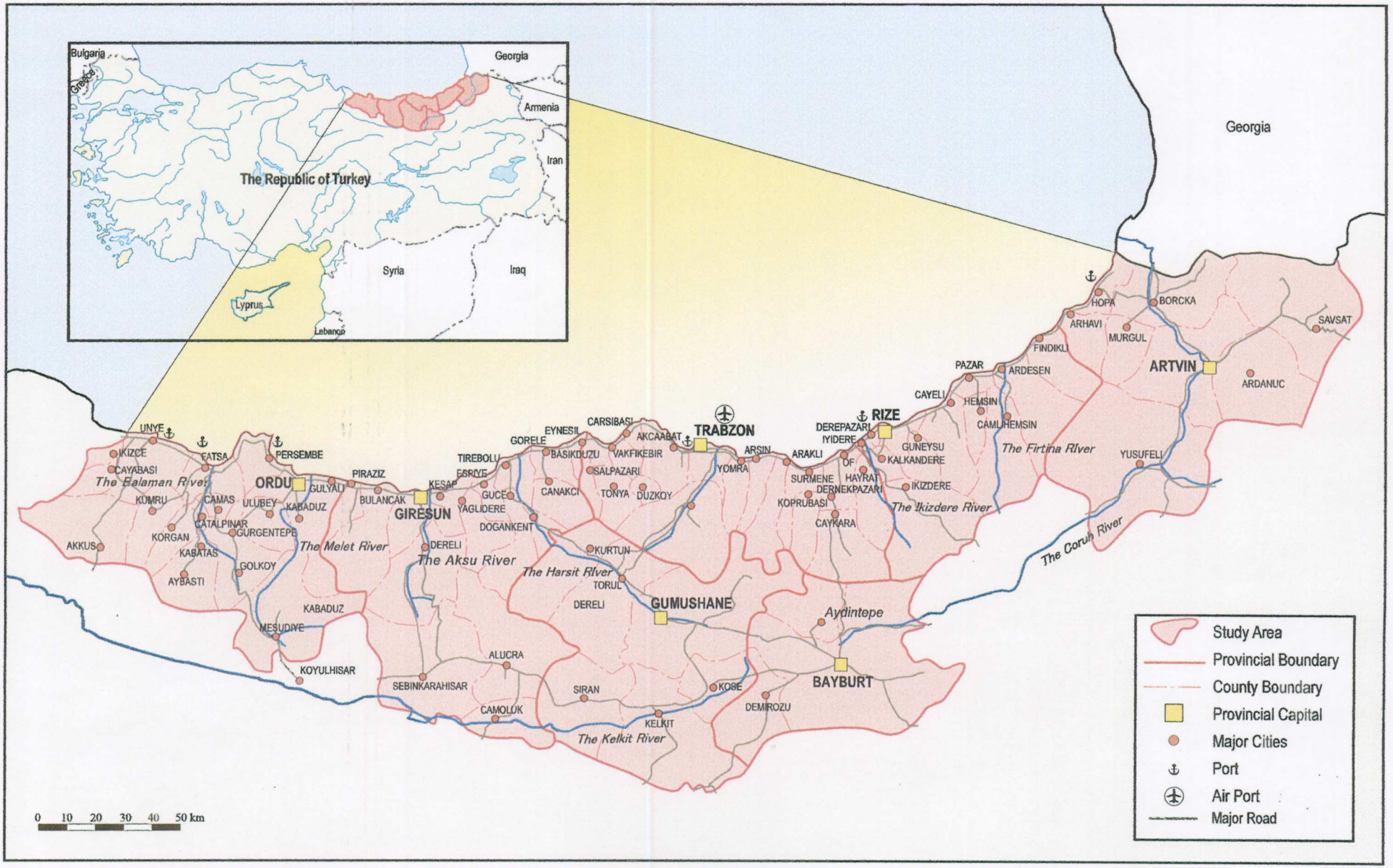

Location Map

THE STUDY
ON
THE REGIONAL DEVELOPMENT PLAN
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THE REPUBLIC OF TURKEY

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Volume VIII Project Reports

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ABBREVIATIONS

AGM	General Directorate of Afforestation and Erosion Control (Agaçlandirma ve Erozyon Kontrolu Genel Müdürlügü)
ASOR	International convention on the harmonization of frontier controls acceding to the convention.
BECC	Black Sea Economic Cooperation Council
BOD	Biological Oxygen Demand
BOO	Build, own and operate
BOP	Bank of Provinces
BOT	Build, operate and transfer
BOTAS	Petroleum Pipelines Corporation (Boru Hatlari ile Petrol Tasima A.S)
BSEC	Black Sea Economic Cooperation
BSEAP	Black Sea Environmental Action Plan
CDA	County directorates of agriculture
CI	Corporate Identity
CIS	Commonwealth of Independent States
CMR	Convention on the contract for the international carriage of goods by road
COTIF	Convention Concerning International Carriage by Rail
CS	Customers Satisfaction
DHKD	Society for the Protection of Nature (Dogal Hayati Koruma Derneg)
DOKAP	Eastern Blacksea Regional Development Plan (Dogu Karadeniz Bölgesel Gelisme Plani)
DSI	General Directorate of State Water Works (Devlet Su Isleri Genel Mud.)
EIA	Environmental impact assessment
EIE	Electrical Power Resources Survey and Development Administration
EIEI	Electric Survey Administration (Elektrik Isleri Etüt Idaresi)
FAO	Food and Agriculture Organization of U.N.
FCCC	UN Framework Convention on Climate Change
FCRI	Field Crop Research Institute
FIRR	Financial Internal Rate of Return
FISKOBIRLIK	Association for Hazelnut Marketing Cooperatives (Findik Tarim Satis Kooperatifleri Birligi)
FTSII	Forest Trees and Seed Improvement Institute
GAP	Southeastern Anatolia Project (Güneydogu Anadolu Pro.)
GATT	General Agreement on Trade and Tariffs
GDAR	General Directorate of Agricultural Research (Tarimsal Arastirmalar Genel Müdürlügü)
GDNPGW	General Directorate of National Parks, Game and Wildlife
GDP	Gross domestic product
GDRS	General Directorate of Rural Services (Köy Hizmetleri Genel Mudurlugu)
GDVA	General Directorate of Village Affairs

GEF	Global Environmental Facility
GIS	Geographic information system
GPS	Global Positioning System
GNP	Gross national product
GOT	Government of Turkey
GPRA	Government Performance and Results Act
GRDP	Gross regional domestic product
GSM	Global system for mobile communications
GVA	Gross value added
IFAD	International Fund for Agricultural Development
IGEME	Export Development Center (Ihracati Gelistirme Etud Merkezi)
IIBK	Institute for Finding Jobs and Workers
ILLER Bankasi	Bank of Province
IRR	Internal rate of return
ISP	Internet service providers
IT	Information Technology
ITB	International Tourismus – Boerse
IUCN	World Conservation Union
JICA	Japan International Cooperation Agency
KGM	General Directorate of State Highways (Karayollari Genel Mudurlugu)
KOSGEB	Small and Medium Size Enterprises Development Organization (Kucuk ve Orta Olcekli Sanayileri Gelistirme ve Destekleme Idaresi Baskanligi)
KÖK	Association for Protection of Characteristics of Blacksea (Karadenizin Ozelliklerini Koruma Dernegi Klübü)
KÖYKOBIRLIK	Union of Village Cooperatives
KTÜ	Blacksea Technical University (Karadeniz Teknik Universitesi)
MARA	Ministry of Agriculture and Rural Affairs (Tarim ve Köy Isleri Bakanligi)
M&E	Monitoring and evaluation
MENR	Ministry of Energy and Natural Resources (Enerji ve Tabii Kaynaklar Bakanligi)
METU	Middle East Technical University
MOC	Ministry of Culture
MOF	Ministry of Forestry (Orman Bakanligi)
MONE	Ministry of Natural Education
MOT	Ministry of Tourism (Turizm Bakanligi)
MPGM	General Directorate of National Parks and Wildlife (Milli Parklar ve Av-Yaban Hayati Genel Mudurlugu)
MTA	Mineral Research Institute (Maden Tetkik Arama)
NARS	National agricultural research system
NGO	Non governmental organization
NPR	National Performance Review
OECD	Organization for Economic Cooperation and Development
OGM	General Directorate of Forestry (Orman Genel Mudurlugu)

OIZ	Organized industrial zones (Organize Sanayi Bolgeleri)
ORKOY	Forest Village Relations General Directorate (Orman ve Koy iliskileri Genel Mudurlugu)
OSCE	Organisation for Security and Co-operation in Europe
PDA	Provincial Directorate of Agriculture
PGRRI	Plant Genetic Resources Research Institute
PMU	Project Management Unit
PPA	Power purchase agreement
PTT	Mail Telephone Telegraph General Directorate (Posta Isletmeleri Genel Mudurlugu)
PVC	Polyvinyl Chloride
RIC	The convention concerning the international transport of goods by rail
RIV	The international convention to facilitate the crossing of frontiers for goods carried by rail
SEKA	Government Paper Corporation
SFYP	Seventh Five-year Development Plan
SID	Small Industry Districts (Kucuk Sanayi Siteleri)
SIS	State Institute of Statistics (Devlet Istatistik Enstitusu)
SME	Small and medium enterprise
SMI	Small and medium industry
SPO	State Planning Organization (Devlet Planlama Teskilati)
SSK	Social Security Agency (Sosyal Sigortalar Kurumu)
STOL	Short Take-off and Landing
TCDD	General Directorate of State Railways (Turkiye Cumhuriyeti Devlet Demiryollari)
TCZB	Agricultural Bank of Turkey (Turkiye Cumhuriyeti Ziraat Bankasi)
TDI	Turkish Maritime Company (Turkiye Denizcilik Isletmesi)
TEDAS	Turkish Power Distribution Company (Turkiye Elektrik Dagitim Anonim Sirketi)
TEAS	Turkish Power Generation and Transmission Company (Turkiye Elektrik Uretim Iletim Anonim Sirketi)
TESK	Union of Associations of Artisans and Trarders
TIR	Transports Internationaux Routiers
TKK	Agricultural Credit Cooperatives (Tarim Kredi Kooperatifleri)
TODAIE	Institute of Public Administration for Turkey and the Middle East (Turkiye ve Ortadogu Amme Idaresi Enstitusu)
TOE	Ton of oil equivalent
TPAO	Turkish Petroleum Corporation (Turk Petrolleri Anonim Ortakligi)
TQM	Total Quality Management
TTGV	Technology Development Foundation of Turkey (Turkiye Teknoloji Gelistirme Vakfi)
TTK	Turkish Hard Coal Enterprise (Turkiye Taskomuru Kurumu)
TÜBİTAK	Turkish Scientific and Technical Researches Council (Turkiye Bilimsel ve Teknik Arastirmalar Kurumu)

TÜPRAS	Turkish Petroleum Refineries Corporation (Turkiye Petrol Rafineleri AnonimSirketi)
TÜSÌAD	Association of Turkish Industrialists and Businessmen (Turkiye Sanayiciler ve Isadamlari Dernegi)
TV	Training and visit system
USAID	U.S. Agency for International Development
VAT	Value added tax
VGT	Village group technicians
WTO	World Trade Organization
YIBO	Regional primary education boarding schools (Yatili Ilkogretim Bolge Okullar

Abbreviation of Measures

Extent

cm^2 = Square-centimeters
m^2 = Square-meters
km^2 = Square-kilometers
ha. = Hectares (10,000 m^2)

Volume

cm^3 = Cubic-centimeters
m^3 = Cubic-meters
l = Liter

Length

mm = Millimeters
cm = Centimeters (cm = 10 mm)
m = Meters (m = 100 cm)
km = Kilometers (km = 1,000 m)

Weight

g. = Grams
kg = Kilograms
ton = Metric tonne
DWT = dead weight ton

Energy

kcal = Kilocalories
TOE = Tons of oil equivalent
kW = Kilowatt
MW = Megawatt
kWh = Kilowatt-hour
MWh = Megawatt-hour
GWh = Gigawatt-hour

Others

% = Percent
^0C = Degree Celsius

1. Project profiles

Project No.	Project/Program
1	**Spatial Structure Strengthening Program**
1.1	Trabzon-Rize Corridor Development
1.2	Inland Urban Centers Development
1.3	Black Sea Highway
1.4	DOKAP Highway Network Improvement
1.5	Integrated Port Network Development
1.6	Telecommunication Improvement
1.7	High Voltage Power Transmission Lines Extension
1.8	DOKAP - DAP - GAP Transport Development
2	**Local Alliance Urban Development and Management Program**
2.1	Local Alliance Urban Planning
2.2	Integrated Water Supply System Development
2.3	Area-wide Solid Waste Management
2.4	Black Sea Participatory Coastal Management
2.5	Eco-Community Network
3	**Comprehensive Water and Land Resources Management Program**
3.1	Multi-purpose Dams and Community Development
3.2	Irrigation Development Acceleration
3.3	Land Conservation
3.4	Cadastral Survey Acceleration
3.5	DOKAP Environmental Inventory and Management Planning
3.6	Protected Area Management System Improvement
3.7	DOKAP Environmental Improvement Fund
4	**Industry and Trade Support Program**
4.1	SMEs Production and Marketing Center
4.2	Small Enterprise Credit and Support
4.3	Vocational Training Improvement
4.4	Job Opportunities Information and Placement Center
4.5	DOKAP Trading and Manufacturing Zones Expansion
5	**Rural Economy Diversification and Intensification Program**
5.1	Livestock and Poultry Development
5.2	Greenhouse Promotion
5.3	One Village-One Product Model Area Development
5.4	Freshwater Aquaculture Support Program
5.5	Rural Tourism Promotion
6	**Applied Research Program**
6.1	Renewable Energy Applied Research Center
6.2	Irrigated Crop Cycles Research Program
6.3	Innovative Mariculture Experiment and Development

Project No.	Project/Program
7	**Local Administration Strengthening Program**
7.1	Local Development Planning Improvement
7.2	Local Administrative Capacity Enhancement
7.3	Local Administration Evaluation System Establishment
8	**Sustainable Human Development Program**
8.1	Eight-year Compulsory Education System Support Program
8.2	Distance Education
8.3	Value Development Education Program
8.4	Community Health Care Promotion
8.5	Health Education Program
8.6	Health Referral System Improvement
9	**Living Environment Enhancement Program**
9.1	Rural Services Center Support Program
9.2	Rural Infrastructure Improvement
9.3	Social Telecommunication Network Development
9.4	Community-based Forestry Development and Management
10	**Special Program to Establish DOKAP Identity**
10.1	Black Sea Technology Center
10.2	DOKAP Trade Fair
10.3	DOKAP Brand Tourism Products Development
10.4	DOKAP Tourism Professional Partnership
10.5	Genetic Resource Center
10.6	Information Technology Incubator

Project No 1.1

1. PROJECT TITLE	Trabzon-Rize Corridor Development
2. LOCATION	Trabzon and Rize
3. IMPLEMENTING AGENCIES	Inter-agency; coordination by DOKAP agency
4. OBJECTIVES	(1) To provide high-grade urban infrastructure and services to attract industries and other investments; and (2) To establish higher-order services for visitors from neighbouring countries and regions as well as local people
5. EXPECTED EFFECTS	Enhanced images of the DOKAP regional center; more orderly urbanization along the coast; more efficient production and services system
6. PROJECT COSTS	US$ 400 million
7. IMPLEMENTATION SCHEDULE	Continuous implementation through Phase1 – Phase 3; implementing arrangements and detailed planning for facilities and services in Phase 1.

8. PROJECT DESCRIPTION

The DOKAP spatial development strategy dictates more orderly urbanization patterns to be realized in the coastal area rather than ribbon-type development proceeding at present. For this purpose, certain concentration of urban activities in selected areas with better land availability and other favourable conditions is desirable for accelerated urbanization.

At present, a certain degree of urban clustering is observed only around the city of Trabzon. Urbanization proceeds both along the coast and to the inland. There exists an organized industrial estate to the east of Trabzon only partially filled in, and another one planned in Rize on land to be reclaimed.

This project will improve the infrastructure in the area between the cities of Trabzon and Rize selectively to establish a high-grade corridor-type urban area. This area will accommodate a large portion of incremental urban population in Trabzon and Rize together with a variety of industrial and service activities. They include more export-processing industries in the organized industrial estates, and trade, business and financial services. Also some higher-order services will be established to serve not only the DOKAP region but also neighbouring regions and countries such as advanced medical services, higher education, and research and development.

The following components are included in the project:

(1) continued expansion of the coastal road,

(2) provision of high-grade telecommunication services,
(3) development of the organized industrial estates,
(4) planning for waterfront development, higher-order services, joint development of the Trabzon and the Rize ports, and
(5) establishment of management entity for integrated development and management of the corridor area.

In parallel with the continued expansion of the coastal road and improvement of telecommunication services, a detailed plan should be prepared during Phase 1 for the corridor area covering not only physical facilities but also socioeconomic activities to be accommodated in the area and implementing arrangements including a new management entity.

Project No 1.2

1. PROJECT TITLE	Inland Urban Centers Development
2. LOCATION	Bayburt, Gümüshane, and Artvin
3. IMPLEMENTING AGENCIES	Inter-agency with initiative of provincial governments
4. OBJECTIVES	(1) To create larger urban centers in the inland area to achieve economies of scale and growth momentum; and (2) To contribute to improving the quality of life for inland people as well as the population distribution.
5. EXPECTED EFFECTS	More active inland socio-economies; strengthened spatial structure of DOKAP.
6. PROJECT COSTS	US$ 400 million
7. IMPLEMENTATION SCHEDULE	Pilot implementation for one urban center in Phase 1.

8. PROJECT DESCRIPTION

Most urban centers in the DOKAP region are located along the coast. Other than the provincial centers of Artvin, Gumushane, and Bayburt, no sizable urban centers are found in the inland, except along the Kelkit river. Large irrigation development is planned and partially implemented along the upper and the middle streams of the Coruh river. These projects, once operational, may change the population distribution in the inland area in a significant way.

This project aims at creating larger urban centers in the inland area strategically by improving infrastructure of a few urban centers having high growth potentials. Such urban centers may be located along future artery roads and benefit from planned/on-going water resources development. Candidate urban centers are found along the Harsit river in Gumushane, the Coruh upstream in Bayburt, and the Coruh midstream in Artvin.

Project No 1.3

1. PROJECT TITLE	Black Sea Highway
2. LOCATION	DOKAP coastal area
3. IMPLEMENTING AGENCIES	MPWS-KGM
4. OBJECTIVES	(1) To promote trade and transport activities linking West Turkey through the DOKAP region to neighbouring countries without degrading the coastal environment; and (2) To alleviate traffic congestion in major urban centers along the Black Sea coast by effectively providing by-passes.
5. EXPECTED EFFECTS	More dynamic socioeconomic interactions with neighbouring regions and countries as well as within the DOKAP region in better protected coastal environment.
6. PROJECT COSTS	US$ 500 million (Phase 1, 2)
7. IMPLEMENTATION SCHEDULE	Stage-wise implementation through Phase 1 – Phase 3

8. PROJECT DESCRIPTION

Construction of the upgraded highway along the Black Sea coast has been going on rapidly, causing serious concerns on its adverse effects on the coastal environment. Given the ongoing activities, further extension of the Black Sea highway should proceed carefully based on realistic review of the existing program in due consideration of environmental effects.

Ongoing expansion and re-alignment of some sections would be inevitable and even necessary to promote intra- and inter-regional/international trade in the medium to long term. Viaducts through major urban centers would be desired as they would serve effectively as vertical by-passes. Expansion of other sections should be carefully reviewed from the viewpoint of effects on the coastal environment. Along with the viaduct construction, waterfront areas of major urban centers should be improved to ensure better access by local people to the coast with more pleasant landscape and environment.

Project No 1.4

1. PROJECT TITLE	DOKAP Highway Network Improvement
2. LOCATION	DOKAP region
3. IMPLEMENTING AGENCIES	MPWS-KGM
4. OBJECTIVES	(1) To strengthen the highway network of the DOKAP region as the main mode of transportation; and (2) To facilitate trade and transport activities between north and south and east and west of the region
5. EXPECTED EFFECTS	Physical and socioeconomic integration of the DOKAP region; better social cohesiveness through easier transport and communication
6. PROJECT COSTS	US$ 720 million
7. IMPLEMENTATION SCHEDULE	Continuous development through Phase 1 – Phase 3

8. PROJECT DESCRIPTION

The DOKAP region has a reasonably well established road network, but physical standards are generally low and surface conditions are poor. Selected roads need to be upgraded to better serve intra- and inter-regional transport needs. In particular, an alternative north-south lateral highway should be strengthened, and a secondary east-west artery established. Also most roads in the region need more frequent maintenance and repair works under harsh topography and snow fighting conditions.

This project consists of two subprojects:

(a) Two-lane Highway System Improvement, and

(b) Highway O&M Improvement.

Profiles of these subprojects are attached.

Project No 1.4(a)

1. PROJECT TITLE	Two-lane Highway System Improvement
2. LOCATION	DOKAP region
3. IMPLEMENTING AGENCIES	MPWS – KGM
4. OBJECTIVES	(1) To improve geometric and physical standards of DOKAP highway network to promote regional and international highway transportation; and (2) To enable provision of adequate capacities and promotion of desirable LOS for anticipated future heavy vehicle traffic.
5. EXPECTED EFFECTS	Increase average speed of general traffic, decrease delays, improve LOS, yielding time and cost savings in highway transportation
6. PROJECT COSTS	(To be estimated)
7. IMPLEMENTATION SCHEDULE	Step-wise development through Phase 1 – Phase 3

8. PROJECT DESCRIPTION

As the level-of-service analyses reveal, the existing two-lane highway system of DOKAP region is capable of handling the existing traffic volumes. The ongoing improvement to the coastal-highway is expected to enhance the traffic conditions along the segments where urban conurbations are minimal, although the urban bypasses pose a major handicap for through traffic.

On the other hand, north-south and other inland axes have lower geometric standards, mainly due to the topographical conditions. Design standards adopted by KGM are adjusted to specific topographical conditions to minimise construction costs where required. Sight distance is often neglected and shoulder widths are in varying sizes. Climbing lanes, which can increase the operational performance of two-lane highways, are non-existent in most of the roads through mountainous regions.

The project will aim at improving the standards of two-lane highway system by introducing climbing lanes, improving sight distance where possible and applying these standards especially to the roads to be relocated due to the construction of dams in Artvin Province.

Project No 1.4(b)

1. PROJECT TITLE	Highway O&M Improvement
2. LOCATION	DOKAP provinces
3. IMPLEMENTING AGENCIES	MPWS – KGM
4. OBJECTIVES	To facilitate easy flow of goods and passengers through the regional highway system in all seasons
5. EXPECTED EFFECTS	Decrease operation and maintenance costs for highway vehicles, provide efficient and cost-effective land transportation through the region
6. PROJECT COSTS	(To be estimated)
7. IMPLEMENTATION SCHEDULE	Continuous regular works through the Plan period

8. PROJECT DESCRIPTION

Not only due to topographical and climatic conditions of the region where roads need to be regularly maintained, but also to the lack of monitoring and enforcing applicable rules and regulations, road-wear is a common problem that needs to be tackled. Snow fighting is a major activity of KGM especially along roads going through mountainous regions, although the existing roads do not cross very high altitudes, except a few passes over 2,000m. Still it is not possible to keep some of the roads open for all seasons.

Besides, as is the case of highway system in general throughout the country, the overloading of heavy vehicles is believed to be more hazardous to road surface than other factors. This project aims especially at providing a control system with stations where axle-loads of heavy vehicles are monitored to bear the maximum allowable loads. Regular monitoring of axle-loads together with improved periodic maintenance works will enhance the reliability of the highway network while minimising operation and maintenance costs.

Project No 1.5

1. PROJECT TITLE	Integrated Port Network Development
2. LOCATION	Trabzon, Rize, Giresun and Hopa
3. IMPLEMENTING AGENCIES	Private firms under DOKAP agency
4. OBJECTIVES	(1) To promote domestic trade and passenger movements by sea lanes in short to medium term; and (2) To promote more reliable and expanded services for international trade and tourism in medium to long term
5. EXPECTED EFFECTS	More active interactions between economic activities in different areas of DOKAP region and also with outside the region
6. PROJECT COSTS	US$ 3 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Step-wise development through Phase 1- Phase 3

8. PROJECT DESCRIPTION

While the privatization of major ports would improve operation and management of individuals ports, efficient operation and effective management of the DOKAP port system needs to be ensured. Complementary operation of all the major ports in the DOKAP region should promote domestic trade and passenger movements initially. In the medium to long term, these ports should be able to accommodate increasing number of ship calls for international trade and tourism.

The project will be implemented in steps. First, the existing problems of illegal organizations and operations at the Trabzon port should be corrected as a prerequisite, and the port privatized (Project No. 1.4 (a)). While facilities and management of each port are improved, an advanced telecommunication system should be introduced to link the ports. A management organization for integrated development and management of the DOKAP port system should be examined, and introduced first for the ports of Trabzon and Rize under the Trabzon-Rize Corridor Development (Project No. 1.1). Possible establishment of Rize Port Container Terminal should be examined within this context (Project No. 1.4 (b)).

Project No 1.5a

1. PROJECT TITLE	Privatisation of Trabzon Port
2. LOCATION	Trabzon
3. IMPLEMENTING AGENCIES	Privatisation Administration
4. OBJECTIVES	To achieve efficient operation and maintenance of the port to facilitate and encourage domestic freight and passenger movements as well as international trade and tourism by sea-lanes.
5. EXPECTED EFFECTS	More active intra-regional, inter-regional, and international economic interactions, increase in welfare of the region due to the increased economic activities
6. PROJECT COSTS	(To be estimated)
7. IMPLEMENTATION SCHEDULE	Phase 1

8. PROJECT DESCRIPTION

As mentioned in the sector report, the privatisation of ports are believed to improve the operation and management of individual ports by more business-oriented approach to be adopted by the private port operators. Furthermore, the existing problems of illegal organisations and operations at the Trabzon Port that hinders international trade and tourism will be corrected.

As part of this scheme, modernisation and development of the port facilities will take place. While containerisation will be developed, improvements to the communication and organisation will enable complementary operation of all major ports in the DOKAP Region. Since individual private operators are not expected to coordinate port operations from a general (region-wide) view, a coordinating agency will need to be monitoring the developments.

While the privatisation is expected to take place in Phase 1, the following improvements to the facilities are to be realised in the short to long term.

Project No 1.5b

1. PROJECT TITLE	Rize Port (Riport) Container Terminal
2. LOCATION	Rize
3. IMPLEMENTING AGENCIES	Private Port Operator (under the coordination of DOKAP agency)
4. OBJECTIVES	(1) To promote domestic and international container traffic by sea lanes in the medium to long term by developing infrastructure (container terminal area and necessary equipment) and services; and (2) To enable DOKAP port system to take a larger share of the container transportation in Black Sea region and transhipment of containers through the ports.
5. EXPECTED EFFECTS	Better utilisation of capacity of DOKAP ports and to divert some of the international container traffic to Turkey
6. PROJECT COSTS	(To be estimated)
7. IMPLEMENTATION SCHEDULE	Step-wise development through Phase 1 – Phase 3

8. PROJECT DESCRIPTION

The efficiency of containerisation lies in the fact that freight can be transported without actually handling the goods themselves while changing modes of transport. Because the process eliminates the manipulation of goods, it reduces transport costs and time required while simplifying commercial, transport, and customs procedures and payment transactions and improving security. Containerisation has become the major form of transportation especially in the developed countries and Turkey has long been stressing the need to introduce and improve the container facilities. Having the suitable area, Rize port is the most advantageous location for a regional container terminal, in conjunction with the proposal of Trabzon-Rize Development Corridor (Project No. 1.1).

Project No 1.6

1. PROJECT TITLE	Telecommunication Improvement
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Turk Telekom
4. OBJECTIVES	To establish telecommunication links between rural and urban communities to share and exchange information on various social and economic services, socio-cultural events.
5. EXPECTED EFFECTS	People both in the urban area and rural area have equal access to the information through improvement telecommunications
6. PROJECT COSTS	US$ 3 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	A cable line and fiber optic line study and detailed design for stage-wise line expansion in Phase 1 and continuous expansion in Phase 2 and Phase 3

8. PROJECT DESCRIPTION

The settlements some parts of the DOKAP region are scattered. Settlements in the mountain rage have an access problem. The amount of the information that the people receive is limited and the access to the information is limited. In order to improve the quality of life, the network system needs to be established to increase the access and the quality the information that people receive. All age groups and all the settlement areas have right to receive the information that they need.

The aim of the network system is to provide an Internet backbone for access to the information necessary for daily life. The inter-active network system will be established, and machines for end users (computer) will be provided so that the people can send and receive the information whenever they wish.

Currently, Rize and Artvin is connected to the regional center in Samsun by 2 Mbps, Babyburt, Gumushane, Giresun, Ordu by 2x2 Mbps, and Trabzon by one 2 Mbps and 2x2 Mbps. The capacity is a big improvement from 1998, but not good enough for high speed data transmission. Thicker fiber optic lines or cable lines with high data transmission capacity should be installed in the region.

In this project, new, thicker fiber optic lines will be installed along the region at a cost of about US$ 1 million for the first and second phase.

Organization Structure

The project will be undertaken by Turk Telekom branch offices in the region. A cable line and fiber optic line study should be initiated, followed by a detailed design of the

incremental line expansion plan, which will take into consideration all the possible increase of data transmission demand in the region.

Benefits and the End of the Projects

At the end of the project, the people in the DOKAP area will be able to access to

(1) Information on daily life
   a) Heath and welfare: Health care by connecting hospitals and households, and among the hospitals
   b) Regional information: Information exchange between local administration and local people. The message from the government is sent through network.
   c) Protection against disaster: Information on disaster, information on disaster measures

(2) Information on industry
   a) Market information (fishery products, agricultural products)
   b) Employment
   c) Promotion on the local industry

(3) Tourism
   a) Promotion of tourist site
   b) Promotion of special products in the region

Beneficiaries

The beneficiaries of this project will be the people of DOKAP region who will have access to information concerning their daily life. The increased data transmission capacity will eventually serve the whole nation in increase economic activities in the region.

Project No 1.7

1. PROJECT TITLE	High Voltage Power Transmission Lines Extension
2. LOCATION	DOKAP region
3. IMPLEMENTING AGENCIES	TEDAS
4. OBJECTIVES	(1) To improve the quality of power supplied in the DOKAP region; and (2) To enhance the level of interdependence with neighboring countries
5. EXPECTED EFFECTS	Improved availability of quality power at rational prices to support various socio-economic activities; more stable relationships with neighbouring countries
6. PROJECT COSTS	US$ 13.9 million
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 2

8. PROJECT DESCRIPTION

The power transmission loss ratio in the DOKAP region averages 18% as compared to the national average of 15% in 1997, due to insufficient substation capacity and long distance transmission at low voltage. Power supply reliability is low in the region due to unstable power frequency from the system of neighboring countries. As major hydropower projects are implemented within the region, the transmission system needs to be improved with much expanded capacity.

The project will extend the high voltage power transmission lines into the DOKAP region and also expand the substation capacity to reduce the transmission line loss ratio and to increase the power supply reliability. As a prerequisite, the optimal balance between hydropower generation within the region and increased power import from neighboring countries needs to be determined not only to improve the quality of power supply but also to rationalize power pricing. As the power supply capacity increases in the region with hydropower projects, comparatively more power should be imported to reduce power prices. Increased power import should be seen as promoting stable relationships with neighboring countries.

Project Cost Estimate

Exchange Rate Assumed: US$= TL 464,000

380kV Line at about 100 km at early 1999 price: TL 5,500,000	US$11.85 Million
380/154 kV 250 MVA Substation: TL 950,000	US$ 2.05 Million
Total	US$ 13.9 Million

Organization Structure

The project will be undertaken by TEAS branch offices in the region. A transmission line and substation demand studies should be initiated, followed by a detailed design of the incremental transmission lines and substations, which will take into consideration all the possible increase of power transmission and consumption in the region.

Benefits and the End of the Projects

At the end of the project, the power supply will be more stable and line loss will be cut from the current 18.1% to about 9%, which means a saving of 413 GWh by the end of the year 2010. The total power consumption in Ordu in 1997 was 412 GWh, and Trabzon 405 GWh. Using US¢ 5 as an average price from IPP projects, it means a saving of US$ 20.65 million per year.

Beneficiaries

The beneficiaries of this project will be the people of DOKAP region who will have access to cheap and reliable power supply. The power companies, TEAS and TEDAS, will be saving energy and money. The increased transmission capacity will eventually serve the whole nation both in exporting the hydro power from the region and exchanging power with the neighboring countries.

Project No 1.8

1. PROJECT TITLE	DOKAP – DAP – GAP (East Turkey) Transport Development (Study)
2. LOCATION	East Turkey
3. IMPLEMENTING AGENCIES	DPWS – KGM, TCDD coordinated by SPO
4. OBJECTIVES	(1) To plan for artery transport system in East Turkey in view of international and inter-regional transport needs; and (2) To conduct a feasibility study on a selected railway section
5. EXPECTED EFFECTS	Promotion of transport infrastructure projects to facilitate international and inter- regional transport of goods and passengers
6. PROJECT COSTS	US$ 2 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Phase 1

8. PROJECT DESCRIPTION

An original idea of the DOKAP Master Plan Study was to look at this less developed region in the new light of international and inter-regional traffics and trade expected to develop following the collapse of the cold war structure. A number of projects have been proposed along the same line to improve international and inter-regional links covering roads, railways, ports, and pipelines. A few of them have been studied in some depth, but most are no more than ideas, making it difficult to assess their viability. It is expected, however, that some projects, if carefully selected and formulated, would strengthen the position of the DOKAP region and in turn Turkey as a whole for export, transhipment, export processing and related service functions.

The study is to examine the artery transport system of East Turkey, encompassing the DOKAP, DAP and GAP regions, in light of international and inter-regional traffic and trade based on master plans for these three regions in preparation.* For this purpose, the study will focus on inter-regional and international highways, railway system, associated port development,** and pipelines.

In particular for the railway system, the following links should be included in the examination:

- Kars – Cildir → Georgia,
- Horasan – Aralik → Armenia,
- Lake Van northern line (design near completion), and
- DOKAP – GAP railway.

The DOKAP – GAP railway will be examined by section as follows for possible stage-wise development:

- Trabzon – Gümüshane – Bayburt – Erzurum/Erzincan,
- Erzurum/Erzincan – Palu, and
- Palu – Diyarbakir/Elazig.

These proposed links will be examined in light of the Trans-Caspian rail link and the Traceca transport link crossing Black Sea as well as inter-regional artery network.

Road links will also be examined within the international traffic and trade context as well as the inter-regional artery network. Multi-modal transportation and containerization for transport of goods would give an important viewpoint for the examination. With this respect, links between sea and land transport need to be examined within the same context.

Institutional arrangements for more effective transport of goods and passengers constitute another important aspect of examination in the study. Re-structuring government agencies related to transportation should be examined. On the one hand, clearly defined planning, design and implementation guide lines should be established to use the limited public sector resources in most effective way. On the other, procedures for privatization of port and rail system operation need to be clarified.

Such a railway section that appears to be most vital in promoting international and inter-regional traffics and trade will be identified. A feasibility study should be conducted for the selected railway section. More specific institutional arrangements should be worked out for efficient operation and management of the new railway line as the first step of privatization of the entire railway system.

Notes:

* The DOKAP and the DAP Master Plans are in preparation by SPO; the GAP Master Plan updating is about to be undertaken

** For the port development in Turkey, the study should utilize a JICA-assisted study.

Project No 2.1

1. PROJECT TITLE	Local Alliance Urban Planning
2. LOCATION	Large municipalities in DOKAP region
3. IMPLEMENTING AGENCIES	Municipal governments, BOP
4. OBJECTIVES	(1) To improve existing programs for improving physical infrastructure in major urban centers through better urban planning by unions of local government; and (2) To improve urban amenities in selected DOKAP cities.
5. EXPECTED EFFECTS	Much improved levels of overall urban services for local people; upgraded urban facilities and amenities to attract visitors and investors.
6. PROJECT COSTS	US$ 2 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Establishment of unions of local governments in Phase 1, continuous planning thereafter.

8. PROJECT DESCRIPTION

Planning capacities of local governments are quite limited even for larger municipalities such as provincial centers. For example, the provincial center of Bayburt does not have any city planner nor engineer in its planning section. Given the limited financial capacities, significant increase in planning capacities cannot be expected. Available resources should be more effectively utilized.

Existing programs for improving physical infrastructure in major urban centers should be reviewed and upgraded in line with expected function of different centers clarified by the DOKAP Master Plan. For this purpose, unions of local governments should be established to deal with regional settlement issues and to plan for improved urban facilities in mutually complementary manner. Such joint efforts would also minimize the requirement of planning capacities, facilitating coordination as well. Some urban centers should be equipped with high grade urban facilities and urban amenities to attract visitors and investors.

Project No 2.2

1. PROJECT TITLE	Integrated Water Supply Systems Development
2. LOCATION	Selected groups of municipalities and villages
3. IMPLEMENTING AGENCIES	Municipal governments, BOP and GDRA
4. OBJECTIVES	(1) To expand water supply to meet growing demands in a cost-effective way; and (2) To contribute to improving settlement patterns.
5. EXPECTED EFFECTS	Increased availability of municipal water for various purposes; more consolidated settlements
6. PROJECT COSTS	US$ 400 million
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 3

8. PROJECT DESCRIPTION

Despite continued efforts by GDRA and villages, the ratios of villages with adequate water supply are low in the DOKAP provinces. Service coverage in Rize, Giresun, Ordu and Artvin is below the national average (81% in 1998). In terms of population coverage, the ratios of villagers deprived of adequate drinking water are 34% in Artvin, 32% in Ordu, 25% in Giresun, 24% in Rize, 16% in Gumushane, 12% in Trabzon, and 5% in Bayburt. In urban areas, water supply capacity needs to be expanded continuously in most municipalities to meet growing demands due to urbanization.

At present, most areas of the DOKAP region rely on groundwater for drinking water supply. As water demand increases especially in urban centers, more surface water needs to be tapped by constructing dams and water treatment facilities. As the water sources tend to be located further away from demand centers and investment costs become larger, cooperation of neighbouring municipalities and villages should be encouraged for joint development and management of water supply systems.

At present, only the Trabzon Merkez district has a comprehensive plan for larger water supply system covering several districts. The project aims to extend such an approach to other municipalities and their neighbouring villages. Unions of local governments should be formed to plan and implement water supply systems mustering their resources with support and guidance by BOP.

Project No 2.3

1. PROJECT TITLE	Area-wide Solid Waste Management
2. LOCATION	Major urban centers and their vicinities
3. IMPLEMENTING AGENCIES	Local governments supported by BOP
4. OBJECTIVES	(1) To encourage cooperation of local governments for introduction of advanced solid waste management practices; and (2) To contribute to the creation of urban amenity.
5. EXPECTED EFFECTS	Enhanced cooperation among local governments for cost-effective solid waste management; improved urban environment
6. PROJECT COSTS	US$ 26 million
7. IMPLEMENTATION SCHEDULE	Pilot implementation for one urban center and its vicinity in Phase 1, expansion in Phase 2 – Phase 3

8. PROJECT DESCRIPTION

Given the financial and manpower constraints of most local governments, alliances of local governments should be promoted for cost-effective improvement of various urban infrastructure and services, including solid waste management. Urban amenity should be created particularly in larger urban centers to attract investments from outside the DOKAP region and also to accommodate high-grade services.

The project aims to introduce more sophisticated solid waste treatment and disposal methods to contribute to the creation of improved urban infrastructure. Intermediate treatment such as incineration and composting as well as recycling, and sanitary landfill will be among the common methods. To determine the location of an incineration plant and sanitary landfill site from a broad geographic point of view, neighbouring local governments should cooperate by establishing a union. The project may also establish a pilot thermal power plant utilizing solid wastes.

Project No 2.4

1. PROJECT TITLE	Black Sea Participatory Coastal Management
2. LOCATION	Coastal provinces
3. IMPLEMENTING AGENCIES	Local governments, KTU and local communities supported by NGOs and Government agencies
4. OBJECTIVES	(1) To encourage exchange of information and ideas for better management of the Black Sea coast; and (2) To create a management entity for the Black Sea coast with participation of all the stakeholders for accountability.
5. EXPECTED EFFECTS	Acceptance of the long-term development plan for Black Sea coast by all stake holders
6. PROJECT COSTS	US$ 27 million
7. IMPLEMENTATION SCHEDULE	Establishment of a management entity in Phase 1

8. PROJECT DESCRIPTION

Many government agencies, local governments, and some NGOs are concerned in the development and management of coastal areas and use of marine resources of the Black Sea. Yet there is no single authority in charge of overall management of the Black Sea coast. Local communities are not involved in any part of the management, and local people are largely excluded from access to the coastlines.

The project will prepare a comprehensive coastal management plan for the Black Sea. This will provide a forum for all the stakeholders to get together and discuss various issues related to the Black Sea coastal environment. The plan will be prepared through the participation of municipalities, research institutes, fishermen's groups, local business communities, and NGOs as well as related government agencies. The plan should cover reclamation, beach protection, and waterfront beautification as well as use and management of coastal and marine resources.

This participatory planning may lead to the establishment of a management entity for the Black Sea coastal environment. Local people should be involved in the planning and operation of the management entity especially for monitoring.

Project No 2.5

1. PROJECT TITLE	Eco-community Network
2. LOCATION	Major urban centers in the DOKAP region
3. IMPLEMENTING AGENCIES	Municipal governments, industries and local communities
4. OBJECTIVES	(1) To reduce possibilities and risks of industrial pollution through exchange of information; and (2) To enhance accountability of urban communities for protecting their environment
5. EXPECTED EFFECTS	Enhanced environmental awareness in urban communities
6. PROJECT COSTS	US$ 10 million
7. IMPLEMENTATION SCHEDULE	Pilot implementation in one or two urban centers during Phase 1; extension to other urban centers in Phase 2

8. PROJECT DESCRIPTION

As the urbanization proceeds inevitably, risks will increase for urban environment to degrade. For the DOKAP region to pursue services-led development, major urban centers should be equipped with some higher-order services and various amenity facilities for visitors as well as residents. Environmental awareness should be enhanced among all the urban residents, including government officials, business communities, and industries as well as citizens.

The project will establish telecommunication links between local communities, industries, and government offices to exchange information related to environment. It is expected to effectively introduce a mutual check mechanism that would reduce risks of industrial and other pollution through enhancing accountability, while facilitating monitoring of pollution. Initially, the eco-community network may be based on conventional tele-fax links, but it may become a subsystem of the multi-media telecommunication system.

Project No 3.1

1. PROJECT TITLE	Multi-purpose Dams and Community Development
2. LOCATION	Areas around planned dam sites
3. IMPLEMENTING AGENCIES	DSI in cooperation with relevant provincial and municipal governments and NGOs
4. OBJECTIVES	(1) To utilized planned multi-purpose dams as tools for improving community facilities and rural environment; and (2) To enhance motivation of local communities for management of facilities and watershed through dialogues with government agencies
5. EXPECTED EFFECTS	Vitalized rural socio-economies around multi-purpose dams; improved communication between local communities and government agencies; sustainable multi-purpose dam development with watershed management
6. PROJECT COSTS	US$ 200 million
7. IMPLEMENTATION SCHEDULE	Stage-wise development following implementation schedule of dam projects

8. PROJECT DESCRIPTION

The DOKAP region has just entered the stage of major dam and hydropower development with the Kurtun dam on the Harsit river near completion and two other dams, Deriner and Yusufeli, on the Coruh river at advanced stage. Some dam projects, as they proceed to advanced stages, face opposition due to social and environmental concerns. Massive resettlement and relocation of roads and other facilities are involved in major dam projects on the Coruh river.

Implementation of any multi-purpose dam project should be taken as an opportunity to vitalize rural economies in the project area. Not only resettlement of people to be affected by the dam reservoir, but also irrigation development, water supply, and other facilities should be planned to benefit local communities as much as possible. Some community and possibly tourism facilities should be incorporated in the project. Watershed management should also be an inherent component.

This project will allow local communities around planned dam projects to be involved from early stage of development, facilitated by relevant local governments. Multi-purpose dams with various components as indicated above should be planned by a participatory approach. Local communities will be motivated through the planning for their implementation. They will be involved in the management of various facilities and watershed as well as monitoring and evaluation.

Project No 3.2

1. PROJECT TITLE	Irrigation Development Acceleration
2. LOCATION	Upstreams of Coruh and Kelkit rivers
3. IMPLEMENTING AGENCIES	DSI, GDRS, TCZ
4. OBJECTIVES	(1) To accelerate the ongoing irrigation development; (2) To ensure proper agriculture land use under irrigation; and (3) To realize the best crop mix for enhancing income levels of farmers
5. EXPECTED EFFECTS	Enhanced economic conditions of farmers in Bayburt and Gumushane; broadened local economic base to support urbanization inland
6. PROJECT COSTS	US$ 264 million
7. IMPLEMENTATION SCHEDULE	Continuous implementation through Phase 1 - Phase 3

8. PROJECT DESCRIPTION

Large scale irrigation development is planned and partly implemented in the upstreams of the Coruh and the Kelkit rivers. Successful irrigation development will be instrumental in transforming the spatial structure of the DOKAP region. It will not only increase income levels of rural people but also expand the local economic base to support the urbanization in the inland.

The project will ensure that the land productivity will be enhanced by the irrigation development. This will involve not only proper crop selection in view of marketing as well as land suitability, but also adequate use and management of land and water resources, and input use. The project will provide land consolidation, drainage improvement, extension in crop cycles, on-farm water management and input use, and agricultural credit.

Project No 3.3

1. PROJECT TITLE	Land Conservation
2. LOCATION	Upper river basins of Coruh, Harsit and Kelkit rivers
3. IMPLEMENTING AGENCIES	DSI, KHGM, GDAEC, local governments and local communities in cooperation with NGOs
4. OBJECTIVES	(1) To protect and enhance water and land environment in catchment areas of major rivers; and (2) To effect community-based management of upper river basins
5. EXPECTED EFFECTS	Improved watershed as an essential condition for optimum use of planned and existing dams; sustainable watershed management with community involvement
6. PROJECT COSTS	US$ 15 million
7. IMPLEMENTATION SCHEDULE	Phase 1 for organization of basin councils, and preparation of watershed management plans; Phase 2 for implementation of projects formulated

8. PROJECT DESCRIPTION

Upper river basins of the major rivers in the DOKAP region have been degrading due to deforestation and improper land uses. This tends to increase erosion and silt discharge into the Black Sea, aggravate flooding, and shortening economic life of planned and existing dams. The program will extend the ongoing efforts in the Harsit river basin for watershed management to cover other major river basins as well by effecting participatory approach.

The program will be implemented in the following steps:

(1) Organization of a basin council by concerned municipalities, local communities in cooperation with NGOs, related government agencies and other stake holders to oversee the development and management of the respective river basins;

(2) Preparation of an integrated watershed management plan encompassing:

- land use plan in line with the DOKAP Master Plan,
- multi-purpose dams and related projects,
- flood control works and warning system,
- reforestation program including participatory schemes, and

- institutional measures including information and education campaign, training in forest management, and clarification of land ownership and use rights; and

(3) Establishment of monitoring system.

Municipalities should take the initiative in preparing their own land use plans, which should be integrated into the basin land use plan through coordination among related municipalities. Any multi-purpose dam project should have, as its component, reforestation of its watershed with a community-based management plan. Different components of the plan will be implemented by various agencies but monitored under the management of the basin council.

Project No 3.4

1. PROJECT TITLE	Cadastral Survey Acceleration
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	General Directorate of Title Deeds and Cadastral Surveys
4. OBJECTIVES	To complete the cadastral survey in the Region and to settle issues of ownership.
5. EXPECTED EFFECTS	Secure land tenure will have a positive effect on farmers' behaviors and will increase investments and rationalize farm practices. This is also a precondition for the development of efficient land markets.
6. PROJECT COSTS	US$ 25 million
7. IMPLEMENTATION SCHEDULE	Primary cadastre to be completed in Phases 1 and 2 and the secondary cadastre to be initiated in Phase 1.

8. PROJECT DESCRIPTION

The DOKAP Region has the most intense land ownership problems in Turkey due to difficult topography, small land holdings, and recurrent natural disasters. The intense pressure on the land has increased its value and leads to frequent conflicts.

Cadastrel surveys did not exist for half (916 villages) of the 1,722 villages in the DOKAP region as of 1998. Similarly 10% of the districts in urban areas did not have cadastrel surveys. The proportion of land parcels not surveyed is even higher as the surveys have concentrated in relatively smaller villages or in villages with relatively less problems.

The prominence of forests in the region and the separate surveys carried out by the forestry department further complicate the situation in the DOKAP region. It is necessary to integrate these two cadastrel surveys. Furthermore, technological and methodological advances in map preparation make it necessary to improve the accuracy of mapping (secondary cadastres) and to digitize these maps for the development of a geographic data base.

The resources provided to the staff of the General Directorate of Deeds and Cadastre (TKGM) need to be augmented to carry out the required tasks. Part of the solution is to increase the staff mobility. New equipment and some training will need to be provided. Institutional problems that delay the registration also need to be reviewed. Some of the key institutional issues involve the participation of beneficiaries in the registration process; timely selection of resource persons (bilirkisi) consulted; and the willingness of the local people for accelerating the registration process.

Project No 3.5

1. PROJECT TITLE	DOKAP Environmental Inventory and Management Planning
2. LOCATION	DOKAP region
3. IMPLEMENTING AGENCIES	MOF, MENR
4. OBJECTIVES	(1) To prepare an environmental inventory of the DOKAP region with focus on forest and water ecosystems; and (2) To prepare management plans for forest and water resources
5. EXPECTED EFFECTS	Environmental inventory and management plans as common references for discussions among all the stakeholders; enhanced community involvement and awareness through the planning
6. PROJECT COSTS	US$ 1 million
7. IMPLEMENTATION SCHEDULE	Phase 1

8. PROJECT DESCRIPTION

Degrading quality of the forest ecosystem and the Black Sea coastal and marine environment is a subject of most serious concern in the DOKAP region. As a basis for better management of these ecosystems, an environmental inventory should be taken, focusing particularly on forest resources with fauna and flora, and water quality of inland waters and the Black Sea.

The existing forest inventory will be upgraded by the project using scientific methods and advanced technology such as phyto-sociology, bioprospecting, and GIS/GPS. All the existing data related to water quality of inland waters and the Black Sea will be compiled and analyzed through the project. Based on these, an environmental management plan will be formulated particularly for forest eco-system and the Black Sea coastal and marine environment. This should be an integrated plan encompassing land and water resources to protect and enhance forest resources and to protect the Black Sea environment through reducing sediment yields and properly treating wastewater and solid wastes.

The project should utilize community involvement supported by local governments for both inventory and management planning. Legal issues that may be involved in mobilizing local communities within the designated forest area should be resolved as a prerequisite, and institutional arrangements made accordingly. This process may involve clarification of land tenure or use rights of present forest areas.

The project will also establish a monitoring and evaluation system to ensure the management plans be implemented and measures formulated by the plans enforced. Community involvement would be essential for effective monitoring and evaluation.

Project No 3.6

1. PROJECT TITLE	Protected Area Management System Improvement
2. LOCATION	Designated forest areas and national parks
3. IMPLEMENTING AGENCIES	Prime Ministry, MOF
4. OBJECTIVES	(1) To establish a new protected area management system applicable to designated forest areas and national parks in the DOKAP region; and (2) To demonstrate the effectiveness of the new system
5. EXPECTED EFFECTS	More effective protected area management; compliance with the international agreement on forest protection
6. PROJECT COSTS	US$ 1 million
7. IMPLEMENTATION SCHEDULE	Phase 1

8. PROJECT DESCRIPTION

The DOKAP region has the most extensive forest areas in Turkey, including the three major mountain ranges of Soganli, Kackar and Karcal considered of global significance with biodiversity and high endemism. Management of these and other areas, however, is hampered by insufficient coordination among the four General Directorates in charge respectively of production, protection, afforestation, and provision of services to forest villages within such areas. Also the management of the national park system by MOF is not comprehensive enough. Limited staff and financial capacity of MOF regional offices work as a constraint to the management.

The project will establish a new protected area management system with park rangers and coordinating mechanism under them. Such a system should be established initially for the national parks in the DOKAP region to see its effectiveness before it is fully established at the national level. This system may be tested for the preparation of management plans for the national parks in the region within the framework of the overall forest management plan to be prepared by the DOKAP Environmental Inventory and Management Planning (Project No.3.5).

Project No 3.7

1. PROJECT TITLE	DOKAP Environmental Improvement Fund
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Treasury and Union of Municipalities
4. OBJECTIVES	(1) To preserve the environmental quality of areas of unique scenic and natural value; and (2) To relocate the rural population to central rural settlements from areas that are particularly difficult to serve with physical and social infrastructure.
5. EXPECTED EFFECTS	Farmers will be removed from rural areas where the conflict between farmers and the forests is particularly severe. Their relocation to central villages will reduce the costs of providing rural services and the farmers will gain access to a diverse set of social services.
6. PROJECT COSTS	US$ 25 million
7. IMPLEMENTATION SCHEDULE	Phase 1 to 3

8. PROJECT DESCRIPTION

The scattered location of rural households is a distinguishing characteristic of the settlement system in the Black Sea region. Many houses are established on small agricultural plots. Many of these are not accessible to motorized traffic. Children have to walk to school for hours in some cases. Due to the scattered location, distances to health and cultural facilities are very large.

The plots on which the farmers have established their homes are too small to provide adequate incomes. This forces many farmers to exploit forest resources contrary to legal prohibitions. The ownership of the farmers' plots is also in dispute and the farmers need to continue their occupancy to maintain their claims to the land.

This project will purchase the land and buildings where intrusion into forests is unavoidable. The poor farmers using this land will be fully compensated regardless of the legal status of their occupancy. The program will operate on a voluntary basis. It will purchase assets used by the farmers into a national environmental thrust. At the same time, it will help farmers to establish new and economically viable production units in central rural settlements or in urban areas.

The Treasury of Turkey should operate the program, because assets acquired under the program will become part of national patrimony. Involvement of the local agencies will

be desirable to assist with the identification of particularly severe cases and in establishing a dialogue with the local people.

Funding is a critical first step in establishing the program. It is likely that some funding will be provided by the international environment funds. Because of their involvement in DOKAP, Japanese government agencies should be approached for possible funding. The Turkish Government could also earmark some regular funding sources for this project as well. A natural source would be income from forest products. A share equivalent to the expansion in forest area under the program can be allocated to this program without adversely affecting the fiscal status of the Ministry of Forestry.

9. IMPLEMENTING ARRANGEMENTS

Two key steps need to be taken to make the program operational. The first is a dialogue with the treasury on the legal status of the implementing agency. The second step is the establishment of the legal entity.

Two desirable characteristics of the agency would be local and private sector involvement and the legal powers to be exercised. Although the program will be primarily operated on a voluntary basis, it would be desirable to empower the agency with the right of eminent domain.

Project No 4.1

1. PROJECT TITLE	SMEs Production and Marketing Center
2. LOCATION	Trabzon and Ordu
3. IMPLEMENTING AGENCIES	Union of Associations of Artisans and Traders (TESK), Union of Industry and Trade
4. OBJECTIVES	To promote marketing of local products
5. EXPECTED EFFECTS	The center will draw commercial buyers into the region. These would be both from other regions in Turkey and importers from CIS countries.
6. PROJECT COSTS	US$ 4 million
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 3

8. PROJECT DESCRIPTION

The production and marketing center will provide complete information on all products provided in the respective production area (City or Province). This will be done by audio visual media maintained in the marketing center. The center will have up-to-date information on all products produced and will supply the buyer with the address of all producers who would then be individually contacted by the buyers.

The center will insure compliance with product standards. It will mediate in all disputes between regional suppliers and buyers. In time, this center will also house regional branches of commodity exchanges that may be established, particularly for tea and hazelnuts.

The center will provide all services related to export procedures, including all types of finance. This center will hold regular marketing fairs until a permanent fair is established in the DOKAP region.

The implementation arrangements should be initiated by the Provincial Governments in Trabzon and Ordu. The specific type of arrangements may vary in each province. They would also evolve over time.

The center is likely to be a joint project of all manufacturing enterprises in the region. The management of small industry districts and organized industrial estates will take part in the management of this center ex-officio. All manufacturing enterprises will participate in the program through trade associations.

Project No 4.2

1. PROJECT TITLE	Small Enterprise Credit and Support
2. LOCATION	All DOKAP provinces
3. IMPLEMENTING AGENCIES	Halk Bank and Union of Artisanal Producers
4. OBJECTIVES	(1) To provide directed credit to manufacturing enterprises; and (2) To simplify access to credit and increase responsiveness to credit demands.
5. EXPECTED EFFECTS	Reduce financing bottlenecks faced by the manufacturing enterprises and promote output growth
6. PROJECT COSTS	US$ 6 million
7. IMPLEMENTATION SCHEDULE	Phases 1 to 3

8. PROJECT DESCRIPTION

The existing directed credit programs have eligibility criteria that are too general. As a result, the actual credit use is not always consistent with the original objectives of these programs. The historically large margin between interest rates on these credits and commercial credits has also increased the competition for these funds. The credit allocations with severe rationing that has followed have not always favored small manufacturers.

Under this proposed program, Halk Bank will evaluate its credit record. It will be assisted by specialist consultants in undertaking this task. Based on these findings and considering the master plan targets for the growth of manufacturing industry, Halk Bank will design a regional credit program.

The Turkish Government will insure that Halk Bank has the resources to meet the future credit demand from the DOKAP region.

9. IMPLEMENTING ARRANGEMENTS

Halk Bank will initiate the credit review in consultation with SPO. The local representatives of SMIs will be fully involved in this review and will be consulted in the recommended credit delivery systems.

Project No 4.3

1. PROJECT TITLE	Vocational Training Improvement
2. LOCATION	Throughout the DOKAP region with a new institute in Trabzon or Rize
3. IMPLEMENTING AGENCIES	MONE
4. OBJECTIVES	(1) To improve the quality of vocational training; and (2) To expand the capacity and the scope of training facilities
5. EXPECTED EFFECTS	Cadre of highly skilled manpower in various fields to meet demands of industries
6. PROJECT COSTS	US$ 18 million
7. IMPLEMENTATION SCHEDULE	Continuous improvement through Phase 1-Phase 3; establishment of a new institute in Phase 2

8. PROJECT DESCRIPTION

Skill development opportunities are provided by apprenticeship centers, vocational and technical high schools, chambers, KOSGEB, Institute for Finding Jobs and Workers, and some companies. Availability of apprenticeship centers is limited in the DOKAP region in terms of both number of centers and their location. Availability of internship is constrained by limited industries in the region. The capacity of vocational high schools is also limited.

Given the situation above, the project will improve the vocational training in the DOKAP region to meet changing and diversifying demands of industries. The project will start with the assessment of existing vocational training facilities and the identification of needs for improvement. Based on these, the project will provide upgrading of facilities at existing apprenticeship centers and vocational high schools. Another major institute for vocational and technical education and training will be established in Phase 2 to generate a large number of students in new fields to be demanded by industries.

Project No 4.3a

1. PROJECT TITLE	Skill Development Board Establishment
2. LOCATION	All DOKAP provinces
3. IMPLEMENTING AGENCIES	Ministry of Education and Universities in the region
4. OBJECTIVES	(1) To expand the number of trained technical labor force in the region; and (2) To insure that the skill training meets the demand in the region.
5. EXPECTED EFFECTS	The project will supply the required skilled labor force for industry and services sectors in DOKAP region. It will assist the young people from the region to find specialized jobs in the region and in other regions of Turkey.
6. PROJECT COSTS	(To be estimated)
7. IMPLEMENTATION SCHEDULE	Phases 1 to 3

8. PROJECT DESCRIPTION

Availability of a large pool of trained labor force is a key element of the attractiveness of the DOKAP region for potential entrepreneurs. The development of this resource, therefore, is a critical component of the long-term development of the region. There are a large number of technical training schools in the DOKAP region. Two areas that need immediate attention are the relevance of the training provided and the level of skills the graduates acquire.

The program will establish a management board for regional technical training programs consisting of the Ministry of Education, The regional universities, and the representatives of the local people. The board will review immediate and medium term vocational training programs in the region. The board will have its own financial resources which it will use to augment the resources available in the region. The local governments and professional associations will provide part of the funds. Matching funds will be provided by the central government.

The DOKAP Master Plan will specify the annual skill requirements of specialized activities projected for the DOKAP region. SPO will assist the regional agency to draw up a skill development program. A skill development board will be established within the DOKAP regional agency. This board will solicit funding from the regional development agency.

Project No 4.4

1. PROJECT TITLE	Job Opportunities Information and Placement Center
2. LOCATION	Trabzon
3. IMPLEMENTING AGENCIES	Institution of Finding Job and Worker, Ministry of National Education, Ministry of Industry (KOSGEB)
4. OBJECTIVES	(1) To facilitate primary and secondary school graduates to find jobs to suit their qualifications; and (2) To facilitate firms in and outside the DOKAP region to recruit staff with skills they need
5. EXPECTED EFFECTS	Enhanced productivity through better match between labour demand and supply
6. PROJECT COSTS	US$ 8 million
7. IMPLEMENTATION SCHEDULE	Establishment of center functions in Phase 1

8. PROJECT DESCRIPTION

Primary school graduates, without experiences and support of apprenticeship centers, can at best find low paying jobs requiring only simple skills. General high school graduates face limited job opportunities as they can not meet skill requirements by the industry. As the DOKAP economy develops, more skilled labour in a wider range of fields will be required. Students should be motivated through proper information to take courses to acquire skills needed by the industry, and vocational training centers should offer such courses.

The project aims to establish functional linkages between the Government's placement agency, vocational training centers, and employers associations. This would help the placement of graduates, and also provide directions to the design of new training courses. Central functions may be established in Trabzon and linked to related organizations in and outside the DOKAP region. The project also provides a counseling service for finding suitable jobs for primary and secondary school graduates.

The Job Opportunities Information and Placement Center will have three major functions: information management, research, and counseling.

The center will be equipped with a terminal of the network system that the Institute for Finding Job and Worker is trying to establish in which the information on jobs is available including both public sector and private sector in Turkey. The terminal should have the information not only on job availability but also on the labor force available from the DOKAP region.

The center will also have researching function in which current situation of technology available and types of skills required in the industry will be analyzed, and it will be informed to the education institute and training centers so that they can provide the proper training to the students and apprentices.

In addition to providing the job information, the job searching skill will also be provided. Currently vocational schools and university do not support the job search for the students. Students search for the jobs individually. The job counselors, who can guide to find the appropriate jobs, will be stationed at the center to support those who need support. Interview skills, writing resume, and personal evaluation should be supported by the counselor.

The facilities and manpower required for the center are shown below. Some technical cooperation among related agencies such as KOSGEB, Institute for Finding Job and Workers is necessary.

Necessary scale of the facility	Necessary personnel
Counseling rooms	Director
Computers	Counselor
Library	Computer engineer
Administration room	Clerical staff

Project No 4.5

1. PROJECT TITLE	DOKAP Trading and Manufacturing Zones Expansion
2. LOCATION	Trabzon and Rize
3. IMPLEMENTING AGENCIES	Undersecretariat of Treasury and Provincial Governments
4. OBJECTIVES	(1) To fully utilize the existing facilities in Trabzon and Rize to create incomes and employment in the region; (2) To diversify the function of existing zones to include production as well as trade; and (3) To use these zones to promote international trade.
5. EXPECTED EFFECTS	Provide new employment and trade opportunities in the region
6. PROJECT COSTS	US$ 110 million
7. IMPLEMENTATION SCHEDULE	Phase 1

8. PROJECT DESCRIPTION

The two free trade zones in the region are underutilized. The zone in Trabzon is using only a quarter of its capacity while the one in Rize has only three firms, of which only one is active. Yet, there are large tracks of land available which are supplied with advanced levels of infrastructure services. Furthermore, the existing companies in the free trade zones are all trade oriented. They use these zones largely for storage for transshipments. The original objective of these zones was to promote foreign trade as well as export oriented production. For some companies, location in free zones is simply a mechanism for tax evasion.

The proposed program will initiate a joint effort by all involved agencies to remove the bottlenecks faced by the existing companies and to attract new companies into the existing zones.

9. IMPLEMENTING ARRANGEMENTS

The provincial governments of Trabzon and Rize should hire a specialized consulting firm to review the existing situation and make recommendations for increasing the attraction of the existing free trade zones.

These zones are operated by the Undersecretariat of Foreign Trade. It is essential that this agency should also be involved in this review to ensure that the recommendations are implemented.

Project No 5.1

1. PROJECT TITLE	Livestock and Poultry Development
2. LOCATION	Gumushane and Bayburt for livestock, All the provinces for poultry
3. IMPLEMENTING AGENCIES	MARA
4. OBJECTIVES	(1) To improve the livestock subsector to make it competitive in regional market; and (2) To strengthen poultry subsector to increase income of small farmers
5. EXPECTED EFFECTS	More intensive and competitive agricultural production system, integrating livestock and poultry with crop cultivation
6. PROJECT COSTS	US$ 8 million
7. IMPLEMENTATION SCHEDULE	Phase 1 - Phase 2

8. PROJECT DESCRIPTION

Competitiveness of the livestock subsector in the DOKAP region is low due to the use of less productive local breeds, high production costs of fodder, and insufficient feed supply during winter. As the irrigated area expands, production of fodder is expected to increase including alfa and maize for silage production. This will present an opportunity to improve the livestock production system in the region.

The project will provide support services to introduce improved livestock production systems in Bayburt and Gumushane. It may encompass the following components:

(1) improvement of barns and associated facilities,
(2) effective veterinary services (e.g. for eradication of foot-mouth disease),
(3) expansion of feed production, and
(4) organizing farmers for procurement of input and marketing

Establishment of meat/dairy processing may also be supported by the project.

The project will also support backyard poultry by small farmers throughout the region. More intensive production systems should be established with local breeds and concentrate feed.

Project No 5.2

1. PROJECT TITLE	Greenhouse Promotion
2. LOCATION	Coastal provinces
3. IMPLEMENTING AGENCIES	Local government
4. OBJECTIVES	(1) To raise income levels of small farmers by intensive cultivation of high value horticultural crops in green houses; and (2) To expand the production of horticultural crops to meet growing demands in urban market
5. EXPECTED EFFECTS	Higher income for small coastal farmers; increased supply of horticultural crops in urban areas
6. PROJECT COSTS	US$ 9 million
7. IMPLEMENTATION SCHEDULE	Phase 1 - Phase 2

8. PROJECT DESCRIPTION

While crop diversification is required to overcome the mono-culture, agriculture in the Black Sea coastal areas is constrained by limited land availability. The average agricultural land holding is only 1.8 ha in Rize and 2.1 ha in Trabzon, while Bayburt has a much larger average with 7.4 ha. Agricultural land use needs to be intensified in these areas. One viable way is to produce horticultural crops in greenhouses, taking advantage of the proximity to growing urban markets.

The project is a credit scheme to promote the production of vegetables, cut flowers, ornamental plants, and other high value crops in greenhouses. Investment credit will be provided for construction of greenhouses and related facilities.

Project No 5.3

1. PROJECT TITLE	One Village – One Product Model Area Development
2. LOCATION	Gumushane, along the upstream of the Harsit river
3. IMPLEMENTING AGENCIES	Provincial government in cooperation with MOT and MARA (Engineer Fruit Research Institute)
4. OBJECTIVES	(1) To increase production of various fruits and other crops based on one village-one product model; and (2) To create attractive social environment and landscape along the access route to various tourism sites
5. EXPECTED EFFECTS	Increase in marketable agricultural products and income levels; improved social environment and land scale with more fruit trees and viable socio-economies
6. PROJECT COSTS	US$ 1 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 2

8. PROJECT DESCRIPTION

Gumushane has potential to expand the production of various fruits such as apricot, apple, walnut, chestnut, mullberry and strawberry. Also the production of specialty products may be expanded and diversified such as rosehip syrup and its products, exotic vegetables such as mushrooms, asparagus and possibly horse radish, marble products, carpets, confectionary combining local products, and various wood products.

Some of these products fit well to the one village-one product model. In particular, more fruit trees of a few different kinds should be planted along the Harsit river not only to increase the production but also to enhance the tourism value of this access route to various tourism sites. Each rural settlement may specialize in one fruit to compete with others. Some settlements may specialize in other products, and new specialty products may be created by combining some of them. The project will provide subsidies for specialty production, seedlings and technical extension for fruit production, and guidance.

Project No 5.4

1. PROJECT TITLE	Freshwater Aquaculture Support
2. LOCATION	Upstream areas of small rivers and tributaries
3. IMPLEMENTING AGENCIES	MARA
4. OBJECTIVES	(1) To expand freshwater aquaculture production through market development; and (2) To develop DOKAP brand for aquaculture products through collaborative marketing.
5. EXPECTED EFFECTS	National fame for DOKAP aquaculture products; more robust fishery subsector.
6. PROJECT COSTS	US$ 15 million
7. IMPLEMENTATION SCHEDULE	Phase 1 - Phase 2

8. PROJECT DESCRIPTION

Inland fisheries in the DOKAP region, including both capture fisheries and aquaculture, contribute to only 5% of the national production. There are 284 trout farms in the region, but they are not producing at full capacity. Most of them produce for contracted outlets in their immediate neighbours. Also some of them are not properly located or adequately designed. They suffer generally from insufficient supply of fry, high feed costs, low quality feed, lack of assistance in disease diagnosis, prevention and control, and inadequate extension services.

The project will provide a package of support measures to expand freshwater aquaculture production. Organizing producers is an important component for market development. The project will support wholesalers who would take the initiative by providing cold chains for wider distribution and marketing.

Other project components include:

(1) establishment of a hatchery for regular and quality supply of fingerlings,
(2) encouragement of fish feed manufacturing for quality feed at reasonable prices,
(3) technical support in site selection, design of ponds, and disease diagnosis, prevention and control, and
(4) encouragement of cooperatives for collaborative management and marketing.

Organized marketing, once established, would benefit marketing of other products from both Black Sea and inland waters. It may lead to brand development for all the fresh fish products from the DOKAP region.

Project No 5.5

1. PROJECT TITLE	Rural Tourism Promotion
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	MOT and private sector
4. OBJECTIVES	(1) To revitalize rural socio-economies and improve rural environment by promoting low impact tourism; and (2) To broaden the base for tourism industry for both domestic and international tourists.
5. EXPECTED EFFECTS	Revitalized rural socio-economies and local cultures; improved rural environment
6. PROJECT COSTS	US$ 1 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 2

8. PROJECT DESCRIPTION

Rural tourism, which is low impact tourism utilizing local resources and cultures, is an increasingly popular concept especially among European tourists. Typically, tourists enjoy staying in farming communities to experience country life, involving sometimes in farming activities, traditional cultural events, and handicraft manufacturing as well as more conventional trekking, horse back riding, and swimming. “Yayla (high plateau) tourism” promoted by MOT fits this concept.

The DOKAP region has plenty of opportunities for yayla tourism. What is needed is to make concerted efforts to market this potential tourism products, restore some rural houses and facilities, and provide central facilities for common use by tourists.

The project will provide subsidies for the restoration of rural houses and facilities and provision of central facilities, technical guidance for proper packaging of tourism objects to create a new line of tourism products, and coordination in marketing.

Project No 6.1

1. PROJECT TITLE	Renewable Energy Applied Research Center
2. LOCATION	Center in Trabzon with field facilities in rural areas
3. IMPLEMENTING AGENCIES	KTU and MENR regional office
4. OBJECTIVES	(1) To promote the use of renewable energy sources; and (2) To reduce the dependence on fossil fuels and firewood to protect the environment
5. EXPECTED EFFECTS	More diversified energy sources especially in rural areas; 100% household electrification
6. PROJECT COSTS	US$ 5 million
7. IMPLEMENTATION SCHEDULE	Center to be established in Phase 1

8. PROJECT DESCRIPTION

Rural electrification has been completed in Turkey as well as in the DOKAP region, but power line penetration to households is still incomplete. Use of firewood and tezek is still common in remote rural areas. While 100% household electrification should be pursued by extending transmission and distribution lines and consolidating small villages as much as possible, use of renewable energy should increase to save investment costs and also to safeguard the environment.

The project will establish an applied research center for renewable energy at the Black Sea Technical University (KTU) as the means to promote the development of limited renewable energy sources in the DOKAP region. Possible areas for research include the following:

1) appropriate mini-hydro units to be used for small scale processing of tea and other purposes,
2) electricity generating facilities utilizing solid wastes,
3) biogas units to digest animal wastes and/or wastewater sludge,
4) biomas energy utilizing various agricultural by-products, and
5) wind power for specialized purposes.
6) possible solar energy use in high land area.
7) micro-hydro power stations.

The KTU professors and students of electric engineering department will be able to work with the research center to make a general survey in the area and keep a database of the renewable energy. Based on the data, the center will propose new projects and work with TEAS and local governments to development those projects.

Field facilities will be established in rural areas where application potentials are high for each technology.

Organization Structure

The center will be an independent unit within KTU system. One or two professors will be working at the center full time or part time. Several graduate students will also be working at the center. A deputy dean should be the director of the center, who will be responsible to the Ministry of Energy.

Benefits and the End of the Projects

At the end of the Project, the center should have established a database of the renewable energy in the DOKAP region and will have a list of candidate projects proposed to the Ministry of Energy and the provincial governments for further consideration, and hopefully, a few projects will be implemented either by governments or private sector.

Beneficiaries

The beneficiaries of this project will be the people of DOKAP region who will have access to information about their renewable energy source for optional use. The people in the remote area will be able to get access to cheap and environmentally friendly energy sources. The establishment of the center will also help train students of the Electric Engineers Department at KTU in working on renewable energy development.

Project No 6.2

1. PROJECT TITLE	Irrigated Crop Cycles Research Program
2. LOCATION	Bayburt and Gumushane
3. IMPLEMENTING AGENCIES	Research Institutes and MARA
4. OBJECTIVES	(1) To ensure the increase in yields of conventional crops under irrigation; and (2) To diversify crops to be produced under irrigation
5. EXPECTED EFFECTS	Best crop mix under irrigation
6. PROJECT COSTS	US$ 1.9 million
7. IMPLEMENTATION SCHEDULE	Phase 1 - 2

8. PROJECT DESCRIPTION

Agricultural production in the DOKAP region has been dominated by several major crops led by tea and hazelnuts in the coastal provinces, and cereals and forage crops in the inland provinces. Irrigation development in Bayburt and Gumushane provides opportunities to diversify crops as well as to increase yields of more conventional crops. A key issue is how to attain the best crop mix in view of land suitability and marketing.

The program is to conduct research on crop cycles under irrigation, combining both conventional crops and other crops to be newly introduced or strengthened. The research may cover also silage production technology for feeding animals during winter, based on maize and soybean production.

Project No 6.3

1. PROJECT TITLE	Innovative Mariculture Experiment and Development
2. LOCATION	The Black Sea
3. IMPLEMENTING AGENCIES	Directorate of Fisheries (MARA) and Provincial Directorates of MARA
4. OBJECTIVES	(1) To develop more viable schemes with stronger structure for floating cage aquaculture (2) To broaden options for the Black Sea fisheries in the medium to long term; and (3) To enhance the image of the Black Sea and its fisheries with future-oriented experiments. (4) To enhance local interest in aquaculture and encourage private entrepreneurship
5. EXPECTED EFFECTS	More robust fishery sector with wider options; more active fishery communities and more active research and development by scientific members of the Trabzon Fisheries Research Institute and marine faculty of KTU
6. PROJECT COSTS	US$ 3 million (Phase 1, 2)
7. IMPLEMENTATION SCHEDULE	Various experiments in Phase 1 Commercialization of more viable schemes thereafter

8. PROJECT DESCRIPTION

Floating sea cages for trout and salmon are the only form of sea farming practiced at present in the Black Sea. The present design of sea cages does not suit the severe wave frequency and period in the Black Sea during winter. Conventional cages deployed near shores are subject to unfavourable temperature profile and pollution.

The rationale behind this program is that many private investors took keen interest in aquaculture activities before 1990, and established many sea cages. Initially, there was a boom in the culture of salmon and trout targeting the European market, but later it fell to more than half due to technical and marketing limitations. Currently, there are only a few sea cage farmers in spite of the presence of skilled and experienced fish farmers in the region. It is, therefore, necessary to activate the aquaculture activities on the sea. Besides, a World Bank study in 1992/93 has identified possible sites for cage culture of trout and salmon, and land-based sites for turbot culture. There is a need to consider these potential sites.

The project will experiment on various forms of sea farming, including both acquiring improved design of offshore sea cages from overseas especially Europe and some innovative mariculture practices. The latter may include artificial fish sanctuary to be created by rafting with artificial seaweed, and sea ranching. The project will operate as demonstration units and undertake aquacultural activities in cooperation with the interested fish farmers to encourage investments from the private sector. Assuming the project is successful in demonstrating viability, it is anticipated that the fish stock and facilities managed by the project at the end of the demonstration period will be sold or leased to interested private party or retained for training and experimental purposes. This improved design of offshore sea cages can be sold and distributed to interested investors. The private sector will be invited to become a partner in the experiment on more viable schemes so that commercialization will follow.

The project will support the marine research center of the Black Sea Technical University (KTU) and the Central Fisheries Research Institute in Trabzon. These two institutions have research and development studies on marine science and fisheries in their programs, and they have to be encouraged and directed to more innovative mariculture experiment that will identify and extend the appropriate techniques to entrepreneurs for commercial scale production, and broaden the options for fisheries development in the Black Sea. For example, fish species other than trout and salmon may also be experimented depending on the market.

Project No 7.1

1. PROJECT TITLE	Local Development Planning Improvement
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Provincial and municipal governments
4. OBJECTIVES	(1) To improve local development planning capacity of provincial and municipal governments; and (2) To promote coordinated planning and collaborative implementation of physical infrastructure
5. EXPECTED EFFECTS	Enhanced planning capacity of local governments; more infrastructure development by alliances of local governments
6. PROJECT COSTS	US$ 3 million
7. IMPLEMENTATION SCHEDULE	Phase 1 - 3

8. PROJECT DESCRIPTION

Planning for and implementation of various urban infrastructure improvements involve both central government agencies and local governments. Both staff and financial capacities of provincial self-governments and municipalities are insufficient. Consequently, they rely heavily on the Bank of Provinces (BOP) technically and financially for improvement of various infrastructure facilities. In the DOKAP region, even provincial centers do not have sufficient staff in the urban planning and development section. Physical plans of municipalities are prepared by BOP, sometimes without adequate local information.

Local development planning and land use control functions should be much strengthened to support the planned development of the DOKAP region. Given the limited resources, a most effective way to strengthen these functions is to pool experts at some level of local administration for common use by many local governments. The proposed DOKAP agency may serve this purpose eventually.

The project will strengthen provincial self-governments for planning and coordinating functions of development activities so that they can provide technical supports for municipalities in their respective jurisdictions. More infrastructure would be planned for collaborative implementation by unions municipalities.

Project No 7.2

1. PROJECT TITLE	Local Administrative Capacity Enhancement
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Provincial and municipal governments
4. OBJECTIVES	(1) To enhance the capacity of local administration; and (2) To improve the delivery of various social services by local administration under increasing development.
5. EXPECTED EFFECTS	Much improved local administration with enhanced financial and administrative capacities to serve local people
6. PROJECT COSTS	US$ 3 million
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 2

8. PROJECT DESCRIPTION

As the new bill "Local Administration Reform" is enabled into law, more administrative and other service functions will be devolved to municipalities and provincial administrations with transfer of staff and provision of increased financial means. These additional resources should be effectively utilized to improve the performance of local administration to serve local people.

This program is to take various measures to enhance the capacity of local administration. They include improvement of taxation system and financial management, promotion of local alliances, and training for manpower development. The program will also implement a pilot scheme for the transfer of authority from sector agencies to the local governments under the proposed legislation.

Project No 7.2(a)

1. PROJECT TITLE Improvement of Taxation System

2. LOCATION DOKAP region

3. IMPLEMENTING AGENCIES Municipalities and provincial self-governments

4. OBJECTIVES

(1) To provide better taxation system to taxpayers;

(2) To organize information sharing system among tax-related sections in and out the local governments; and

(3) To apply a common tax computer system among local governments in the DOKAP region.

5. EXPECTED EFFECTS The local governments in DOKAP region could lower the taxation cost and increase municipal taxes.

6. PROJECT COSTS One month training fee is $1,000, excluding the instructor's hotel, board, computer software and hardware. The local governments involved would share the training fee, $1,000, and pay it to the trainer.

7. IMPLEMENTATION SCHEDULE To start in 2001

8. PROJECT DESCRIPTION

Several tax numbers to a taxpayer

The central administration has applied one-tax-number to one-taxpayer system since 1997. However, many local governments in the DOKAP region still use more than one tax number, applying different tax numbers in real estate tax, environmental sanitation tax, water charge, bus transportation charge. Those tax-related divisions independently request for tax payment to and collect the tax from the same taxpayer.

Independent taxation system

This independent taxation system involves many government officials in taxation and causes delay in the tax collection. It also discourages many taxpayers to pay tax on time because they have to wait in long queues in several offices.

Lack of common computer system among local governments

In addition, the computer systems operated in the local governments are not exactly the same. Each government introduces own system, buying it from a private company. It brings about higher introduction cost and difficulty in information sharing among the local governments.

Establishment of information sharing system

It is recommended that local administrations organize information sharing system among the tax-related sections in and out the local governments, with introduction of a common computer system (See Figure 1).

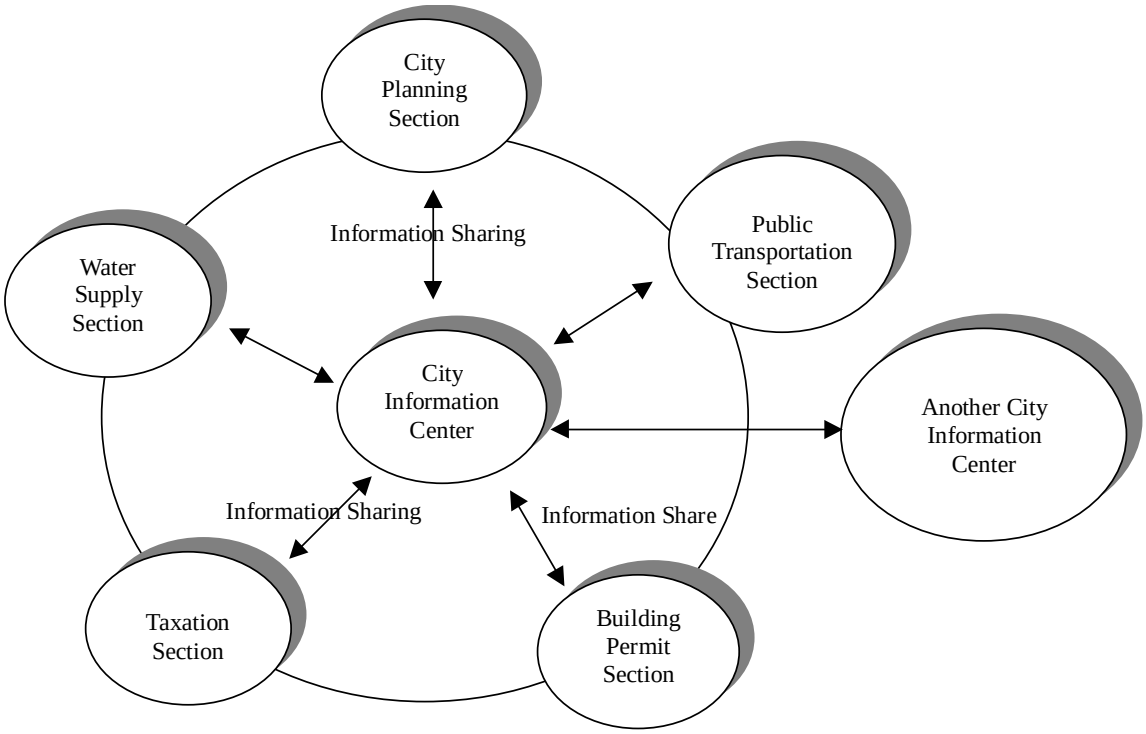


Figure 1 Information Sharing System

Training of local taxmen

To realize these introduction, it is more efficient that tax experts will come to the DOKAP region from Ankara to teach and train local taxmen gathering from many governments there. It could be possible to pool the potential and qualified tax experts.

Project No 7.2(b)

1. PROJECT TITLE	Local Government Officials Strengthening Program
2. LOCATION	Trabzon (KTU campus), Branch campuses of KTU
3. IMPLEMENTING AGENCIES	Ministry of Interior, Ministry of National Education, under supervision of SPO
4. OBJECTIVES	(1) To establish an efficient training system targeting the local government officials; and (2) To develop local government officials capacity in municipalities.
5. EXPECTED EFFECTS	The project will set up the training system so that the continuous training will be available to the public officials and will supply the required skilled government officials to pursued the obligations as government officials. The local government officials can provide better services effectively.
6. PROJECT COSTS	(To be estimated)
7. IMPLEMENTATION SCHEDULE	Establishment of the system functions in Phase 1 (2001 - 2005). Continued operation through Phase 2 and Phase 3.

8. PROJECT DESCRIPTION

Skill level of local government officials particularly those of municipalities is low and there is an urgent need for their training. Capacity building of the local government officials is essential for the implementation of projects and to meet the demand for decentralization.

Training for the public officials are provided mainly by the Ministry of Interior and the Public Administration Institute for Turkey & the Middle East, but the capacity is limited. The participation of the Ministry of National Education is rather limited.

The aims for the program are to establish a system to increase more coordination among the related agencies and to provide proper training for the local government officials. Target for the trainees should not be limited to the local government officials. Training should be available for those who are seeking career as government officials so that participation of the formal education sector is needed.

Training for the government officials should be done in two ways: (1) training through formal education, (2) training through the programs managed by the Ministry of Interior.

Since the Ministry of Interior is already providing the training, the program should focus on the training through formal education and on establishing efficient training system.

Strengthening the Training through formal education

Training of the local government officials through the formal education should be done at a university level of education. The Faculty of Economics and Administrative Sciences should be strengthened. Associate degree and bachelor degree should be provided in public administration. Some basic course in public administration should also be available at KTU branch campuses.

Addition to expanding the programs, the facilities at KTU campuses should be available for the training programs provided by the Ministry of Interior. KTU professors should also be available as instructors to the programs provided by the Ministry of Interior.

Establishment of a Local Government Officials Training Committee

Ministry of Interior, Public Administration Institute for Turkey and the Middle East, as well as KTU and the Ministry of National Education should be responsible for the training for local government officials. The Local Government Officials Training Committee with the member mentioned above should be established under the supervision of SPO, and the tasks of these agencies should be clearly defined for planning and implementation of the training for the local government officials (See Table 1).

Table 1 The Function of Ministries

	Ministry of Interior	**Ministry of National Education**
Target of trainee	Local government officials	Students and local government officials
Function	- Planning and supervision of the training - Training through the Institute	- Planning the education program for public administration at KTU - Provision of facilities and instructors
Major method of training and certificate	- Through Institute and training center - Seminar and degree program (master)	- Formal education (university, vocational school at higher education) - Degree program (associate degree, bachelor degree)
Contents of the Program	- Establishment of the Committee for local government officials training program	- Establishment of the Committee for local government officials training program - Expansion of public administration program in Faculty of Economics & Administrative Sciences at KTU - Opening the new courses at vocational school under KTU

Project No 7.3

1. PROJECT TITLE	Local Administration Evaluation System Establishment
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Municipal governments
4. OBJECTIVES	(1) To improve the performance of local administration; and (2) To establish more transparent and accountable local administration system.
5. EXPECTED EFFECTS	Efficient administrative services provision; smaller but more effective local governments.
6. PROJECT COSTS	US$ 20 million
7. IMPLEMENTATION SCHEDULE	Pilot implementation in Phase 1 for seven provincial centers; stepwise extension to cover other municipalities through Phase 2 – Phase 3

8. PROJECT DESCRIPTION

Local administration reform will proceed under the new law. The process will be facilitated by the implementation of proposed projects: Local Development Planning Improvement, and Local Administrative Capacity Enhancement. Then effects of the reform should be evaluated to realize more efficient, transparent, and accountable local administration system. The DOKAP region should pioneer in the reform.

The local administration evaluation system will be established for both implementation evaluation and policy evaluation. The former applies to taxation system, financial management and other works of local governments to measure the performance. The latter evaluates effects of policies adopted by local governments to attract investments, generate employment opportunities, and for other purposes.

Project No 8.1

1. PROJECT TITLE	Eight-year Compulsory Education System Support Program
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Ministry of National Education and Provincial governments
4. OBJECTIVES	(1) To support the implementation of eight year compulsory education presently underway; and (2) To improve the quality of primary education and provision of equal education to all students
5. EXPECTED EFFECTS	Completion of eight year compulsory education and provision of national level education to all children
6. PROJECT COSTS	US$ 15 million (Phase 1, 2)
7. IMPLEMENTATION SCHEDULE	Application to compulsory education in Phase 1

8. PROJECT DESCRIPTION

Eight year compulsory education started in 1997. The Ministry of National Education and the provincial governments have been putting efforts to implement the new system by school re-structuring in order to achieve efficient school management and improving access to schools. Some schools in remote areas are closed and more schools have been built in the urban area. Bus services are provided and boarding schools are constructed. The major delay in the implementation can not be seen, but the system may not be able to be completed as scheduled. Some areas in the DOKAP region may not be able to receive standard education as originally planned. Continued effort to consolidate school, providing bus services, expand boarding schools, and improving the curriculum is necessary.

The aim for the program is support the implementation of the eight year compulsory education in the following manner.

The program will support the area that is far behind the target in constructing new schools, support private sector participation in school building in order to overcome the financial problem, and support improvement of quality of the school buildings.

The program will also support improvement of education curriculum and facilities. Facilities and equipment, particularly computer laboratory, needed for the improvement of curriculum should be provided. Supplying qualified teachers will be supported particularly English teachers.

More collaboration between the Ministry of National Education and the provincial overnment is needed for efficient implementation of the eight year compulsory education. Eight-year compulsory education system support program will be implemented by coordinating with the Distance Education Program.

Project No 8.2

1. PROJECT TITLE	Distance Education
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	MONE
4. OBJECTIVES	(1) To accomplish complete coverage of all by compulsory education; and (2) To improve the quality of education at all levels by establishing an open education system linked to qualified individuals and institutes outside
5. EXPECTED EFFECTS	DOKAP region known for educational excellence; qualified individuals to support high economic performance
6. PROJECT COSTS	US$ 50 million (Phase 1, 2)
7. IMPLEMENTATION SCHEDULE	Application to compulsory education in Phase 1 Expansion to all the levels and kinds of education in Phase 2 – Phase 3

8. PROJECT DESCRIPTION

Ongoing efforts to effect the eight-year compulsory education by consolidating schools, providing bus services, and expanding boarding schools should be complemented by distance education. The new system should cover even the remotest rural areas. Distance education will be necessary also to smooth out the availability of school facilities in urban and rural areas. From over-crowded schools in urban areas, some students may be transferred to schools in rural areas, where they can receive the same quality education through distance education. Multimedia such as an interactive networks system, TV education may also be utilized for students in the remote area where teachers are not available. Social telecommunication network (Project No. 9.3) will be fully utilized.

Distance education should be extended in steps to other levels and also to adult education as well. It should be complemented by intensive courses with transport and boarding services to ensure sufficient qualifications for all the students at each level and in each field. In the long run, the distance education system will become a subsystem of an open education system linked to qualified individuals and institutes outside the DOKAP region.

Project No 8.3

1. PROJECT TITLE	Value Development Education Program
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Vocational schools, private firms and KOSGEB
4. OBJECTIVES	(1) To educate younger generations for value systems of coming age; and (2) To broaden the human resource base for high-technology development
5. EXPECTED EFFECTS	Highly trained and educated human resources to support a wide range of socio-economic activities; better entrepreneurship availability
6. PROJECT COSTS	US$ 10 million
7. IMPLEMENTATION SCHEDULE	Introduction of various value development courses in Phase 1; continuous implementation thereafter

8. PROJECT DESCRIPTION

The DOKAP regional development in the medium to long term will depend critically on generating a large number of highly trained manpower in various fields who can capture emerging opportunities. Value development is required to prepare many people for value systems of the coming age.

Entrepreneurship and an innovative mind will be required for people to venture into new economic activities such as new crops cultivation, innovative mariculture, and new types of manufacturing. Farmers should be trained in business planning and financial management. Specialized training needs to be provided for new types of industries by the initiative of the private sector. Those in tourism business as well as local government officials should learn collaborative marketing and potentials of rural tourism as against mass tourism.

In the social sector, people's awareness for sanitation and primary health care needs to be enhanced through health education, and innovative education system and programs should be established. Also environmental awareness needs to be enhanced through participation in environmental management and EIA as well as environmental education.

In the infrastructure sector, local governments need to be motivated to form local alliances for infrastructure planning and development. Other aspects requiring value development of some sort include perception of the Black Sea for urbanization, joint development and management of ports, EIA for transportation projects, high-grade telecommunication, creation of larger urban centers inland, and demand side management for energy.

To meet all these requirements, the project will introduce value education curriculum at the primary level. Also the project will provide incentives for private firms to identify and manage training programs. Entrepreneurship development in agriculture will be undertaken by programs in the agriculture sector. Programs in the health and the environment sectors also have value development components.

Project No 8.3(a)

1. PROJECT TITLE	Entrepreneurship Supporting Program (Business Incubator Establishment)
2. LOCATION	Trabzon
3. IMPLEMENTING AGENCIES	KOSGEB
4. OBJECTIVES	To provide the opportunities for entrepreneurs to start up their own businesses by providing working space and offering business consulting service
5. EXPECTED EFFECTS	The new businesses will be created in the DOKAP region. Economic activities will be more active. Eventually out-flow of the valuable labor force will decrease.
6. PROJECT COSTS	(to be estimated)
7. IMPLEMENTATION SCHEDULE	Establishment of Incubator in Phase 1

8. PROJECT DESCRIPTION

The DOKAP regional development in the medium to long term will depend critically on generating a large number of highly trained manpower in various fields who can capture emerging opportunities. Value development is required to prepare many people for value systems of the coming age.

Entrepreneurship and an innovative mind will be required for people to venture into new economic activities such as new crops cultivation, innovative mariculture and new types of manufacturing. Farmers should be trained in business planning and financial management. Specialized training needs to be provided for new types of industries by the initiative of the private sector. Those in tourism business as well as local government officials should learn collaborative marketing and potentials of rural tourism as against mass tourism.

" Business Incubator" will be established to support entrepreneurship development, which will provide physical working spaces as well as business consulting services. The Incubator will have small workshops and office spaces with telephone lines, fax, desks and chairs, computers, a meeting space, photocopy machines, access to information, and secretary which the tenants can share will be provided.

The Incubator will also provide the consulting service to support the business skills development. Feasibility analysis, business planning, market planning, and financial planning will be provided. Capital arrangement will also be supported.

The executive committee will be established as a decision making body for operation and maintenance of the Incubator. Local representatives such as banks, chambers, unions, organized industrial estate, university, and provincial government should participate in the committee to decide development targets, select entrepreneur to be allowed to take a space in the Incubator, and to manage administrative matters.

Project No 8.3(b)

1. PROJECT TITLE	Social Value Development Program (Community house project)
2. LOCATION	Artvin and Gumushane
3. IMPLEMENTING AGENCIES	Provincial government, Ministry of National Education
4. OBJECTIVES	(1) To increase the culture and community awareness (2) To promote importance of education and community participation
5. EXPECTED EFFECTS	People will be more conscious about their own culture. Preservation of cultural heritage. More community participation in the project implementation. Reduce out-migration
6. PROJECT COSTS	$100,000 for each house
7. IMPLEMENTATION SCHEDULE	Phase 1

8. PROJECT DESCRIPTION

The DOKAP region has an unique culture. General characteristics of the DOKAP region are that villagers tend to be conservative and individualistic. They do not find it easy to work collaboratively and to form communal groups for community activity. This characteristic affects the economic activities. Social value development is essential for improving social awareness and unity of the DOKAP people in order to improve economic activities.

The program aims at enhancing traditional culture awareness, increasing the opportunity to experience the regional culture, and promoting importance and education and community participation.

The program will have two components: construction of Community House and promotion of educational activities. The Community House where people, particularly children, can visit and learn about their culture will be constructed by renovating old traditional houses presently vacant in the province. The house will have display of the traditional way of living, display of handicraft work, playing traditional music, and story telling. Adults can take a part in the program as a folklore teller, an artist specialized in the regional arts, and as a promotion of the culture to the people in and outside of the region.

Publication activities should also be included in the program for education and promotion of the community awareness. Some periodicals, and promotion materials, which introduce the culture, importance of health and education, and community participation in development program will be published. The other specific issues, such

as forestry protection, environmental awareness will also be promoted through publication.

This type of project is already implemented in the Kastamonu province financed by the MEDA (Middle East Development Association) Program of EU Commission and executed by WALD (World Academy of Local Administration and Democracy) (NGO). The project is proposed in Artvin but is not implemented, yet. The program proposed in the DOKAP Master Plan will support the implementation of the project in Artvin and start the new project in Gumushane.

Community participation is important for the project planning and implementation. Governor, mayor, and local people should cooperate to form the project.

Project No 8.4

1. PROJECT TITLE	Community Health Care Promotion
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Local governments in cooperation with MOH provincial offices
4. OBJECTIVES	(1) To improve health care services under the devolution with enhanced community involvement; and (2) To promote people's awareness for health care
5. EXPECTED EFFECTS	Self-reliant communities with sustainable health care system
6. PROJECT COSTS	US$ 35 million
7. IMPLEMENTATION SCHEDULE	Experimental introduction of various community-based health care schemes in Phase 1; expansion of more viable schemes throughout the DOKAP region in Phase 2 – Phase 3

8. PROJECT DESCRIPTION

Health services in Turkey at present are overly dependent on the public sector, contributing to the dependence mentality among the people. In the DOKAP region, provision of health facilities is already equal to or even better than the national averages. The health budget, therefore, should be devoted more to health personnel, materials, and operation and maintenance of existing facilities. These recurrent services should naturally be devoted to local governments.

The project aims to improve health care services under the devolution with enhanced community involvement. The project will support various community-based health care schemes to be experimented in Phase I such as municipality-based health insurance and use of traditional medical care and herbal medicine. Performance of different schemes will be monitored by the project, and more viable schemes should be expanded to other communities subsequently.

Project No 8.5

1. PROJECT TITLE	Health Education Program
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Local governments in cooperation with MOH provincial offices and Karadeniz Technical University (KTU)
4. OBJECTIVES	(1) To provide health education to raise awareness of people for health and sanitation for self-reliant society, and (2) To improve preventive health care and improve public health programs
5. EXPECTED EFFECTS	Self-reliant societies with preventive health care system
6. PROJECT COSTS	US$ 5 million
7. IMPLEMENTATION SCHEDULE	Continuous improvement through Phase 1 – Phase 3

8. PROJECT DESCRIPTION

The program aims to provide health education with community participation. The community oriented health education and training program for community health workers will promote community participation in health promotion and preventive health care. This will include the in-service staff training of health personnel such as nurse and midwife in public health sector with the provision of the necessary equipment for training.

As an important preventive health education program, mother and child health care and family planning education programs will be provided in an effective manner within a local participation approach that takes into account the needs and preferences of the local people in consideration of gender issues.

A management board for regional health education programs will be established consisting of the Ministry of Health, Karadeniz Technical University, and representatives of the local people. The board will review immediate and medium term education programs in the region.

Project No 8.6

1. PROJECT TITLE	Health Referral System Improvement
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Local governments in cooperation with MOH provincial offices
4. OBJECTIVES	To re-establish effective health referral system with proper telecommunication links and upgrading of key health facilities and equipment as part of an effort in strengthening primary health care services
5. EXPECTED EFFECTS	Better health condition for local people with effective health referral system
6. PROJECT COSTS	US$ 32 million
7. IMPLEMENTATION SCHEDULE	Experimental introduction of a community-based health referral system in Phase 1; expansion of more viable system throughout the DOKAP region in Phase 2 – Phase 3

8. PROJECT DESCRIPTION

Better opportunities to take health services are quite limited in urban area as well as rural area of the DOKAP region due to the insufficient network of the health sector. The health referral system, therefore, should be restructured so as to ensure an efficient supply of services to do away with problems of coordination and to ensure that health service units are administrated in line with modern management principles.

The project aims to re-establish a network of the health sector to reinforce links with proper telecommunication between preventive and curative health care, and create a suitable referral system on a pilot basis in Phase 1. Performance will be monitored by the pilot project, and more viable schemes should be expanded to other communities in Phase 2 – Phase 3. It will include upgrading of major facilities and equipment, and manpower training.

Project No 9.1

1. PROJECT TITLE	Rural Service Centers Support Program
2. LOCATION	Selected rural service centers to be identified by the urban hierarchy analysis
3. IMPLEMENTING AGENCIES	Municipal governments supported by DOKAP agency
4. OBJECTIVES	(1) To strengthen basic service functions of urban centers catering for their rural hinterlands; and (2) To realize more cost-effective provision of basic services covering all the rural people.
5. EXPECTED EFFECTS	More desirable population distribution with consolidation of dispersed rural settlements linked to rural service centers; more lively rural socio-economies.
6. PROJECT COSTS	US$ 240 million
7. IMPLEMENTATION SCHEDULE	Implementation for some 10 municipalities, 100 villages and 50,000 rural population in Phase 1; some 125,000 rural population to be covered eventually.

8. PROJECT DESCRIPTION

Rural settlements in the DOKAP region are dispersed throughout its large territory. This pattern makes the delivery of social services more costly and less adequate. The situation tends to be aggravated by rural-to-urban migration.

This program aims to improve the population distribution in the DOKAP region for more cost-effective provision of basic services. For this, dispersed rural settlements need to be consolidated, and selected rural service centers strengthened. The program should cover some 125,000 rural population eventually. In Phase 1, some 50,000 people in 100 villages of 10 municipalities may be covered.

Project No 9.2

1. PROJECT TITLE	Rural Infrastructure Improvement
2. LOCATION	Rural areas throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Local governments in cooperation with GDVA
4. OBJECTIVES	(1) To accelerate the improvement of rural infrastructure under tight financial conditions; and (2) To encourage villagers to participate in the improvement of their living conditions
5. EXPECTED EFFECTS	More self-reliant rural communities; strengthened community identity with revived "collective work obligation"
6. PROJECT COSTS	
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 2

8. PROJECT DESCRIPTION

Various rural infrastructure facilities are inadequate, and financial and manpower resources are limited for their improvement and maintenance. Given these conditions, improvement of rural infrastructure needs to be made based on prioritization by clear criteria, and self-help efforts of villagers should better be mobilized.

A new system for improving village roads has been introduced under "the Master Plan for Priority Village Roads." The system will allow planning, construction and improvement of "Group Village Roads" on the basis of prioritization assessed by well defined criteria. This project will combine this system with self-help efforts and extend its application to other infrastructure as well, including villages drinking water supply, small scale irrigation and sewerage facilities.

The project will provide equipment and training to rural people for improvement of various rural infrastructure by using self-help efforts, under the guidance of GDVA. Successful rural communities will be prioritized for further improvements. For instance, villagers can improve their rural roads with drainage, and once successful in the improvement, pavement will be provided by GDVA.

Project No 9.3

1. PROJECT TITLE	Social Telecommunication Network Development (Based on the system proposed in Project No. 1.6)
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Municipalities in cooperation with telecommunication service firms (Turk Telecom)
4. OBJECTIVES	(1) To contribute to regional integration or social cohesiveness through improved communications between rural and urban communities; and (2) To improve the overall quality of social services delivery for all.
5. EXPECTED EFFECTS	People both in the urban area and rural area have equal access to the information, increase the opportunity to participate in social activities, and improve the quality of life.
6. PROJECT COSTS	US$ 30 million
7. IMPLEMENTATION SCHEDULE	A pilot project in Phase 1 and continuos expansion in the Phase 2, and Phase 3

8. PROJECT DESCRIPTION

The settlements some parts of the DOKAP region are scattered. The amount of the information that the people receive is limited and access to the information is limited. Within the DOKAP region, large disparities exist in various aspects, including social services delivery. They are caused mainly by harsh topography and maldistribution of natural resources such as water resources, prime agricultural lands, and some mineral resources.

Also for the long-term development of the region, improvement of communications with neighbouring regions and countries hold a key. An important element of the DOKAP regional development strategy, therefore, is to establish a high-grade, multi-purpose, multi-media telecommunication system.

The aim of the network system is to provide access to the information necessary for the improvement of the life of the people. The inter-active network system will be established, and machines for end users (computer) will be provided so that the people can send and receive the information whenever they wish. All age groups and all the settlement areas have a right to receive the information that they need.

The project will initially establish a social subsystem of the telecommunication system, which may be used for distance education, health referral, and information services for socio-cultural events and opportunities. The project will contribute to regional integration or social cohesiveness between rural and urban communities, while increasing people find job and education opportunities in urban areas, leaving other family members in rural areas.

The important thing is the information is not just one way but rather two (inter-active) so that the each end user can send and receive the information. Additionally, once the information system is established, people from outside of the region also can access the system, so the system can be used to promote the DOKAP region.

The example of information and the utilization of network system is introduced below.

(1) Information on daily life

a) Heath and welfare;	Health care by connecting hospitals and households, and among the hospitals
b) Education;	Distance education through inter active communication system
c) Regional information;	Information exchange between local administration and local people. The message from the government is sent through network.
d) Protection against disaster;	Information on disaster, information on disaster measures

(2) Information on industry

a) Market information (fishery products, agricultural products)

b) Employment information

c) Promotion on the local industry

(3) Tourism

a) Promotion of tourist site

b) Promotion of special products in the region

Project No 10.1

1. PROJECT TITLE	Black Sea Technology Center
2. LOCATION	Trabzon with a branch in Ordu
3. IMPLEMENTING AGENCIES	KOSGEB, KTU, and producers' associations
4. OBJECTIVES	(1) To assist with importation and adaptation of appropriate technology; (2) To provide technology referral services; and (3) To operate common technology services that none of the enterprises are capable of oprating on an individual basis.
5. EXPECTED EFFECTS	This project will improve the level of technology used by SMI's in the DOKAP region and make their products more competitive in the national and export markets.
6. PROJECT COSTS	US$ 25 million
7. IMPLEMENTATION SCHEDULE	Phases 1 to 3

8. PROJECT DESCRIPTION

All, except a handful, of enterprises in the DOKAP region are of small scale. They have limited information, if any, on appropriate machinery and production processes. The project will provide free consultant services on available choices. This service will be tailored to the requirements of individual enterprises.

Another service provided by the project would be provision of joint services which, due to scale requirements, can not be profitably operated by individual enterprises. Similarly, the size of output in the region is not sufficiently large for these services to emerge as viable commercial operations. Typical examples of these are quality testing laboratories and central production facilities. Some such facilities are already operated in the region by KOSGEB. The program will support these and strengthen their capabilities.

The program will become a central coordination point for all ongoing information and technology support services. These services are currently provided by various units in the Ministry of Industry, TUBITAK, and Halk Bank.

This service will be provided to existing enterprises on a voluntary basis. It will become a requirement for enterprises that apply for support from the subsidized directed credit programs.

9. IMPLEMENTING ARRANGEMENTS

Details of how the program will be established will be worked out through consultations between SPO, KOSGEB, and the DOKAP regional agency. These will include practical recommendations for involving other related sector agencies such as Halkbank, TUBITAK, and the Turkish Technology Foundation.

Project No 10.2

1. PROJECT TITLE	DOKAP Trade Fair
2. LOCATION	Trabzon
3. IMPLEMENTING AGENCIES	Directorate of Trabzon Fair- to be established
4. OBJECTIVES	(1) To promote trade in the DOKAP region; and (2) To contribute to the image of DOKAP as an international trade center.
5. EXPECTED EFFECTS	Trabzon will become a major international trade center. The permanent fair will facilitate international trade and will motivate foreign importers to visit Trabzon for procurement of all goods from Turkey.
6. PROJECT COSTS	US$ 3 million
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 3

8. PROJECT DESCRIPTION

The Trabzon Fair will have permanent trade outlets operated by major trading companies from the DOKAP region. Special facilities will be provided for visitors from abroad.

The fair will be managed as a commercial operation by a specialized agency to be established for this purpose. The founding members will include all local business groups and local government agencies.

9. IMPLEMENTING ARRANGEMENTS

SPO will contract a specialized consulting company to investigate the viability of establishing a permanent fair in Trabzon. The consultants will investigate the characteristics of the Black Sea region and will advise on requirements for making the DOKAP trade fair a commercial success.

Project No 10.3

1. PROJECT TITLE	DOKAP Brand Tourism Products Development
2. LOCATION	Throughout the DOKAP region
3. IMPLEMENTING AGENCIES	Inter-agency, private sector; coordination by DOKAP agency/MOT
4. OBJECTIVES	(1) To upgrade presentation/packaging of the DOKAP resources together with visitor facilitation services to ensure satisfactory site experience. (2) To introduce a new line of tourism products that would appeals to a larger market segment and diversify the range of products on offer.
5. EXPECTED EFFECTS	Enhanced tourist appeal and attractiveness of the DOKAP region in both domestic and international markets.
6. PROJECT COSTS	US$ 5 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Phase 1 – Phase 2

8. PROJECT DESCRIPTION

Despite various historical/cultural sites and diverse landscape, the DOKAP region has a scarcity of monumental world-class resources to highlight the region's tourist image and recognition. Presentation and visitor facilitation of the few sites currently visited are well below the national standard, not to mention the internationally accepted norm, and hardly satisfy the expectation of today's international tourists.

This project aims at enhancing tourist appeal and attractiveness of the DOKAP region as a whole by providing the identified tourist areas in the region with such modern tourist facilities, amenities, and collaterals conforming to the international norm as:

- improvement of access road and landscaping
- visitor facility improvement (parking, visitor center, site-specific tourist signs, tourist trails/footpath, panorama lookout, etc.)
- preparation of site-specific map/pamphlet
- inclusion of additionally identified attractions/sites

The project consists of tentative seven subprojects focused on existing and potential tourism areas identified in the region, namely:

- Uzungol area (Trabzon Province)
- Ayder/Kackar area (Rize Province)

- Sumela-Altindere area (Trabzon Province)
- Zigana/Hamsikoy area (Provinces of Trabzon and Gumushane)
- Greater Trabzon area (Trabzon Province)
- Kafkasor area (Artvin Province)
- Kelifalan area (Ordu Province)

Project No 10.4

1. PROJECT TITLE	DOKAP Tourism Professional Partnership
2. LOCATION	Trabzon linked to other areas in and outside the DOKAP region
3. IMPLEMENTING AGENCIES	Private sector supported by MOT
4. OBJECTIVES	(1) To expose the DOKAP tourism to outside world for aggressive marketing; and (2) To utilize outside human resources originated from DOKAP for effective promotion.
5. EXPECTED EFFECTS	Enhanced awareness of tourism markets outside by provinces; better recognition of tourism opportunities in DOKAP by the rest of the world
6. PROJECT COSTS	US$ 1 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Establishment of professional partnership in Phase 1

8. PROJECT DESCRIPTION

The DOKAP region has a variety of tourism resources, although international-class resources are rather limited. To utilize these resources effectively, collaborative marketing holds a key, combining resources in different provinces to form attractive and viable tourism circuits. Some circuits will be linked with other major tourism areas for inter-regional tourism.

The DOKAP tourism should also make direct access to international market through professional partnership from outside the region. Such partnership should be initiated with influential tourism bodies in major urban centers and tourism hubs such as airlines, tour operators, conference organizers, and business associations. In particular, those originally from the region should be invited to initiate the partnership. This will contribute also to enhancing awareness for the value of tourism in the region and further to regional integration or social cohesiveness.

Project No 10.5

1. PROJECT TITLE	Genetic Resources Center
2. LOCATION	Center in Artvin with subcenters and in-situ genetic reserves located in other provinces
3. IMPLEMENTING AGENCIES	MOF in cooperation with MARA (AARI), MOE, relevant NGOs and KTU
4. OBJECTIVES	(1) To identify genetic resources and wild plant species that originated in Turkey; (2) To conserve generic resources of trees, cereals, horticultural crops, medicinal plants employing both an integrated ecosystem approach as well as ex-situ conservation approach; and (3) To develop the national strategy for utilization of plant-based resources for applications
5. EXPECTED EFFECTS	To expand a plant genetic resource database which currently covers mostly western part of Turkey. Possibly lead to integrate and merge other plant genetic resource center programs including PGRRI.
6. PROJECT COSTS	US$10 million (Phase 1)
7. IMPLEMENTATION SCHEDULE	Phase I: Establishment of the center and inventory by 2005 Phase II: Integration with other genetic resources centers in the country by 2010

8. PROJECT DESCRIPTION

The DOKAP region is identified as an important center of biodiversity in wild relatives of unique and important plant species. For example, forest ecosystems include the southernmost part of the range of major European forest species and they contain unique genetic characteristics such as drought hardiness and insect resistance. Such unique biological diversity is important asset of the country.

The proposed Genetic Resources Center' focus is on gene resources originated from eastern Turkey while most other gene bank programs are focused on those from the western half of the country. The center undertakes integrated conservation approaches by covering both agricultural and forestry plant genetic resources, as well as in-situ and ex-situ conservation methodologies, which are unprecedented in the country.

The center is intended as a pilot program for strategic use and management of Turkey's genetic resources by three related ministries: Ministry of Agriculture and Rural Affairs (MARA), Ministry of Forestry (MOF), and Ministry of Environment (MOE). Initially,

the center is established as an independent research institute associated with Asean Agricultural Research Instute in Menemen/Izmir of MARA with joint initiatives of MOF and MOE. MoF provides much resources and expertise in the region, as the majority of plant resources necessary to conserve in the region exist within the forest regime.

Because of increasing threats to the biodiversity in the region, the center should be established now, and it should merge and be integrated with Forest Trees and Seed Improvement Institute (FTSII) of MOF, AARI and MARA's other programs with similar mission by 2010. The merger should create the national center for gene resources database which could effectively serve for strategic use and management of genetic resources in Turkey.

The activities of the proposed gene resource center include:

(1) Site selection and inventory to collect site-specific baseline data to support integrated conservation management planning, field implementation and monitoring. Survey would be followed by review of existing research data collected by Forestry Research Institute of MOF in Trabzon and KTU. Site selection should cover entire seven provinces, not limited to existing protected areas;

(2) Installment of Information System and development of the Black Sea Genetic Resource Database that could eventually expand to the national database;

(3) Policy Research – with collaboration of three ministries, the legal framework for biodiversity conservation and use of genetic resources including procedure and mechanism to initiate equitable Bioprospecting that local community secure benefits. Action Plan for the proposed merger and integration of other gene bank programs is developed;

(4) Development of appropriate economic initiatives which involve demonstration of site specific socioeconomic development initiatives that provide a link between biodiversity conservation and economic benefits for local communities;

(5) Capacity building - within key Government agencies and NGOs involved in project implementation at both the field and central level. This could involve a preliminary institutional needs assessment followed by reorganization, participatory planning by objective and implementation of long-term staff development and training to support and consolidate biodiversity conservation throughout the region. Further support from specialists of Organizational Development is provided for the proposed merger of gene bank programs.

(6) Public awareness and education - including the establishment of mechanisms for the involvement of local community based organizations; links with local, national and international media, and provision of facilities for site interpretation for visitors.

Project No 10.6

1. PROJECT TITLE	Information Technology Incubator
2. LOCATION	KTU, Trabzon
3. IMPLEMENTING AGENCIES	KTU, local chamber of commerce and KOSGEB
4. OBJECTIVES	(1) To promote entrepreneurship in high tech industries; and (2) To improve KTU's linkage with business development and fully exploit KTU as a large, technology-based university.
5. EXPECTED EFFECTS	A dozen successful IT companies listed on the stock market, including one or two leading companies in Turkey.
6. PROJECT COSTS	US$ 1.1 million
7. IMPLEMENTATION SCHEDULE	To start in Phase 1; continuous implementation thereafter

8. PROJECT DESCRIPTION

KTU has two IT departments with substantial number of professors and students: Department of Electronics and Electrical Engineering, and Department of Computer Engineering. The campus in Trabzon is served by optical fiber connections to work stations and PCs and linked to the Internet. Many of its graduates work in large Turkish companies such as Turk Telecom, Turkey and Telsim. KTU has a potential to play a role for the economic development in information age.

The project will establish an Information Technology Revolving Fund for a mini high tech valley (business incubator) close to KTU to promote entrepreneurship among highly educated labours in the region, to increase job opportunities and to attract investment, taking advantage of the frontier location of DOKAP. Each year, a selection committee will select candidate start-ups based on their creative and marketable business proposals, and provide for one year, for free, office space, a computer, a telephone line, a desk and a chair, and business and technical advice. The start-ups are expected to take off by themselves in the second year.

2. Initial Environmental Examination

Initial Environmental Examination

2.1 Objectives of IEE

Initial environmental examination (IEE) is a useful planning tool for project/program development at early stage. Any project/program initially formulated may be modified, if negative impact is foreseen by the IEE. The IEE is used also to identify specific areas or aspects of the environment that should be looked into more carefully by the environmental impact assessment (EIA) in the subsequent stage of the project/program development.

While both the IEE and the EIA constitute standard practices applied in many developing and developed countries, the scope, procedure, and methods vary for different countries. The IEE conducted here follows generally standard practices accepted internationally, but Turkish requirements are also reflected as specified by the guidelines based on the EIA Law of 1993.

IEE results are used for the following purposes:

- to provide necessary recommendations for further project/program development, and
- to make judgment as to need for the EIA in the subsequent stage.

2.2 Scopes and Procedure of IEE

(1) Scope

IEE is conducted here as part of master planning for the Eastern Black Sea Region. Through the master planning, 52 projects and programs have been formulated in various sectors. Out of these, the following 10 projects and programs have been selected as anchor projects/programs for in-depth studies. The IEE covers these projects and programs.

Project Number	Project Title
2.3	Area-wide Solid Waste Management
3.2	Irrigation Development Acceleration
4.1	SMI Production and Marketing Center
5.2	Greenhouse Promotion
5.3	One Village – One Product Model Area Development
5.4	Freshwater Aquaculture Support Program
6.2	Irrigated Crop Cycles Research Program
7.3	Local Administration Evaluation System Establishment
8.3a	Entrepreneurship Supporting Program
10.6	Information Technology Incubator

(2) Procedure

Selected Projects and programs are evaluated based on readily available data and information. No original surveys have been conducted to generate additional data for the IEE, but the data and information generated through the DOKAP master planning have been used for the evaluation. The procedures are illustrated in Figure 2.

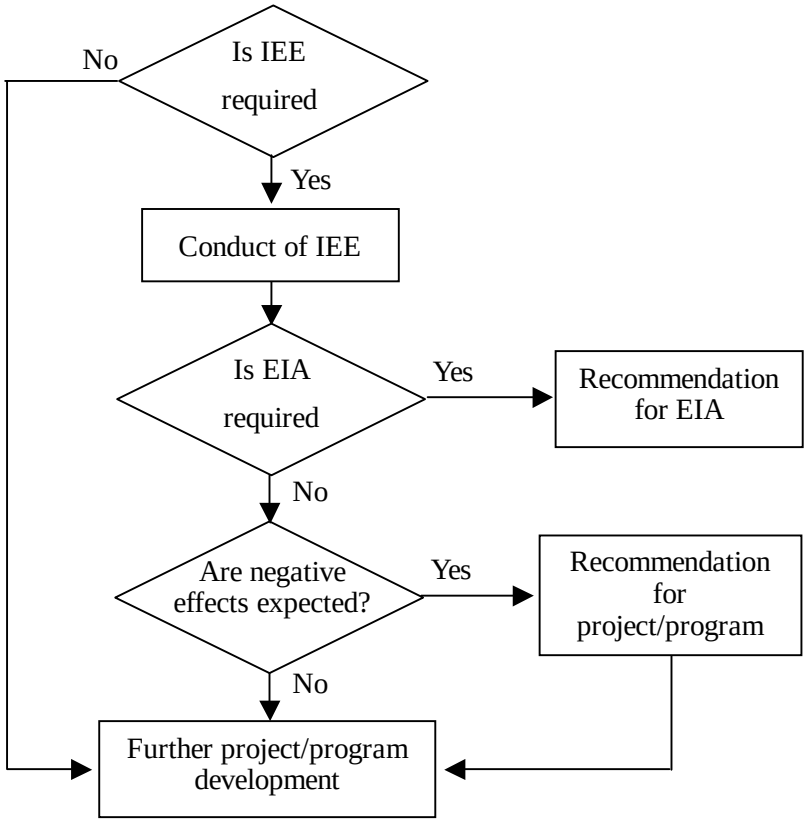


Figure 2 Procedure of IEE

(3) Evaluation methods

An environmental matrix is used as a checklist of environmental effects for selected projects and programs. Environmental impact is evaluated not only for negative but also for positive effects. Elements of aspects of the environment to be evaluated for possible effects are summarized in Table 2.

Activities of project/program are divided into three phases: pre-construction, construction, and operation and maintenance (O&M). Evaluation is conducted for these phases.

Table 2 Environmental Elements for Evaluation

Class		Evaluation Elements
I.	Natural and biological environment	Surface water, groundwater, soil, topography, geology, climate, flora and fauna
II.	Environmental pollution	Hazardous substances, solid wastes, air pollution, noise/offensive odor
III.	Resource conservation and use	Watershed, agricultural production, forest production, land use, natural landscape, mining and energy resources, historical/archeological resources.
IV.	Social environment	Health, education, social welfare, racial/ethnic distribution, religion culture, lifestyle
V.	Economic environment	Local economy, employment, income, indigenous industries
VI.	Infrastructure	Transportation, sanitation, community facilities, resettlement

2.3 Results of IEE

Results of IEE are summarized in the form of the environmental matrix in Appendix 1. Evaluation sheets are prepared for all the selected projects and programs as shown in Appendix 2.

3. In-depth studies

3. IN-DEPTH STUDIES

This section presents a more detailed analysis of selected priority projects. Ten projects were selected through discussions with SPO and other agencies. To facilitate the selection, the JICA Study Team presented the following criteria.

(1) Compliance with the DOKAP development scenario,

(2) Implementing agencies unambiguously identified or strong supports expressed by prospective implementing agencies,

(3) Project well formulated to allow implementation in the near future even if in a pilot scale, and

(4) Contribution to sustained development through strengthening local governments and/or the private sector.

All the proposed projects and programs were discussed in a series of the SPO/JICA joint team meetings, and some of them were discussed individually with other relevant agencies as well. Those projects/programs that would require further formulation or serve only medium to long-term needs were dropped from further consideration. Finally, the ten projects were selected as agreed between SPO and the JICA Study Team.

Although the projects were selected through an informal process, some formal analysis were also undertaken. The impact of each project on five dimensions of development was assessed. These dimensions are given on the heading of Appendix 3. The importance of each dimension is represented by a weight of 1 or 2 given as perceived by the SPO/JICA joint team. These weights are indicated at the bottom of the table.

The results of the evaluation confirm the priority given to the development projects emphasised by the Government. These projects tend to concentrate in rural development, which is logical given the agrarian nature of the DOKAP region. Other projects support social development, environmental improvement, and income growth for the relatively low- income groups.

Area-wide Solid Waste Management (Project No. 2.3)

1. Background

Solid waste management is one of the most serious issues in Turkey. MOE, in order to cope with the issue, has selected some municipalities, designated them as the strategic municipalities and set up a special plan to introduce higher-grade disposal systems. The designated municipalities are usually large ones, while there are a large number of small municipalities in the country. Small municipalities do not have well-established waste disposal infrastructure and experienced staff. In the DOKAP region, some of the major municipalities in Trabzon, Rize, Giresun and Ordu provinces, facing on Black Sea are designated as the strategic municipalities by MOE. Their feasibility studies for introducing higher-grade management systems have been prepared by World Bank or some foreign countries. However, there are no plans to introduce the system in any municipalities of Gumushane, Bayburt, and Artvin provinces, because they are relatively small and are not designated as strategic municipalities.

It is important, therefore, to encourage the formation of strategic planning and operational units for solid waste management of the small municipalities and to implement improved management for them. Unions can practically implement planning and operation of waste disposal facilities, collection services, and maintenance services in order to use the limited resources to the best overall advantage and to achieve greater efficiency from operation and co-operative use of the facilities.

This study focuses on the union management for the small municipalities of the inland areas in Gumushane, Bayburt and Artvin, where no strategic plans have been prepared.

2. Objectives

- To demonstrate the applicability of union model for the small municipalities, not only of the DOKAP region, but also all the small municipalities of Turkey;
- To enhance capacity of the designated municipalities of Gumushane, Bayburt and Artvin, and their vicinities;
- To encourage cooperation among related organizations for advanced solid waste management practices;
- To adopt soft measures in order to reduce amounts of wastes; and
- To contribute to the creation of urban amenity.

3. Project Description

3.1 Designated Unions

One union is formed in a unit of sub-provinces. In this study two unions are designated as follows (see Appendix 4).

(1) Gumushane/Bayburt Union

The management area covers six sub-provinces: i) Gumushane Provincial Center, ii) Kose, iii) Kelkit, iv) Bayburt Provincial Center, vi) Aydintepe, and vii) Demirozu.

(2) Artvin Inland Union

The management area covers four sub-provinces: i) Artvin Provincial Center, ii) Savsat, iii) Ardanuc, and iv) Yusufeli.

3.2 Approach to Hard Measure: Landfill Program

As a hard measure for waste disposal, this study adopts a sanitary landfill method, which is widely accepted all over the world at present. This is distinct from open dumping in that the site is engineered to facilitate control of leachate and landfill gas emissions, and operational practices are rationalized to maximize the efficiency of disposal operations, while at the same time minimizing the environmental health impacts. In the process of waste disposal, collected wastes are transferred to the landfill site, and disposed of technically under sanitary conditions. The planning site needs to be geographically and meteorologically well conditioned.

3.2.1 Estimate of wastes per person

The amount of solid wastes from Gumushane/Bayburt and Artvin Inland are approximately 2.5 and 2.0 kg/day/person, respectively (See Table 3, source: Sector Report Volume VI).

Table 3 Estimate of Wastes Per Person

Name of Union	kg/day/person
Gumushane/Bayburt	2.5
Artvin Inland	2.0

Source: Sector Report: Volume VI Spatial/infrastructure

3.2.2 Future population

The designated sub-provinces' populations of the unions are forecasted as shown in Table 4. The population change is forecasted until 2010.

Table 4 The Unions' Population

Gumushane/Bayburt

Name of Sub-Province	1997	2000	2001	2002	2003	2004	2005	2010
G.shane, Prov. Center	38,826	38,806	38,650	38,622	38,725	38,982	39,350	41,662
Kose	11,323	11,317	11,272	11,264	11,293	11,368	11,476	12,150
Kelkit	45,416	45,393	45,210	45,178	45,298	45,598	46,029	48,733
Bayburt, Prov. Center	75,908	75,870	75,564	75,510	75,710	76,212	76,933	81,452
Aydintepe	11,258	11,252	11,207	11,199	11,229	11,303	11,410	12,080
Demirozu	12,472	12,466	12,415	12,407	12,440	12,522	12,640	13,383
Total	195,203	195,104	194,318	194,179	194,694	195,986	197,838	209,461

Artvin Inland

Name of Sub-Province	1997	2000	2001	2002	2003	2004	2005	2010
Artvin Prov. Center	32,847	32,830	32,698	32,675	32,761	32,979	33,290	35,246
Ardonuc	14,566	14,559	14,500	14,490	14,528	14,624	14,763	15,630
Savsat	24,376	24,364	24,266	24,248	24,312	24,474	24,705	26,156
Yusufeli	28,709	28,694	28,579	28,558	28,634	28,824	29,096	30,806
Total	102,495	102,443	102,030	101,957	102,228	102,906	103,878	109,981

Source: Sector Report: Volume VI Spatial/infrastructure

3.2.3 Estimate of waste generation

(1) Gumushane/Bayburt

1) Basic data (10-year period use)

The basic data is shown in Table 5.

Table 5 Basic Data (10-year period use)

Population (2001)	209,461	
Waste generation rate	2.5	kg/cap./day
Yearly generation	191,133	Tons
10 year requirement	1,911,332	Tons

2) Required area

The total height of wastes to be compacted will be approximately 10m together with the clay and geosynthetic liners, the required area is estimated as:

$A=(209,461 \times 2.5kg/cap./day \times 365days/year \times 10years)/10m=191,133\ m^2$

Therefore, 20 ha area is needed for landfill site.

3) Cost calculation

The cost calculation is shown in Table 6.

Table 6 Cost Calculation

Material	Unit	Quantity	Unit Cost (USD)	Cost (US$)
Geonet	m^2	200,000	4.8	962,500
Gravel Bed	m^2	60,000	3.5	210,000
Geotextile	m^2	200,000	2.25	450,000
Geomembrane	m^2	200,000	7	1,400,000
Administration Building and Others				875000
Total				3,897,500

This landfill site will be used for 10 years. Therefore, the investment for 10-year period is US $ 3,897,500.

For the population of 209,461, the unit cost per capita

= US $1.86 /capita/year

(2) Artvin Inland

1) Basic data (10-year period use)

The basic data is shown in Table 7.

Table 7 Basic Data (10-year period use)

Population (2001)	109,981	
Waste generation rate	2.0	kg/cap./day
Yearly generation	80,286	Tons
10 year requirement	802,861	Tons

2) Required area

The total height of compacted waste is approximately 10m together with the clay and geosynthetic liners as well as the case of Gumushane/Bayburt. The required area is estimated as:

A=(109,981×2.0kg/cap./day×365days/year×10years)/10m=80,286 m^2

Therefore, 8ha area is needed for landfill site.

3) Cost calculation

The cost calculation is shown in Table 8.

Table 8 Cost Calculation

Material	Unit	Quantity	Unit Cost (USD)	Cost (US$)
Geonet	m^2	100,000	4.8	481,250
Gravel Bed	m^2	30,000	3.5	105,000
Geotextile	m^2	100,000	2.25	225,000
Geomembrane	m^2	100,000	7	700,000
Administration Building and Others				437500
Total				1,948,750

Landfill site will be used for 10 years. Therefore, the investment for 10-year period is US$1,948,750.

For the population of 109,981, the unit cost per capita = US$1.77 /capita/year

3.3 Approach to Soft Measure: Publicity and Education Program

3.3.1 The program

Publicity and education are useful for making residents understand the existing conditions and their regional environment. In this program, to encourage public cooperation, an information and education campaign will be developed by trained staff of the program. The staff will be trained by consulting specialists and is

expected to become a leader in implementing this program. As a supplementary material a handbook will be prepared, which should be in Turkish, easily understood, and explained briefly. This publication will be also supported by the consulting specialists.

3.3.2 Required staff

One to three staff who trained up to a high level of efficiency will be assigned in each sub-province. The number of staff was calculated in accordance with the sub-province's population as shown in Table 9.

Table 9 Population and Number of the Trained Staff

Gumushane/Bayburt

Name of Sub-Province	Population			No. of Trained Staff
	1997	2000	2010	
G.shane, Prov. Center	38,826	38,806	41,662	2
Kose	11,323	11,317	12,150	1
Kelkit	45,416	45,393	48,733	2
Bayburt, Prov. Center	75,908	75,870	81,452	3
Aydintepe	11,258	11,252	12,080	1
Demirozu	12,472	12,466	13,383	1
Total	195,203	195,104	209,461	10

Artvin Inland

Name of Sub-Province	Population			No. of Trained Staff
	1997	2000	2010	
Artvin Prov. Center	32,847	32,830	35,246	2
Ardonuc	14,566	14,559	15,630	1
Savsat	24,376	24,364	26,156	1
Yusufeli	28,709	28,694	30,806	2
Total	102,495	102,443	109,981	6

The number of staff is estimated as 16 in total. If it takes US$ 300/year to train one person, and in addition, if the program is be being implemented for 10 years, the required cost is:

16 persons/year × 300USD/person × 10years=US$48,000.

The handbook preparation is included in this cost.

4. Project Cost

Total cost of this program is estimated as US$6,070,000 for a 10-year use (see Table 10).

Table 10 Project Cost (10-year Use)

Item	Cost (US$)
Landfill Construction (Gumushane/Bayburt)	3,897,500
Landfill Construction (Artvin Inland)	1,948,750
×3% (see Note)	175,388
Publicity and Education Program for the two unions	48,000
Total	6,069,638

Note: Pre-development costs should include facility siting (engineering, legal fees, preliminary geotechnical investigations), site mapping, engineering design and environmental impact assessment consultancy and contingency. These costs are assumed to be up to 3% of landfill construction costs.

5. Project Assessment

The total cost of US$ 6,070,000 USD has been estimated for the 10-year period in this program. The program will improve social environment as well as natural environment of the designated area. The cost of publicity and education program is only US$ 48,000, while landfill construction cost would be US$ 6,021,638. However, the very small cost of the soft measure may bring a huge effect. If publicity and education program is well implemented, the amount of wastes will be reduced and the term of landfill use will be extended to the longer term than 10 years. This will enable to deter the second term of landfill construction longer and reduce the program cost as a result. This measure should be implemented strategically.

Irrigation Development Acceleration (Project No. 3.2)

1. Background and Rationale

Gumushane and Bayburt provinces have agricultural lands of 84,094 ha and 56,992 ha, respectively, total of which correspond to nearly 20% of the agricultural land in the whole DOKAP region with 762,564 ha. The lands of 21,300 ha in Gumushane and 40,700 ha in Bayburt are classified into highly suitable land for agriculture with the land capability classes of 1 and 2. Furthermore, average agricultural land holding size is larger, 3.09 ha for Gumushane and 7.39 ha for Bayburt, respectively, than DOKAP's average holding size of 2.49 ha. Thus, the two provinces have big potential for large scale agriculture with mechanization.

Despite this favourable condition for agricultural production, productivity in agriculture sector in the two provinces are very low. The total GVA of crop and livestock sector in the two provinces was 39,198 x 10^6 TL (at 1987 constant price) in 1996, accounting only for 5% of that in the whole DOKAP with 682,454 x 10^6 TL in the same year.

The lower agricultural productivity in the two provinces is attributed to insufficient water supply under rainfed condition due to low precipitation. Insufficient water results in the restriction of the cropping area as well as crop yields. Fallow land area in two provinces totals more than 30,000 ha. Farmers are discouraged to invest in further crop production. This also affects the development of livestock sector that is an important income source of farmers in both provinces. Insufficient supply of feeds delays the growth of animal, and production cost increases as farmers have to purchase expensive concentrated feed.

Irrigation development is expected to improve this situation to a great extent. Steady water supply will expand cropped area by reducing fallow land, increase crop yield by encouraging farmers to use more inputs, and increase crop production. However, existing irrigation area in the two provinces totals 41,550 ha, corresponding to only one-third of the total project area as shown in Table 11.

Table 11 Irrigation Area by Project Status

Irrigation area (ha)	Gumushane	Bayburt	Total
Irrigated area	27,023	14,527	41,550
Ongoing projects area	15,444	20,897	36,341
Planned projects area	32,875	15,060	47,935
Total irrigation area	**75,342**	**50,484**	**125,826**
Irrigation area/agricultural area (%)	**89.6**	**88.6**	**89.2**

Source: DSI and GDRS

When irrigation projects are completed, most farmers in the provinces will be benefited. Expansion of cultivated area will encourage further mechanization for efficient farming. Input use will be increased under assured water supply

condition, for crop yield increase. Farmers will enjoy income increase. Farming efficiency will also be improved through land consolidation as well as through establishment of crop rotation system with introduction of new crops.

Livestock sector will be benefited from the expansion of feed base through increase in forage production as well as silage production increase. As livestock production increases, dairy and meat processing industry will be further expanded. Leather industry may also be developed.

Through diversification of economic activities, overall employment will increase, which will attract people to come into the provinces.

2. Project Description

2.1 Objectives

Irrigation development acceleration project (the project) will be formulated with the objectives of: (1) accelerating implementation of irrigation projects, (2) ensuring proper agricultural land use under irrigation, and (3) realizing best crop mix for enhancing income levels of farmers.

2.2 Project Components

The project has the following components:

Implementation of irrigation projects

Irrigation projects are implemented by two agencies: DSI and GDRS. DSI handles large scale projects that are defined by the canal discharge capacity of more than 0.5 m^3/sec or by the dam height of 20 m and over. While GDRS is responsible for small scale irrigation projects. Current situation of ongoing and planned irrigation projects by each agency is as shown in Table 12.

Table 12 (1/2) Large Scale Irrigation Projects under DSI

	Gumushane		Bayburt	
	Nos.	Area (ha)	Nos.	Area (ha)
Ongoing	4	14,039	2	19,665
Planned	2	5,827	4	10,249

Source: DSI, 1999

Table 12(2/2) Small Irrigation Projects under GDRS

Province / District	Ongoing		Planned			
			New Irrigation		Maint. & Repair	
	Nos.	Area (ha)	Nos.	Area (ha)	Nos.	Area (ha)
Gumushane	**23**	**1,405**	**100**	**27,048**	**19**	**-**
Kelkit	6	351	26	7,481	4	-
Kose	1	229	5	1,029	1	-
Kurtun	0	0	4	228	0	-
Merkez	6	262	31	3,501	11	-
Siran	6	500	12	8,243	1	-
Torul	4	63	22	6,566	2	-
Bayburt	**13**	**1,232**	**62**	**4,811**	**12**	**-**
Aydintepe	2	136	4	86	1	-
Demirozu	2	865	4	474	1	-
Merkez	9	231	54	4,251	10	-

Source: GDRS

Each agency will accelerate the ongoing irrigation projects, and start implementation of planned projects. DSI will complete all the ongoing projects by the year 2005 and all planned projects by 2015.

GDRS will complete all the ongoing projects by 2001, followed by maintenance and repair of existing systems by 2002. The implementation of planned projects will also be started in 2002 with annual development area of some 2,000 ha. All irrigation systems will be completed by the year 2017. Priority ranking of the projects for implementation will be determined by GDRS using its own criteria.

For small scale irrigation systems, water users' associations will be organized by beneficiaries prior to the commencement of the projects. GDRS will be responsible for training beneficiaries on irrigation water management, and the responsibility for the maintenance of irrigation facilities will be handed over to water users' associations after the completion of the projects.

Land consolidation, drainage improvement and soil improvement

With the expansion of irrigation area, more efficient production system will be required to be established for realizing high land productivity. Efficient production system includes land consolidation with mechanization, drainage improvement and soil improvement, etc.

Provincial agricultural directorates will be responsible for identifying the needs of works through dialogue with local farmers. By the request of province, essential works will be done by GDRS.

Extension in crop rotation, water management and input use

Principle of crop rotation, water management and farming technology will be extended to farmers by agricultural engineers from provincial directorate of agriculture.

A model area for demonstration will be established in each province, and on-farm demonstration will be made on crop rotation, water management and farming practice of main crops.

Cropping pattern and crop rotation will be determined in relation to irrigation water availability by group farmers in each irrigation system, so that maximum benefit will be assured.

Provision of agricultural credits for machinery and inputs

As irrigation area develops and farming area expands, mechanized farming with increased amount of inputs will be required for realizing full scale production. Special loan for procuring machinery and inputs will be arranged with lower interests.

2.3 Institutional Arrangement

The project will be implemented jointly by DSI, GDRS, TCZB and provincial directorates of agriculture in Gumushane and Bayburt. Division of works by each agency/office in the Project is summarized as shown in Table 13.

Table 13 Division of Works by Relevant Agencies

Components	PDAs	DSI	GDRS	TCZB
Implementation of irrigation projects	●	●	●	
Land consolidation, drainage improvement, etc.	●		●	
Extension in crop rotation, water management, input use	●		●	
Agricultural credit	●			●

2.4 Implementation Schedule

The Project will be implemented during the whole DOKAP planning period (2001 – 2020). Overall implementation schedule is shown in Figure 3.

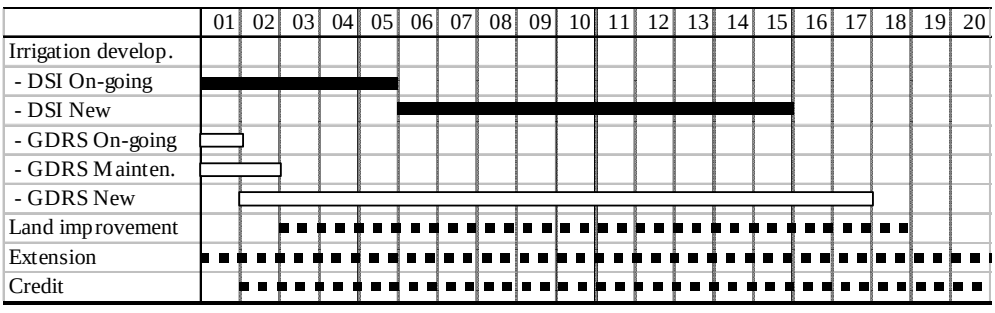


Figure 3 Implementation Schedule

2.5 Cost Estimates

Total project costs will be some US$164,000,000, according to the following assumptions.

Irrigation development: US$101,198,000

- DSI projects: US$2,500/ha for new projects; 16,076 ha
- GDRS projects: US$1,200/ha for new projects; 31,859 ha

For ongoing projects, it is assumed the work progress until 2000 will be 50% for both DSI and GDRS projects, except for Masat irrigation project with 10,348 ha, which should have been completed by 2000.

Land improvement measures: US$19,960,000

- Land consolidation: 12,500 ha; US$500/ha
- Drainage improvement: 6,300 ha; US$1,700/ha
- Soil improvement: 25,000 ha; US$120/ha

Maintenance and repair: US$930,000

- US$30,000 per project. Number of projects which need repair works is 31.

Credits: US$42,000,000

- Machinery: 1,000 units; US$30,000/unit
- Inputs: US$300/ha; 40,000 ha

2.6 Expected Benefits

Total development area under the project will be some 81,000 ha. Project benefit is expected to arise from crop production increase through expansion of irrigated area as well as yield increase. Best crop mix and ideal crop rotation system will be determined through a research program to be made.

For the purpose of benefit calculation, crops to be included in the rotation system are assumed to be maize, potatoes, beans, sugar beets, and wheat/barley. These crops will be planted with an area of 12,000 ha each. Leguminous forage crops such as alfalfa, sainfoin, Hungarian vetch, etc., will also be planted at 18,000 ha to support livestock production. Moreover, vegetables like cabbage, lettuce, Chinese cabbage, asparagus, onion, etc., will also be planted at 3,000 ha in total.

Estimated yield for each crop to be obtained at full development stage will be: 5.0 ton/ha for maize, 30 ton/ha for potatoes, 2.0 ton/ha for beans, 45 ton/ha for sugar beets, and 4.0 ton/ha for wheat/barley. Yields of leguminous forage crops will be 50% higher than that at present. Vegetable yields will be 25 ton/ha each for cabbage, lettuce, and Chinese cabbage and 2.5 ton/ha for asparagus.

Considering the possible change in farming practices in growing these crops such as mechanized farming, increased dosage of fertilizer application, etc., and the production costs of those crops at present, expected incremental benefit is calculated per hectare basis. The results are as shown below:

- Maize : US$420/ha; 12,000 ha
- Potatoes : US$600/ha; 12,000 ha
- Dry beans : US$400/ha; 12,000 ha
- Sugar beets : US$200/ha; 12,000 ha

- Wheat/barley : US$300/ha; 12,000 ha
- Leguminous fodder crops : US$300/ha; 18,000 ha
- Cabbage, lettuce, Chinese cabbages : US$800/ha; 2,500 ha
- Asparagus : US$1,000/ha; 500 ha

At full development stage in 2020, total expected benefit is calculated at US$30,940,000 as shown in Table 14.

3. Project Evaluation

Financial evaluation

Based on the proposed implementation schedule and estimated benefit, financial internal rate of return is calculated at 19% at assumed project economic life of 50 years.

Socioeconomic impacts

The following socioeconomic impacts are expected from the Project.

- Increase in farmers' income
- Contribution to livestock sector enhancement through increased supply of feed
- Enhancement of farmers' living standard
- Enhancement of transportation sector through increased amount of commodity to market
- Increased employment opportunities

Table 14 Benefit Calculation of Irrigation Development

	New Development		Ongoing		Land Improve.			Repair	Credit		Total	Benefit	18.9%
	DSI	GDRS	DSI	GDRS	Consoli-dation	Drainage	Soil improve.		Machine	Input			
1			2,920	1,582				480			4,982	1,492	-3,490
2		2,549	2,920					450			5,918	2,192	-3,726
3		2,549	2,920		415	714	198		3,000	600	10,395	2,989	-7,406
4		2,549	2,920		415	714	198		3,000	600	10,395	4,371	-6,024
5		2,549	2,920		415	714	198		3,000	600	10,395	5,939	-4,457
6	4,019	2,549			415	714	198		3,000	600	11,495	6,825	-4,670
7	4,019	2,549			415	714	198		3,000	600	11,495	7,753	-3,741
8	4,019	2,549			415	714	198		3,000	600	11,495	10,975	-520
9	4,019	2,549			415	714	198		3,000	600	11,495	13,210	1,715
10	4,019	2,549			415	714	198		3,000	600	11,495	15,552	4,057
11	4,019	2,549			415	714	198		3,000	600	11,495	18,001	6,506
12	4,019	2,549			415	714	198		3,000	600	11,495	19,303	7,808
13	4,019	2,549			415	714	198				7,895	20,647	12,752
14	4,019	2,549			415	714	198				7,895	22,033	14,139
15	4,019	2,549			415	714	198				7,895	23,462	15,568
16		2,549			415	714	198				3,876	24,934	21,058
17					415	714	198				1,327	26,448	25,121
18												28,004	28,004
19												29,249	29,249
20												30,940	30,940
21												30,940	30,940
22												30,940	30,940
47												30,940	30,940
48												30,940	30,940
49												30,940	30,940
50												30,940	30,940

Production and Marketing Center (Project No. 4.1)

1. The Need for the Services

Small-scale enterprises in DOKAP need support to upgrade their production skills, management skills-particularly finance, and to improve marketing. Support is available for most of these services from a variety of existing government agencies. These include KOSGEB, Export Development Center, Technology Development Foundation of Turkey, and local Chambers of Industry and Commerce. The government owned Halkbank which supplies directed credits for small scale enterprises also provides a range of referral and advisory services.

Some of these services are duplicated. In some cases, there are wide gaps in the services provided relative to the needs, and the quality of support provided falls short of the requirements. This is partly due to the limited quality of the technical competencies available in the government service, and partly a result of trying to support all types of production for all products which does not allow specialization.

It is proposed that all technical support services should be consolidated in a single agency in the region. Organizing them around specific products would insure that the quality of the service is of a high quality and relevant for the needs of the manufacturers. Initially, the product groups will include manufacture of shoes, furniture, metal products, and plastics. The proposed center will specialize and will provide a package of integrated services covering all needs of the small enterprises in each product line. New divisions will be added as the new product lines become significant in the region.

Initially, the objective is to integrate the available public services by providing a regional and product focus. The center is expected to provide additional services in the future. Foremost among these would be guidance for pooling procurement orders for raw materials. Such joint action will improve the bargaining power of the regional manufacturers against the suppliers. It will also reduce trade and transport costs when large volumes are handled at one time.

Another critical service to be provided by this center is cooperative actions regarding central marketing facilities in the region, and participation in national and international marketing events. Again, the possibilities of pooling the production capacities of the individual enterprises to meet large orders may be explored.

There already are government-supported programs for running joint production facilities in the region. Specialized large machinery, which the individual producers can not effectively utilize by themselves, is provided as a common service. Similarly, material testing services are provided by public agencies. There is very little actual use of both of these services, though there is supposed to be a

critical need for these common services. These issues need to be fully explored prior to establishing a new agency.

2. Institutional Structure of the Center

The organizations of the producers in the region should take the initiative in setting this center. Its management board should include representatives of the Provincial Chambers of Industry and Commerce, KOSGEB, Black Sea Technical University, Bank of Provinces, Export Promotion Center and Eximbank. It is expected that the members of the board will share the costs of establishing the center and will provide some operating subsidies for the medium term. The Chambers of Industry and the Associations of the Craftsmen should play a key role.

The general manager will be a hired professional. There will be as many units under him as there are product groups, and some common service units. Each deputy general manager will be in charge of all services for a particular product. The general manager will provide the coordination in contacts with the external agencies.

The marketing and sales department will be the user interface of this organization. This department will be responsible of acquiring, maintaining and providing the required information that is common to all products. Users will apply to this unit for all services, and the unit will analyze and direct the inquiries to related agencies when these can not be met by the center. The marketing and sales department will not only provide support but will also function, when requested, as a sale and forwarding agent for individual enterprises.

Consultants will develop effective solutions for technical and managerial issues of the applicants. Inquiries concerning a large number of diverse fields of specialization are expected. Therefore, the center will need to maintain a large roster of competent consultants. They will not be full time employees of the center, but they will be hired as needed.

The organization will operate as a profit center. However, the service charges will be limited and will only cover the operating expenses. Operating costs will be partially subsidized by the members of the board.

An important issue in the industrial development of the region is skill training. Some of these are provided by the Ministry of Education. Mechanisms should be devised for the center to benefit from this existing capacity. The center is also expected to play a key role in shaping the content of the ongoing programs of this ministry. It should insure that the training provided by the Ministry responds to the needs of the industrialists in the region.

3. Organization and Operations of the Center

Target Users

Once fully established, the potential users of the Production-Marketing Center will be:

- Manufacturing Enterprises, and potential entrepreneurs who will start new manufacturing enterprises
- Traders from the region who may be interested in acquiring goods or may need testing and verification services
- Organizations of manufacturers or other government agencies

The Functions of the Center

The center must contribute to industrial development in the region via a set of functions which will include:

- Gathering, maintaining and providing marketing information to the users
- Organising and/or participating in international exhibitions, both in foreign countries and in the region.
- Provision of advise for marketing, technology selection, and general referral services for all issues effecting the regional manufacturing enterprises.
- Assistance with import/export procedures, particularly with regard to the regulatory procedures in the importing countries.
- Promotional information concerning new areas of profitable manufacturing investments and assistance with the required steps in establishing these enterprises.

Management of the Center

It is proposed that the center should be established under the commercial law as a private corporation. This private corporation will be able to call upon the services available in the public agencies due to the membership of its board. It should be allowed to perform all kinds of commercial activities, including foreign trade. The organisation of this entity will be as shown in Figure 4.

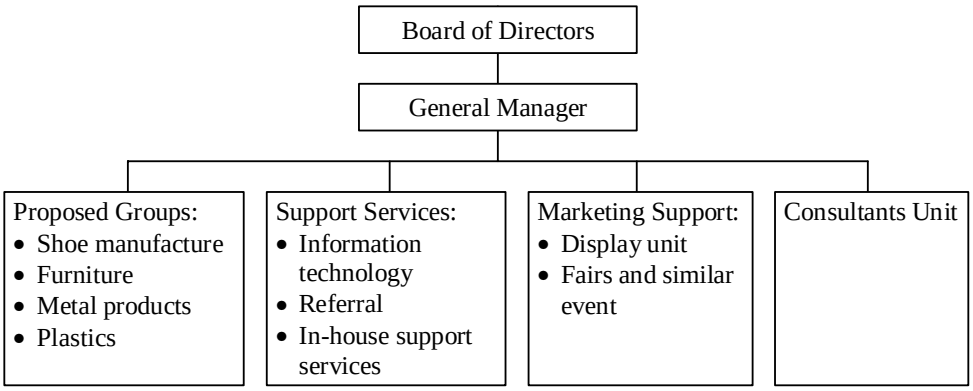


Figure 4 Organization of the Entity

4. Financial Requirements of the Center

The center will be established as a commercial company by the founding members. These members will provide the paid-in capital. Additional funds or assets will be generated when the existing facilities of the public agencies are transferred to it on a grant basis.

Initially, the center's service provision units can be accommodated in KOSGEB or in a local chamber of industry or one of the craftsmen's associations. Therefore, no building and rental costs are assumed. The total operating costs per month are estimated to be $10,000 by assuming $2,000/net salary per month for the general manager; a total of $3,000 for the marketing and sales department; $1,000 for the IT personnel; and $2,000 for the finance and accounting staff. It would be sufficient to provide a further amount of $2,000/month to meet the other operating costs.

Another major cost item for the center is the implementation of the MIS system, including an application MIS software, database and hardware. The MIS system should have Internet capabilities. The installation cost of such a system is estimated to cost about $150,000.

5. Phasing

The center can be established immediately. Initiative for the establishment should be taken by one or a few of the relatively large chambers of industry in the region. The initiating agencies should invite other interested parties to take part in the center. It is recommended that the center should be located in one city at the first phase of Master Plan implementation. It may open branch offices in other cities as the demand for the services evolves.

It is recommended that the first activities of the center should concentrate on a few products that are already significant in the region. All ongoing public activities concerning this product should be concentrated in the center. Overtime, additional products will be included in the coverage of services provided by the center.

The founding members should invite the largest possible participation in the board of the center. This should insure that all stakeholders are represented on the board. The center should remain focused on the needs of the manufacturing enterprises. This focus is considered essential in maintaining the competence of the center's activities and thereby the quality of the services that it will provide.

The foreseen contribution of the center is not only limited with the industrial development programs. The center is expected to benefit from, and will provide contributions to, the following projects:

1.6 Telecommunication Improvement

4.5 DOKAP Trading and Manufacturing Zones Expansion

10.2 DOKAP Trade Fair

5.3 One-Village One-Product Model Area Development

4.3 Vocational Training Improvement

The center should take an active attitude to the development of industry in the region. It should not passively respond to inquiries, but should initiate search for information on new markets, products and production technologies, and should dissipate these to the enterprises that may utilize it. It will also respond to specific inquiries raised by individual enterprises.

One measure of the relevance of services provided by the center will be the proportion of self-generated funds. Substantial funds can be generated by the effective utilization of the common service units that the center will operate. Some of these already exist in the region and should be transferred to the center.

Greenhouse Development Program (Project No. 5.2)

1. Background and Rationale

While crop diversification is required to overcome the mono-culture, agriculture in Black Sea coastal areas is constrained by limited land availability. The average agricultural land holding is only 1.8 ha in Rize, 2.1 ha in Trabzon, 2.3 ha in Giresun, and 3.1 ha in Ordu, while Bayburt has a much larger average of 7.4 ha. Agricultural land use needs to be intensified in these areas. One viable way is to produce horticultural crops in greenhouses, taking advantage of the proximity to growing urban markets.

Under green houses, crops can be planted earlier, and the growth is faster than that under natural conditions, due to higher temperature. Farmers using green houses take advantage of obtaining higher yields than possible under natural conditions with higher input level and also of selling products at higher prices due to earlier harvesting time. The following is the comparison of cost-benefit analysis for tomato production under greenhouse conditions and under natural conditions.

Table 15 Comparison of Net Benefit for 200m^2 of Tomato Production under Greenhouse and Natural Conditions

	Greenhouse	Natural
Production Costs (TL)	**40,900,000**	**28,000,000**
Seed	**6,000,000**	**6,000,000**
Fertilizer	**12,000,000**	**8,000,000**
Agro-chemicals	**6,000,000**	**4,000,000**
Irrigation	**3,000,000**	**2,000,000**
Labor	**13,900,000**	**8,000,000**
- Sowing	1,000,000	1,000,000
- Plough, transplanting, etc.	4,000,000	2,000,000
- Fertilizer	600,000	400,000
- Spraying	1,500,000	1,000,000
- Irrigation	1,000,000	1,000,000
- Harvest	1,800,000	1,200,000
- Transportation	4,000,000	1,400,000
Income (TL)	**225,000,000**	**65,000,000**
Yield (kg/decar)	1,500	500
Unit Price (TL/kg)	150,000	130,000
Net Benefit (TL)	**184,100,000**	**37,000,000**

Source: JICA Study Team

On the other hand, cost for the construction of greenhouse with an area of some 200 m^2 is estimated at some TL 500 x 10^6. Assuming that the replacement of double nylon is made every three years with a cost of TL 150 x 10^6 and that economic life of the frame of green house is 15 years, financial rate of return for tomato production in greenhouse is calculated at 31%.

Farm income will be even higher if double cropping such as tomatoes – beans, tomatoes – lettuce, etc., is made under greenhouse and if other higher value crops such as cut flowers are produced.

Considering the above, greenhouse development is viable. However, initial investment cost is too high for ordinary farmers to afford. Investment credit scheme is thus required to assist farmers in starting greenhouse agriculture.

2. The Project

Objectives

The project aims at raising income levels of small farmers by intensive cultivation of high value horticultural crops in greenhouses, and at expanding the production of horticultural crops to meet growing demands in urban market.

Project Components

The project is to assure the provision of investment credit for farmers who have intention to install greenhouse for income increase. Procedure for obtaining loan will be the same as currently being practiced in each province. However, it is recommended that certain portion (maybe 10%) of construction cost should be shouldered as equity by loan applicants and that loan interest be imposed at the same rate as commodity price escalation.

Institutional Arrangement

The project will be implemented by PDAs, in cooperation with social assistance foundation. While PDAs appraise loan application and extend technology of greenhouse farming, social assistance foundation will manage loan fund.

Implementation Schedule

The project will be implemented during Phase 1 and Phase 2 (2001 – 2010) of the DOKAP planning period. Target number of green house to be constructed by the Project each year will be 650: 200 each in Ordu and Giresun, 100 in Trabzon, 50 each in Rize and Gumushane, 30 in Artvin, and 20 in Bayburt.

One greenhouse has an area of 200 m^2 on an average. Every year greenhouse area will increase by 13 ha.

The loan repayment will be made in five years with two years grace period. Repaid loan will be revolved. So the project cost will be required only for the first five years.

Cost Estimates

Total project costs are estimated at TL 1,462.5 x 10^9, based on the unit greenhouse cost of TL 500 x 10^6 and 10% of loan equity. Loan allocation in each province will be: TL 450 x 10^9 each for Ordu and Giresun, TL 225 x 10^9 for Trabzon, TL 112.5 x 10^9 each for Rize and Gumushane, TL 67.5 x 10^9 for Artvin and TL 45 x 10^9 for Bayburt.

Expected Effects

Through the project implementation, it is expected that small coastal farmers will obtain higher farm income and that supply of fresh perishable horticultural crops in urban areas will be increased.

One Village - One Product Model Area Development (Project No. 5.3)

1. Background and Rationale

Out-migration of working population from rural to urban areas for seeking employment, is one of the most serious problems in the DOKAP region. It degrades the socioeconomic characteristics of rural areas and undermines social cohesiveness, which will accelerate further out-migration, leaving old people, children, and women behind.

To improve spatial structure of the DOKAP region, rural areas should be re-activated. One village – one product movement will contribute to this.

One village – one product movement was originated from Oita prefecture, Kyushu region in Japan. In order to cope with the depopulation problem in the rural area of the prefecture, Mr. M. Hiramatsu, Governor, proposed this movement in 1979, to encourage rural people to enhance rural economy by creating specialty products in each local administration. In this movement, rural people has always been put in the center. They took the initiative for products development. For those who were eager and diligent to the development, various support from the prefectural government was given. The support included provision of subsidy, technical assistance, market matching, market development, etc. This movement has been very successful, and now well-known all over the world.

Thanks to the varied topography and climate, the DOKAP region are rich in natural resources as well as various products with which specialty products could be made. If properly guided and developed, rural area in the region could be re-activated.

This project tries to apply the success story from one region in Japan to the DOKAP region through model development in Gumushane.

Gumushane has potential to expand the production of various fruits such as apricot, apple, walnut, mulberry and strawberry. Also the production of specialty products may be expanded and diversified such as rosehip syrup and its products, exotic vegetables such as mushrooms, asparagus and possibly horse radish, marble products, carpets, confectionary combining local products, and various wood products.

Some of these products fit well to the one village-one product model. In particular, more fruit trees of a few different kinds should be planted along the Harsit river not only to increase the production but also to enhance the tourism value of this access route to various tourism sites. Each rural settlement may specialize in one fruit to compete with others. Some settlements may specialize in other products, and new specialty products may be created by combining some of them. The project will provide subsidies for specialty production, seedlings and technical extension for fruit production, and guidance.

2. The Project

2.1 Objective

The project has the following two objectives:

- To increase production of various fruits and other products based on one village-one product model; and
- To create attractive social environment and landscape along the access route to various tourism sites

2.2 Project Description

The project will be implemented in Gumushane Province as a model. Focus will be put on the settlements located along the highway between Torul and Gumushane running pararell with the Harsit river. The highway is practically the only north-south lateral road, functioning also as the access route to various tourism sites. Improvement of landscape along the road with flowers will enhance tourism value, and increase in production will improve local peoples' income.

The project will support local people in the project area in planting fruit trees and developing new products as a one village – one product model.

The project will be implemented with the following procedure.

(1) Guidance of One Village – One Product Movement

The provincial directorate of agriculture will guide local people on the project for One Village – One Product movement. Settlements interested in the movement will be involved in the Project.

(2) Determination of fruit trees to be planted and specialty products to be developed

Settlements to participate in the project, in cooperation with PDA and MOT, will determine fruit trees to be planted and specialty products to be developed. PDA will provide necessary number of seedlings of required fruit trees with technical extension.

(3) R&D for products development and market development

Based on the proposal from local people, R&D for specialty product development will be made by PDA. Market development of the products will also be made by MOT.

(4) Application of the Project to other areas in the DOKAP region

PDAs will make a study, in cooperation with MOT, on the possible areas where One Village – One Product movement can be applied.

2.3 Institutional Arrangement

The project will be implemented by PDA in cooperation with MOT. While PDAs will coordinate overall implementation and extend various supports, MOT will assist local people in marketing products through advertisement as well as outlet provision.

2.4 Implementation Schedule

The project will be implemented as a pilot scheme during Phase 1 and Phase 2 (2001 – 2010) of the DOKAP planning period. Overall implementation schedule is shown in Figure 5.

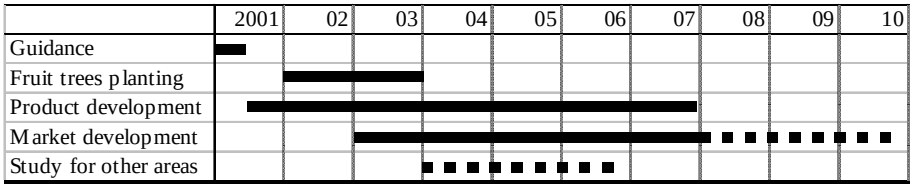


Figure 5 Implementation Schedule

2.5 Cost Estimates

Total project cost is estimated at TL 50 x 10^9 at 1999 price. It is broken down into TL 25 x 10^9 for seedlings, TL 15 x 10^9 for product development and TL 10 x 10^9 for market development.

2.6 Expected Effects

Through the implementation of the project, the following effects are expected:

Increase in marketable agricultural products and income levels of rural settlements;

Increase in employment opportunities in manufacturing specialty products, agriculture, marketing products, tourism, etc.; and

Improved social environment through communal efforts to develop specialty products and improved landscape with more fruit trees and viable secio-economies

2.7 Candidate Sites for Other One Village – One Product Project

Trabzon:

Hamusi Koy for rice pudding (along the old silk road)

Sahinkaya for mushroom (forest village)

Gumushane:

Kirikli, Pirahmet, Yeniyol, Kale, Tekke, Baglarbasi and Gumuskaya villages for blackberry and rosehip

Rize:

Pazar district for Trabzon-date, odorous isabelle grape, avocado.

Artvin:

Arhavi, Hopa, Borcka and Murgul counties for chestnut and its syrup.

Forest villages in general for wood crafts, dairy products with plateau tourism etc.

Freshwater Aquaculture Support Program (Project No. 5.4)

1. Background and Rationale

The DOKAP region has rivers and streams with a perennial water flow and many smaller fresh water streams. The water temperature varies from 8-18ºC and it is suitable for rainbow trout (*Salmo gairdneri*), which is the most suitable fish for culture since this species tolerates different temperatures, captivity, and salinity and population density.

The DOKAP region has about 284 trout farms with a total annual production capacity of about 3,490 tons and their production in 1998 was about 2,324 tons. The region contributes only about 5% of the total national production. Many of the farms in the region are small and family size, and are scattered and dispersed and quite a distance from urban centers.

For example, there are 101 farms of size ranging from 0-3 tons/year, 121 farms from 4-25 tons/year, 10 farms of 26-50 tons/year, and 5 farms of more than 50 tons/year. Most of the trout farms, even the small operations, hold their own broodstocks, operate their own hatcheries, and use established technology. A few may buy fry/fingerlings from producers. Most farms rear fry and fingerlings in small concrete raceways, and some farms use circular tanks made of concrete, fiberglass or plastic. Feeding is entirely with commercially made dry pellet feeds for the early fry/fingerlings stage and grow-out to marketable size (250-300g). For grow-out to market size, the farms use concrete ponds and raceways of various sizes and shapes.

The production characteristics of these farms are similar to those elsewhere in Turkey. Under the conditions in Turkey, it takes 10 to 16 months to grow rainbow trout from the egg to a marketable size of 250-300g.

Currently, all of the products from the farms are sold locally. Direct sales to retail or catering outlets and farm gate sales to consumers are also important especially for the smaller producers or family-run trout farms, which operate their own restaurant.

The trout farms are not producing to full capacity and it appears that technical and market limitations have prevented the optimum (effective) utilization of existing capacity. The constraints and issues are inadequate planning in site selection and production, insufficient supply of quality fry to increase production, individual marketing (producers are not organized to cooperate in market development), high feed costs, low quality feed, no assistance for disease diagnosis, prevention and control, inadequate extension service by the state, etc.

2. Project Description

2.1 Objectives and Main Features

The main objective of the Freshwater Aquaculture Support Program will be to assist in the development of the freshwater trout farming and support farmers and wholesalers, who will take the initiative by providing cold chain for wider distribution and marketing. Specifically, the objectives of the support program are:

- To increase the output of the existing trout farms whose capacities are under-utilized;
- To provide at least two hatchery centers to ensure regular supply of quality fingerlings;
- To protect the environmental condition and to develop new fish production area in selected suitable sites as the most of the best waters of Turkey are located in the DOKAP region;
- To prepare the indispensable supporting project for the success and continuation of technology transfer to interested fish farmers;
- To create consciousness among the fish farmers and encourage collaborative or cooperative type of marketing;
- To develop a market chain for the products to reach the reach the consumption area and urban centers;
- To develop a market brand through aggressive marketing;
- To supply freshwater trout to processing factory in DOKAP region especially in the EBK factory in Ordu province, which is currently gets its supply from the western Turkey.

The main features of the program in order to further develop and expand trout farming and marketing are:

- Establishment of hatcheries to ensure regular and quality supply of fingerlings;
- Establishment of fish feed manufacture to ensure an ample supply of quality feed at reasonable prices;
- Technical support in selection of sites, design of ponds, diagnosis of disease and its prevention and control;
- Promotion of aggressive marketing of farmed fish by establishing marketing facilities such as cold storage;
- Encourage and form cooperatives to undertake a collaborative approach to

marketing in order to develop organized marketing and increase demand, as many of the existing small producers tend to show little sign of expanding the market;

- Collaborative marketing will initiate a commitment to marketing through collaborative activities of producers, including the introduction of quality control and a code of practice as well as brand development, which will increase the market demand and consumer confidence;

  - Provision of associated facilities
  - Collection centers with office facilities
  - Ice machine and chill storage
  - Packing room and related facilities
  - Insulated mini-trucks
  - Hatcheries
  - Feed manufacture facilities
  - Other relevant facilities

2.2 Location

The project will cover the upstream area of rivers and its tributaries. The collection centers will be located in areas convenient to collection and marketing routes to consumption areas.

2.3 Cost

A rough estimate for the provision of the associated facilities is about US$2,000,000. The cost estimate excludes the services of extension, training, organizing of members, etc., that are required of the state.

2.4 Expected Benefits

With the support program and technology transfer, the 1,240 tons/year production capacity of the farms that are not used to full capacity are gradually brought to effective utilization by the year 2010 (see Appendix 5).

Some new ponds or farms are constructed in selected areas with the initiation of the program and assistance of the relevant agencies. It is expected that about 720 tons/year new production capacity will be established by the year 2010 (see Table 6).

The production will increase from the current level of about 2,324 tons/year to 4,284 tons in the year 2010 (see Appendix 5).

The estimated total profit of the trout produced at current level (2,324 tons) is about 697 billion Turkish Lira (TL). The total production cost is estimated to be about 1,859 billion TL, of which about 65-70% is the cost of feed. The total farm

gate sales are estimated to about 2,556 billion TL. The average production cost and the farm gate price in the region are 750,000 TL/kg and 1,100,000 TL/kg, respectively, (data collected during the survey in May/June 1999) (see Appendix 6).

Using the above unit production cost and farm gate price, the estimated total profit of the trout farms (4,284 tons) in the year 2010 is about 1,285 billion TL. The total production cost and farm gate sales are 3,427 billion TL and 4,712 billion TL, respectively (see Appendix 6).

Increase in fish supply and marketing to wider distribution, and also supply of trout to processing plants can be a marketing guarantee for large quantities of trout produced. Currently, trout farmers do not grow more than they require and thus, there is an ineffective use of the production capacity in the region.

There will be creation of employment opportunities as well as creation of ancillary services (retailing, transport, handling & packaging materials, etc.)

Improvement of fishery in streams through release of hatchery produced trout and fry and fingerlings.

2.5 Implementation Schedule

The implementation will be in two phases. In Phase 1 the individual fish farmers will be encouraged to organize themselves in order to unite their economic strength and establish various associations or cooperatives. It will be necessary to explain and bring to awareness that trout can be produced and marketed more efficiently and more plentifully in order to create market demand. In Phase 2 the necessary facilities will be established and training, technology transfer, and extension services will be conducted.

2.6 Implementing Agency

The implementing agency will be the Inland Fisheries Section of MARA, and will work in close liaison with the relevant offices of provincial governments of DOKAP.

Irrigated Crop Cycles Research Program (Project No. 6.2)

1. Background and Rationale

Agricultural production in the DOKAP region has been dominated by several major crops led by tea and hazelnuts in the coastal provinces, and cereals and forage crops in the inland provinces. In Gumushane and Bayburt, particularly, cereals and fodder crops are by far dominant as shown in Tables 16 and 17.

Table 16 Harvested Area of Field Crops, Vegetables and Tea, 1996

Unit: ha

Crop species	Gumushane	Bayburt	DOKAP
Cereals	48,060	27,946	246,698
Pulses	6,421	1,927	14,691
Industrial crops	1,246	934	4,322
Oil seeds	-	-	180
Tuber crops	2,524	875	24,848
Fodder Crops	10,598	6,292	21,539
Field crops total	68,849	37,974	312,278
Vegetable total	796	255	13,796
Tea	-	-	76,743

Source: Agricultural Structure 1996, State Institute of Statistics

Table 17 Number of Fruit Bearing Trees, 1996

Unit: '000 trees

Crop species	Gumushane	Bayburt	DOKAP
Pome fruits	256	26	2,528
Stone fruits	115	5	1,258
Citrus	-	0	348
Nuts	114	0	163,241
Grape-like fruits	14	0	520

Source: Agricultural Structure 1996, State Institute of Statistics

Dominant share of cereal and fodder crops in these two provinces are attributable to high demand for feeds for livestock, which is the most important economic activity in rural area.

Under such current conditions, irrigation development in Bayburt and Gumushane is expected to provide opportunities to diversify crops as well as to increase yields of more conventional crops.

In order to maximize total economic output through crop production, feed production, livestock production, etc., a research on irrigated crop cycle is keenly required.

The research will include (1) establishment of crop rotation system, (2) introduction of new high value crops, (3) feed storage, and (4) utilization of barnyard manure.

2. Project Description

2.1 Objectives

Irrigated crop cycle research program will be formulated aiming at attaining best crop mix in expanded irrigation area of Gumushane and Bayburt in view of land suitability and marketability within the frame of sustainable production. It will also provide proper feed storage method and utilization of barnyard manure.

2.2 Project Description

The Project has the following components.

(1) Research on crop rotation system

Combination of the cropping cycle of crops including maize, wheat/barley, beans, potatoes, sugar beets and fodder crops. For establishing efficient cropping cycle, nutrient cycle of crops will be studied. Fertilizer requirement of crops, nutrient uptake by crops, nutrient amount retained in crop residue, nutrient content in the soils, etc., will be monitored.

(2) Research on new crops to be introduced

Vegetables such as chinese cabbage, lettuce, asparagus, artichoke will be possible to cultivate in temperate climate condition. Water requirement, soil suitability, fertilizer requirement, cropping pattern, etc., will be clarified under the research.

Marketability of crops will be studied. Introduction of mulching for crop cultivation will also be examined.

(3) Adaptive research on storage of fodder crops

In order to secure feed supply for animals in winter, fodder crops should be stored properly. Various methods of silage and hay preparation will be tested to determine the best way of preparation.

In silage production, methods for pre-drying, cutting, creation of air-tight condition, etc., will be examined. For hay making, efficient drying methods minimizing nutrient loss will be studied.

(4) Utilization of barnyard manure

As livestock production increases, treatment of barnyard manure will become a serious problem on environmental and hygiene. The manure can be useful resources such as fertilizer and energy if properly treated.

Effective utilization of the manure including composting and drying for fertilizer, and biogas production will be studied.

2.3 Institutional Arrangement

The project will be implemented jointly by Eastern Anatolia ARI in Erzurum, Horticultural Research Institute in Erzincan, and Provincial Agricultural Directorates of Gumushane and Bayburt. Division of works by each agency/office in the project is summarized as shown in Table 18.

Table 18 Division of Works by Relevant Agencies

Research themes	ARI	HRI	PDAs	Bayburt
Crop rotation system	●	●	●	●
New crops		●	●	
Fodder crops storing	●		●	●
Utilization of barnyard manure	●		●	●

2.4 Implementation Schedule

The project will be implemented during Phase 1 and Phase 2 (2001 – 2010) of the DOKAP planning period. Overall implementation schedule is shown in Figure 6.

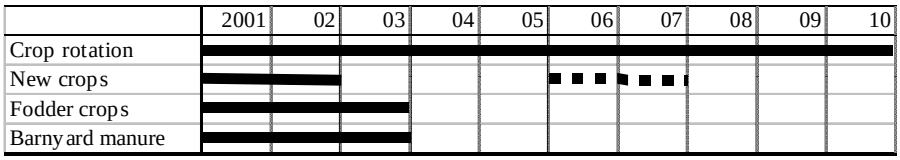


Figure 6 Implementation Schedule

2.5 Cost Estimates

Total project cost is estimated at some US$1,900,000, based on the following:

(1) Crop rotation system: US$110,000 (for two provinces)

- Land rent: 5 hectares @ US$500 for 10 years = US$25,000 per province
- Fertilizer: US$300 per hectare for 10 years = US$15,000 per province
- Farm management (labor + machinery): US$300 per hectare for 10 years = US$15,000 per province

(2) Introduction of new crops: US$8,800 (for two provinces)

- Land rent: 2 hectares @ US$500 for 2 years = US$2,000 per province
- Fertilizer: US$300 per hectare for 2 years = US$1,200 per province

Farm management (labor + machinery): US$300 per hectare for 2 years = US$1,200 per province

(3) Fodder crops storage: US$700,000 (for two provinces)

Machinery (grass cutter, loader, truck, baling machine): US$200,000 per province

Silos (various types): US$100,000 per province

Hay mixer and dryer: US$50,000 per province

(4) Barnyard manure utilization: US$1,060,000 (for two provinces)

Compost making facility: US$500,000 per province

Biogas production plant: US$30,000 per province

2.6 Expected Effects

Through the project, best crop mix will be determined from the viewpoints of land suitability and marketability. Proper crop rotation system will be established for sustainable utilization of land.

New crops will be introduced with ideal cropping pattern using vinyl mulching.

Loss of fodder crops will be minimized through efficient silage production and hay making.

Barnyard manure will be efficiently utilized through recycling nutrients and energy production.

Local Administration Evaluation System Establishment (Project No. 7.3)

1. Background and Rationale[1]

1.1 Purpose of public administration

Purpose of public administration activities is to provide better and more efficient services to taxpayers. Because governments always receive taxes in advance, these authorities have obligation to provide services to the taxpayers. The people could request for governments "value for money" as to whether the taxes are efficiently used from the viewpoint of taxpayers.

This objective of public administration is the same as that of private companies seeking profit with more efficiency and better services to their clients. Top private management always set goals of their activities, like how much profit to be earned, and make an effort to realize the objectives (herein after called as goal set-realization). Total Quality Control (TQC) is an effective method for this goal set-realization, used by many private companies. The degree of this realization is measured objectively with figure indications or benchmarks.

Public administration activities do not seek sales or profit. However, it is important for government officials to implement the goal set-realization activities. These activities would enhance better services, more efficiency in government services.

Local administration evaluation system is to introduce this goal set-realization system to local governments in DOKAP area. In this system, the local governments would:

1) establish goals and figure indications expected by residents (hereinafter referred to as benchmarks)
2) assess performance of the government divisions in charge
3) disclose realization degrees in the goals to residents

In the United States, 61% of total local governments, or 89% of local governments with population of more than 1 million, have established administration evaluation system. It is reported that Sunnyvale city, California State, realized labor efficiency increase by 44% during ten years and local taxes reduction by 14% during five years.

1.2 Issues and Constrains Which Might Prevent Application of This System

Some people say:

1) Government officials would have the same salary, no matter how hard they

[1] Cf. Shinichi Ueyama, “Reinventing Japan, A Review of Government Performance”, 1998

work, showing better performance than other ones. In addition, their salaries are not high enough, therefore, it is difficult to reduce the salary of government officials with poor performance.

2) Many local governments have over-employment so it is difficult to clarify individual goals.
3) It is risky to disclose goals of administration activities to residents, considering next election.
4) Public administration does not seek sales or profit, therefore, it is difficult to implement activities of the goal set-realization used in private companies.

1.3 Necessity of the Local Administration Evaluation System

In spite of these constraints,

1) Many people say government works are not efficient and many local officials do not deserve their salary. There must be a mechanism to give incentives to more work and punishment to less work.
2) Local governments have to provide more transparent and efficient administration activities to residents. Policies and plans are sometimes modified by political consideration and economic efficiency might be neglected.
3) Under the proposed legislation "Local Administrative Reform", local governments would receive much higher portion of tax transfer from the central government. But it might become more risky to provide more financial power to those who could not efficiently use these budget increase.

Accordingly, appraisal system is necessary to increase efficiency, productivity, and transparency of local administration.

2. Project Outline

2.1 Implementing Bodies

Municipalities and provincial self-governments in DOKAP regions

2.2 Objectives

(1) To measure efficiency of each public work
(2) To realize more transparent administration from the viewpoint of residents, through:
   - clarifying expected outcomes of policy, projects and daily work with use of benchmarks.
   - appraising the outcomes from the viewpoint of taxpayers

2.3 Expected Effects

(1) This system motivates government officials to increase work efficiency and improve their services.
(2) Inhabitants, governors, mayors and city council could appraise and watch the performance of their local governments. Policies and programs without good performance might be reviewed.
(3) It becomes difficult to intervene in policies or projects with political consideration.

2.4 Implementation Schedule

Starting from the year of 2001.

3. Vision of New Administration with Evaluation System

Local governments shall make an effort to realize more efficient and clear administration with application of this appraisal system. Table 19 explains this new administration, compared to the existing one.

Table 19 New Local Administration

	Existing administration	**New Public Management by the introduction of local administration evaluation system**
Setting objectives	Government officials prepare no goals	Government officials clarify goals expected by citizens
Planning and budgeting	Budgeting as planed in the previous year	Giving priority to more important works in the budgeting
Work appraising	No appraisal	Government officials evaluate their own jobs by themselves Government officials hear comments from beneficiaries. Officials monitor the work progress and disclose it in the public.
Work implementation	Work is done in vertically divided divisions	Work is done cooperatively in some divisions to realize policies

4. What is Local Administration Evaluation System?

Evaluation will be done on administration implementation and policy. The former is called as implementation evaluation and the latter is referred to as policy evaluation.

4.1 The Implementation Evaluation

Process of the implementation evaluation is:

1) measuring efficiency of each government work including tax collection, water supply, garbage collection, road maintenance
2) listing outcomes expected by taxpayers
3) setting benchmarks
4) checking every fiscal year how much the governments realize the goals
5) disclosing the result in the public

The benchmarks can be used to measure the performance of a local government, compared with those of other governments.

An example of the implementation evaluation is shown in Table 20.

Table 20 An Example of Setting Benchmarks in Implementation Evaluation

Implementation goals	**Objectives**	**Benchmarks**			
			2001	year of 2005	2010
Introduction of an effective taxation system	Application of speedy collection system	taxpayers' waiting time in tax offices	5 hours	1 hour	0
	Increase tax revenues	Ratio of uncollected municipal tax to total municipal tax revenues	10%	5%	0

An example of the policy evaluation is shown in Table 21.

Table 21 An Example of Setting Benchmarks in Policy Evaluation

Policy goals	**Objectives**	**Benchmarks**			
			2001	year of 2005	2010
Provision of valuable employment opportunity to every workforce	Investment promotion	Number of newly established companies	100	150	200
	Training of workers	Number of workers who join in government training courses	1000	1200	1300

Figure 7 shows new administration cycle with this appraisal method.

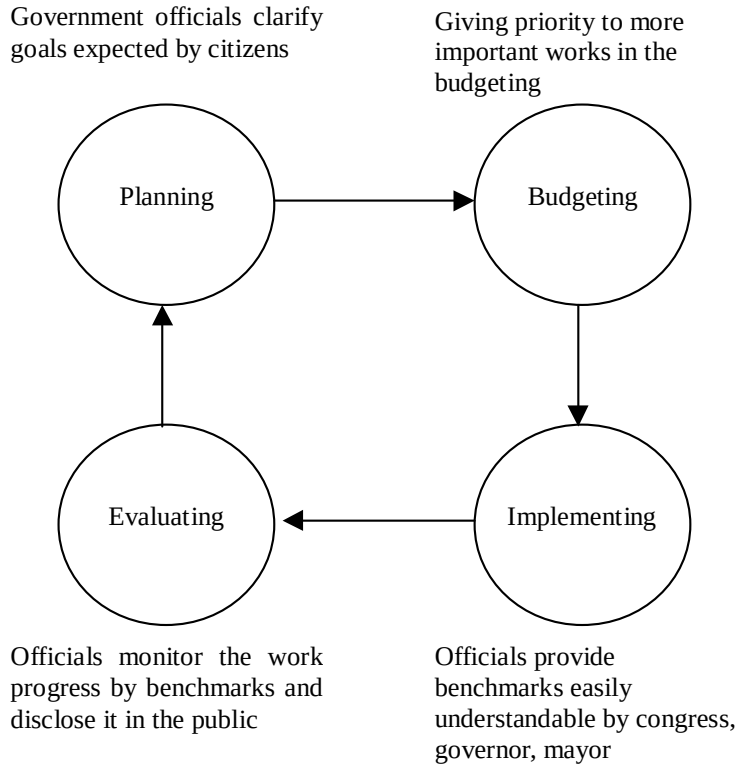


Figure 7 New Administration Cycle by the Introduction of Local Administration Evaluation System

5. How Do You Proceed with and Succeed in This Application?

Begin with tasks which could be easily implemented, or quickly achieved

It is important to start a task which could be easily implemented, or quickly achieved. It is not necessary that all of divisions or sections begin this system at the same time. Gradual realization is essential to success. It is usual to start the implementation evaluation and then proceed with policy evaluation. In other words, many government officials firstly make an effort to increase their work efficiency, then tackle the taxpayer-oriented system. Municipalities of the United States established this system more in implementation evaluation such as road maintenance, park construction.

Apply this system to bigger cities

Smaller cities in terms of population have limited number of officials and activities. Those mayors know well about performance of their subordinates and works. Therefore, it is more effective to apply this appraisal system to bigger cities, for example, provincial center municipalities.

Involve non-government organization (NGO)

It would contribute to a fair appraisal of officials performance to involve non-government organization (NGO), such as chamber of businessmen. It is difficult to evaluate efficiency of co-workers.

Compare benchmarks among the bigger cities

It is important that a municipality know its work efficiency, comparing its benchmarks to those of other governments.

Consider political environment

It is also critical to found this system considering election timing. Mayors who nearly finish his five (5) year assignment, would prefer establishment of policy evaluation, to declare new policies for next election. However, new mayors would prefer gradual formation from implementation evaluation to policy one.

In either case, it is crucial for local governments to specify what they would like to change in establishment of this system, such as increasing efficiency of their officials, declaring new policies to inhabitants, or reviewing budget distribution.

6. Conditions to Sustain Implementation of This Evaluation System

Give incentives to government officials with higher performance

Salary increase or other incentives will be given to government officials with higher performance. However, bonus is limited by law to give to only one percent of all officials in a local government. Therefore, in the long run, this law will be modified so that local authorities could obtain autonomy to make a decision of salary or bonus.

Keep continuity

Policies or benchmarks might be modified by replacement of mayors or governors. However, they have to explain the reasons to their subordinates or residents. It is important to keep continuity of government policies and this evaluation system even with some modification by replacement of the new top-ranking officers.

Establish an enforcement law

It is suggested that Turkey enact a law enforcing governments to account for their policies to the people. Otherwise, application of this evaluation system would depend on individual decisions of mayors or governors. As mentioned later, Government Performance and Results Act (GPRA) was passed by the United States in 1993. This law requires all of Ministries to explain expected results of their policies and how these outcomes would affect daily life of the people.

7. Pilot Project

It is recommended that a one-year trial be launched in a municipality as described below.

- implementing body:

one of seven provincial center municipalities (herein after called as the pilot project municipality)

- implementation schedule:

year of 2001

- manner of implementation

An expert of the central government will come to the pilot project municipality for one year. The municipality will assign two or three officers to proceed with this administration evaluation. The expert will give a two-week lecture and on-the-job training to those local officials. Detailed implementation plan is:

1) delivering questionnaires to citizens on their complains and requests to the municipality
2) deciding priority to some specific works to be improved, considering residents requirements
3) preparing benchmarks for the works and explaining to divisions in charge
4) monitoring quarterly improvement progress of the works
5) disclosing the results in the public at the end of this one-year trial

Implementation trial is shown in Table 22.

Table 22 Implementation Trial Process

Process	Clarification of tasks in each division	Pilot project trial	Monitoring	Remarks
Action programs	Priority decision in various works	Benchmarks setting to works with higher priority	Comparison of actual to the benchmarks	This system will succeed under the conditions that bonus or salary increase will be given to divisions or officials with higher quality performance
	Participation of citizen	Data collection	Disclose of the above information	

- budget

training fee: $1,000/month x 12 months = $12,000

The pilot municipality will pay the training fee, $12,000, to the expert from Ankara.

8. Actual Cases in the United States

There are many actual examples of administration appraisal system in the United States, Britain, New Zealand, and Australia. In this chapter, cases in the United State will be explained because it is more useful to Turkey and DOKAP.

8.1 Government Performance and Results Act (GPRA)

Government Performance and Results Act (GPRA) was passed the United States in 1993. This law requires all of Ministries to explain expected results of their policies and how these outcomes would affect daily life of the people.

8.2 An actual Application in a Department of the Central Government

An example of Seashore Police is often mentioned as a successful case of GPRA. Even before the act, the police already applied activities of this goal-set realization. One of their benchmarks used to be patrol frequency. However, from the viewpoint of the inhabitants, patrol frequency is not important. More significant to residents is to decrease sea accident frequency or number of dead people involved in the accidents. Therefore, since 1993, the police has changed their benchmarks such as "lowering the accident frequency by 12%". This policy actually reduced the number of dead people from 91 to 27 in 100,000 people.

As seen in this example, the GPRA enables the governments to describe outcomes generated by policies and make them clear from the viewpoint of residents.

8.3 Actual Examples of Local Administration Evaluation

In the local administration evaluation, Oregon State of the United States is famous for successful policy evaluation. This state began the policy evaluation system in the 1980s, because at that time, forest business was in recession and many workers in this sector had lost their jobs. Therefore, the governor launched plans of economy rehabilitation and vocational training. One of the benchmarks was that 80% of the unemployed workers would be able to obtain the same salaries as before.

9. Conclusion

Local administration reform is essential to improve existing government works, through taxation system improvement, financial management development, and vocational training preparation. This evaluation system is to appraise how much the reform goes on. In other words, this system is a strong tool to watch and supervise local administration with more transparent and democratic process. Mayors or governors could not easily intervene in policies, plans or projects. More important is that this system would motivate local government officials to increase efficiency and quality, because these improvements are the ultimate objective of administration.

Entrepreneurship Supporting Program (Business Incubator Establishment) – (Project No. 8.3a)

1. Background

The DOKAP region largely lacks urban type employment. Formal employment is very limited, and out-migration is continuing in the search for employment opportunities outside the DOKAP region. On the other hand, the people in the DOKAP region are known for having entrepreneurship spirit. Many successful businessmen in large cities are from the DOKAP region.

The economic environment is also changing. After the collapse of the Soviet Union, the DOKAP region, formally known as "the dead end of Turkey" has become the gateway to the CIS countries. More business opportunities are expected in the future.

The DOKAP regional development in the medium to long term will depend critically on generating a large number of highly trained manpower in various fields who can capture emerging opportunities. Creation of new businesses and creation of employment are important for social and economic development.

Entrepreneurship and an innovative mind will be required for people to venture into new economic activities. Specialized training needs to be provided for new types of industries by the initiative of the private sector.

Many new businesses fail because of lack of business planning and lack of capital management. For healthy business operation, entrepreneurs should be capable of managing business and also be provided with better business environment.

The "Business Incubator" will support the entrepreneurs who have new ideas and enthusiasm to manage their own businesses by providing physical working spaces as well as business consulting services.

2. Objectives of the Business Incubator

The objectives of the incubator are to support entrepreneurs with the business ideas to start their business by:

- providing the office or working space with the minimum facilities so that the entrepreneurs can start the business with relatively low capital, and
- providing the business consulting services so that the entrepreneurs will be able to operate the business properly, which reduce the risk of business failure.

3. Target Group as Tenants for the Incubator

The target group will be those who have business ideas and who would like to start their own business for the first time. People who are presently employed by

somebody, high school students, university students, and housewives are all eligible for applying for the incubator.

4. Facilities and Services Provided by the Incubator

Incubator includes the following facilities and services.

(1) Space allocation

The capacity of the incubator should be carefully examined by surveying the local demand and local participation. Ideally the incubator should start with a small scale and as the demand increases, the capacity should be expanded. Original capacity should be 20 to 30 office and workshop spaces.

Two types of spaces will be provided: common space and individual space.

(a) Common space

Common space is characterized as the space that all the tenants can share, including reception, hall, meeting room, computer room, and utility room.

(b) Individual space

The individual space is for rent that the tenant can use for their business operation. The room arrangement should also be flexible to meet the variety of demand. Several types and sizes of the space will be provided according to the tenants' needs:

i) Service Sector Center,
ii) Manufacturing Center, and
iii) High-tech Center.

The space used as an office for service sector requires small room with some office supplies. The space for manufacturing requires a large space and extra strength for machines and heavy equipment used for production. The space for high-tech industry may need extra power and extra network capability.

(2) Services

Several services needed for business operation will be available at the incubator. Basic utilities such as electricity, telephone lines, and water supply will be provided; utility bill will be paid by the tenant individually. Basic office equipment, photocopy machine, fax machine, and furniture will be provided.

The incubator will also provide the business consulting to support the business operation. Feasibility analysis, business planning, market planning, financial planning, and capital arrangement will be provided. Consulting services are

provided periodically to monitor the business performance and also provided upon the request of the tenants.

Technical training also will be provided with the cooperation of apprenticeship centers and vocational schools.

Marketing channels search will be supported with the cooperation of entrepreneurs in the high-tech center and from other sources. Internet and Web site will be utilized for promotion of the products. Business fair will also be utilized to let the entrepreneurs see the market needs and also for product promotion.

(3) Rent package plan (expected revenue)

Basic services will be included in the basic package. Extra services such as consulting will be provided with additional charge.

Basic Package : rent for the room (rate depends on the size), secretary, photocopy machine, meetings room, general consulting, utility for the common space.

Extra charge : specific counseling, utility for individual office space and production space

5. Organizational Structure for Operation of the Incubator

(1) Executive committee

The executive committee should be established as a decision making body for operation and maintenance of the incubator. Local representatives such as banks, chambers, unions, organized industrial estate, university, and provincial government should participate in the committee to decide development targets, select entrepreneurs to be allowed to take a space in the incubator, and manage administrative matters.

(2) Management unit

Management unit will be responsible for operation and management of the Incubator. Basic business consulting and initial interviewing of the applicants for the Incubator will be provided by this unit.

(3) Outside support

Coordination among vocational schools, KTU, private firms, KOSGEB, and the incubator is essential for providing comprehensive support to entrepreneurs.

6. Advantages of Using the Incubator

(1) Small capital is required to start the business

Initial cost for starting the business is high, and preparation is time consuming. Starting the new business usually requires utility installment (power, telephone water), renting and constructing the work space, and preparing the office supplies, which is expensive and time consuming. Since the initial arrangements needed to start the business are already made, the entrepreneurs will be able to start the business with lower cost than starting by their own and will be able to save time for business preparation.

(2) Small operation cost

Some office supplies and utility costs in the common space can be shared with other tenants, so the operation cost will be lower than renting a new space for its own.

(3) Business consulting is provided

Periodical evaluation on the business is provided in order to support the business operation, which aims to reduce the risk of business failure. In addition to the routine evaluation, consulting for the business management is provided upon request. If consulting on a more specific subject is required, a specialist will be introduced from the consulting database of KOSGEB. Legal work to operate the business and marketing support will also be provided.

7. Expected Benefits of the Incubator

Direct benefits and indirect benefits are expected from the incubator.

(1) New business creation and more employment

The expected effect of the project is the creation of new businesses and creation of more jobs in the DOKAP region, which will contribute to activating the economic activities. Since the business consulting will be provided, there is more chance of the business to be successful. Eventually out-flow of the valuable labor force will decrease.

(2) Increase in woman's participation in the industry

Women in tradition are engaging in non-formal economic activities such as farming and domestic works, which may not be directly related to income generation. Many of them have skills which can contribute to production in the formal sector and eventually earning some income. The Incubator can support the women who have skills and willing to start the business. Textiles and handicraft

business are one example of the sector that the women can initiate with the support of the incubator.

(3) More opportunities for internship (skill development)

Some workshops in the incubator can provide the training by hiring the high school students. The problem of the DOKAP region is that there is not enough industry to support the internship program for high school students. Creation of jobs will give more opportunities for students to receive practical training at the industry.

(4) Indirect benefit (spinning out effect)

Some indirect benefits can be expected from the Incubator project.

- The surrounding area will be benefited by more activities from the incubator.
- Since the length of occupying the space is limited to one to three years depending on the type of industry, the entrepreneurs will be more serious about their business and have better chance of been successful.
- The location is well managed so that the tenants can gain some trust from the clients.

8. Financial Plan

The cost recovery principle should be applied for the operation of the incubator. Initial cost may be financed by the loan, grant aid, or subsidy. Initial cost will be paid back eventually if the loan is used. The operation and maintenance (O&M) cost should be covered by the rent charge.

Initial cost and O&M cost

The initial cost includes construction of building (renovation if old building is available), and office equipment. Land (or buildings) is assumed to be provided by the provincial government or other agencies. O&M cost will include the utility cost, depreciation cost, and personnel cost, of which personnel cost will be the largest. Six staff will be required: 1 manager who also provides business consulting, 1 secretary, 1 accountant, and 3 janitors. Cost breakdown is shown in Table 23.

Table 23 Cost Breakdown for Operation of the Incubator

Initial cost	$600,000
Renovation cost	$500,000
Office equipment	$100,000
Annual O&M cost	$60,000

9. Action Plan

The project period for the initial stage of the incubator is five years (See Figure 8). After the project period completed, the incubator is expected to be managed individually.

	Year 1	Year 2	Year 3	Year 4	Year 5
(1) Preparation of short team and long term operation plan					
(2) Forming the executive committee					
(3) Selection of location					
(4) Design of the Incubator					
(5) Construction of the building (or renovation of the existing building)					
(6) Start to advertise					
(7) Selection of tenants					
(8) Start operation					

Figure 8 Implementation Schedule of the Incubator

A preparatory team with KOSGEB and local representative both from public sector and private sector will be formed to decide the location of the incubator, target industry, scale, the financial plan, and operational rules. Provincial government representatives, chambers, craftsman union, universities, banks, and KOSGEB will be in the preparatory team. The preparatory team will eventually become the executive committee (See Figure 9).

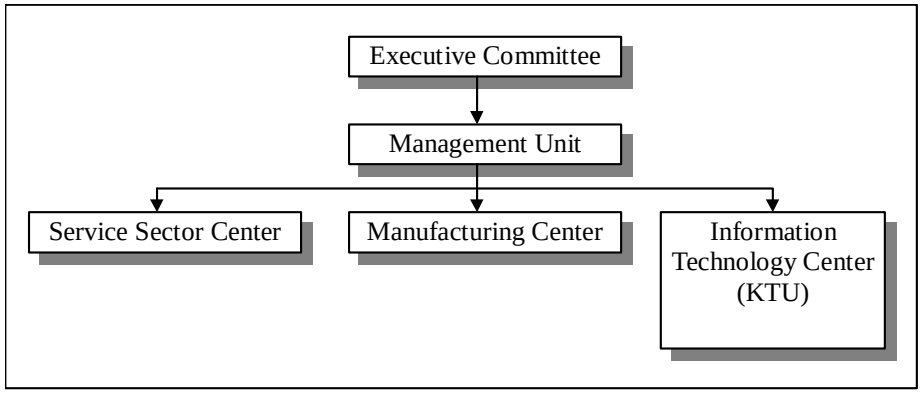


Figure 9 Organizational Structure of the Business Incubator

Information Technology Incubator (Project No. 10.6)

1. Introduction

High-tech industry has contributed to 35% of the economic growth in the U.S. and across America, high-technology is creating localized booming areas, all of which are close to research universities. Massachusetts Institute of Technology (MIT), Stanford University, and Cambridge University contributed to the high-tech industries in their respective regions. Ecole Nationale des Mines played a pivotal role in the birth of Sophia-Antipolis in France. Universities are becoming increasingly powerful force in the knowledge based economy. The higher education institutions are now seeing themselves as generators of business in the form of professors and their graduate students' start-ups and technology licensing deals. The universities are now trying to strike a proper balance between the pursuit of knowledge and the pursuit of money. The successful universities are usually good at doing both.

According to a report by MIT in 1997, the companies founded by the university's faculty and graduates have contributed 14,000 jobs in Cambridge alone. Eighty companies spun out of the University of California at San Diego alone provided 7,000 jobs. Everyone of the nine University of California campuses has high-technology clustered near it, even Harvard University has documented for the first time its own contribution to the local economy and seeks new economic roles. Other American universities are University of Texas at Dallas (70,000 jobs), University of Pittsburgh, University of Alabama at Birmingham, University of South Florida and University of Central Florida, and University of Washington, where spun-off companies numbered 140, worth more than $10 billion and employ more than 6,500 people. A third of them were founded by graduate students or those who work for medial field.

KTU has a large faculty and student body. It is a national university. seventy-five percent of its 28,000 students are from out of the DOKAP area. There are about 400 international students. The two IT departments, Department of Electronics and Electrical Engineering and Department of Computer Engineering, have substantial number of professors and students. The university's computing center section hosts a number of servers, workstations, network, software applications and PC laboratories. The campus is served by optical fiber connections to work stations and PCs and is linked to Internet. Many of its graduates work in large Turkish companies such as Turk Telecom, Turkcell, Telsim. Its Faculty of Economics and Administrative Science has a strong team of professors in economics, business administration, finance, and international relations. KTU, like large universities in other regions of Turkey, has potential to play a role for the economic development in information age.

2. Project Description

2.1 The Project

The project is to establish an Information Technology Revolving Fund for a Mini High-tech Valley (Business Incubator) close to the KTU to promote entrepreneurship among the highly educated labors in the region, to increase job opportunities and attract investment into the region, and to take advantage of the frontier location of DOKAP to expand trade and attract productive and creative regional labors into areas for export oriented industries. Each year, a Selection Committee will select 43 candidate start-ups, based on their creative and marketable business proposals, and provide for one year, for free, office space, a computer, a telephone line (not phone bill), a desk and chairs, and business and technical advice, and the prestige of being selected by the Selection Committee. The start-ups are expected to take off by themselves in the second year.

2.2 Project Rationale

Turkey's high-tech industry has great potential to grow. According to the World Bank, Turkey exported about US$ 1,326 million worth of high-tech goods, which is only 3% that of South Korea, 30% of that of Brazil, and was even smaller than that of Poland (See Table 24). Not only that, the percentage of high-tech in total manufactured exports was also small, 8% as compared to the 39% in south Korea, 19% in Brazil, and 11% in Poland (See Table 25). The high-tech industry in the DOKAP area is minimal. The slower growth of high-tech industries in Turkey (and DOKAP) reflects the huge potential for growth in high-tech industry export in general, and information technology in particular.

Table 24 High-technology Exports (current Million US$)

Country	1996
Brazil	4,448
Germany	109,591
Japan	150,771
Korea, Rep.	44,433
Malaysia	39,448
Poland	1,926
Spain	13,179
Sweden	20,905
Turkey	1,326
United Kingdom	85,035
United States	197,657

Source: The Word Bank

Table 25 High-technology Exports (% of manufactured exports)

Country	1996
Brazil	18
Germany	25
Hong Kong, China	27
Japan	39
Korea, Rep.	39
Malaysia	67
Poland	11
Spain	17
Turkey	8
United Kingdom	40
United States	44

Source: The Word Bank

With globalization and surplus of production capacity in traditional manufactured industries around the world, it would be very hard for DOKAP area to compete for traditional industrial jobs, except in limited areas. Manufacturing industries tend to be scattered around large cities because of the economy of scale in transportation, financing support, proximity to consumers and market information. In the U.S., as in many parts of the world, the high-tech industries started to spring up in areas away from the traditional heavily industrialized Northeast. Seattle, a city bearing many similarities to today's Trabzon (DOKAP), was a relatively quiet city years before. Today it is one of the fastest growing metropolitans in the U.S. The information technology has taken down the barriers once deemed too costly for industries to be located far away from the tradition industrial belt. Microsoft, the most famous, but only the fourth largest company in Seattle (in 1996 revenues) basically doesn't have to import much raw material and it sells many of its products online or through CDs and diskettes which could be mailed in large quantities with minimal cost.

2.3 Why DOKAP? Why Trabzon? Why KTU?

Hundreds of science and technologies parks have appeared on earth in the last twenty years. Every government wanted to make its science parks the second Silicon Valley. Yet, only a few of them have been successful. Cautions should be exercised in promoting this project as a science/technology park.

This project is not to establish a science/technology park. It is a small step towards that direction. This project is trying to inject some entrepreneurship into the DOKAP-Trabzon region, using the high-tech talents at KTU, and riding on the latest information technology wave. If it is successful as the project objective envisions, it will generate great interest in Turkey and lead to a high-tech boom in the region.

For the project to succeed, it needs a visionist. Silicon Valley was initiated by Dr. Frederick Terman 50 years. A Ph.D from MIT, Terman moved to Stanford

University and worked as the Dean of Electrical Engineering before becoming Provost and Vice President of the University. He used all his connections, his influence, and sometimes his own money to encourage his best graduates to start up electronic firms, most famous of them is Hewlett and Packard (HP). Sophia-Antipolis, the international business park near Nice, was the brainchild of Pierre Lafitte, the deputy director of the Ecole Nationale Superieure des Mines de Paris (Vice President, National University of Mine in Paris). This project will have the endorsement of SPO, the enthusiastic support from the faculties of KTU, and the strong support of Mr. Vedat Karaarslan, the Director of Information Networks Department at Turk Telecom.

Some science/technology parks failed because of lack of follow-ups after initial government promotion. Others have been successful in generating employment and attracting the relocation of the branches of multi-national companies to their sites, but have yet to generate home-grown successful companies, simply because of four factors: a) Lack of entrepreneurship or an environment inducive to entrepreneurship among its talented people. b) The operators (engineers and businessmen) in the park failed to interact with each other or outside. They simply lived in an isolated island (the typical example is Akademgorodok in Soviet Union). Without the constant interactions among the engineers at different companies and the synergy the interactions created, Silicon Valley could never have survived. c) The technology is not available then (the Internet, a product of the 1990s, has eliminated the distance). d) In most countries, no venture capitalist system exists that finances the new start-ups and the public fund drained out after a few years of enthusiasm. This project attempts to address all these issues.

The geographic and geopolitical barriers that once made Trabzon a sleeping town have been gradually disappearing. Several factors that are essential for regional development are not lacking in Trabzon/DOKAP area: an international airport, a large university (fourth largest), and hard-working people with entrepreneurship, for people from DOKAP area are famous for their business success around the country, and an availability of a highly educated, inexpensive skilled labor pool—the closeness to former Soviet Union and the similarity in languages could make DOKAP area a regional magnet for people of great creativity. Labor cost is still a fraction of that in Europe and the U.S. Moreover, large high-tech companies in the U.S. tend to stay away from major metropolitan areas, such as IBM in Endicott, New York State, Lucent Technology in Murray Hill, New Jersey, Motorola in Phoenix and Texas Instrument in Dallas, Texas.

Accessible to markets of the region is another advantage. Turkey's eventual integration into EU market will give Turkish entrepreneurs greater opportunities to expand their business globally. With its closeness to Arab world, good education base and relatively cheap labor cost, Turkey could be a high-tech hub for the region. Her friendly relationships with the U.S. and Israel will give her access to the most advanced technologies and software.

However, the U.S. and Israel have the benefits of foreign-born and educated scientists and engineers. More than half of the Ph.D. degrees in engineering in the U.S. are awarded to foreign students, most of whom would choose to remain in the U.S. Foreign engineers are the backbones of the Silicon Valley and other high-tech regions. Although Turkey is not an immigrant country, it has the tradition of assimilating peoples of the region. And the frontier location of DOKAP, even with a large gathering of former Soviet engineers and engineers from other regional countries (Iran? Iraq?), the culture shock would be limited and isolated, if there is any. Therefore, DOKAP is an ideal place for a high-tech industry base using regional talents and skilled labors.

Table 26 is a general comparison between Greater Seattle and Trabzon-Rize Region:

Table 26 General Comparison between Greater Seattle and Trabzon-Rize Region

	Greater Seattle	Trabzon-Rize (DOKAP)
Population	3,101,100	2,911,000
As percentage of National Population		
Average Temp. in Summer	24 °C	22.9 °C
Average Temp. in Winter	Below Freezing for 15 Days	7.3
Average Yearly Rainfall	92 cm	83
Public Libraries	25	
Number of software firms	2,200	
Cascadia vs. DOKAP (GDP)	$250 Billion	
Ranking in the World	10th	
Employment in Manufactories	245,800 (15.6% of total)	3,299
Rank of Export in the Nation	4th	
Rank of Exports per capita	1st	
Total Property Tax	1.21%	
Total Four Year College Enrollment in 1997	42,725	
Monthly Apartment Rental (2Bed-2Bath)	$844	

Number of full time equivalent positions in 1970 in Greater Seattle area was 740,927, and by the year 2000, it is estimated to be 1,702,297, growing at an average annual rate of 2.8%, and, if Seattle is a good example, Trabzon should follow suit to see its employment double in the next twenty years.

Twenty-one cities in the world are sister cities including Beer Sheva (Israel), Perugia (Italy), Gdynia, (Poland), Kobe, Japan, Tashkent, (Uzbekistan). Trabzon should adopt sisterhood with Seattle and Kobe.

2.4 Existing Program in DOKAP and Unique Benefits of IT Incubator

KOSGEB currently operates a Technology Development Center at KTU. The program supports nine companies in the field of gun-making, glassware design, electric device, and energy-efficient motor design. The program provides the

companies with academic advice, space, basic office facilities. The recipients can stay in the program for a maximum of 3 years. Two of the companies have shown sign of business success. The operation budget for 1999 is TL 97 billion, or US$ 194,000 at US$ 21,556 per company.

Interview with KTU professors and students, and managers of the Technology Development Center showed that there are four major difference between existing KOSGEB project at KTU and IT incubator project.

1) The most important differences is that the IT incubator project is directed towards **students**, not the established companies. Many famous Internet and software companies were started by university students (and even Drop-outs). Young students tend to be more creative and risk-taking. In fact, the uniqueness of this project is its focus on university students.
2) The IT incubator projects tries to promote a culture of **interaction** among the young entrepreneurs. The start-ups will be housed in one big hall, unlike the isolated offices provided by KOSGEB and other projects.
3) The incubator project costs about US$ 2,300 per start-up per year, one-tenth of the cost for KOSGEB project at KTU. It can be very **cost-effective**. And the potential reward could be huge if this project could succeed in bringing up a generation of high-tech entrepreneurs in Turkey.
4) The revolving fund is operated like a (Seed) **Venture Capitalist**, because it takes a 10% share in the new start-up, which will tie the project permanently to the new start-ups.

However, these differences don't preclude KOSKEB from supporting this project. KOSKEB has the mechanism and interest in funding this project, either through a new program or an extension of existing program.

2.5 Conditions Needed for the Project to Succeed

In terms of infrastructure, TTnet, the Public Internet Backbone Network, is developing rapidly. Presently, Trabzon is linked to Ankara by 2x2 Mbps and 1x2Mbps line. KTU university is linked to the nation's university system through ULAK net (capacity: 2Mbps starting from the year 2000). Ankara is linked to Izmir with 2x155Mbps and Istanbul with 3x155 Mbps. Turkey is linked through international gateway with 2x34 Mbps from Istanbul and with 1x34 Mbps Izmir. Ankara is also linked with Samsun with 155 Mbps.

At the macro level, the respect and strict enforcement of law, especially intellectual property law is essential for the success in software industry, without which engineers cannot survive (Microsoft's efforts to minimize piracy in Turkey have reduced the piracy level from 95% to 80% in two years, but it still very high). Government should adhere to its emphasis on balanced regional development policy, but government should not, in place of market, pick the winners and the

losers. It is also important to promote entreprenuerhsip with tax incentives for new start-ups and create a culture that respect trial and failure. Government contracts (especially defense contract) could also play a role in breeding domestic new start-ups in information technology field as they did in many science/technology parks.

At the micro and regional level, KTU should be allowed to play a coordinating, but not controlling role in nurturing the Mini High-tech Valley. The new start-ups should be totally privately initiated candidates selected through a fair and open process, and they should be located in the same facility so that they could interact with each other. Even the coffee shop should set an IT corner to provide faculties and students with a business environment. KTU's professors should be allowed to participate in developing new business and reap the full benefits. There might be a time that some professors, and professors in certain fields, benefit earlier and faster, while professors in liberal arts being left behind. However, the entrepreneurship environment created will eventually give greater opportunities to people in all fields, such as arts (website design), and literary (Internet publication). The KTU should aggressively market the University and the Mini High-tech Valley to local and international businesses, approaching alumnus, associates, and software CEOs. Companies like Microsoft might be intrigued by the Valley (and its supporting University) billing itself as from the Seattle of Turkey.

While research projects on campus should continue to be encouraged, the start-ups at the Valley are not researchers but business developers with new ideas and new services. A flexible system that allows its professors and students to take a leave of absence is essential for the nurturing of entrenprenuship. Many of famous so-called college drop-outs in the U.S. (Bill Gates of Microsoft) were actually taking a leave of absence and they always had the chance to go back to finish their degrees, although all of them chose not to do so as they succeeded in business.

KTU should also explore the possibility of some joint programs with Stanford University in computer science and business administration (MBAs). The joint programs will give KTU an added advantage in IT development and a linkage to Silicon Valley. It will also be in Stanford University's interest to have joint programs overseas to spread its academic excellence and network.

On university campus, a focus on English language should be greatly promoted. As English becomes the vehicle of the information highway, whether you like it or not, no country can afford not to improve its English teaching. As a start, the university could sponsor its computer science students to host some website publication (a digest of the latest IT development in the developed worlds and their application to Turkish industries plus innovative business ideas) provided free to business companies. The cost of operation could be covered by advertisement as the publication reaches a critical mass of "eye-balls"—number of readers and potential customers of advertised companies.

As a second step, a venture capitalist system or a similar system by the cooperation between public and private sectors should be established, without which high-tech start-up could hardly grow to full blossom. Regionally, favorite media exposure and sustained local government interest, a friendly business environment, and easy and speedy communications between large cities and Trabson are essential, the current data transmission capacity is still too low. Therefore, as a component of this project, a new direct line from Trabzon/KTU to Ankara should be planned.

2.6 Selection of Candidates

The detailed selection procedure will be determined later, but the principles should be fair and open. Candidates should be KTU students and alumnus of any discipline. The selection committee should be composed of professors from IT related departments, business department, and students and a representative from the local Chamber of Commerce who is familiar with IT. The committee should be small and efficient. A part time accountant will be hired to manage the Revolving Fund and business school professors will provide advice to the operation of the fund. University faculties will be welcomed to work as advisors or even the developers of the start-ups. However, conflict of interest should be avoided.

Box 1.

What can KTU Professors/Students do with Information Technology?

IT in general, Internet in particular, is closely related to intellectual property, which is exclusive in nature. In other words, many of the businesses and their success are based on the basis of first-come-first-serve. For example, had an individual been able to register "Cokecola.com.tr" ahead of Coke-Cola, he could have had the exclusive rights to the Website address and therefore have potentially made lots of money to sell it. The first name recognition is important. There are many Internet bookstores, Amazon.com, the first of its kind, easily beats the second largest on-line book store, Barnesandnoble.com, a spin-off of the largest chain bookstores in the world. It seems that new start-up Internet companies always beat large established traditional companies.

In IT business, once a product is invented, it could be mass-produced/copied and sold. It costs Microsoft almost nothing to sell each additional copy of Windows, or for American Online Line (AOL), the largest Internet Server Provider in the world, or Yahoo, to serve one more customer.

This exclusivity nature, gives KTU and the Mini High-tech Valley start-ups an advantage to start early and fast.

1) The simplest way of making money, is creating new, good Internet address names. As Turkey has just entered the information age, there must be many good Internet dot.com names still available. The registration fee is cheap, $20 for life. The students of engineering school could simply sit together and brainstorm the possible useful address names and then formerly register them. They can use those names to start new business or simply auction them off on-line to established businesses who need those names for their business expansion onto the Internet world. This might not be a glorious way to start, but it certainly gives some small initial reward to imagination and creativity. METU is currently in charge of Web address registration.

2) Using Internet to sell products and services to business as well as consumers. Anything goes, depending on your imagination. Successful US Internet companies are: Price.com (for cheapest airtickets), Ebay (For auction of anything), Toys.com, etc.

3). Using Internet to work for other regions, using local cheap but skilled labors to work for international business. Example: Doctors in the U.S. are required to record their diagnose and treatment. The transcription used to be done by a transcriber whose annual salary is around $45,000 and it usually takes one day to finish. Now, many American hospitals e-mail the recorded message to India and someone in India, with a fraction of the salary, would transcribe the message and e-mail it the next morning. Translation and cross-border business research is another big field.

4) Using Internet to do business information collection or publications (translations) for large companies interested in what their global competitors are doing.

5) All other possibilities.

3. Project Implementation

3.1 Estimated Annual Cost

The estimated annual cost is US$147,042.8 for the first year and US$102,305.6 for the second year and after (See Table 27).

Table 27 Annual Cost in US$

	First Year	Second Year and After
Internet Access	300	300
Computer	1,000	
Desk and Table used 200 for ten years at 10% Discount	32.55	32.55
Room Space	1,800	1,800
Utility bill	200	200
Telephone Set	20	
Annual Cost	3,352.5	2,332.5
Number of Start Ups	43	43
Total Annual Cost, including 2% Management Fee	147,042.8	102,305.6
Total Cost in 20 Years at	10% Discount Rate	911,655

3.2 The Source of Fund

Budget Assumption:

Total $1.1 million.

Source of fund could be from SPO annual investment budget, grant from KOSKEB and international software companies in Turkey (i.e. Microsoft Turkey). International multilateral and bilateral donors will also be approached. (Additional donation, in kind, from Turk Telecom is expected but not included here.)

3.3 Operation of the Revolving Fund

At the beginning of each year, a budge allocation equivalent to the annual cost will be allocated to be spent on new start-ups. The rest of fund (about 90%) will be used to invest in stocks, bonds, and CDs every year. The assumed annualized return is 11%.

Of course, half of the annual budget will earn a short-term interest rate of 4%, assuming the budget will be spent bi-annually.

The Revolving Fund, a non-profit operation is assumed to enjoy some form of tax exemption status. The tax rate on the returns earned on Fund's investment and bank deposit is assumed at 4%.

(Based on an interview with a local bank, the current interest rate on a deposit of US$ 20,000 over, as of December 1, 1999, is 12% for one month, 10% for two months, 9.5% for three months, and 8% for six months. Turkey is facing a short-term foreign currency crunch. The tax and the temporary earthquake surtax rate on the interest income is 16.5%)

With the assumed return, even without any success in the start-ups, the Revolving Fund will be maintained at around $1.02 million level by the end of the twenty-

year project cycle. The foundation of this assumption is the record of the 14 year old Istanbul Stock Exchange (IMKB) market. Annual return (Dec. 31, 1998 to Dec. 8th, 1999) is 279.1% calculated in TL, and 129.8% in dollars, the best performer in the world. IMKB is one of the favorite emerging markets for international portfolio managers who hold 50% of equity share in free float. Currently, only 281 companies are traded on the IMKB Equity Market, with an average of 25 initial public offerings (IPOs) each year. Currently, only 1% of the Turkish individuals invest in IMKB, as compared to above 50% participation in the U.S. This shows great opportunities for high-tech start-ups to be launched as IPOs. (Please be aware that past record may not be the base for future projection, and higher stock evaluation may trigger short-term corrections. And the expected return to the Revolving Fund is totally based on assumptions. Further research will be needed).

3.4 The End of the Project

By the end of this project in twenty years, a dozen start-ups are expected to thrive and be worth at least US$9.1 million. By then, successful or not, the control of the US$ 1.1 million portion of the Revolving Fund, the original contribution, will be reverted to the original donors (their voting power equals to their share of contribution). If there are any surplus in the Revolving Fund, the surplus will be transferred to a national Revolving Fund to promote university based high-tech start-ups nation-wide.

3.5 Relationship with Other Incubator Projects

The project will be under the same Executive Committee (Trust Fund Committee). While its funding source and operation will be somewhat different from other incubator projects, all the projects will be housed in the same facility and using shared office equipment. IT project may also use KOSGEB and SPO budget.

The closeness of the projects, IT and others, will promote interaction among the entrepreneurs in the tradition industry and IT entrepreneurs, which will hopefully spur the expanding of using IT as marketing and information collection tools. The synergy of this marriage will eventually breed more business in the region.

Box 2:

Why would JICA be interested in this project and grant $0.5 million into this Revolving Fund?

This project will contribute to the regional economic growth and it will also help boost Turkey into high-tech industries. The Japanese high-tech companies which are interested in expanding their business into Turkey and Europe, are looking for skilled IT engineers. The Ministry of International Trade and Industry (MITI) has long being promoting high-tech industries in Japan with mixed results. The famous Science Park Tsukuba has so far been successful only in relocating some of the government and large corporations' research facilities. There is yet to be a new start-up to have become a giant like Sun Microsystems and Yahoo from Tsukuba. A successful experiment at KTU will provide new development model for MITI and Japan.

Why would other donors and the World Bank be interested in this project?

Ever since the end of the 1970s, the paradigm of economic development has been shifted. The traditional model of large industry (Large Dam as well) is no longer viable, because if every country builds its own large industries, some of them will have to fail when supply far surpasses the demand. However, developmentalists worldwide have been struggling with new development paradigm, i.e. social development and human-centered development, but the result is mixed. Human resources development alone seemed not enough to trigger a competitive economic growth. There is not yet a success model based on human resources development. The Asian Tigers are basically a mixed model of import substitution and the U.S. oriented export led growth. The dilemma facing the developmentalists is, if not heavy industrialization, which had been proved too costly, where would the development come from?

This project, riding on the tide of information technology, could provide a new paradigm for economic development: human resources based but high-tech oriented development model.

Why would local and international industries be interested in this project?

To expand their business, they need new skilled labors and entrepreneurs. This project will provide both. DOKAP, with its relative stable political and economic environment, is also a bridge towards the Central Asia Turkish Republic markets.

4. Project Evaluation

The financial benefits are assumed to be the ten percent shares in the new start-ups. That is, KTU provides expertise advice and facilities in return for the ten percent ownership of the business in the 43 new start-ups in each of the twenty years. The implied assumption is that the combined potential value (Net Present Value) of the 860 (43x20 years) start-ups is worth around US$ 9,116,500. Therefore the ten percent of the KTU shares is the total cost of the project, US$ 911,650 in NPV (10% $9,116,500). Here, KTU and the Revolving Fund are actually playing the role of a venture capitalist (VC).

Will the combined values of all, or some, of the 860 start-ups be so successful as to be worth US$ 9,116,500 (NPV) in twenty years? Although it's hard to predict, the recent dramatic growth of new start-ups and the VCs, mostly related to IT, in the U.S., Europe, and Japan (Soft Bank, a Japanese VC investing in Yahoo and

many other IT based companies[2]) are good signs for IT entrepreneurship in the second tier-countries like Turkey. The success rate of VC investment in the Silicon Valley is one in seven. Even with a success rate of as low as 1/70, twenty companies would still thrive. With each carries a net present value of mere $75,971, the Revolving Fund could still recover its total investment. And if we are optimistic of Turkey's future, one of the reasons JICA is doing this project here, we should expect much better returns.

Base Case

The analysis assumes that there is no return on the first two years, and from the third year, the 10% shares in all the start-ups are worth a mere $50,000, and increase by 25% per year for the next 17 years. This investment in the start-ups (only) could reach an internal rate of return of 26%—the Revolving Fund gets all the invested money back and, In addition, earns returns and interests on stocks, bonds, and bank deposit with the un-invested part of the fund (the fund is only investing a portion of the money in Start-ups to keep itself revolving forever).

Growth Case

Assuming the 10% shares in all the start-ups are worth $100,000, and increase by 25% per year for the next 17 years, the Financial Internal Rate of Return (FIRR) could be 41%.

IT explosion Case

If what happened in other countries is a good indication, assuming the 10% shares in all the start-ups are worth $100,000, and increase by 35% per year for the next 17 years, the FIRR could be 52%. Please refer to Appendix 8 for the details of the financial analysis.

[2] Just before IPO, Yang (5.1 billion) and Filo (5.2 billion), co-owners, sold $12.5 million in cash for 1/5 of each's stock to Softbank, the Venture Capitalist. Today, Yahoo is worth over 24 billion. If Softbank's share is 10 percent, it is 2.4 billion, not a bad investment over its $25 million investment in two years.

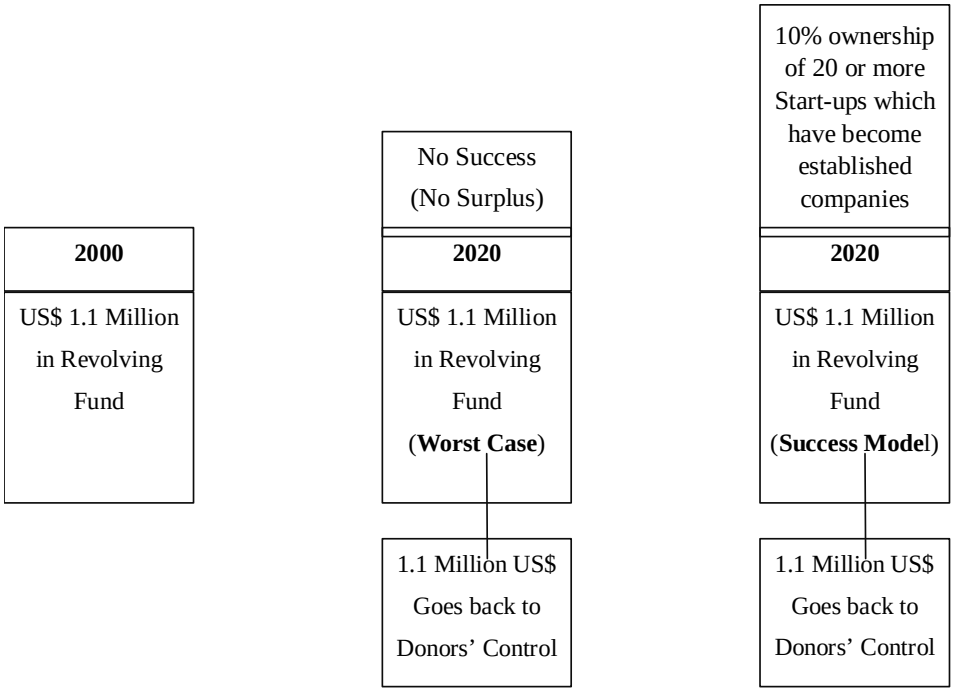


Figure 10 Financing Model

As aforementioned, the Revolving Fund is playing a venture capitalist role which invests for a 10 to 15% of ownership in a new start-up with no income, in the hope that the company will grow into a giant like Yahoo, Netscape, and Sun Microsystems. In a country where venture capital is still a new concept, the Revolving Fund can play a pivotal role in promoting high-tech industries in DOKAP area and may set a good example for Turkey's high-tech industry. This project may also become a contributing component in DOKAP that can match the success of GAP project.

Planning, good as it is, tends to stifle competition. This project will strike a balance between planning and competition, without which no plan will work. In contributing to the social aspect of the DOKAP project, this component can boost local industry in an environment friendly way. The adoption of IT will enable government to provide its services in education, training, employment, health and welfare benefits more efficiently, based on a more complete database. The project will also increase local revenues through economic growth and a better tax collection system. It will also reverse the long-term downward trend in DOKAP economic growth. There is nothing more equalizing than the spread of information technology, which democratizes political, business, and technological information from the privilege of a few. In the next few decades, new successful businessmen, new companies will spring up across the world. Companies we have never heard of will dominate global industries. Turkey in general, DOKAP in particular, has no reason to be bypassed by this trend.

5. Implementation Schedule

The project period for the initial stage of the incubator is 5 years. After the project period, the incubator is expected to be managed individually (See Figure 11).

	Year 1	Year 2	Year 3	Year 4	Year 5
(1) Preparation of short team and long term operation plan					
(2) Establish the Revolving Fund					
(3) Forming the Trust Fund committee					
(4) Forming the Selection Committee					
(5) Start operation					

Figure 11 Action Plan of the Incubator

Books Recommended:

The Silicon Boys and Their Valley of Dreams by David A. Kaplan

The Nudist on the Late Shift by Po Bronson

The Plot to Get Bill Gates by Gary Rivlin

Technopoles of the World by Manuel Castells and Peter Hall

4. Private sector investments

I. INTRODUCTION

This section presents a preliminary analysis of some of the potential areas of private sector investments. Products covered in these studies are regarded to be financially the most promising fields. Private investors interested in these fields are expected to undertake further studies at pre-feasibility and feasibility levels before making actual decisions.

All areas selected for in-dept studies are in the manufacturing sector. These were identified through analysis of industrial sector development (Volume III, Section, 3). The sector work, which led to the selection of these fields, considered a large number of factors affecting the viability of private investment in the proposed products/product lines.

Products covered in these studies are either already significant in the region or can be safely introduced with the existing levels of technology and management capability. Products and production processes are deliberately chosen at the law end of technological sophistication and represent the actual operations in the region. Other more innovative projects that can be successfully undertaken by joint ventures either with large domestic or international firms are excluded. Electronics industry and production of automotive parts for exports are two such examples.

A preliminary report of four products is presented in this section. These are production of electrical appliances, plastics, furniture and footwear. The objective in preparation of these four studies is to further identify key characteristics of the manufacturing enterprises so that appropriate support measures can be formulated by the government. Project based micro parameters are also calculated for use in the Master Plan projections.

Private investment in all four products seem to be financially viable. The basic price and revenue structure seems to be reasonable and these investments are profitable under normal market conditions. Yet, enterprises in the region in some of these product lines have been stagnant. The analysis presented for each product confirms the basic constraints identified in the Industry Sector Report.

The viability of these investments depends on the entrepreneurs' ability to produce standard quality products and market these efficiently. This requires some know how about the product and an acute business sense.

The new liberal economic policies, particularly Customs Union with the European Union, seem to offer new prospects for all manufacturing enterprises in Turkey: enterprises will compete on objective grounds instead of their ability to access incentives and highly subsidized credits. The more liberal environment is considered important in allowing industrialists access to production inputs at

world prices, production technology embodied in new machinery, access to new markets, and in creating a new competitive business environment.

The factors that seem to prevent the industrialists from exploiting these new opportunities include lack of familiarity with the new technology (the inability to fully exploit the new technological possibilities), and lack of skilled labor to handle the new processes and machines.

Some of the key characteristics of the selected investments are summarized below. These characteristics are compared with the results of other information available from manufacturing censuses, investment incentive certificates, and the 1996 national input/output table of Turkey. The basic parameters seem to be reasonable and can be used as a basis for further study.

The parameters are similar for all products. The operating surplus, as a ratio of sales, is comparable for different products. Labor and capital intensity in production also does not vary significantly among these products. This is partly due to the choice of products selected for study in each field; the specific products chosen for the case studies are the ones which are least demanding in managerial and technological sophistication.

Table 28 Selected Characteristics of Private Investments

	Electrical			
	Appliances	**Plastics**	**Furniture**	**Footwear**
Investment per project ($)	511,056	2,736,064	325,690	529,388
No. of workers	29	22	15	33
Annual output (000$)	1,612.5	8,979.0	1,365.0	2,250.0
Operating surplus (%)	41.0	30.0	48.0	37.0
No. of producers in DOKAP	-	37	264	136

Three of the four products are already well represented in the region. For these, the task is to pick a few relatively promising manufacturers and support them in a consistent manner until they are capable of sustaining their own growth. In the case of electrical appliances, new manufacturers need to be induced to invest in the region.

In all four cases, the basic production conditions seem to be very favorable, though they would need to be further checked. At full capacity production, the annual turnover is larger than the investment requirements, investment being defined as the fixed capital investments and the permanent working capital requirements.

The operating margins in all cases are as large as the total investment requirements. This optimistic picture no doubt is partly due to the underestimates of the investment requirements; the investment period is probably very long for most of these projects and there may be substantial costs involved in project formulation and receiving the required approvals for normal operations. Additional time would be needed to process the investment incentive and credit

applications. These costs are not included in the estimates and they can be quite substantial.

Even after taking these costs into account, it seems that the prevailing price structure is basically favorable for industrial production. Yet, industrial output in the region has been stagnant. An important task of the public authorities is to streamline the regulatory procedures and to assist the investors to overcome the administrative barriers which prevent the entrepreneurs from full exploiting the available opportunities. The apparent excessive profitability of the basic operations does point to non-price supply constraints that lead to major distortions in relative prices. Removing these bottlenecks should be a top priority of the public policy.

II. ELECTRICAL APPLIANCES SECTOR

1. Products and Processes

Electrical appliances cover a wide range of products. Some of these are ventilators, aspirators, dishwashers, automatic washers (6 kg capacity), automatic washers – centrifuge dryers (10 kg capacity), electrical washers, vacuum cleaners, blenders, water heaters, hair dryers, irons, microwave ovens, other electrical ovens, barbeques, hot plates, toasters, recorders, videos, radio receivers, and TV sets.

The products listed above fall into three broad categories. These are: 1) Electronic equipment-low current operated ones such as receivers and TV sets; 2) Electronically controlled hi-current equipment such as water heaters, hair dryers, ovens, hot plates and so on; and 3) Electro-mechanical equipment-electronically controlled hi-current operated equipment with movable parts, like washers, dryers, fans etc. These products are generally referred to as “consumer durables”.

Technological investments required to manufacture the first group of equipment is determined and driven by the improvements in solid-state technology, which is the fastest developing technology in the world. For the equipment falling in the other two categories, mechanical parts are more deterministic than the solid-state ones in the overall function of the equipment, therefore mechanical engineering and material science are involved in the manufacturing technology.

Manufacturing process of the third group can be considered the most complicated one, as both mechanical and electronic devices are involved in manufacturing, which are two different disciplines. Usually, the manufacturers of these equipment are specialized in their fields. They purchase the electronic and electrical parts and motors from specialized suppliers and integrate them into their equipment. In this regard, their very basic work is metal (and plastics) processing.

There are quite a number of international and national standards stated by the type of product. These standards deal with issues like human safety, operational requirements, and production and technical support. Considering the product diversity, the details of standards are omitted in this report.

2. Status of the Sector in the World

The main purpose of this report is to investigate the status of the electrical appliances sector in DOKAP provinces and pinpoint potential products and appropriate production technologies suitable at the existing skill level in the region.

Normally, such a sector report should include a part covering the status of the sector in the world and current trends in details. However, considering the extremely diverse product range and the number of manufacturers, such an effort is confusing without a very detailed study at the level of a well defined product.

For the sake of simplicity and ease of understanding, the worldwide status of the sector is mentioned qualitatively. So instead, the development of the sector in Turkey is presented in as much detail as possible.

Electronic appliances of all kinds are manufactured in almost all the developed countries. After World War II, Germany has grown to be the market leader in Europe, followed by France, England, and Holland. In the 1980s, Japanese products captured up to some 30% market share not only in Europe but globally. As the competition grew under the development of market economies, the manufacturing industries have migrated to South East Asian countries and to South Korea where the labor costs are less, keeping R&D activities in their own countries.

Manufacturing and marketing of consumer durables, however, has displayed more of a regional development pattern, because being close to the market in this sector brings about a competitive advantage in pricing. Therefore, dominance of a certain manufacturer over a large part of the world does not occur. Once the manufacturers have determined the market potential, they prefer to directly invest or form a joint ventures with local companies in these markets. In this sense, similar migration of manufacturing facilities has been observed.

In the late 1980s, the consumer durables market in Europe was totally saturated and the European manufacturers started to relocate their facilities to developing countries. This has resulted in severe competition among the international manufacturers.

In 1991, the dissolution of former Soviet Union has greatly effected the sector and provided a huge market for the sector. Unification of the West and East Germany has caused German manufacturers to concentrate in their domestic market. Other European manufacturers have migrated to eastern European countries, where the economic and political situation is relatively better than those of central Asian Republics. China, which is growing as a huge market for the sector, is at the initial stages of development.

In summary, considering the part of the world where the Turkish manufacturers will operate, there is a large potential in the sector. African and American markets need not be considered at this stage.

3. Current State of the Sector in Turkey

3.1 Sectoral Development in the Last Decade

The first manufacturing of durable consumer goods, also known as white-durables, dates back to the 1950s in Turkey. The actual development has only started 25 years ago. Patented manufacturing of sophisticated products has started in the early 1970s, with home refrigerators, and in the early 1980s the sector has become

capable of manufacturing automatic washers, which are the most complicated products in terms of production technology

In 1989, import taxes on appliances were reduced. This policy had a negative impact on the sector during that year. However, the positive impacts has been immediately observed in the following years and the sector has renewed itself and became competitive against the imported products. The 1990s have seen major breakthroughs in the sector.

Data available from various sources is analyzed to see the development of the sector. Considering the diversity of the products, it is almost impossible to get into a detailed evaluation of each product line in this report. Instead, sectoral developments can be traced from a few representative products.

The contribution to value added by refrigerators and automatic washers in the general appliances in Turkey, are approximately 20% and 14%, respectively. Excluding electronic appliances, these two products contribute more than 60% of the total value added in the sector. Therefore the development of the sector over the last decade can be traced from the production and trade amounts of these two products, as shown in Table 29.

Table 29 Development of the Sector Based on Two Major Products (1,000 Units)

	Refrigerators			Automatic Washers		
	Produced	**Export**	**Import**	**Produced**	**Export**	**Import**
1988	890	-	-	432	-	-
89	829	-	-	482	-	-
1990	984	127	-	650	2	-
91	1026	164	35	617	1.5	43
92	1087	278	43	779	4	42
93	1247	469	109	914	5	54
94	1265	586	56	746	17	46
95	1637	802	67	827	41	70
96	1637	640	141	992	47	203
97	1846	700	185	1454	121	295
98	1875	732	322	1375	120	317

Source: Compiled from available data of IGEME, SPO and Industrial development Bank of Turkey

The increase in production of both products in the 1990s can be observed in this table. One can also observe the impact of national economic crisis in 1994. In that year, refrigerator production was stagnant while the production of washers (which is relatively new in the market and is not as dominant as the refrigerators) has decreased drastically. Imports of both goods have declined.

The industry recovered in 1995. In 1996, Turkey joined the European Customs Union and the import taxes on all industrial products were removed. The sudden surge in quantity of imports of both products reflects the impact of this integration. Since 1996, imported products have been widely available in the domestic market. However, the national production and exports have not been adversely effected from the Customs Integration. On the contrary, an increase in production and

exports is obvious in 1997. The Turkish manufacturers do not seem to be badly effected from the global crisis of 1998. However, the actual impact of the crisis is observed in the country in 1999, and unfortunately data is not yet available to investigate the scale of this effect.

Although these two main products alone represent the sectoral developments, the contributions of other products also needs to be considered to get a more complete picture. The following data gives an idea about the performance of the electrical appliances sector in general.

Table 30 Demand, Supply and Foreign Trade in Appliance Sector

(Unit: Billion TL in constant 1994 prices)

	Demand	Supply	Imports	Exports	Export – Import balance
1997	14,003	13,430	5,936	5,363	-573
1998	13,742	15,023	5,941	7,223	1,282
1999*	13,336	15,683	5,944	8,291	2,347

Source : Developments in Economic & Social Sectors, SPO 1999. *1999 values are estimates.

The effect of stagnant national economy can be observed from the static national demand level in 1998. However, the production has not dropped, and the industry has directed to foreign markets. Demand for imported goods seems to have stabilized in recent years. The 1999 values are the estimates of SPO. SPO has recently declared a 5% drop in output of national economy in 1999 and imports during that year may be even lower than the estimates for that year.

At present, products manufactured in Turkey are marketed in most of the industrialized European countries and Turkish manufacturers work as sub-contractors for globally recognized brands of European manufacturers. The sub-contracted product range varies from fully manufactured equipment to semi-manufactured assemblies and individual components, such as plastic parts.

3.2 Size and Industrial Output

According to SIS Survey of Industries in 1996, there are 5,899 people employed in 49 work places nationwide (Appendix 9). However, this data itself does not reflect the actual size of the sector. First, the data exclude the enterprises with less than 10 workers. Second, the appliance manufacturers basically assemble different components supplied from a variety of complementary industries. They sub-contract the production of some distinctive parts to other manufacturers which are classified under other manufacturing industry codes. Considering these facts, the total number of employment directly and indirectly related to the sector and the value added by the sector can be estimated at least twice the level given in Appendix 9.

3.3 Structure and Location

By the nature of assembly manufacturing, the sector is characterized and the market is led by the big manufacturers. Small and micro enterprises have to contend with production of very simple products like heaters, hot plates, which do not require complicated processes.

Depending on the product spectrum, the manufacturers in Turkey can be classified in two categories. Those who are capable of manufacturing appliances with movable parts, such as washers and dryers, form the first category. These companies have huge investments comparable to the ones in industrialized countries. They are the locomotives of the industry not only in appliances but also in various other manufacturing sectors. The brand names of these companies are nationwide recognized. These enterprises are located in the most industrialized parts of the country and they have multiple production locations: Demirdöküm-Beko-Arçelik brands are manufactured in Izmit, Eskisehir and Ankara. AEG-Profilo is located in Istanbul and Izmit, Teba and Vestel are in Izmir and Manisa. They are either established in industrial estates or operate on stand alone industrial plots.

The second category manufacturers are relatively small companies and their production technologies are limited to manufacture of stationery products such as ovens, burners, and the like. These companies are found in most major cities in Turkey. The relatively large ones in that group are Termikel and Kumtel with plants in Ankara and Kayseri, respectively. Other manufacturers falling in this category are located mainly in Eskisehir, Ankara and Kayseri, with few in Gaziantep.

Apart from these recognizable enterprises, small manufacturers of single products can be found almost in every city. These include irons, dryers, blowers and similar products.

The labor productivity in big enterprises is considerably higher than those small ones. Average labor productivity in the sector is almost the same as the national average of manufacturing industries (Appendix 9).

3.4 Constraints and Development Potential

Big manufacturers either have foreign partners or they are suppliers or sub-contractors for a foreign manufacturer. The associations resolve their technological and financial requirements to a great extent. Almost all the manufacturing inputs are supplied from the local market, except some special electronic control units which are not locally manufactured. The only problem they face is competition in the global market.

Supply of high quality raw material (basically sheet metal) is reported to be the main problem for the manufacturers in the second category. The only sheet metal

producer in Turkey, Erdemir Steel Industries, is capable of fully satisfying the domestic demand for quality sheet metal. As a policy, Erdemir exports majority of its production and small to mid-sized metal manufacturers are forced to import their requirements. This may lead to domestic users paying higher prices for imported products of comparable quality.

For the small manufacturers, whose operations are not large enough to enjoy economies of scale, other input costs also become a big concern. The problem of higher input costs is compounded by poor quality products manufactured by unskilled workers.

The second biggest constraint in the sector is the lack of skilled manpower. The skilled worker demand in the sector is comparably higher than many of the other manufacturing industries. Graduates of technical high schools and two-year vocational colleges are expected to satisfy the demand for skilled technical workers. These graduates are reportedly lacking the practical experiences for the positions they are supposed to occupy. As a result, the employer has to build the required skills for its own workers, which costs both time and money.

Big manufacturers train their own workers without difficulties. The training costs become a serious problem for the small enterprise. KOSGEB only provides laboratory tests services for the quality of the steel. Other than this function, KOSGEB services do not match the manufacturers need.

Both functional and appearance design are very important factors in competitive power. The big producers may produce under the license of their foreign partners. Alternatively, they are able to employ their own designers. For the small manufacturers, designing a new product or improving an existing one poses major problems. Changing the design of a product requires changing the moulds and patterns. Sheet metal patterns are very expensive and small manufacturers usually continue to produce with the same design to avoid additional costs.

Marketing and management skills remain a problem for small manufacturers, as the medium sized firms. Almost all the small enterprises are family owned businesses. Recently, professional managers are employed by the relatively progressive firms.

In summary, there are strong pressures for expanding the size of the operation. Nevertheless, the size and production sophistication varies widely in the secor. There is a growing demand in both domestic and international markets for all types of products, for all levels of sophistication and quality ranges.

3.5 The Market Size

The domestic market in Turkey is still developing. The main export markets for the Turkish manufacturers are Eastern Europe and the Middle East. The CIS

market is in the early stages of development. Small sized, mid to low-end products find buyers in CIS countries.

4. Current State of the Sector in the DOKAP Region

4.1 Development Potential

Electrical appliances industries do not exist in the region at all. Therefore, no specific constraints can be stated for development of the sector in the region and nationwide constraints are equally valid in this part of the country as well. On the other hand, some region-specific advantages can be listed as follows.

- Recent studies has revealed that the electric consumption per capita is increasing in the DOKAP provinces. This is an indication of an increase in both electricity consumption in houses, and level of industrialization. This implies the local market is being developed and will keep developing in the near future.
- The market prospect for home appliances industries in the DOKAP region must be selected as the CIS countries. The geographical closeness of the region to these markets is itself a development potential. The CIS markets are still in the early stages of development. The recent mega-projects like the Baku-Ceyhan crude oil pipeline, integration of Turkish railroads to former Soviet railroad network through Armenia, and already-started coastal highway construction in the region are all indicators of the near future development potential in Caucasia.
- Preparation of strategic development master plan shows the strong intention of Turkish government for regional development. During the field surveys made for preparation of the master report, the Study Team has observed the intention of local inhabitants and businessman toward industrialization.
- The ratio of high school graduates to total population in the DOKAP region is higher than the national average. That implies the qualified but unemployed labor supply is available at a reasonable cost.

4.2 Available Supports

Financial support is available from the State agencies via investment incentives and Halkbank credits. As a result of latest IMF Stand-by agreement undersigned by the Turkish Government, a new economic program is being followed. Within the framework of this program, Halkbank's credit terms and conditions are known to change. In the future, Halkbank credits may not be as attractive for the investors as they used to be.

State incentives cover the following type of financial supports:

- Free allocation of industrial plots for those investment creating a certain amount of employment,

- Direct contribution to machinery investment,
- Import tax and VAT exemption for machinery imports,
- Corporate tax exemption for a number of years after the completion of investment

Potential investors can investigate the details of the incentives from the Undersecretariat of Treasury. The incentive system for the relatively small enterprises is administered by Halkbank. The latter also provides a range of services in technology selection and referral.

4.3 Potential Products and Technologies

Considering the existing industrialization level of the region, the establishment of complicated manufacturing assemblies is rather difficult and costly in the short term. However, production of white-durable goods with no complicated parts can immediately take off. Among those, the potential products can be categorized according to material used in manufacturing.

1. The products can be made of metal only, and can be totally manufactured in the region.
    - Toasters, hot plates, burners,
    - Ovens of all size
    - Manually controlled washers
2. The second category products contain plastic parts in addition to metal. Initial design and production of plastic parts are rather costly and the region does not have the technical skill for this yet. Once the plastic hardware is provided elsewhere, these products can be assembled in the region with no difficulty.
    - Ventilators, aspirators,
    - Pressing irons,
    - Hair dryers,

The products listed above are the ones that can be manufactured with relatively small scale of investment. However, once a potential investors makes a strategic decision to invest in this area, almost all appliances manufacturing industries can be accommodated in the region.

5. Financial Parameters for a Typical Plant

In order to layout the investment requirement for manufacturing the first category products given in the previous section, a financial analysis for an oven factory is given below.

The purpose of this analysis is to show the scale of investment and operating costs of a typical plant established in the DOKAP region. In this regard, only a tentative summary of financial analysis is provided.

The values used in calculating the project costs are realistic. Interested readers can use these values, after appropriate modifications to reflect the particular conditions of the investor and the location, to conduct more detailed analysis of the financial viability of the project.

5.1 Assumptions on Operations

This plant is assumed to make standard ovens as described below. However, with the equipment listed, the plant can also produce a variety of similar electrical appliances.

Table 31 Assumptions on Operations

Name of product	Mini bench-top oven
Dimensions	30 liters internal volume
Material	Body : Electrostatic painted industrial metal sheet. Cover : Glass There is no thermostat control.
Accessories	Two trays included. Trays are made of sheet steel and enameled. The products are individually packed in package cardboard with brand names printed.

The plant is assumed to operate 250 days a year, 8 hrs a day. Production capacity of the listed machinery is 150 units per 8 hrs workday, giving total capacity of 37,500 units a year at full capacity.

Raw material costs include sheet metal, plate glass for cover, resistances, electric switches and indicator lights, insulation glass fiber-wool, and paint. Total electricity consumption of the machinery is assumed as 145 kW an hour. The paint and enamel units cause most of the electricity consumption. In fact, the paint and enamel unit will not be used at full capacity and these units are utilized at 60% of their own capacities, when the plant operates at full capacity. Normally such a plant can be established without these units, if these facilities are available in the district. Note also that their contribution to fixed investment is higher than the other machinery. Instead of electrostatic powder paint unit, kiln-dried wet painting unit may also be considered. In this case, the cost is much lower.

Basic prices and costs are given in Appendix 11. This revenue and costs represent the situation at full production. The full feasibility study would need to make assumptions on the production build up over the years.

5.2 Financial Viability of the Proposed Project

The gross margin on this project is over 60% (Appendix 11). The magnitude of the gross operating income is larger than the total investment requirements. This indicates that there is little risk involved in possible understatement of investment costs. Substantial increases in actual investment costs, leaving all other costs unchanged, will not have a major adverse impact on the project viability.

Two factors that will have an important impact on the project viability are the cost of raw materials and the sale price of the finished product. The final product would not be a recognized brand name in the market. The price will vary significantly depending upon the product's acceptability and quality. The key point is thus to assure the product quality and acceptability in the market.

Raw material prices are also important in project's viability. The price at which the raw material will be procured will thus have a significant effect. The availability and the pricing practices of the raw material suppliers need to be further studied during the feasibility study.

III. PLASTICS SECTOR: PVC PROFILE EXTRUSION PLANT AND PVC WINDOW/DOOR MANUFACTURING WORKSHOP

1. PVC Processing Overview

1.1 Products and Process

Poly Vinyl Chloride (PVC) products can be characterized by long-life, durability, ease of manufacturing and fitting, and lightweight. With these properties, PVC products find a variety of applications in our daily life. Among the products which are intensively used in infrastructure and buildings are:

- Pressure pipes
- Fresh water pipes and fittings
- Drainage pipes, fittings
- Variety of valves
- Variety of profiles used for door, window frames
- Electric armatures
- Industrial parts for a variety of use

Besides the manufactured products, PVC is used in the industries as a semi-processed input material in many standard sizes.

PVC raw material is a petroleum by-product. Depending on the required physical properties of the end products, this raw material is mixed with appropriate additives and fed into processing machines, which work with injection or extrusion principle. Only the extrusion process, which is the process used for manufacturing of profiles and pipes, is discussed in this report.

1.2 Manufacturing of Pipes & Profiles

An extruder receives the raw material mixture, melts it, and extrudes it through an extrusion head all in one continuous operation. The extrusion head is the element that forms the product. Different extruder heads can be used on the same extruder to obtain different products. That means, the same technology can be used to manufacture pipes and profiles, the only change in the process is the raw material input to the extruder.

The continuous product which comes out of the extruder head is hot and it has to be cooled down in a controlled manner. Otherwise the final shape and stability of the end product can not be guarantied. Cooling is done rapidly in a water-cooling chamber while the continuous product is hauled-off at a constant speed.

As the production process is continuous, the size of the end product is theoretically unlimited. The general practice is to cut the end-product in 6 meter pieces, which is assumed to be an industry standard by majority of manufacturers.

1.3 Further Processing of Profiles

The profiles or pipes of different shapes and dimensions find a variety of applications in daily life. Among those applications, manufacturing of door and window frames are rather complicated and more value adding processes, as described below.

Profiles are cut into desired lengths to make window or door frames. Depending on the application, PVC profiles may need to be reinforced with internal steel profiles. To do so, metal profiles are intruded into the PVC profiles and the two materials are screw-fixed together. Following this process, the fixture and handle bores are drilled.

The next step in making the frames is corner welding. Welding can be done manually, or automatically by welding machines. In welding, the PVC pieces are heated to melding temperature and held together until the material in desired joint is re-mixed together, then the welded joint is cooled down under controlled conditions. No additional material is used in welding. Welded joints are planed afterwards to remove the unwanted scales.

Single corner to four-corner welders are available for welding. The difference between them is the mechanical quality of the final products. Needless to say, the mechanical alignment of the frame is much more precise when all four corners are welded simultaneously. Therefore four-corner welding is more preferable if it is financially feasible.

The next step is the insertion of the sealing gaskets and accessories, which is a manual operation. Once the gaskets are in place, frames are quality checked and packed for shipping. Glasses are mounted into the frames after the frames are installed in place.

1.4 Standards

Turkish standards TS 5358 states the quality measures and standards for manufactured PVC profiles. These standards are grouped under the following headings.

- Material
- Form
- Dimension & tolerances
- Color stability against atmospheric conditions
- Physical impact resistance
- Behavior under temperature changes

Standards have not yet been determined for manufactured windows/door wings, but studies are being carried out. These standards relate to:

- Air & water tightness

- Temperature insulation specifications
- Wind resistance
- Mechanical resistance end endurance

These standards vary depending on dimensions and internal/external use of the wings. In the case of external use, standards change with the building height as well.

The EU integration process is expected to speed up the standardization, and once the standards are set, they will be part of the ISO 9000 total quality certification for the firms. Standards will also improve the quality of auxiliary products used in window manufacturing.

2. Current State of the Industry in the World

Various sources provide data on the use of PVC products. However, coherent data for a sound comparison is difficult to reach (See Table 32). USA is the biggest market for PVC products. In the USA, 5% of the total PVC consumed is reported to be used in the window/door subsector in 1993. This ratio is reported as 15% in Europe in 1999, and has grown by 3.5% per annum over the last 20 years.

Profile production in Europe is given below. Turkey is a significant producer, ranking third after Germany and England.

Table 32 PVC Profile Production in Europe and Turkey in 1999

Country	Production (1,000 tons)	%
Germany	420	41.9
England	210	21.0
Turkey	95	9.5
France	58	5.8
Benelux	40	4.0
Italy	38	3.8
Spain	14	1.4
Eastern Europe	105	10.5
Others	22	2.2
TOTAL	1,002	100.0

The future growth in profile production in1999-2004 is estimated to be 2% in Western Europe; between 5 to 8% in Eastern Europe; and over 10% per annum in Turkey.

The low growth expected in Western Europe is due to the stabilized market for replacements windows, and Eastern European markets is in the early stages of development. Turkey, on the other hand, is a fast developing market for PVC windows.

Compared with wood and aluminum, PVC dominates the windows market with a share of 42%, followed by 30% and 28% relative shares of wood and aluminum, respectively.

A cost analysis made by a UK municipal agency has revealed the following cost indices (See Table 33).

Table 33 Cost Indices

Material	Installation Cost Index	Cost over 15 years of usage
PVC	1	1
Soft Wood	0.82	1.40
Hard Wood	1.23	1.46

Recently, the installation cost of PVC windows is higher than the soft wood windows, the cost of ownership over 15 years, however, is at least 40% cheaper than both kind of wood window frames.

Within the next 20 years, the installation cost of a square meter of window is estimated to increase by about 140% for the wood, 32% for Aluminum, and 24% for PVC windows.

The conclusion derived from the above arguments is that the PVC seems to be the most promising material in window/door production within the foreseeable future.

3. Current Conditions in Turkey

3.1 Size and Industrial Output

It is very difficult to assess the development of PVC production and processing in Turkey with the available statistical data. Instead, the current state of related plastics sectors are given in Appendix 12 and Appendix 13, for the DOKAP region and for Turkey. In the tables, PVC raw material production is classified under sector code 3513, and processing of the PVC products are grouped under code 356. The production of raw material is beyond the scope of this report. Therefore, sector 3515 is kept out of consideration.

The details of sector 356, namely the manufacturing of plastic products, is given in Appendix 13. The data for the DOKAP region given in the table is collected from the professional associations. The data shows that the plastics subsector has only 2.03% share of the overall manufacturing industries in the region.

Development of PVC Profile Manufacturing

The development of the profile production in Turkey can be seen from the establishment years of the manufacturers, as show in Table 34.

Table 34 No. of Firms Established during the Year

Year	No. of firms established during the year
1978	1
1981	1
1983	1
1985	1
1991	1
1993	2
1994	6
1995	3
1996	12
1997	3
1998	2
1999	3
Total	36

In 1999, the installed production capacity of the 36 firms are estimated to be about 220,000 tons per year, which exceeds the total demand in the Turkish market. However, the maximum capacity utilization ratio in the sector is 80%.

The total production of the profile sector in 1999 was 94,670 tons, and capacity utilization is estimated to be about 60%. This ratio varies between 45 to 70% depending on the size and the degree of integration of the production plants. Total number of employment in the sector in 1999 is estimated to be 1,600.

Profile manufacturers train and certify their distributors (Window makers) and do not allow them to use other manufacturers' products. Total number of such certified dealers in Turkey in 1999 was 3,237. With an average of 5 workers in a workshop, the total number of workers in window manufacturing can be estimated as 17,185 and including the profile manufacturing, the total employment in PVC sector nationwide can thus be estimated as 17,785.

From this estimate, the employment multiplier of 10 in PVC profile manufacturing is quite plausible. Including the glass workers in the window sector, this multiplier becomes even higher than 10.

Labor productivity of the plastics sector is about the same as the national average in manufacturing industries.

3.2 Production in the DOKAP Region

The number of distributors (window makers) affiliated with the top five profile manufacturers over the geographic regions in Turkey is given in Table 35.

Table 35 No. of Distributors

Region	No. of Dealers	%
Marmara	696	47
Eagean	169	11
Central Anatolia	238	16
Mediterranean	116	8
Black Sea	168	11
Eastern Anatolia	27	2
South-East Anatolia	61	5
TOTAL	1,475	100

Considering the size of the regional population, the Black Sea region has the highest number of dealers per capita. This reflects the effects of climate on the consumer's preferences.

The further breakdown of the above distribution chain in DOKAP provinces is given in Table 36.

Table 36 Breakdown of the Distribution Chain in DOKAP

Artvin	1
Bayburt	-
Giresun	12
G.Hane	4
Ordu	14
Rize	10
Trabzon	13
TOTAL	54

Including the distributors of all other profile manufacturers, total number of enterprises is estimated to be around 70, and total employment in window-making is about 300 in DOKAP Region.

There is only one full-range profile and PVC sewerage pipe manufacturer in Trabzon. The plant was established in 1998 and has completed only 60% of the planned investment, operating with 35 employees. Once the investment is completed, this plant will employ 80 people. The production capacity will be 5,000 ton/year at full capacity utilization.

Another small manufacturer in Bayburt produces a mono-type profile. The number of employees in that plant is about 10 and production capacity is less than 1,000 ton/year.

The current state of the PVC profile & window subsector in DOKAP in 1999 can be summarized as Table 37.

Table 37 Current State of the PVC Profile & Window Subsector in DOKAP

DOKAP region	# Work place	# Workers	1999 output	Installed capacity
Profile Production	2	45	1,500	7,000
Window Making	70	300	Not available	Not available

The actual output of 1,500 tons in DOKAP region in 1999 is 1.6% of the national production. The total production capacity is about 2.8% of the total installed capacity in Turkey.

Approximately 17% of the production of these two profile manufacturers are exported to Georgia in 1999. Installations are made locally by Georgian employees.

3.3 Constraints and Development Potential

The two basic constraints reported by the major manufacturers is the high inflation and unstable raw material pricing policy of PETKIM, which is the state monopoly in raw material. Raw material prices are reported to be 465 US$/ton in April 1999, 1050 US$/ton in October 99. Recently, the price of PVC is US$870/ton.

Once the financial problems are solved, the sector seems quite promising, especially in the markets in former USSR countries.

In order to disclose the recent development activities in the region, the incentives granted for PVC profile and window manufacturing were also studied. Out of three related projects granted in the sector, one of them is the profile manufacturing factory in Trabzon, mentioned above. There is no information on the status of the other two projects.

3.4 Support for Development

As the sector is relatively new in Turkey, professional associations are still in the process of organization and not much support should be expected from them.

The manufacturers of extrusion machines provide their customers with required training and technical support. This may be sufficient for the profile production. The profile manufacturers train frame-makers.

Financial support is available from the State agencies via investment incentives and Halkbank credits. As a result of latest IMF Stand-by agreement undersigned by the Turkish Government, a new economic program is being followed. Within the framework of this program, Halkbank's credit terms and conditions are known to change. In the future, Halkbank credits may not be attractive for the investors as they used to be.

State incentives cover the following type of financial supports:

- Free allocation of industrial plot for those investment creating certain amount of employment,
- Direct contribution to machinery investment,
- Import tax and VAT exemption for machinery import,
- Corporate tax exemption after the completion of investment

Potential investors can investigate the details of the incentives from the Undersecretariat of Treasury. Incentives are available for small investors through the Halkbank. It is likely that profile extrusion plants will be eligible for incentives from the treasury while smaller investments for window frame manufacture may find Halkbank incentives more suitable for their needs.

4. Financial Parameters

4.1 Profile Manufacturing Plant

This study is made for a plant with a capacity of 5,000 ton/year, which is a typical capacity in Europe. With this capacity, a plant can reach the economy of scale and compete in the market. With lower capacities, the plant becomes marginal and vulnerable to economic fluctuations.

Assumptions:

- The plant is assumed to work 300 days a year, 24 hours a day (net 20 hrs of work) in three shifts. This implies 850 kg/hr production capacity. Such a capacity is assumed to be fulfilled with three different extruder assemblies producing different types of complementary profiles in certain proportion.
- Building costs are estimated from typical realized investments in Trabzon OIE. Typically 230 $/sqm of closed manufacturing and administrative buildings are required with the necessary land parcels.
- Price of industrial electricity in Trabzon OIE is 0.06 $/kW. Electricity expenses are estimated from total installed machinery using 650 kW. Under continuous load, nominal power consumption of the machinery is assumed to be 70% of the tabulated maximum power. Yearly consumption is calculated to be 3,120,000 kW.
- The plant is assumed to be fully financed by the investor. Machinery is assumed to be imported from the EU countries. Import related costs of 0.6% are included in the installation costs.
- Staff costs represent typical levels in the region. Salaries used in calculations include social security premiums paid by the employer. (Gross salary is 1.6 times the net salary).
- Five year lifetime for production machinery, 20 years for buildings is assumed, giving 20% and 5% linear depreciation rate per year, respectively.
- One month of raw material stock is assumed for calculating the permanent working capital. The same is the basis of other operating costs. Raw material costs of PVC and additives is 1.04 $/Kg, including the transportation costs to Trabzon.
- One percent of the machinery cost is assumed for yearly repair and maintenance over the lifetime of the project, which is typically 20 years. This ratio however, is known to be high in the first five years. Actual investments in

the region report very little repair and maintenance costs within the first 5 years.

- The size of profiles produced varies widely as are their weights. A typical size is assumed for output calculations. The unit production cost and selling price of this non-existing product is calculated from weighted average price of three different profiles. The input-output relation of such a product is worked out on the basis of a 0.82 meter of profile with a unit use of one kg PVC.

With the above assumptions, the investment costs and the cost breakdown for a profile extrusion plant is given in Appendix 14 and Appendix 15. Note that this report is prepared only to show the scale of investment to potential investors. But the costs given in the study are fairly realistic and can be used for further detailed analysis.

4.2 Window/Door Making Plant

The parameters for a typical plant are used for estimating the viability of a plant producing good quality window frames. For this plant, double-head-welding technology is selected against four-corner-welding.

4.2.1 Operating assumptions

- Standard product : the unit output is considered as 1 square meter of window, of which half is made of fixed frame, and the other half is composed of both a fixed frame and an opening wing. Thus, the amount of profile required to manufacture such a window is 7 meters (of hypothetical profile assumed in the above analysis).
- Capacity : the plant is assumed to operate 8 hours a day, 250 day a year. With a daily capacity of 40 standard units a day, the total capacity of the plant is assumed to be 10,000 sqm per year.
- Costs of accessories used in the windows is not included in the unit input costs, as these are re-sellable goods.
- It is assumed that all of the output will be sold in the local market. Including the installation in the building, the final product is assumed to be sold at twice the manufacturing costs of PVC frame, which was found to be the typical price in Ankara. Accessories and glass prices are not included in calculations.
- Machinery can be purchased in the local market. In fact, turn-key workshop construction projects are offered by some machine suppliers.
- Installed maximum power consumption of a plant is 16.7 kW/hrs. Assuming nominal consumption as 10kW, yearly power consumption is 20,000 kW.
- All other assumptions used in the profile extrusion plant are also valid for this study. Cost details are given in the following pages.

4.2.2 The project viability

Both the manufacture of profiles and window frames is highly profitable. The window frame manufacture is smaller in scale, the magnitude of operating margins is smaller, but the ratio of gross margin is fairly high. The profile extrusion plant is different in almost all respects.

Both of these manufactures seem to be financially viable. The profile manufacture, however, is very sensitive to raw material availability and prices. Therefore, these factors should be studied in some detail by the potential entrepreneurs during the detailed studies.

IV. WOOD PROCESSING AND FURNITURE MANUFACTURE

1. Products and Processes

In the broadest sense, a study on wood processing industries should include the ways of efficient exploitation of forests. However, the scope of this work is limited to the production processes starting from saw-mills to furniture-making. Stages of value adding processes and products in the wood processing industry are briefly described in the following section.

Industrial Timber (Board): In sawmills, logs are cross cut in standard dimensions to obtain industrial timber, the very first industrial wood product. These boards, which are naturally damp, have to be dried before further use. The boards can be either stacked and let air-dried naturally, or kiln-dried. Air-drying is time consuming and a rather uncontrollable process, while kiln-drying is fully controllable and much faster.

In carpentery and furniture-making, kiln-dried wood is much more preferrable than those air-dried.

Another value adding process to industrial wood is impregnation. In this process, first the natural juice of wood is vacuumed out and then special chemicals are impregnated into the wood in vacuum chambers. The chemicals prevent re-absorbtion of water into the texture of the wood, as well as keeping the wood-worms out. Therefore, bending/cracking risk of wood after absorbtion of exterior water is avoided. With this property, imprenegrated wood is the highest priced wood and basically preferred in exterior works.

The by-product chips and scale from all wood processing industries are used as raw material in synthetic wood products; chipwood, MDF (Medium Density Fiberwood), and in paper manufacturing. In paper industry, certain fibre specification is required, therefore not all the wood chips are suitable for paper making.

Veneer : In veneer cutters, large blocks of wood are cut in 1 mm thick slices which are used for decorative final coating. The area (width and legnth) of decorative veneer is limited with the timber used. As it is basically used for decorative purposes, the market value of veneer is determined by the type of the wood.

Synthetic Wood products (Plywood – Chipwood – Fiberwood) : Veneer used in making plywood are thicker than decorative ones and are obtained using different technology. Plywood veneer is pealed off the timber while the timber block is rotating around its cylindrical axis, therefore much larger sizes (area) can be obtained. Layers of these veneers are glued and pressed to obtain plywood of varying thickness. By using the same type of press technology, a plant can also manufacture chipwood and fiberwood, the difference being the size and the density of the pulp mixture.

These synthetic wood products can be used as is, or they can be further coated with natural veneer or synthetic coating material. All of the products find usage in furniture making and carpentary, packaging and in building construction as well. Chipwood is the basic input material for furniture sector.

Millsaws

The first transformation of natural logs into industrial wood take place in sawmills and veneer cutters. Capacity of millsaws are determined according to the log size to be processed.

Veneer, Parquet and Braided Wood Manufacturing

These products are manufactured by using product-specific machinery. Input to the sector is industrial wood. Both decorative and functional characteristics of the end products are important. Therefore, specific type of wood is selected for these products.

Carpentry

Carpentry can be defined as a value adding process of which the basic material input is the industrial wood. The output of carpentry ranges from door and window frames to a variety of custom-made components. The sector is labor intensive in general. Carpenters usually work with generic type of production machinery whose usage requires certain skills.

Furniture Making

As far as the output specifications are concerned, the most sophisticated and highest value-adding process in wood processing is furniture making. The material inputs are wide ranging, and the end products should satisfy certain functional and style requirements.

Furniture makers can be classified under two groups, by the enterprise sizes: Those small sized manufacturers generally produce non-standard custom-made products upon purchase orders, while for the big mass producers the selection of product line and standardization is vitally important to obtain economies of scale.

In this report furniture making sector is studied in detail. This includes furniture production and activities of all other wood processing industries such as auxiliary production goods like accessories, paint and varnish, etc.

2. Current State of the Sector in Turkey

2.1 Wood Processing Sector in Turkey

Organized skill development programs in wood processing has started in carpentry and furniture making in the early years of the Turkish Republic. Through the years, labor intensive small workshops have spread widely. Emergence of industrial scale enterprises, however, has been slow. The establishment of large scale enterprises has started only 10 years ago.

The structure of the sector in 1992 is depicted in Appendix 18 and Appendix 19. The total number of enterprises with more than 10 workers is 419. Recent studies estimate the total number of all enterprises registered to Wood Workers Federation and Chamber of Industries to be around 600,000.[1] The order of magnitude difference between the two data is somewhat surprising, and the only explanation to this difference is that SIS statistics reflect only the formal enterprises with more than 10 workers. Wood Workers Federation records include some micro-enterprises and individual craftsmen. Both data confirm that the wood processing industry is characterized by small to micro enterprises.

In terms of employment, the share of wood processing industries within the total manufacturing industries is only 2%. In terms of value added, this ratio is 1.09%, which are both quite low. (Appendix 18)

Within the wood processing sector, the highest contribution to GDP comes from furniture subsector with a ratio of 37%. The remaining 63% are contributed by all other subsectors.

Labor productivity in the sector is about half of the general manufacturing industries. The labor productivity of enterprises with less than 100 workers is considerably less than that of the larger enterprises. Being comprised of small and scattered structure, average labor productivity in wood processing is low.

There are 21 state-owned enterprises reported in Wood Products subsector in 1995. Their contribution to sectoral GDP was less than 10%. State involvement in the sector is in forest exploitation and sawmills, namely the first transformation processes. This picture has been changing after privatization of ORÜS sawmills in 1996. Up to date data is not available for detailed analysis of the recent situation.

There is only one state-owned enterprise in furniture subsector, and its contribution to employment and value added is practically nil. Therefore, it can be confidently said that the wood processing is totally driven by the private sector. Forest exploitation is still under the government monopoly.

2.2 Furniture Subsector

2.2.1 Structure

Furniture subsector is characterized by small enterprises. In 1995, 97% of all furniture manufacturers employed 10-25 workers, and the labor productivity in these companies is about the half of the sector average. (Appendix 18)

As of December 1997, there are about 10 fully automated large scale factories in furniture manufacturing and the share of foreign capital investment in these

[1] *(Ferruh Tanyel, Small and Mid-sized Furniture Sector, KOSGEB, 1999).*

enterprises is about 75%. The share of foreign investment in overall furniture sector is 0.01%, which is practically nil. (Tanyel, 1999)

Provincial concentration of the furniture subsector in terms of the industrial outputs are:

Ankara	27.2
Istanbul	18.1
Izmir	9.0
Adana	9.0
Bursa	5.4
Eskioehir	4.5
Kayseri	4.1
Other	22.7

Output of the furniture industry in Turkey within the last 6 years is given in Table 38.

Table 38 National Output of Furniture Sector (Billion TL, in 1994 constant prices)

	1994	**1995**	**1996**	**1997**	**1998**	**1999***
Total Output	27,060	31,513	33,135	36,388	34,703	36,396
Capacity Utilization %	68	72.2	72.9	-	-	-

Source : Developments in Economic & Social Sectors, SPO , 1999
* 1999 value is an estimate

This data suggests an average of 5.1% annual growth until 1997. Stagnant national and global economy in 1998 has resulted in a contraction in the furniture sector, as in all other manufacturing industries. In 1999, the sector was estimated to grow and recover its level of 1997. However, SPO has recently announced 5% decrease in national economy in 1999. Considering this fact, the sectoral output might have further dropped from its 1998 level.

Capacity Utilization data for the years 1997, 1998, and 1999 are not available. However, the total output values can be used for an estimate. Assuming no new investments since 1997, the increase in industrial output suggests a capacity utilization of 80% in 1997. Considering the effects of the 1998 economic recession , the recent capacity utilization is probably less than 75%.

The sector is domestic market oriented. The stagnant level of national economy which results in low domestic demand, and raw material shortage is reported to be the basic reason for low capacity operation of the industry. (Tanyel, 1999)

2.2.2 Constraints to development

- Production inputs: The basic constraint for development of wood processing industries in Turkey is the lack of raw material. The quality of domestic industrial wood is not satisfactory and the amount is not sufficient. Besides raw material, quality accessories are also difficult to obtain in domestic

market. Export of raw material and other production goods increases the raw material costs for the domestic manufacturers.

- Design: In furniture sector, both functional and fashion design are very important factors in competitive power. There is almost no professional designers employed in furniture sector, not even by the large scale manufacturers. Therefore, distinctive products are not generated. In most cases, European designs are imitated. As the patent law enforcement is not followed, distinctive designs of domestic manufacturers are also quickly and cheaply imitated. As a result, even the large manufacturers are not willing to invest in designing.
- Technology: Small enterprises use universal machinery in production. The use of these machinery requires certain skills, which normally the workers do not have. As computer drawings are not utilized in production, the product standardization can hardly be assured and this results in low quality products for the style and functionality. Large-scale manufacturers import relatively new technologies. Those who have a foreign partners utilize modern technology.
- Trained Manpower: Great majority of furniture workers do not go through proper vocational training. Although there are structured training programs available, such as the apprenticeship school of KOSKEB and wood-working high school by the Ministry of Education, small enterprises can not afford to train their personnel. Therefore, traditional ways of skill development is still followed.
- Marketing & Management Skills: The sector is basically domestic market oriented. They operate on make-to-order principle, and marketing activities of small enterprises are limited to the individual marketing capabilities of the owner. They are dependent on their existing customers. Managerial skills and vision of the workshop owners are quite poor. Mass producers are better organized in management and marketing.

2.2.3 Market

Furniture sector is basically domestic market oriented. This is one of the reason for low capacity utilization of the existing enterprises.

It is possible to estimate the size of the national market. However, the strategic development plans are based on the export oriented production. Therefore, investigating the export markets is much more sensible in this report.

Appendix 20 gives the world furniture trade statistics in 1992. The very low share of Turkish furniture sector in the world trade in 1992 is immediately obvious from the data. Considering the low development rate of the Turkish furniture sector since 1992, not much change in the overall picture is expected. Therefore, 1992 values can be assumed to reflect the current situation.

There are some other implications of the data:

- The World furniture trade is formed by the European Countries. Among them, Italy stands out as a market leader with her export value. Germany has the biggest trade volume, followed by the USA, being the biggest importer.
- Almost all Asian and Far-Eastern countries, except Japan, are furniture exporters. All the countries in America, Middle-East, and Africa are importers.

The former Soviet Union countries are not given in the table. The furniture export to those countries in 1995 is given in Table 39.

Table 39 Total Furniture Export of Turkey in 1995 (Current USD)

Country	Export $	%
Russia Fed.	15,522,033	22.8
Germany	8,451,241	12.4
Turkmenistan	4,040,096	5.9
Holland	3,845,535	5.7
Azerbaijan	3,509,297	5.2
Austria	3,370,530	5.0
Kazakstan	3,119,009	4.6
Macedonia	1,863,112	2.7
Saudi Arabia	1,838,204	2.7
Romania	1,322,309	1.9
France	1,275,534	1.9
Benelux	1,134,003	1.7
North Cyprus	1,076,930	1.6
Albenia	1,075,844	1.6
Denmark	970,270	1.4
Krygyz Republic	777,729	1.1
Uzbekhistan	796,487	1.2
Ukraine	642,631	0.9
Greece	597,832	0.9
Japan	401,483	0.6
Other	12,369,891	18.2
TOTAL	**68,000,000**	**100.0**

This data includes exports of metal furniture. That is the reason why this data is not consistent with other information contained in this report. However, what is important to observe in the above table is the export potential to the emerging Former Soviet Union countries, which are the target market for the DOKAP industries.

Although data for evaluating the market scale in CIS countries is not available, the above table depicts that the main export markets for Turkish furniture manufacturers are the former Soviet Union, followed by European countries.

European markets are rather complicated. In a sense, Turkey imports both technology and finished products and exports only finished product to these countries. Therefore, a fair judgement can not be made on European markets by only considering the export data. Transactions with European Market deserves a separate analysis.

2.2.4 Effects of EU integration

Starting in January 1997, Turkey joined the European Customs Union. With Turkey's existing technology level, production capacity, and manufacturing and managerial skills, the sector does not seem to be strong enough to stand against the competition of European manufacturers. Foreign trade data given in Table 40 displays the general foreign trade deficit of furniture sector starting in 1996.

Table 40 Total Foreign Trade Values for Wooden Furniture (Current USD prices)

Years	Export	Import	Balance
1990	14,866,907	11,156,845	3,710,062
1991	10,517,370	8,940,861	1,576,509
1992	17,289,062	21,774,130	-4,485,068
1993	26,002,246	20,861,880	5,140,366
1994	27,929,011	18,867,125	9,061,886
1995	37,775,396	27,154,610	10,620,786
1996	33,749,260	40,569,220	-6,819,960
1997	48,358,178	87,342,629	-38,984,451
1998	62,815,948	123,344,487	-60,528,539
1999*	55,531,680	109,886,563	-54,354,883

Source: Derived From SPO, and KOSGEB data. (1999 data are estimates)

The first impressions one gets from this data may be quite discouraging. However, this issue has to be elaborated on. Further detailed inventory and structural analysis are needed to disclose the competitive power of the sector. This is very difficult the wood processing, because the small and scattered nature of the enterprises make a statistical evaluation of the sector difficult. Therefore, the analysis are based on the impressions of managers, and on some anecdotal references.

A survey of 24 enterprises was carried out to explore the effects of Customs Union Participation on the Turkish wood processing sector. The weights of the answers to some selected questions are given in Table 41 (Tanyel, 1999).

Table 41 The Result of a Questionnaire about the Impacts of Customs Union

Competitive Power against European Manufacturers	%
▪ Can compete	37.5
▪ Compete with difficulty	33.4
▪ Can not compete	20
▪ Have no idea	8

Reasons for weak competition Power	%
▪ Lack of technology	22.4
▪ Difficulties obtaining quality raw material	20.6
▪ Lack of Qualified Technical Personnel	18.4
▪ Lack of Qualified Manpower	18.0
▪ Poor Managerial Skills	10.0
▪ Quality Auxiliary Production Material	6.2
▪ Legislative Arrangements	4.4

Positive Impacts of Customs Union	%
▪ Availability of quality material input increased	30.6
▪ Technology transfer increased	22.0
▪ Overcame the fear of "European Product"	14.2
▪ Export opportunities increased	14.2
▪ Vision of the sector broadened	13.0
▪ Possibility of full capacity utilization	2.0
▪ Other	4.0

Negative Impact of Customs Union	%
▪ Affordable end-products in domestic market	54.1
▪ Quality import products created difficulties for domestic manufacturers	18.1
▪ Demand for local products decreased	8.1
▪ Other	19.7

Changes in domestic production level	%
▪ No change	26.7
▪ Increased	73.3
▪ Decreased	0.0

Changes in Export	%
▪ No change	42.9
▪ Increased	50.0
▪ Decreased	7.1

Changes in Import	%
▪ No change	26.7
▪ Increased	73.3
▪ Decreased	0.0

The most striking aspects of the EU Custom Union can be summarized as follows:

- 37.5% of the managers believe they can compete with the European manufacturers.
- The main reasons for weak competitive power of Turkish manufacturers are the lack of raw material and technology. At the same time, the integration process itself has a positive effect on removing these two deficiencies.
- The major negative impact of customs union is the competition from European producers in the domestic market. As a result of this fact, the domestic production may be expected to decrease. This has not happened. Domestic furniture production, imports, and exports have all reportedly increased.
- In summary, it can be said that the Customs Integration has brought in a dynamism to the sector. Very recent progresses in EU integration process and related economic program lunched by the government is expected to further boost this dynamism. Technology transfer, joint-venture investment possibilities with European manufacturers, product standardization and quality improvement are some immediately recognizable results of this process.

3. Current State of Wood Processing in DOKAP

3.1 Structure of Wood Processing in General

There are a variety of data sources for estimating the total employment in the sector in DOKAP region. Among these sources are the 1990 SIS Population Census, 1992 SIS enterprise survey, 1995 Manufacturing Industry Statistics, 1997 SSK Employment records, and 1999 Field Survey carried out by the JICA Study Team.

Different sources report different employment figures. Population census data seems to report employment type rather than the actual employment, therefore, the employment numbers reported in population census are considerably higher than those of social security (SKK) and field survey reports. Field survey data and SSK records, given in Appendix 22, are the most realistic ones for estimation. Field Survey reports 6,388 employees in 1,533 work places, while SSK reports 3,461 employees in 935 enterprises in wood processing industries.

According to field survey and SSK records, the share of wood processing sector is around 10% and 7%, respectively. The concentration indices calculated from 1990 SIS Census and field Survey data for wood processing industries are given in Appendix 20. Along with these ratios, two different concentration indices of 0.88 and 1.03 suggests (Appendix 23) that the wood processing sector in DOKAP region is not any lower than the National average. In terms of employment, the sector takes the 2nd or the 3rd place in DOKAP region, depending on the data source used.

Manufacturing value added in wood processing industries in the region can not be calculated because of lack of data. One source of data to estimate the sectoral output is the 1995 SIS Annual Manufacturing Industry Statistics. However, this source does not provide sufficient detail.

From the above evaluations, it can be said that the wood processing sector in DOKAP region is playing an important role in region's overall industrial activity. Furthermore, the sector does not display any region-specific character, and nation-wide characteristics of the sector can be taken as an indicator of the regional wood processing industries.

3.2 Structure of Furniture Manufacturing Subsector

As of January 2000, the only mass producer in Trabzon OSB has been established in 1997 and is currently having financial and managerial difficulties. This plant reportedly employed 110 workers in 1998 and started to form a distributors' chain in the DOKAP region. Output information is unavailable.

The other plant in Trabzon OSB was established in mid-1999 and employs 35 people. It manufactures custom-made products on order bases. If mass production

is considered, this plant has the capacity of producing 480 sets of 10sqm kitchen cabinet groups per year. This company exports some 30% of its products.

Another plant with a similar capacity is located in Ordu and is experiencing financial and managerial difficulties. This company is capable of producing very high quality products on order. Mass production attempts have failed because of lack of marketing skills.

Other than these, there are reportedly about 176 small workshops in Trabzon, 60 in Ordu, 35 in Rize, and total of about 50 in the other four cities. Besides manufacturing furniture, these workshops do carpentry work as well. Assuming average of 4 workers in a workshop, the upper limit of the total employment in DOKAP region in furniture manufacturing is estimated to be 1,200 workers in 264 work places.

3.3 Development Potential

There are 17 nation-wide recognised furniture brand names identified in Turkey as of January 2000. All these manufacturers are mass produces of standard furniture. Their products range from simple shelves to complete set of living-room, bedroom, dining-room, kitchen and office groups. Data about their production capacity is unavailable. The important fact to observe is that the furniture sector is leaning towards mass production of standard products, and competition is quite severe. Some large department stores even offer mid-quality furniture imported from Southeast Asian countries.

Field surveys carried out in January 2000 in the DOKAP region has revealed that the mass production capability of the existing furniture manufacturers is very low and, therefore, the regional manufacturers do not seem to have the competition power against the nationally recognized big companies.

The region is a very promising place for furniture manufacturing investments in the light of export opportunities available and stable domestic market. The main constraint to the development of the sector in the region is reported to be low skill levels of the workers.

3.4 Recent Development Activities in DOKAP

Investment incentive certificates issued for the region were analyzed to have an idea about the recent investment activities in wood processing sector. The results of analysis are given in Appendix 21 and Appendix 22. Investment incentives were granted to a total of 17 projects within the last 5 years. Data is not available to investigate the actual realization of these projects. Once all the proposals are realized, total amount of $18,561,226 would have been invested, and new employment will be created for 663 workers.

Only 2.67% of the projects granted with incentives are in wood processing. In terms of investment amount, the share of wood processing industries in the region is only 1.67%, which is quite low. The contribution of these projects to employment creation is insignificant. As far as the incentives are concerned, the natural development of wood processing industry in DOKAP region is not even noticeable.

Appendix 23 gives a breakdown of incentives in the region compared with the national totals. The data shows that the share of the sectoral investments within the nation is 0.81%, and within the region is 1.38%, which is higher than the national average. However, a realistic conclusion about the sectoral activity in DOKAP region can not be drawn from incentive data, as no trace of realization of these investment is found during the field survey in January 2000.

There were no known foreign investments in the shoe sector in the DOKAP or other less developed regions in Turkey.

3.5 Public Support of the Manufacturing Enterprises

Financial support is available from the State agencies via investment incentives and Halkbank credits. The government has adopted a new economic stabilization program under a new IMF Stand-by agreement which will last for three years. The real interest rates on directed credits are expected to increase as the nominal rates are kept constant while the inflation declines rapidly. In the future, Halkbank credits may not be attractive for the investors as they used to be.

State incentives cover the following type of financial supports:

- Free allocation of industrial plot for those investment creating certain amount of employment,
- Direct contribution to machinery investment,
- Import tax and VAT exemption for machinery import,
- years corporate tax exemption after the completion of investment

Potential investors can investigate the details of the incentives from the Undersecretariat of Treasury.

4. Financial Analyses for a Kit Furniture Plant

The purpose of the financial analysis given in this section is to show the potential investors the scale of investment requirements and operating costs of a typical furniture making plant to be established in the DOKAP region. In this regard, only a rough estimate of financial analysis is provided. Detailed calculations of cash flows over the years, and project evaluation is not provided.

The basic price and cost parameters presented in this report are believed to be realistic. Interested investors can use these figures to carry out detailed project evaluation.

4.1 Definitions and Assumptions

- This plant is assumed to make standard kitchen cabinet modules. For simplicity of cost-volume-profit analysis, the calculations are made for a single product defined as in Table 42.

Table 42 Definition of Single Product

Name of product	Kitchen upper cabinet module
Dimensions (w : h : d)	80 : 90 : 32 cm
Material	Body : Standard industrial white laminated chipwood Covers : Laminated with imported material
Accessories	Handles, hanging apparatus, sligs and screws included in one pack of bubbled nylon.

- Plant is assumed to operate 300 days a year, 8 hrs of day.
- Production capacity of the listed machinery is 65 unit in 8 hrs workday, giving total capacity of 19,500 units a year.
- Total electricity consumption of the machinery is tabulated as 45 kW. Nominal operating power consumption is assumed to be 25 kW/hrs, giving 3,600 kW of yearly power consumption. Unit kW cost of electricity is $ 0.06 in Trabzon OIE, in December 1999.

4.2 The Project Viability

The proposed project seems to be very profitable under normal operating conditions. The capital investment is a small proportion of annual turnover. The cost of annual raw material consumption alone is many times the cost of fixed investments. The ability to transform these raw materials into high quality products is the key to the success of the proposed investment.

The relatively large role of the raw materials also points to an important advantage of manufacturers in the DOKAP region. Their proximity to the supplies from the Caucosian countries, Russia, and Ukraine would be an important advantage for the development of wood based products in the region.

V. FOOTWEAR INDUSTRY

1. Products and Standards

Footwear of all kind is a daily need of modern humans. Footwear industries keep developing as different raw material and manufacturing technologies are made available for the sector to meet the basic needs as well as a variety of specific usage requirements. Total shoe consumption in the world has been doubled over the last 50 years.

As of the year 2000, the total consumption is estimated to be around 10 billion pairs a year. The average shoe consumption per capita varies with the economic development level of a country. This ratio was 4.58 in the European Union countries in 1992, and as low as one pair for every ten people in most of the underdeveloped countries. In developing countries, average consumption is one pair a year.

Seasonal changes and fashion are the two basic factors, which determine shoe demand of a person. Like European countries, there are four manufacturing periods for Turkish footwear sector, determined by the seasons and fashion. In mono-climate countries, only the fashion is effective on the production periods. Sporting shoes and military boots are treated as separate subsectors themselves. For these demand is not related to season and fashion.

There are two basic classification methods for shoes. One method is based on the material used for manufacturing, the other uses the production manner as a criteria for classification. Since January 1, 1989 international harmonized system numeclature is being used for shoe trading. In this system, foot-ware are classified under four-digit codes as follows.

6405 : Water-proof footwear made of rubber and plastic

6402 : Other footwear made of rubber and plastic

6403 : Foot-ware of rubber or plastic out-sole and leather sole.

6404 : Footwear of rubber or plastic out-sole and fabric sole

6405 : Other footwear

6406 : Footwear related fully or semi-processed goods.

The size standard for shoes was first developed in the UK, on an inch basis. In this system, 1/3 of an inch has been named as a ”size”. With the development of the industry, introduced half-a-size was in the standards. In this system, size 0 is offset to 4 inches. American system is the same as this one. However, size 0 in this system is set to 3 1/12 inches instead of 4, giving a difference of 1/12 inch between the systems.

In Europe, French sizing system is used, which is based on the metric system.

Footwear manufacturing is a labor intensive industry. Skilled labor requirement in footwear sector is higher than many manufacturing industries. In this regard, it can be said that shoe-making is more of an art than an industry.

Independent of the material used in manufacturing, the shoe making process is pretty much the same. For simplicity, leather shoes are considered in this report.

Most leather shoes today are of cemented construction. In this method, the upper part is formed over a wooden or plastic last, and than glued to the bottom sole. Some manufacturers sew the insole to the welt and this later is sewed to the out-sole. Best quality shoes are produced by this method.

In sporting shoes, the upper sole or fabric is again prepared but the bonding to the bottom is made in injection machines.

2. Design

Two different types of design can be mentioned. One determines the shape of the shoe being considered, and the other one is the appearance of the shoe built to a certain shape (last).

Last prototypes are hand made from soft wood by fashion and industrial product designers. These lasts are than mass-duplicated for all different sizes in computer controlled machinery. Model design is beyond the scope of this study.

Once the lasts are available for the use of manufacturer, then starts the second phase of design: determining the outlook of the shoe. Manufacturers may employ designers in their factories for this process. These designers create the style for a certain last and draw the master templates for cutting the leather for the style. These templates are again duplicated for all sizes of the same style by computer controlled machines or manually.

3. Manufacturing Process

The production cycle explained below starts with the leather cutting with these templates. The process and the required machinery listed hereafter is given for manufacturing of men’s leather shoes, made using glue-bonding technology. In the process, the bottom welt is assumed to be purchased as a semi-complete product, which is the case for most manufacturers in Turkey.

Upper Leather and Lining Preparation : In this processing unit the upper leather is first run into a calibrator machine in order to obtain a uniform thickness and then the upper leather and inner lining leather are cut in pieces according to the style. Cutting can be done either manually or using double sided templates and a press. Upper leather pieces are than sewed together. Seams are hammer treated for softening and better forming. This then is sewed to the inner lining leather and

again seams are hammer treated and the edges are skive-softened by using special machinery. Sewing is the most labor intensive part of the manufacturing process and can be separated from the rest of the production cycle, although not preferred because of quality concern.

Parallel to the this process, the bottom insoles are attached to lasts and excessive insole material on the edges are trimmed by using contour trimming machines.

Toe and Back puff fitting: In order to obtain rigidity and stability at the toes and the back part of the shoes, synthetic strengthening material called puffs are inserted and cemented between the upper and inner lining leathers. Humid heat-treatment is involved in this process, which is done by special machinery. Once the process is completed, the upper part of the shoe is ready for mounting to the bottom sole.

Fitting over last: Toe, back part, and side lasting are the most critical processes in shoe manufacturing as they ascertain the quality of the shoe. The upper leather part of the shoe is folded over the last, glued in the front side, nailed at the back and stapled on the sides to the bottom insole of the shoe. Before and during the process, the leather is humid-heat treated and three different machines are used for the entire attachment process. Needless to say, use of skilled manpower lies in the heart of the process.

Once fitted over the last, excessive leather at the bottom part is trimmed off and roughened by special machines and the semi-finished shoe is ready to be cemented to the bottom welt. Bottoms are assumed to be ready-made by other manufacturers and the details are considered in this study.

Top-Bottom Bonding: Top parts, which are still on lasts, are glued on one side and the bottom welts are on the other. Before the glued sides are pressed together, the glue has to be dried to a certain level. To speed up this drying process a conveyor belt drying assembly is used. Out of the assembly, the pieces are fitted together and press-hold until the glue is set.

Finishing: After the bonding press, shoes undergo a cold-treatment for better form stability and lasts are removed. Afterwards, the upper leather goes through cleaning, pasting, spraying processes. Finally, pairs are packages after a quality check.

4. Footwear Sector in the World

4.1 Development of the sector

After World War II, Italy has been the world market leader in shoe manufacturing and remained so until late the 1970s. Today, it is the third biggest producer and exported, but still the market leader in design and manufacturing technology development.

Being the world technology and design leader, Italy's footwear industry deserves a few extra words here. In Italy, footwear manufacturing industries are agglomerated in seven districts throughout the country. This agglomeration has been planned, designed and encouraged by the government in the early stages of the development after World War II. Today, beyond industrial agglomeration, these districts are also specialized on certain kind of footwear, each district being driven by a couple of major manufacturers who are recognized world-wide.

Some of these big manufacturers accommodate the entire production cycle within their plants. The great majority, however, operate on subcontracting basis. Although the manufacturing is specialized, the borders of these industrial areas can not be outlined geographically. In other words, the sector is truly deployed into these counties.

Along with Italy, the footwear manufacturing sector have developed in the industrialized countries after World War II. As a result of developing market economy, manufacturers in the developed countries have transferred the production skills and technology to developing countries such as South Korea, Taiwan, Thailand, and Brasilia, where the labor costs are much lower than their own countries.

China has made a recognizable move in the sector within the late 1980s and currently is the market leader in production volume and exports. Following the increased wages in Korea and Taiwan in the late 1980s, the industry has again migrated to lower wage production countries such as India, Indonesia, and Indo-China.

In summary, the labor intensive nature of shoe-making industry is the basic selection criteria for the industry to be established. On the other hand, considering that 40% of the world population below the age of 15 lives in the developing countries, shoe making is a very promising sector to be developed in those countries to create employment, even for satisfying their self-demand within the next 25 years.

4.2 Current State of the Sector

In order to give an idea about the shoe-making sector in the world, production, trade and consumption of various countries in 1993 is given in Appendix 26. The data given in the table is for all kind of footwear. The pattern shown in the table is not expected to change considerably since than, so it can be used for a global analysis.

The data reveals that the biggest consumer and manufacturer is China, producing and exporting more than it's national consumption, Chinese production is targeted to mid to low- end market demand.

The second biggest producer is Italy, which satisfy the mid to high end demand in the world market.

Sporting shoes of world-wide recognized brands are produced in the Southeast Asian countries listed after Italy. The sector in these countries is basically export oriented.

Japan produces half as much as it consumes, and USA emerges as the biggest footwear importer in the world, producing only one sixth of the national consumption.

Former USSR countries are of special importance in this report. According to 1993 data, these countries seem to produce most of the demand. Although updated data is not available to evaluate the exact demand in these countries, it is known that the CIS countries are undergoing severe economic difficulties since 1993. Their production is known to have declined, and imports of low-end products have increased. The CIS market is currently supplied by low-end products by Southeast Asian countries.

Brazil and Mexico are the basic suppliers in the continental America. Italy, Spain, and UK are the major high-end leather shoe manufacturers in the European market and in the world.

5. Current State of the Sector in Turkey

5.1 Size and Industrial Output

Footwear manufacturing in Turkey has started to be industrialized after the 1950s. Data available from different sources are compiled in Appendix 27 to show the development within the last 12 years. The footwear industries display a steady growth through the years 1988-1994, and unstable pattern is observed afterward. A sudden increase in the import amount is also noticeable after Turkey's participation in Customs Union in 1996. Another fact that the data points out is that the sector has been badly effected by the global crisis in 1998. Capacity utilization in the sector is reportedly less than 60% in 1999.

According to the SIS Survey of Industries in 1996, only 119 work places reported employment of more than 10 workers. The total number of workers in these work shops is 6,177. Contribution of the sector to GDP is only 0.2% of the total value added by the manufacturing industries. (Appendix 28 and Appendix 29)

According to professional labor organizations, however, there are about 30,000 work places in the sector. One hundred fifty of the work places are of factory type and about 30,000 people are employed in the shoe manufacturing sector. (IGEME sector report, 1996)

The large difference between the SIS data and the professional associations is due to the fact that the SIS record only reflect the work places with more than 10

employees, and legal workers who are registered to SSK. The only state involvement in the sector is Beykoz Kundura, which produces military boots.

Average labor productivity of the sector is about one-third of the average productivity in manufacturing industries. This is the result of footwear workshops being small and scattered.

The production capacity in the sector varies depending on the size of the manufacturing plants. In large factories, owned by the state, production capacity varies between 4,000 to 6,500 pairs a day. In private enterprises this capacity changes from 300 to 8,500 pairs a day. Total estimated production capacity of the sector is more than 250 million pairs a year. About 80% of the total national production is realized in small workshops throughout the country. (IGEME report)

5.2 Provincial Concentration

Table 43 shows the provincial concentration of the sector.

Table 43 Provincial Concentration of the Sector

City	% Production
Istanbul	50
Izmir	13
Konya	10
Manisa	8
Denizli	6
Ankara	5
Gaziantep	3
Other cities	5

5.3 International Trade and Competition

Turkey is listed in 15th place in the world in 1993 with production of 155 million pairs and exports of 18 million pairs in 1993 (Appendix 26). In terms of export volumes, however, Turkish share of the world trade is small: only 5% of Italy and not even comparable to that of China.

Table 44 Some of the Major Markets for Turkish Exports are:

Turkish Footwear Exports (1,000 $)

	1993	1994	1995
Russian Federation	17,695	58,286	34,808
Ukraine	995	1,651	13,317
Poland	17,789	12,864	12,097
Germany	5,517	5,760	7,837
S. Arabia	7,383	7,956	7,427
Romania	301	1,267	6,175
England	2,989	9,063	5,912
Hungary	5,513	4,290	5,298
Uzbekistan	10,050	5,000	3,384
Greece	1,756	1,943	2,969

Source: IGEME Sector report, 1996

Integration with the European Customs Union in 1996 has badly effected Turkish footwear sector in the domestic market. Recently, the national manufacturers are to compete with Italian and Spanish producers in leather shoes. In sporting shoes, the local manufacturers practically have no competition power against the internationally recognized brand names, manufactured and exported from the Southeast Asian countries.

This report deals with leather shoes only. The development prospects in other shoes are not considered to be as good in Turkey.

5.4 Constraints and Development Potential

Design is one initial constraint to development of the national footwear industries. European products are imitated. Computer aided manufacturing capability in the sector is non-existing.

The lack of customized design, aggravated by low quality and unsuitable raw material, and non-standard manufacturing processes yield low quality products. Good quality raw material raised in Turkey costs as high as imported ones, if not more. Quality shoe manufacturers prefer imported leather.

Technology is not deployed in the industry because of high machinery costs. As the sector is characterized by small enterprises, machinery investment becomes the final concern in manufacturing.

Unskilled workforce is one of the major handicaps of the sector. Even when the technology is available, skilled manpower is still needed and the level of vocational training is not satisfactory.

The sector is facing a severe marketing problems. This is partly because the sector in not agglomerated. International buyers only go to the manufacturers located in Istanbul. Even TOGO Kundura, a well recognized manufacturer located in Ankara, reported marketing problems in this regard.

Low production capacity of individual firms is another constraint along with lacking marketing capability. Small firms are not capable of satisfying large demands and there is no organization for handling (price quotation and production planning among various firms) big orders. A joint marketing company may solve such problems, provided the quality is insured among various manufacturers.

Lack of proper infrastructure is another constraint to development. In an effort to sectoral agglomeration, recently an organized footwear suppliers and manufacturer's district has been established in Istanbul. Similar districts are desperately needed in other cities.

5.5 Support for Development

The main sectoral associations in Turkey are "Turkish Shoemaker Businessman Associations-TSBA", "Shoe By-Products Businessman Ass- SBBA" and "General Shoemakers Federation of Turkey- GSFT".

TSBA and SBBA activities are concentrated in marketing support via organizing national and international exhibitions, and also in preparation of legislative arrangements.

Shoemakers Federation's effort is toward the workers rights, vocational training and professional requirements of their members. This federation has opened a Managerial Support Documentation Center in Istanbul in 1987, and a Technical Training Center in 1993 to provide vocational courses.

State support to the sector is provided via KOSGEB. There are two separate projects being carried on by KOSGEB. One of them is the "Sectoral Development Project". In the framework of this project, KOSGEB has opened Shared Workshops, Computerized Design and Modelling Centers and Quality Control laboratories in various cities where the shoemaking sector is agglomerated. One of these centers is established in Trabzon. This center is reportedly not used effectively because of incomplete set of equipment available.

The other project cooperated by KOSGEB and GSFT deal with the issues of structural adaptation of the sector to European Customs Union.

6. Current State of the Sector in DOKAP Region

6.1 Size and Industrial Output

Appendix 28 shows the number of work places and the total employment in the DOKAP provinces. This data, however, was compiled from various different sectoral organizations, and may not reflect the actual status.

A field survey is carried out in January 2000 by the JICA Study Team. This survey revealed that the footwear sector is practically non-existent in Artvin, Bayburt and Gümüshane, except for the repair artisans.

In giresun and Rize, respectively, 4 and 5 manufacturing workshops are reported to employ 20 workers each.

Fifty workers are employed in 18 workshops in Ordu. On top of these enterprises, a new factory was established in Ordu only 4 months ago. This factory is still under test-run, and sells its output in provincial market with no difficulties. Currently it employs 17 workers, and working at less than half of its capacity. Once the full capacity of 100,000 pairs a year is reached, this factory is planned to employ 35 workers.

The shoe making sector is concentrated in Trabzon, where the sector has once been quite developed. In this city, 172 manufacturing workshops of different sizes

are employing about 1,455 people. The size breakdown of these firms are as shown in Table 45.

Table 45 Breakdown of the Firms

Number of workshops	Average workers employed
110	3
45	17
15	20
2	30

From the latest field survey, the total number of work places in DOKAP can be determined as 200 and total employment is 1,562. Statistical data is not available on the installed production capacity. However, from various sources, production capacity at 100% operation can be estimated as 800,000 pairs a year.

6.2 Constraints and Development Potential

Regional constraints to development are not any different than the national ones. Transportation costs of raw material is high. Scattered settlements of the sector along with individualistic approach is the reason for this. Each manufacturer places individual purchase orders to suppliers. The input costs could be reduced if the producers were to organize for collective procurement.

KOSGEB officials report that the shared workshop which accommodates major production machinery is not utilized, again as a result of this individualistic attitude of the manufacturers. Manufacturers are expected to co-operatively purchase the lacking machinery in the workshop, unfortunately that has not happen so far. As a result, the workshop is not being utilized.

Co-operative attitude of manufacturers will also resolve the marketing problems in the region. Once the marketing problems are resolved and the quality of the products are assured, there is a big potential for the sector in the region, both in regional and international markets.

In order to have an idea about the recent development activities in the region, the investment incentives granted to the region within 1995-1999 are studied. One certificate has been granted for a shoe factory project in Giresun in 1997. However, the current situation of the project could not be traced in the field survey.

6.3 Support for Development

On top of the organizational and technical supports available from KOSGEB and other professional associations, financial support in the form of incentives and Halkbank credit are available for the regional investments.

Financial support is available from the state agencies via investment incentives and Halkbank credits. The cost of these credits is expected to increase under the new stabilization program of the Turkish government.

State incentives covers the following type of financial supports:

- Free allocation of industrial plot for those investment creating certain amount of employment,
- Direct contribution to machinery investment,
- Import tax and VAT exemption for machinery import,
- 5 years corporate tax exemption after the completion of investment

7. Financial Parameters for a Shoe Making Plant

In this section, a preliminary evaluation of a shoe making plant is given. The pre-feasibility study given below is intended to show only the magnitude of the investment requirements. Further details of the financial analysis are left for the potential investor.

7.1 Assumptions on the Operating Parameters

- The plant is assumed to manufacture a standard pair of men's shoes.
- 300 work days a year, 8 hours of work a day is assumed at full capacity. With daily capacity of 300 pair, the total production of the plant at full capacity is 90,000 pairs a year.
- Land and building costs are estimated from a typical investment in Trabzon OIE.
- Electricity cost in Trabzon OIE is 0.06$/kW. Total electricity consumption of the plant is estimated from nominal consumption at full capacity, which is 60 kW an hour.
- 20 years of lifetime for building and 5 years for machinery is assumed for linear depreciation calculations.

7.2 Project Viability

Shoe manufacturing is a labor-intensive activity. The annual labor input exceeds the total capital investments. This makes investments in this activity ideal for people with a background in shoe manufacturing.

The share of value added is also relatively low in comparison with other products studied in this report. This is partly a result of the market segment served by manufacturers in the region; the low-income segments buy traditional shoes without regard for the new fashion and the price mark-ups that these imply. In this market, the price of raw materials and the arrangements for financing them, and the terms on which shoes are sold are critical determinants of the profitability of these investments.

Appendx 1 Assessment of Possible Environmental Impact for IEE

Environmental Impact

+A Significant positive
+B Moderate positive
+C Marginal positive
? Unknown
−A Significant negative
−B Moderate negative
−C Marginal negative

			I. Natural and biological environment								II. Environmental pollution				III. Resource conservation and use								IV. Social environment							V. Economic environment				VI. Infrastructure			
			Surface water	Groundwater	Soil	Topography	Geology	Climate	Flora & Fauna		Hazardous substances	Solid wastes	Air pollution	Noise/offensive odor	Watershed	Agricultural production	Forest production	Land use	Natural landscape	Mining & energy resources	Historical/archaeological resources		Health	Education	Social welfare	Racial/ethical distribution	Religion/culture	Lifestyle	Local economy	Employment	Income	Indigenous industries	Transportation	Sanitation	Community facilities	Resettlement
2.3	Area-wide Waste Management	Pre-construction																																		
		Construction	−C	−C																			−C													
		O&M	−C	−C								+B	?	−C					+C		?		+C										−C +B		?
3.2	Irrigation Development Acceleration	Pre-construction																												+C						
		Construction	−B																																	
		O&M	−C	−C	−C											+B		+C	+C										+B	+C	+B		+C			?
4.1	SMI Production and Marketing Center	Pre-construction																																		
		Construction																																		
		O&M																										?	+B	+C	+C	+B				
5.2	Greenhouse Promotion	Pre-construction																																		
		Construction				?																														
		O&M														+B		+C	?										+C	+C	+B	?				
5.3	One Village - One Product Model Area Development	Pre-construction																																		
		Construction																																		
		O&M													+C	+B	+C	+B	+B										+B	+C	+C	?				
5.4	Freshwater Aquaculture Support Program	Pre-construction																																		
		Construction							?																											
		O&M	?											?															+C	+C	+C	?				
6.2	Irrigated Crop Cycles Research Program	Pre-construction																																		
		Construction																																		
		O&M							?							+A		+C	+C										+A	+C	+B			?		?
7.3	Local Administration Evaluation System Establishment	Pre-construction																																		
		Construction																																		
		O&M																							+C					+C				+C		
8.3a	Entrepreneurship Supporting Program	Pre-construction																																		
		Construction																																		
		O&M																										+B	+B	+C	+C	+C			+B	
10.6	Information Technology Incubator	Pre-construction																																		
		Construction																																		
		O&M																											+C	+B	+C	?			+C	

Appendix 2 Results of Initial Environmental Examination (1/10)

Project No.	Project Title
2.3	Area-wide Waste Management

Location

Major urban centers and their vicinities.

Implementing Agencies

Local Governments supported by BOP

Project Components

1) Establishment of local government unions to manage solid wastes jointly;
2) Technical and financial supports by BOP;
3) Improved solid waste treatment and disposal methods:
   - Recycling, incineration, composing etc, and sanitary landfill.

Project Activities

Pre construction

- Establishment of local government unions
- Planning for solid waste management system
- Selection of facilities and landfill sites

Construction

- Construction of treatment/transfer facilities.
- Construction of landfill sites.

Operation and Maintenance

- Operation of solid waste management systems
- Maintenance of facilities and sites

Site Characteristics

Specific sites not identified.

Treatment/transfer site

- Urban fringe areas

Land fill sites

- Inland areas
- Coastal area

Environmental Impact

Pre construction

- Generation of employment
- Possible resettlement

Construction

- Marginal negative impact on surface water, groundwater, health and sanitation.

Operation and Maintenance

- Marginal negative impact on surface water and groundwater, and possible offensive odor at landfill sites.
- Positive impact on health and sanitation

Recommendation

EIA should be conducted for each solid waste management system focusing on possible areas of negative impact identified.

Appendix 2 Results of Initial Environmental Examination (2/10)

Project No.	Project Title
3.2	Irrigation Development Acceleration

Location	Implementing Agencies
Upstream of Coruh and Kelkit rivers.	DSI, GDRS, TCZB

Project Components

1) Land consolidation
2) Large-scale irrigation development
3) Drainage improvement
4) Extension in crop cycles, on-farm water management and input use
5) Agricultural credit

Site Characteristics

Areas for irrigation development identified by the DSI master plan

Project Activities

Pre construction

- Organizing of farmers
- Land cadastre and consolidation

Construction

- Construction of intake works.
- Construction of irrigation facilities.
- Construction of drainage facilities.

Operation and Maintenance

- Operation and maintenance of intake and irrigation facilities
- On-farm water management

Environmental Impact

Pre construction

- Generation of employment
- Possible resettlement

Construction

- Marginal negative impact on rivers.

Operation and Maintenance

- Marginal negative impact on surface water, groundwater and soil.
- Positive impact on agricultural production, land use and landscape as well as local economy
- Possible improvement of access to inland areas

Recommendation

EIA should be conducted for each irrigation scheme focusing on areas of possible negative impact identified.

Appendix 2 Results of Initial Environmental Examination (3/10)

<table>
<tr><td>Project No.
4.1</td><td colspan="2">Project Title
SMI Production and Marketing Center</td></tr>
<tr><td colspan="2">Location
Trabzon and Ordu.</td><td>Implementing Agencies
TESK, Union of Industry and Trade</td></tr>
<tr><td colspan="2">Project Components
1) Provision of information on local products
2) Product quality certification, dispute mediation, commodity exchange etc.
3) Marketing and financial services
Project Activities
<u>Pre construction</u>
• Establishment of implementing arrangements
<u>Construction</u>
• Construction of center facilities.
<u>Operation and Maintenance</u>
• Joint management by enterprises, SIDs and OIZs etc.</td><td>Site Characteristics
Center facilities will be located in the cities of Trabzon and Ordu linked by audio-visual media to enterprises, associations, SIDs, OIZs and others.</td></tr>
<tr><td colspan="3">Environmental Impact
• Positive impact on local economy, benefiting local enterprises and contributing to employment generation and income raise.
• May affect lifestyle of urban people through promoting free and open exchange of information.</td></tr>
<tr><td colspan="3">Recommendation
None – no negative environmental effects expected.</td></tr>
</table>

Appendix 2 Results of Initial Environmental Examination (4/10)

<table>
<tr><td>Project No.
5.2</td><td colspan="2">Project Title
Greenhouse Promotion</td></tr>
<tr><td colspan="2">Location
Coastal provinces (Ordu, Giresun, Trabzon, Rize and Artvin)</td><td>Implementing Agencies</td></tr>
<tr><td colspan="2">Project Components
• Provision of investment credit for construction of greenhouses and related facilities
• Guidance for selection of crops to be produced in greenhouses
Project Activities
<u>Pre construction</u>
• F/S and application for credit
<u>Construction</u>
• Construction of greenhouses
<u>Operation and Maintenance</u>
• Production in greenhouses</td><td>Site Characteristics
Narrow coastal strips between foothills and coastlines</td></tr>
<tr><td colspan="3">Environmental Impact
• Positive impact on local economy through increased production of high value crops and possibly local manufacturing of materials and equipment for greenhouses.
• Possible effects on local topography and landscape during and after construction.</td></tr>
<tr><td colspan="3">Recommendation
Guidelines for siting and design of greenhouses should be prepared, and guidance provided as part of evaluation for credit to avoid negative impact on local topography and landscape</td></tr>
</table>

Appendix 2 Results of Initial Environmental Examination (5/10)

Project No.	Project Title
5.3	One Village – One Product Model Area Development

Location	Implementing Agencies
Gumushane (along the upstream of the Harsit river)	Provincial government in cooperation with MOT

Project Components

- Provision of subsides for specialty production
- Provision of seedlings for fruit trees
- Technical extension for fruit production

Project Activities

Pre construction

- Selection of specialty products by local communities

Construction

- Planting of trees etc.

Operation and Maintenance

- Production, marketing and processing

Site Characteristics

- Areas along the upstream of the Harsit river with relatively small patches of flat land and undulating hills.
- Soil conditions suitable for tree crops.
- Access routes to various tourism sites.

Environmental Impact

- Positive impact on local economy through increased production of high value crops and possible processing thereof.
- Improvement of watershed and landscape

Recommendation

Product development combining local products is recommendable to vitalize indigenous industries

Appendix 2 Results of Initial Environmental Examination (6/10)

Project No.	Project Title
5.4	Freshwater Aquaculture Support Program

Location	Implementing Agencies
Upstream areas of small rivers and tributaries.	MARA

Project Components

- Organizing of aquaculture producers and market development
- Establishment of a hatchery
- Technical support in site selection, design of ponds, and disease control
- Incentives for fish feed manufacturing

Project Activities

Pre construction

- Organizing of producers

Construction

- Construction of new ponds

Operation and Maintenance

- Operation and management of aquaculture
- Joint marketing of products

Site Characteristics

- Many small rivers and tributaries with plenty of good quality cool water suited for trout culture.
- Varying site conditions for fishponds construction.

Environmental Impact

- Relatively small but positive impact on local economy through increased and quality production of aquaculture and wider marketing of products.
- Uncertain impact on aquatic flora and fauna during construction, and water quality due to operation of fishponds.

Recommendation

Technical support in site selection and design of ponds should be emphasized as well as marketing to reduce possible negative impact.

Appendix 2 Results of Initial Environmental Examination (7/10)

Project No.	Project Title
6.2	Irrigated Crop Cycles Research Program

Location	Implementing Agencies
Bayburt, Gumushane	GDAR

Project Components

- Research on crop cycles under irrigation with field application

Project Activities

Pre construction

- Selection of crops to be combined
- Soil analysis
- Study on other local conditions and marketing opportunities

Construction

- None

Operation and Maintenance

- Research

Site Characteristics

- Areas for irrigation development identified by the DSI master plan to be used for field tests.
- Areas representing different soil and other local conditions to be selected.

Environmental Impact

- Significant positive impact on local economy through increasing agricultural production.
- Some uncertain impact on flora and fauna and sanitation due to increased moisture availability in dry inland areas.
- Possible resettlement associated with land consolidation and irrigation development.

Recommendation

EIA for the Project No. 3.2 should address the issues identified including selection of crops from environmental point of view.

Appendix 2 Results of Initial Environmental Examination (8/10)

Project No.	Project Title
7.3	Local Administration Evaluation System Establishment

Location	Implementing Agencies
Municipalities in the DOKAP region	MOI

Project Components

- Implementation, evaluation system - taxation, financial management etc.
- Policy evaluation system - investment incentives, employment generation etc.

Project Activities

Pre construction

- Implementation of Local Development Planning Improvement, and Local Administrative Capacity Enhancement.
- Design of evaluation system with performance indices

Construction

- None

Operation and Maintenance

- Operation of the evaluation system

Site Characteristics

Not relevant

Environmental Impact

- Expected positive impact on employment generation, community facilities and services, and general welfare of people through improved performance and accountability of local administration.

Recommendation

As the positive effects would be rather subtle and could be marginal, cost-effectiveness should be carefully examined in designing evaluation system.

Appendix 2 Results of Initial Environmental Examination (9/10)

Project No.	Project Title
8.3a	Entrepreneurship Supporting Program

Location	Implementing Agencies
Trabzon.	KOSGEB

Project Components

- "Business incubator" with small workshops and office spaces equipped with basic equipment and facilities
- Consulting services for business skills development including F/S, business planning, financial management etc.
- Executive committee for operation and maintenance

Project Activities

Pre construction

- Establishment of executive committee by various local representatives
- Planning for the incubators by the committee

Construction

- Construction of the incubator facilities

Operation and Maintenance

- Operation and management of the incubator by the committee

Site Characteristics

- Central Area in the city of Trabzon

Environmental Impact

- Positive impact on local economy by supporting local entrepreneurs to start up their businesses, leading to new mode of business development and operation, or even new urban lifestyle.

Recommendation

None - no negative environmental effect expected

Appendix 2 Results of Initial Environmental Examination (10/10)

Project No.	Project Title
10.6	Information Technology Incubator

Location	Implementing Agencies
KTU, Trabzon.	KTU, Local chamber of commerce, KOSGEB

Project Components

- Establishment of an Information Technology Revolving Fund
- Selection committee to evaluate candidate start-ups.
- Provision of office space with equipment, and business and technical advice for selected start-ups.

Project Activities

Pre construction

- Establishment of executive committee by various local representatives
- Planning for the incubators by the committee

Construction

- Construction of the incubator facilities

Operation and Maintenance

- Operation and management of the incubator by the committee

Site Characteristics

Not relevant.

Environmental Impact

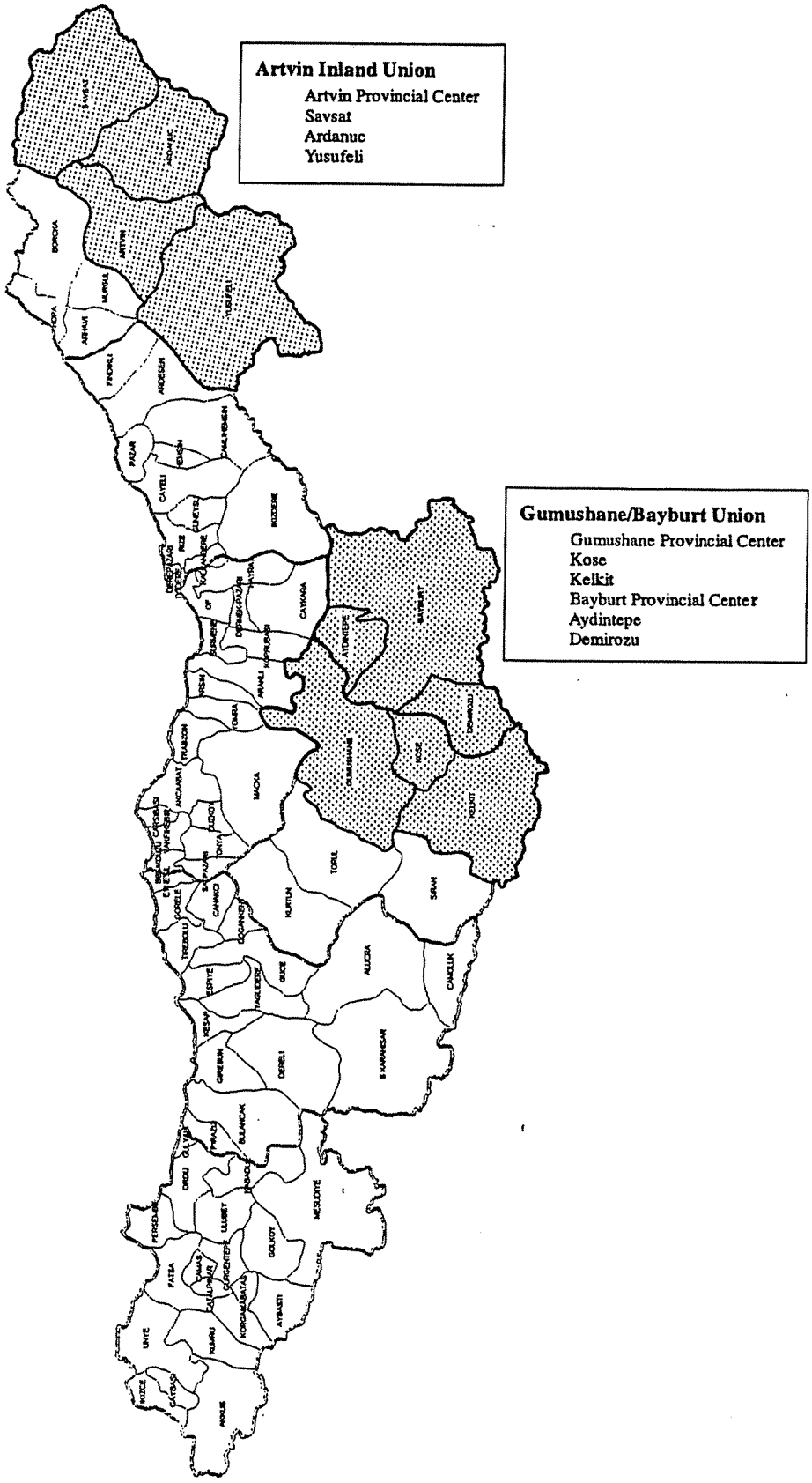
- Positive impact on local economy through facilitating the development of IT businesses.

Recommendation

Possible negative effects on indigenous local enterprises should be avoided by making the selection process open and insure sensitivity to local interests.

Appendix 3 Evaluation of DOKAP Development Projects and Programs for Selecting Priority Projects

Code	Project/Program	1 Stop depopulation	2 Preparation for economic restructuring	3 Establishment of local foundations for social development	4 Establishment of community based environment management system	5 Local government empowerment	Total Point
1	Spatial Structure Strengthening Program						
1.1	Trabzon-Rize Corridor Development			○			2
1.2	Inland Urban Centers Development			○		○	3
1.3	Black Sea Highway			○			2
1.4	DOKAP Highway Network Improvement						
1.5	Integrated Port Network Development		○				2
1.6	Telecommunications Improvement		○	○			4
1.7	High Voltage Power Transmission Lines Extension		○				2
1.8	DOKAP - DAP - GAP Transport Development	○	○				4
2	Local Alliance Urban Development and Management Program						
2.1	Local Alliance Urban Planning		○			○	3
2.2	Integrated Water Supply System Development		○			○	5
2.3	Area-wide Solid Waste Management		◎		◎	◎	6
2.4	Black Sea Participatory Coastal Management				○	○	2
2.5	Eco-Community Network				○	○	2
3	Comprehensive Water and Land Resources Management Program						
3.1	Multipurpose Dams and Community Development		○		○	○	4
3.2	Irrigation Development Acceleration	◎	◎	◎			6
3.3	Land Conservation	○	○				5
3.4	Cadastral Survey Acceleration		○		○	○	4
3.5	DOKAP Environmental Inventory and Management Planning				○		1
3.6	Protected Area Management System Improvement				○		2
3.7	DOKAP Environmental Improvement Fund			○	○	○	4
4	Industry and Trade Support Program						
4.1	SMEs Production and Marketing Center	◎	◎	◎			6
4.2	Small Enterprise Credit and Support		○				2
4.3	Vocational Training Improvement		○	○			4
4.4	Job Opportunities Information and Placement Center	○		○			4
4.5	DOKAP Trading and Manufacturing Zones Expansion		○				2
5	Rural Economy Diversification and Intensification Program						
5.1	Livestock and Poultry Development	○				○	3
5.2	Greenhouse Promotion	◎	◎	◎			6
5.3	One Village-One Product Model Area Development	○		○		◎	7
5.4	Freshwater Aquaculture Support	◎	◎	◎			6
5.5	Rural Tourism Promotion	○	○				4
6	Applied Research Program						
6.1	Renewable Energy Applied Research Center		○				2
6.2	Irrigated Crop Cycles Research		○	○			4
6.3	Innovative Mariculture Experiment and Development		○				2
7	Local Administration Strengthening Program						
7.1	Local Development Planning Improvement			○		○	3
7.2	Local Administrative Capacity Enhancement			○	○	○	4
7.3	Local Administration Evaluation System Establishment			○		○	3
8	Sustainable Human Development Program						
8.1	Eight-year Compulsory Education System Support			○			2
8.2	Distance Education	○		○			4
8.3	Value Development Education	◎	◎	◎		◎	7
8.4	Community Health Care Promotion			○			2
8.5	Health Education			○			2
8.6	Health Referral System Improvement			○			2
9	Living Environment Enhancement Program						
9.1	Rural Services Center Support	○		○			4
9.2	Rural Infrastructure Improvement		○	○			4
9.3	Social Telecommunication Network Development			○			2
9.4	Community-based Forestry Development and Management		○		○		3
10	Special Program to Establish DOKAP Identity		○	○		○	5
10.1	Black Sea Technology Center		○	○			4
10.2	DOKAP Trade Fair		○			○	3
10.3	DOKAP Brand Tourism Products Development		○		○		3
10.4	DOKAP Tourism Professional Partnership						
10.5	Genetic Resource Center		○				2
10.6	Information Technology Incubator	◎	◎	◎			6
	Point	2	2	2	1	1	



The Study on the Regional Development Plan for the Eastern Black Sea Region in the Republic of Turkey	**Appendix 4** **Designated Unions**
Japan International Cooperation Agency	

Appendix 5 Projected Production of Freshwater Trout Using Existing Production Capacity and Newly Constructed Capacity in DOKAP

Existing Production Capacity (tons/year) A	Annual Production (tons/year) B	Un-utilized Capacity (tons/year) C = A-B	Un-utilized Production Capacity brought into Production (tons/year) D	Accumulated Production Using Un-utilized Production Capacity (tons/year) E	Accumulated Production of Existing Production capacity (tons/year) F = B + E	Construction of New Production Capacity - Accumulated Capacity (tons/year) G	Total Production (tons/year) H = F + G
3,564	2,324	1,240	-	-	2,324	-	2,324
	2,324	-	-	-	2,324	-	2,324
	2,324	-	-	-	2,324	-	2,324
	2,324	1,228	12	12	2,336	-	2,336
	2,324	1,210	18	30	2,354	-	2,354
	2,324	1,184	26	56	2,380	-	2,380
	2,324	1,144	40	96	2,420	180	2,600
	2,324	1,086	58	154	2,478	180	2,658
	2,324	1,001	85	239	2,563	360	2,923
	2,324	875	126	365	2,689	360	3,049
	2,324	688	187	552	2,876	540	3,416
	2,324	411	277	829	3,153	540	3,693
	2,324	0	411	1240	3,564	720	4,284
			1240		3,564		

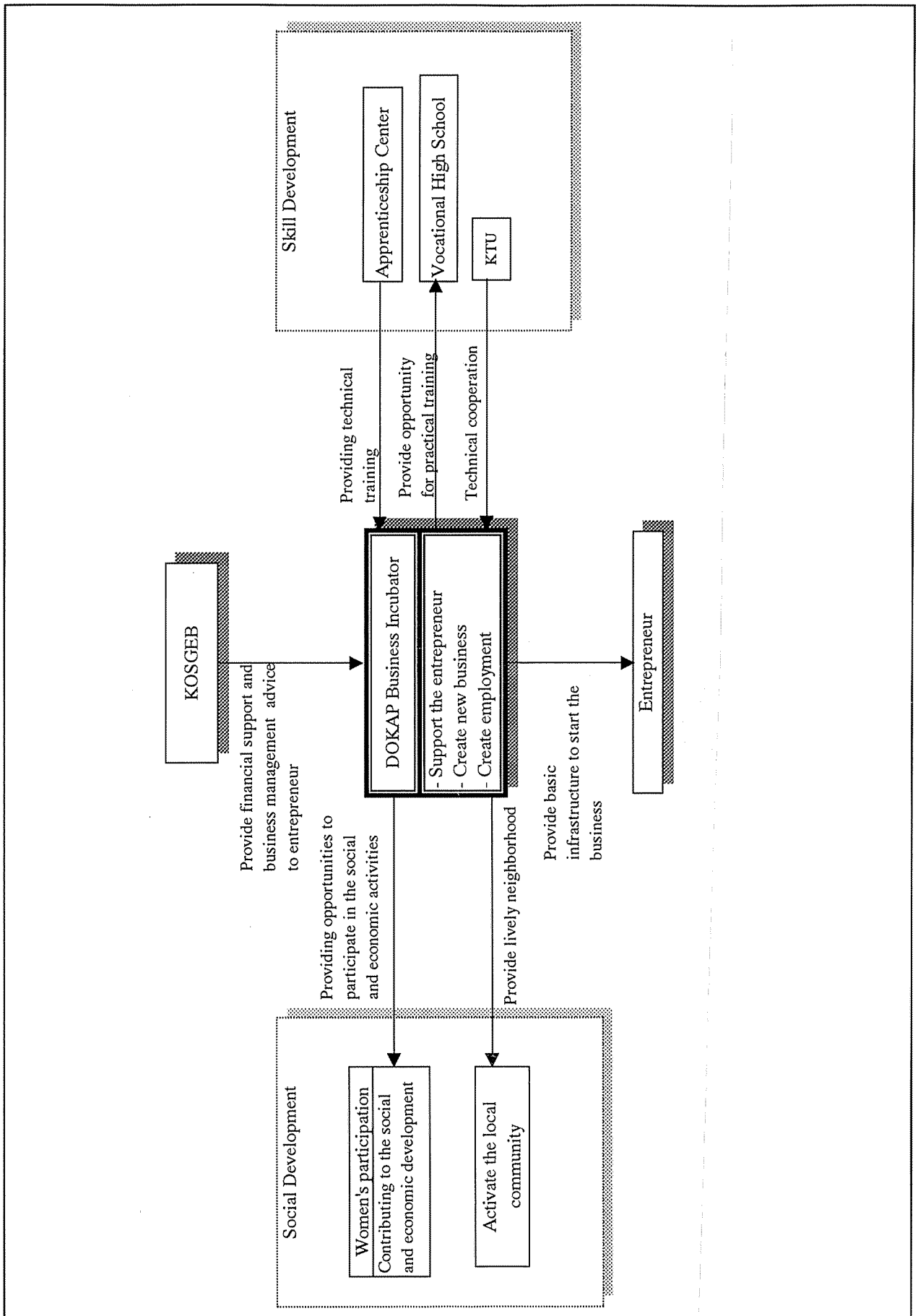
Remarks: 1) It is assumed that the un-utilized production capacity (1240 tons/year) will increase gradually from 1% in the year 2001 to 33% in 2010.
2) It is assumed that construction of new production capacity will be at 5% of the existing capacity in the years 2004, 2006, 2008, and 2010.

Appendix 6 Estimated Profit/Loss of Freshwater Trout Farming

Unit: Million TL

	2000 Year 0	2001 Year 1	2002 Year 2	2003 Year 3	2004 Year 4	2005 Year 5	2006 Year 6	2007 Year 7	2008 Year 8	2009 Year 9	2010 Year 10
Sales											
Trout produced (tons)	2,324	2,336	2,354	2,380	2,600	2,658	2,923	3,049	3,416	3,693	4,284
Sales value@1,100 million TL/ton	2,556,400	2,569,600	2,589,400	2,618,000	2,860,000	2,923,800	3,215,300	3,353,900	3,757,600	4,062,300	4,712,400
Production Cost (million TL)											
Feed@485 million/1000kg	1,127,140	1,132,960	1,141,690	1,154,300	1,261,000	1,289,130	1,417,655	1,478,765	1,656,760	1,791,105	2,077,740
Frys @50 millionTL/5,000 fry	581,000	584,000	588,500	595,000	650,000	664,500	730,750	762,250	854,000	923,250	1,071,000
Other expenses	151,060	151,840	153,010	154,700	169,000	172,770	189,995	198,185	222,040	240,045	278,460
Total Production Cost	1,859,200	1,868,800	1,883,200	1,904,000	2,080,000	2,126,400	2,338,400	2,439,200	2,732,800	2,954,400	3,427,200
Profit/loss	697,200	700,800	706,200	714,000	780,000	797,400	876,900	914,700	1,024,800	1,107,900	1,285,200

Remarks: 1) The price is constant Turkish Lira (TL) as of May/June 1999 (Survey period in Phase 1).
2) Farmgate price of culture trout is 1.1 million TL/kg.
3) Fish feed price is 300,000TL/kg.
4) Fish fry price is 10,000TL/fry.
5) Feed conversion ratio is 1.7:1.



The Study on the Regional Development Plan for the Eastern Black Sea Region in the Republic of Turkey

Japan International Cooperation Agency

Appendix 7

Business Incubator Supporting System and Benefits to Society

Appendix 8 IT Incubator
(Economic Analysis)

Annual Cost in US$	Year	1	2	3	4	5	20
Internet Access		300	300	300	300	300	300
Computer		1000					
Desk and Table used, 200 for ten years at 10% Discount		$32.55	$32.55	$32.55	$32.55	$32.55	$32.55
Room Space		1,800	1,800	1,800	1,800	1,800	1,800
Utility bill		200	200	200	200	200	200
Telephone Set		20					
Annual Cost		3,353	2,333	2,333	2,333	2,333	2,333
Number of Start Ups		43	43	43	43	43	43
Total Annual Cost, including 2% Management Fee		147,043	102,306	102,306	102,306	102,306	102,306
NPV of the Total Cost (20 Years) at	10.0%	$911,655					
Grant							
Grant From JICA	500,000						
Grant From GTZ	100,000						
Grant From USAID	100,000						
Grant From World Bank	100,000						
Matching donation/investment from Domestic business	100,000						
Matching donation/investment from Internaitonal High tech	200,000						
Openning Balance (Including Interest Earned in Previous Year)	**1,100,000**	1,100,000	1,055,001	1,054,282	1,053,488	1,052,609	1,020,339
Project Cost		147,043	102,306	102,306	102,306	102,306	102,306
Closing Balance		952,957	952,695	951,977	951,182	950,303	918,033
Long term investment return, Annualized return	11.0%	104,825	104,797	104,717	104,630	104,533	100,984
Short Term Interest Rate, Six Month of Annual Cost	4.0%	1,470	1,023	1,023	1,023	1,023	1,023
After Tax on Interest Rate Assumed at after some tax exemption for Non-Profit Org.	4.0%	102,044	101,587	101,511	101,427	101,334	97,926
Base Case:							
Benefits Assumped (Income for KTU from the ten percent of its shares in Start-ups)	50,000	0	0	50,000	62,500	78,125	2,220,446
Beneftis Increased at	25.0%						
Net Benefit		-147,043	-102,306	-52,306	-39,806	-24,181	2,118,140
FIRR	25.8%						
Growth Case							
Benefits Assumped (Income for KTU from the ten percent of its shares in Start-ups)	100,000	0	0	100,000	125,000	156,250	4,440,892
Beneftis Increased at	25.0%						
Net Benefit		-147,043	-102,306	-2,306	22,694	53,944	4,338,586
FIRR	40.8%						
IT Explosion Model							
Benefits Assumped (Income for KTU from the ten percent of its shares in Start-ups)	100,000	0	0	100,000	135,000	182,250	16,431,381
Beneftis Increased at	35.0%						
Net Benefit		-147,043	-102,306	-2,306	32,694	79,944	16,329,075
FIRR	51.8%						

Appendix 9 Structure of Electrical Appliances Industry in DOKAP and Turkey

		DOKAP				TURKEY (1996)								
		# Work P	%	# Worker	%	# Work P	%	# Worker	%	VA (Mil TL)	VA ($)	%	VA/emp $	*Conc Inx DKP*
3	**MANUFACTURING INDUSTRIES**													
31	**Food, Beverage and Tobacco**	1,740	*30*	44,023	*69*	1,821	*17.2*	171,375	*16.6*	436,249,189	2,814,946,759	*15.15*	16,426	*4.16*
32	**Textile**	1,186	*21*	3,551	*6*	3,329	*31.5*	354,691	*34.3*	497,305,532	3,208,919,652	*17.27*	9,047	*0.16*
33	**Forestry and wood products**	1,533	*27*	6,388	*10*	419	*4.0*	23,168	*2.2*	34,874,410	225,031,037	*1.21*	9,713	*4.47*
34	**Paper and paer products**	99	*2*	1,039	*2*	370	*3.5*	36,090	*3.5*	102,581,085	661,915,942	*3.56*	18,341	*0.47*
35	**Chemistry**	91	*2*	1,158	*2*	932	*8.8*	98,336	*9.5*	821,471,546	5,300,637,170	*28.52*	53,903	*0.19*
36	**Soil and stone related**	162	*3*	2,715	*4*	842	*8.0*	67,888	*6.6*	201,154,220	1,297,970,137	*6.98*	19,119	*0.65*
37	**Basic Metal**	4	*0*	108	*0*	374	*3.5*	58,074	*5.6*	177,897,510	1,147,903,611	*6.18*	19,766	*0.03*
38	**Metal Products manufacturing**	881	*15*	4,656	*7*	2,390	*22.6*	217,679	*21.1*	599,179,603	3,866,273,507	*20.80*	17,761	*0.35*
381	Fabricated metal producs	844	*15*	3,909	*6*	767	*7.2*	47,582	*4.6*	98,143,384	633,281,179	*3.41*	13,309	*1.33*
382	Non-electric machinery and equipment	26	*0*	288	*0*	713	*6.7*	49,013	*4.7*	128,328,538	828,054,266	*4.46*	16,895	*0.10*
383	Electric Machinery	17	*0*	258	*0*	416	*3.9*	45,121	*4.4*	149,039,277	961,692,630	*5.17*	21,314	*0.09*
3833	*Electrical Appliances*					49	*0.5*	5,899	*0.6*	14,640,605	94,470,144	*0.51*	16,015	
	10-24 workers					11	*0.1*	159	*0.0*	100,235	646,778	*0.00*	4,068	
	25-49					13	*0.1*	495	*0.0*	688,634	4,443,488	*0.02*	8,977	
	50-99					8	*0.1*	589	*0.1*	4,232,101	27,308,106	*0.15*	46,364	
	100-199					8	*0.1*	1,054	*0.1*	2,266,076	14,622,109	*0.08*	13,873	
	200-499					5	*0.0*	1,434	*0.1*	1,638,476	10,572,450	*0.06*	7,373	
	500-999					4	*0.0*	2,168	*0.2*	5,715,083	36,877,213	*0.20*	17,010	
	1000+						*0.0*		*0.0*		-	-	#DIV/0!	
384	Vehicles	8	*0*	64	*0*	405	*3.8*	70,133	*6.8*	210,189,553	1,356,271,636	*7.30*	19,339	*0.01*
liance Plant	Professional and scientific equipment	1	*0*	11	*0*	89	*0.8*	5,739	*0.6*	13,478,851	86,973,796	*0.47*	15,155	*0.03*
39	**Others**	43	*1*	152	*0*	106	*1.0*	6,756	*0.7*	9,705,623	62,626,620	*0.34*	9,270	*0.36*
	TOTAL *(and Average VA/Employee)*	***5,739***	***100***	***63,790***	***100***	***10,583***	***100.0***	***1,034,057***	***100.0***	***2,880,418,718***	**18,586,224,435**	*100.00*	**17,974**	

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 10 Cost Breakdown for an Electrical Appliance Plant

COST ITEM	Quantity	Unit ($)	Total $
1. Land & Building (sqm)[1]	**1000**	**230.00**	**230,000**
2. Machinery Costs [2]			
Sheet metal cutter	1	5,500.00	5,500
Hydrolic press (40 tons)	2	1,750.00	3,500
Excentric press (40 tons)	2	3,600.00	7,200
Excentric press (60 tons)	2	5,400.00	10,800
Point welder	5	1,000.00	5,000
Electrostatic painting unit	1	36,000.00	36,000
Mounting assembly line including hand tools and test panel	1	2,000.00	2,000 -
Compressor		1,000.00	-
Enamel unit	1	50,000.00	50,000
15 different stamping patterns (total)	1	54,000.00	54,000
Total Machinery costs			**174,000**
3. Transport and Installation costs [3]	**1**	**6,000.00**	**6,000**
4. Personnel costs including meal and SSK premiums			
Worker	25	450.00	11,250
Formen	2	650.00	1,300
Plant manager	1	1,100.00	1,100
Accountant	1	800.00	800
Administrative and others	5	450.00	2,250
Total	**29**		**16,700**

5. Annual Operating costs	Qty		Total $	Op.Cap
Raw material including transport [4]	37,500	15.00	562,500	46,875
Personnel (total from above)			200,400	16,700
Electricity	290,000	0.06	17,400	2,900
Heating			1,200	200
Transport			2,000	167
Repair & Maintenance (5% of machinery)			8,700	725
Packaging	37,500	0.80	30,000	2,500
Sales & Marketing			36,000	3,000
Depreciation			46,300	-
Financial expenses [5]			-	-
Total			**904,500**	**73,067**
Tolerance 5%			45,225	3,653
Grand Total Operating costs			**949,725**	**76,720**

NOTES

1. Unit cost of land & building calculated from typical costs in Trabzon OIE.
2. Machiney costs are local market prices of a Turkish manufacturer in Ankara.
3. 1.6 x net salary is used to reflect the total montly cost of an employee.
4. Raw material including tranportation is assumed to be 10% higher than Ankara market prices.
5. Investment is assumed to be fully financed by the owner.
6. For operating capital calculation, monthly raw material stock, bi-monthly payment of electricity and monthly payment of all other cost items is assumed.

Appendix 11 Project Cost for an Electrical Appliance Plant

INVESTMENT	Total $
Land & Building	230,000
Machinery	174,000
Transport & Installation	6,000
Operating Capital	76,720
Total	**486,720**
Tolerance 5%	24,336
GRAND TOTAL	**511,056**

OPERATING COSTS AT FULL CAPACITY	Qty	Unit $	Total $
Raw material including transport			562,500
Personnel			200,400
Electricity			17,400
Heating			1,200
Transport			2,000
Repair & Maintenance (1% of machinery)			8,700
Packaging			30,000
Sales & Marketing			36,000
Depreciation			46,300
Financial expenses			-
Total			**904,500**
Tolerance 5%			45,225
GRAND TOTAL			**949,725**

COST-VOLUME-PROFIT ANALYSIS	Qty	Unit $	Total $
Revenue [1]	37,500	43.00	1,612,500
Total Production costs			949,725
Profit Before Tax [2]			662,775
Corporate tax (33%)			218,716
Real estate tax (0,2%)			460
Net Profit after tax			443,599
Net Profit per unit		11.83	
Break-even production at 100% [3]	**43,203**		

NOTES

1. Quantity is total units produced at 100% capacity. Unit price is typical Ankara market price.
2. Taxes incurred should actually be accounted for the following years balance. They are included to give an idea about the overall financial picture.
3. Break-even production is total investment cost divided by net profit per unit.

Appendix 12 Structure of Plastic Processing Industries in DOKAP and Turkey

		DOKAP				TURKEY (1996)							
		# Work P	%	# Worker	%	# Work P	%	# Worker	%	VA ($)	%	VA/emp $	*Conc Inx DKP*
3	MANUFACTURING INDUSTRIES												
31	**Food , Beverages and Tobacco**	1,740	*30*	44,023	*69*	1,821	*17.2*	171,375	*16.6*	2,814,946,759	*15.15*	16,426	*4.16*
32	**Textile, Apparel and Leather**	1,186	*21*	3,551	*6*	3,329	*31.5*	354,691	*34.3*	3,208,919,652	*17.27*	9,047	*0.16*
33	**Forestry & Wood Processing**	1,533	*27*	6,388	*10*	419	*4.0*	23,168	*2.2*	225,031,037	*1.21*	9,713	*4.47*
34	**Paper & Paper Products**	99	*2*	1,039	*2*	370	*3.5*	36,090	*3.5*	661,915,942	*3.56*	18,341	*0.47*
35	**Chemistry**	91	*2*	1,158	*2*	932	*8.8*	98,336	*9.5*	5,300,637,170	*28.52*	53,903	*0.19*
351	Basic Industrial Chemicals	7	*0*	53	*0*	78	*0.7*	21,966	*2.1*	765,255,498	*4.12*	34,838	*0.04*
352	Other Chemicals	18	*0*	329	*1*	288	*2.7*	31,371	*3.0*	1,173,095,731	*6.31*	37,394	*0.17*
353	Petroleum Refinaries	-	-	-	-	6	*0.1*	5,432	*0.5*	2,454,491,941	*13.21*	451,858	*0.00*
354	Petroleum by-products Manufacturing	3	*0*	65	*0*	36	*0.3*	4,324	*0.4*	218,182,996	*1.17*	50,459	*0.24*
355	Rubber products	26	*0*	172	*0*	131	*1.2*	12,437	*1.2*	312,929,550	*1.68*	25,161	*0.22*
356	Plastics not classified elsewhere	37	*1*	539	*1*	393	*3.7*	22,806	*2.2*	376,681,454	*2.03*	16,517	*0.38*
	10-24 workers					161	*1.5*	2,614	*0.3*	18,790,135	*0.10*	7,188	
	25-49					119	*1.1*	4,095	*0.4*	49,088,098	*0.26*	11,987	
	50-99					63	*0.6*	4,329	*0.4*	54,706,000	*0.29*	12,637	
	100-199					28	*0.3*	3,684	*0.4*	100,770,758	*0.54*	27,354	
	200-499					18	*0.2*	5,085	*0.5*	114,840,007	*0.62*	22,584	
	500-999					3	*0.0*	1,935	*0.2*	29,358,152	*0.16*	15,172	
	1000+					1	*0.0*	1,064	*0.1*	9,128,304	*0.05*	8,579	
36	**Soil & Stone based**	162	*3*	2,715	*4*	842	*8.0*	67,888	*6.6*	1,297,970,137	*6.98*	19,119	*0.65*
37	**Basic Metal Industries**	4	*0*	108	*0*	374	*3.5*	58,074	*5.6*	1,147,903,611	*6.18*	19,766	*0.03*
38	**Metal Products Manufacturing**	881	*15*	4,656	*7*	2,390	*22.6*	217,679	*21.1*	3,866,273,507	*20.80*	17,761	*0.35*
39	**Other Manufacturing Industries**	43	*1*	152	*0*	106	*1.0*	6,756	*0.7*	62,626,620	*0.34*	9,270	*0.36*
	TOTAL *(and Average VA/Employee)*	***5,739***	***100***	***63,790***	***100***	***10,583***	***100.0***	***1,034,057***	***100.0***	**18,586,224,435**	*100.00*	**17,974**	

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 13 Provincial Distribution of Plastic Processing Industries in DOKAP

		Artvin		Bayburt		Giresun		G.Hane		Ordu		Rize		Trabzon		DOKAP			
		# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	%	# Worker	%
3	MANUFACTURING INDUSTRIES																		
31	Food , Beverages and Tobacco	135	3,743	84	835	274	5,518	92	218	139	5,617	382	20,152	634	7,940	1,740	*30*	44,023	*69*
32	Textile, Apparel and Leather	138	276	52	123	150	337	20	219	236	721	46	350	544	1,525	1,186	*21*	3,551	*6*
33	Forestry & Wood Processing	297	917	115	345	287	1,441	23	68	355	1,898	98	458	358	1,261	1,533	*27*	6,388	*10*
34	Paper & Paper Products	9	27	2	6	14	456	7	19	10	30	6	18	51	483	99	*2*	1,039	*2*
35	Chemistry	-	-	3	22	24	140	-	-	16	221	9	37	39	738	91	*2*	1,158	*2*
351	Basic Industrial Chemicals	-	-	-	-	5	28			2	25	-	-	-	-	7	*0*	53	*0*
352	Other Chemicals	-	-	-	-	5	22			-	-	2	4	11	303	18	*0*	329	*1*
353	Petroleum Refinaries	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-
354	Petroleum by-products Manufacturing	-	-	-	-	-	-			2	55	-	-	1	10	3	*0*	65	*0*
355	Rubber products	-	-	-	-	8	50			3	32	2	4	13	86	26	*0*	172	*0*
356	Plastics not classified elsewhere	-	-	3	22	6	40			9	109	5	29	14	339	37	*1*	539	*1*
36	Soil & Stone based	-	-	15	97	39	180	5	42	30	697	12	50	61	1,649	162	*3*	2,715	*4*
37	Basic Metal Industries	-	-	-	-	1	20			2	70	-	-	1	18	4	*0*	108	*0*
38	Metal Products Manufacturing	106	1,494	92	250	191	441			129	402	24	284	339	1,785	881	*15*	4,656	*7*
39	Other Manufacturing Industries	-	-	5	10	1	2			-	-	-	-	37	140	43	*1*	152	*0*
	TOTAL *(and Average VA/Employee)*	685	6,457	363	1,678	981	8,535	147	566	917	9,656	577	21,349	2,027	15,399	*5,739*	*100*	*63,790*	*100*

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 14 Cost Structure of a PVC Extrusion Plant

Cost items	Quantity	Unit ($)	Total $
1. Land & Building in Trabzon (sqm)	**1500**	**230.00**	**345,000**
2. Machinery Costs (FOB Germany)			
Raw material prep Unit for 850 kg/hrs	1	150,000.00	150,000
Large extrusion assembly	2	338,000.00	676,000
Small extrusion assembly	1	260,000.00	260,000
Water cooler & cooling assembly	1	50,000.00	50,000
Main extruder heads	4	70,000.00	280,000
Auxiliary extruder heads	6	40,000.00	240,000
Quality control equipment	1	50,000.00	50,000
Total Machinery costs			**1,706,000**
3. Transport & Installation costs	**1**	**50,000.00**	**50,000**
4. Personnel costs including meal and SSK premiums			
Worker	18	450.00	8,100
Formen	3	650.00	1,950
Plant manager	1	1,100.00	1,100
Accountant	1	800.00	800
Total	**23**		**11,950**

5. Yearly Operating costs	Qty	Unit $	Total $	Op Cap
Raw material (Kg of PVC, including transport)	5,000,000	1.04	5,200,000	433,333
Personnel (total from above)			143,400	11,950
Electricity	3,120,000	0.06	187,200	31,200
Heating			2,000	333
Transport			6,000	500
Repair & Maintenance (1% of machinery)			17,060	1,422
Packaging			12,000	1,000
Sales & Marketing			12,000	1,000
Depreciation			358,450	-
Financial expenses			-	-
Total			**5,938,110**	**480,738**
Tolerance 5%			296,906	24,037
Grand Total Operating costs			**6,235,016**	**504,775**

Appendix 15 Project Costs for a PVC Profile Extrusion Plant

Investments	Qty	Unit $	Total $
Land & Building			345,000
Machinery			1,706,000
Transport & Installation			50,000
Operating Capital			504,775
Total			**2,605,775**
Tolerance 5%			130,289
Overall total			**2,736,064**

Operating costs	Qty	Unit $	Total $
Raw material including transport			5,200,000
Personnel			143,400
Electricity			187,200
Heating			2,000
Transport			6,000
Repair & Maintenance (1% of machinery)			17,060
Packaging			12,000
Sales & Marketing			12,000
Depreciation			358,450
Financial expenses			-
Total			**5,938,110**
Tolerance 5%			296,906
Overall total			**6,235,016**

Project revenues and costs

	Qty	Unit $	Total $
Revenue (meters profile sold 2.19 $/m)	4,100,000	2.19	8,979,000
Total Production costs			6,235,016
Profit Before Tax			2,743,985
Corporate tax 33 %			905,515
Real estate tax 0.2 %			690
Net Profit after tax			1,837,780
Net profit per unit		0.45	
Break-even production (meters profile)	6,104,030		
Break-even amount (Kg of raw PVC)	**7,446,917**		

Break-even production is: total investment costs divided by net profit per unit sold.

Appendix 16 Cost Structure of a PVC Window Plant

Investment items	Quantity	Unit ($)	Total $
1. Land & Building in Trabzon (sqm)	**600**	**230.00**	**138,000**
2. Machinery Costs			
Complete set of machines listed below	1	55,000.00	55,000
Double mitre saw			
Double head welder			
Single head welder			
Copy router			
End milling			
Glass bead saw			
Automatic screwing machine			
Water slot machine			
Reinforcement steel cutting saw			
Complete set of Hand tools & Compressor	1	16,500.00	16,500
Work benches and stacks	1	4,000.00	4,000
Pick-up truck	1	15,000.00	15,000
Total Machinery costs			**90,500**
3. Transport & Installation costs	**1**	**3,000.00**	**3,000**
4. Personnel costs including meal and SSK premiums			
Worker	18	450.00	8,100
Formen & Quality control	2	650.00	1,300
Plant manager	1	1,100.00	1,100
Accountant	1	800.00	800
Total	**22**		**11,300**

5. Yearly Operating costs	Qnit	Unit Cost $	Total $	Op Cap
Raw material (PVC profile - meters)	70,000	1.04	72,800	6,067
Personnel (total from above)			135,600	11,300
Electricity (kW)	20,000	0.06	1,200	200
Heating			1,500	250
Transport			7,500	625
Repair & Maintenance (2% of machinery)			1,810	151
Packaging			4,000	333
Sales & Marketing			3,000	250
Depreciation			25,000	-
Financial expenses			-	-
Total			**252,410**	**19,176**
Tolerance 5%			12,621	959
Grand Total Operating costs			**265,031**	**20,135**

Appendix 17 Project Costs for a PVC Window Plant

Investments	Qty	Unit $	Total $
Land & Building			138,000
Machinery			90,500
Transport & Installation			3,000
Operating Capital			20,135
Total			**251,635**
Tolerance 5%			12,582
Overall total			**264,216**

Operating costs	Qty	Unit $	Total $
Raw material			72,800
Personnel			135,600
Electricity			1,200
Heating			1,500
Transport			7,500
Repair & Maintenance			1,810
Packaging			4,000
Sales & Marketing			3,000
Depreciation			25,000
Financial expenses			-
Total			**252,410**
Tolerance 5%			12,621
Overall total			**265,031**

Project revenues and costs

	Qty	Unit $	Total $
Revenue (10.000 sqm sold at $52/sqm)	10,000	52.00	520,000
Total Production costs			265,031
Profit Before Tax			254,970
Corporate tax 33%			84,140
Real estate tax 0.2 %			276
Net Profit after tax			170,554
Net profit per unit		17.06	
Break-even amount (1 sqm window)	**15,492**		

Break-even production is: total investment costs divided by net profit per unit sold.

Appendix 18 Structure of Wood and Wood Products Industries in DOKAP and Turkey

		DOKAP				TURKEY (1996)								
		# Work P	%	# Worker	%	# Work P	%	# Worker	%	VA (Mil TL)	VA ($)	%	VA/emp $	*Conc Inx DKP*
3	**MANUFACTURING INDUSTRIES**													
31	**Food, Beverages & Tobacco**	1,740	*30*	44,023	*69*	1,821	*17.2*	171,375	*16.6*	436,249,189	2,814,946,759	*15.15*	16,426	*4.16*
32	**Textile**	1,186	*21*	3,551	*6*	3,329	*31.5*	354,691	*34.3*	497,305,532	3,208,919,652	*17.27*	9,047	*0.16*
33	**Forestry and Wood**	1,533	*27*	6,388	*10*	419	*4.0*	23,168	*2.2*	34,874,410	225,031,037	*1.21*	9,713	*4.47*
331	Wood products	184	*3*	1,960	*3*	239	*2.3*	12,360	*1.2*	17,973,430	115,975,570	*0.62*	9,383	*2.57*
3311	*Timber & Parquet*					202	*1.9*	11,298	*1.1*	17,206,998	111,030,082	*0.60*	9,827	
	10-24 workers					86	*0.8*	1,245	*0.1*	1,049,823	6,774,101	*0.04*	5,441	
	25-49					57	*0.5*	2,017	*0.2*	1,710,620	11,037,967	*0.06*	5,472	
	50-99					24	*0.2*	1,777	*0.2*	2,153,301	13,894,416	*0.07*	7,819	
	100-199					26	*0.2*	3,485	*0.3*	6,557,277	42,311,564	*0.23*	12,141	
	200-499					9	*0.1*	2,774	*0.3*	5,735,977	37,012,034	*0.20*	13,342	
	500-999						*0.0*		*0.0*				#DIV/0!	
	1000+						*0.0*		*0.0*				#DIV/0!	
332	Furniture & Fixture	1,349	*24*	4,428	*7*	180	*1.7*	10,808	*1.0*	16,900,980	109,055,467	*0.59*	10,090	*6.64*
	10-24 workers					81	*0.8*	1,228	*0.1*	879,866	5,677,434	*0.03*	4,623	
	25-49					56	*0.5*	2,017	*0.2*	1,747,428	11,275,475	*0.06*	5,590	
	50-99					20	*0.2*	1,433	*0.1*	1,821,939	11,756,265	*0.06*	8,204	
	100-199					13	*0.1*	1,837	*0.2*	2,926,613	18,884,298	*0.10*	10,280	
	200-499					7	*0.1*	2,113	*0.2*	5,599,783	36,133,227	*0.19*	17,100	
	500-999					2	*0.0*	1,128	*0.1*	1,763,887	11,381,678	*0.06*	10,090	
	1000+					1	*0.0*	1,052	*0.1*	2,161,464	13,947,089	*0.08*	13,258	
34	**Paper & Paper products**	99	*2*	1,039	*2*	370	*3.5*	36,090	*3.5*	102,581,085	661,915,942	*3.56*	18,341	*0.47*
35	**Chemistry**	91	*2*	1,158	*2*	932	*8.8*	98,336	*9.5*	821,471,546	5,300,637,170	*28.52*	53,903	*0.19*
36	**Soil and Stone**	162	*3*	2,715	*4*	842	*8.0*	67,888	*6.6*	201,154,220	1,297,970,137	*6.98*	19,119	*0.65*
37	**Basic Metal**	4	*0*	108	*0*	374	*3.5*	58,074	*5.6*	177,897,510	1,147,903,611	*6.18*	19,766	*0.03*
38	**Metal Products**	881	*15*	4,656	*7*	2,390	*22.6*	217,679	*21.1*	599,179,603	3,866,273,507	*20.80*	17,761	*0.35*
39	**Others**	43	*1*	152	*0*	106	*1.0*	6,756	*0.7*	9,705,623	62,626,620	*0.34*	9,270	*0.36*
	TOTAL *(and Average VA/Employee)*	*5,739*	*100*	*63,790*	*100*	*10,583*	*100.0*	*1,034,057*	*100.0*	*2,880,418,718*	**18,586,224,435**	*100.00*	**17,974**	

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 19 Provincial Distribution of Wood and Wood Products Industries in DOKAP

		Artvin		Bayburt		Giresun		G.Hane		Ordu		Rize		Trabzon		DOKAP			
		# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	%	# Worker	%
3	**MANUFACTURING INDUSTRIES**																		
31	Food Beverages & Tobacco	135	3,743	84	835	274	5,518	92	218	139	5,617	382	20,152	634	7,940	1,740	*30*	44,023	*69*
32	Textile	138	276	52	123	150	337	20	219	236	721	46	350	544	1,525	1,186	*21*	3,551	*6*
33	**Forestry and Wood**	**297**	**917**	**115**	**345**	**287**	**1,441**	**23**	**68**	**355**	**1,898**	**98**	**458**	**358**	**1,261**	**1,533**	*27*	**6,388**	*10*
331	**Wood and mushroom products**	**4**	**314**	**7**	**14**	**103**	**646**	**5**	**18**	**52**	**679**	**8**	**138**	**5**	**151**	**184**	*3*	**1,960**	*3*
332	**Furniture and fixture**	**293**	**603**	**108**	**331**	**184**	**795**	**18**	**50**	**303**	**1,219**	**90**	**320**	**353**	**1,110**	**1,349**	*24*	**4,428**	*7*
34	Paper and paper products	9	27	2	6	14	456	7	19	10	30	6	18	51	483	99	*2*	1,039	*2*
35	Chemistry	-	-	3	22	24	140	-	-	16	221	9	37	39	738	91	*2*	1,158	*2*
36	Soil & Staone	-	-	15	97	39	180	5	42	30	697	12	50	61	1,649	162	*3*	2,715	*4*
37	Basic Metal	-	-	-	-	1	20			2	70	-	-	1	18	4	*0*	108	*0*
38	Metal Products	106	1,494	92	250	191	441			129	402	24	284	339	1,785	881	*15*	4,656	*7*
39	Others	-	-	5	10	1	2			-	-	-	-	37	140	43	*1*	152	*0*
	TOTAL	**685**	**6,457**	**363**	**1,678**	**981**	**8,535**	**147**	**566**	**917**	**9,656**	**577**	**21,349**	**2,027**	**15,399**	***5,739***	***100***	***63,790***	***100***

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 20 1992 World Trade Statistics in Furniture Sector

	Export	Import	Exp-Imp	Total Volume	%
WORLD	**31,459**	**33,515**		**64,974**	**100.0**
EUROPE	**23,315**	**21,327**		**44,642**	**68.7**
Italy	5,947	705	5,242	6,652	10.2
Germany	4,877	6,333	(1,456)	11,210	17.3
France	1,935	3,261	(1,326)	5,196	8.0
Denmark	1,714	301	1,413	2,015	3.1
Benelux	1,566	1,793	(227)	3,359	5.2
UK	1,124	1,917	(793)	3,041	4.7
Holland	1,124	2,147	(1,023)	3,271	5.0
Sweden	996	816	180	1,812	2.8
Switzerland	690	1,560	(870)	2,250	3.5
Spain	626	714	(88)	1,340	2.1
Austria	708	271	437	979	1.5
Romania	401		401	401	0.6
Finland	179	176	3	355	0.5
Poland	529		529	529	0.8
Norway	185	514	(329)	699	1.1
Portugal	214	226	(12)	440	0.7
Hungary	175	134	41	309	0.5
Czeckoslavia	283	135	148	418	0.6
Bulgaria	42		42	42	0.1
Greece		161	(161)	161	0.2
Ireland		163	(163)	163	0.3
ASIA	**3,472**	**2,994**	**478**	**6,466**	**10.0**
Japan	519	1,740	(1,221)	2,259	3.5
China	825	90	735	915	1.4
Thailand	535		535	535	0.8
Honk-Kong	431	678	(247)	1,109	1.7
Indonesia	490		490	490	0.8
Korea	169	106	63	275	0.4
Filippines	181		181	181	0.3
Russia	-	-	-	-	-
Malesia	322		322	322	0.5
Singapore		380	(380)	380	0.6
AMERICA	**4,595**	**8,010**	**(3,415)**	**12,605**	**19.4**
USA	2,982	6,085	(3,103)	9,067	14.0
Canada	1,388	1,545	(157)	2,933	4.5
Mexico	87	380	(293)	467	0.7
Brazil	138		138	138	0.2
OTHER		**970**	**(970)**	**970**	**1.5**
Saudi Arabia		397	(397)	397	0.6
UAE		179	(179)	179	0.3
New Zealand		41	(41)	41	0.1
Libya		84	(84)	84	0.1
Kuveyt		159	(159)	159	0.2
Israel		110	(110)	110	0.2
			-	-	-
Turkey	**77**	**214**	**(137)**	**291**	**0.4**

Source : Wood-processing & Furniture Sector, KOSGEB, 1996

Appendix 21 Manufacturing Employment and Enterprises in DOKAP in 1999

3 - MANUFACTURING SUBSECTORS	FIELD SURVEY		SSK DATA(1997)	
	# Work Place	# Worker	# Work Place	# Worker
31 Food, drink and tobacco	1,740	44,023	1,659	35,990
32 Textile, clothing and leather	1,186	3,236	443	1,666
33 Forestry product and furniture	1,533	6,388	935	3,461
34 Paper, paper products and pringting	99	1,018	117	736
35 Chemistry, Petrolium, Coal, Rubber & Plastic	91	1,158	102	931
36 Industry related to stone and soil	162	2,715	259	1,853
37 Metal industry	4	178	13	244
38 Metal products, machine & equipment, vehicles	896	4,309	1,195	3,698
39 Other manufacturing industries	79	221	691	2,931
TOTAL	**5,790**	**63,246**	**5,414**	**51,510**

Appendix 22 Manufacturing Concentration by Subsectors in DOKAP

3 - MANUFACTURING SUBSECTORS	DOKAP FIELD SURVEY (1999)		TURKEY SIS (1990)		Concentration Index
	Total Employment	% of Region	Total Employment	% of Region	
31 Food, drink and tobacco	44,023	69.61	359,096	12.91	5.39
32 Textile, clothing and leather	3,236	5.12	1,050,285	37.76	0.14
33 Forestry product and furniture	6,388	10.10	318,386	11.45	0.88
34 Paper, paper products and pringting	1,018	1.61	85,095	3.06	0.53
35 Chemistry, Petrolium, Coal, Rubber & Plastic	1,158	1.83	136,965	4.92	0.37
36 Industry related to stone and soil	2,715	4.29	137,135	4.93	0.87
37 Metal industry	178	0.28	97,160	3.49	0.08
38 Metal products, machine & equipment, vehicles	4,309	6.81	504,189	18.13	0.38
39 Other manufacturing industries	221	0.35	93,406	3.36	0.10
TOTAL	**63,246**	**100.00**	**2,781,717**	**100.00**	**1.00**

Source: SIS Population Census 1990 and Field Survey Data

3 - MANUFACTURING SUBSECTORS	DOKAP SIS (1990)		TURKEY SIS (1990)		Concentration Index
	Total Employment	% of Region	Total Employment	% of Region	
31 Food, drink and tobacco	35,472	43.66	359,096	12.91	3.38
32 Textile, clothing and leather	20,698	25.48	1,050,285	37.76	0.67
33 Forestry product and furniture	9,568	11.78	318,386	11.45	1.03
34 Paper, paper products and pringting	1,551	1.91	85,095	3.06	0.62
35 Chemistry, Petrolium, Coal, Rubber & Plastic	952	1.17	136,965	4.92	0.24
36 Industry related to stone and soil	1,824	2.25	137,135	4.93	0.46
37 Metal industry	1,979	2.44	97,160	3.49	0.70
38 Metal products, machine & equipment, vehicles	7,228	8.90	504,189	18.13	0.49
39 Other manufacturing industries	1,974	2.43	93,406	3.36	0.72
TOTAL	**81,246**	**100.00**	**2,781,717**	**100.00**	**1.00**

Source: SIS Population Census 1990

Appendix 23 Breakdown of Incentives Granted in Wood Processing Sector in DOKAP, within 1995-September 1999

	1995			1996			1997			1998			1999				Totals		
	Invest $	Emp	#	Invest $	Emp	#	Invest $	Emp	#	Invest $	Emp	#	Invest $	Emp		#	$ Amount	Emp	#
Lumber-Parquet	335,042	135	1	3,075,865	115	3	2,188,064	138	4	2,034,596	149	3	0	0	0	0	7,633,567	537	11
Plywood-Chipwood	0	0	0	2,024,767	17	1	2,056,091	6	1	2,532,012	25	2	0	0	0	0	6,612,870	48	4
Furniture	0	0	0	4,314,789	78	2	0	0	0	0	0	0					4,314,789	78	2
Total	335,042	135	1	9,415,421	210	6	4,244,155	144	5	4,566,608	174	5	0	0	0	0	18,561,226	663	17

Provincial distribution of Wood Processing incentives in DOKAP in 1995-1999

	ARTVIN			BAYBURT			GIRESUN			G. HANE			ORDU				RIZE			TRABZON			DOKAP			% of DOKAP		
	$ Amount	Emp	#	$ Amount	Emp	#	$ Amount	Emp	#	$ Amount	Emp	#	$ Amount	Emp		#	$ Amount	Emp	#	$ Amount	Emp	#	$ Amount	Emp	#	%$	%Emp	% #
3 MANUFACTURING	7,162,501	627	8	2,618,660	304	4	65,171,746	2,817	35	39,322,751	507	7	276,894,782	5,039	16	91	55,604,648	1,287	15	133,109,779	3,290	60	579,884,867	13,871	220	52.15	49.46	56.25
33 Forestry	*0*	*0*	*0*	*1,561,330*	*40*	*1*	*3,655,858*	*336*	*5*	*0*	*0*	*0*	*8,074,416*	*152*	*0*	*8*	*776,088*	*40*	*1*	*4,493,536*	*90*	*2*	*18,561,228*	*658*	*17*	*1.67*	*0.00*	*2.67*
Lumber-Parquet				*1,561,330*	*40*	*1*	*1,296,048*	*184*	*3*				*3,230,067*	*88*		*4*	*776,088*	*40*	*1*	*434,992*	*50*	*1*	*7,298,525*	*402*	*10*	*0.66*	*0.00*	*1.63*
Chipwood							*2,359,810*	*152*	*2*				*4,588,104*	*26*		*3*							*6,947,914*	*178*	*5*	*0.62*	*0.00*	*0.72*
Furniture													*256,245*	*38*		*1*				*4,058,544*	*40*	*1*	*4,314,789*	*78*	*2*	*0.39*	*0.00*	*0.32*
TOTAL ALL SECTORS	152,458,888	1,729	26	32,171,345	743	11	119,782,843	4,222	62	57,701,876	1,059	16	339,214,000	7,292	49	128	121,811,578	3,264	44	288,716,801	6,351	153	1,111,857,331	24,660	440	100.00	100.00	100.00

Source : Unpublished data, State Treasury Department

Appendix 24 Cost Structure of a KIT Furniture Plant

Cost items	Quantity	Unit ($)	Total $
1. Land & Building [1]	**800**	**230.00**	**184,000**
2. Machinery Costs [2]			
Chipboard sizing machine	1	12,600.00	12,600
Tracked Milling	1	3,500.00	3,500
Roller bonding	1	3,200.00	3,200
Post forming	1	4,500.00	4,500
Profiled edge cutter	1	6,400.00	6,400
Edge bonding machine	1	8,500.00	8,500
Edge trimming	1	4,500.00	4,500
Curved edge bonding	1	800.00	800
Soft forming machine	1	5,300.00	5,300
Multi-drilling machine	1	3,500.00	3,500
Dust sucker	3	500.00	1,500
Roller transport bench	7	200.00	1,400
Total hand tools	1	5,000.00	5,000
Compressor	1	1,500.00	1,500
Total Machinery costs			**62,200**
3. Transport & Installation costs [3]	**1**	**6,000.00**	**6,000**
4. Personnel costs including meal and SSK premiums			
Worker	11	450.00	4,950
Formen	2	650.00	1,300
Plant manager	1	1,100.00	1,100
Accountant	1	800.00	800
Total	**15**		**8,150**

5. Yearly Operating costs	Qty		Total $	Op.Cap
Raw material including transport [4]	19500	28.00	546,000	45,500
Personnel (total from above)			97,800	8,150
Electricity	60000	0.06	3,600	600
Heating			1,200	200
Transport			2,000	167
Repair & Maintenance (2% of machinery)			1,244	104
Packaging	19500	0.30	3,000	250
Sales & Marketing			3,000	250
Depreciation			21,640	-
Financial expenses [5]			-	-
Total			**679,484**	**55,220**
Contingencies 5%			33,974	2,761
Grand Total Operating costs			**713,458**	**57,981**

NOTES

1. Unit cost of land & building calculated from typical costs in Trabzon OIE.
2. Machiney costs are local market prices of a Turkish manufacturer in Ankara.
3. 1.6 x net salary is used to reflect the total montly cost of an employee.
4. Raw material including tranportation is assumed to be 10% higher than Ankara market prices.
5. Investment is assumed to be fully financed by the owner.
6. For operating capital calculation, monthly raw material stock, bi-monthly payment of electricity and monthly payment of allother cost items is assumed.

Appendix 25 Project Costs for a KIT Furniture Plant

Investment	Total $
Land & Building	184,000
Machinery	62,200
Transport & Installation	6,000
Operating Capital	57,981
Total	**310,181**
Contingencies 5%	15,509
Overall total	**325,690**

Operating costs at full cpacity	Qty	Unit $	Total $
Raw material including transport			546,000
Personnel			97,800
Electricity			3,600
Heating			1,200
Transport			2,000
Repair & Maintenance (1% of machinery)			1,244
Packaging			3,000
Sales & Marketing			3,000
Depreciation			21,640
Financial expenses			-
Total			**679,484**
Tolerance 5%			33,974
Overall total			**713,458**

Analysis of revenue and costs	Qty	Unit $	Total $
Revenue [1]	19,500	70.00	1,365,000
Total Production costs			713,458
Profit Before Tax [2]			651,542
Corporate tax (33%)			215,009
Real estate tax (0,2%)			3,680
Net Profit after tax			432,853
Net Profit per unit		22.20	
Break-even production at 100% [3]	**14,672**		

Notes

1. Quantity is total units produced at 100% capacity. Unit price is typical Ankara market price.
2. Taxes incurred during the year are paid during the following year. They are included to give a complete picture.
3. Break-even production is total investment cost divided by net profit per unit.

Appendix 26 Shoe Production & Trade of Some Countries in 1993 (Million Pairs)

Country	Production	Import	Export	Consumption
China	3,500	6	2,061	1,445
Brazil	562	3	180	385
Italy	452	101	380	194
India	440	-	45	395
Indonesia	390	2	275	117
Thailand	340	1	24	101
South Korea	310	10	180	140
Japan	263	275	6	532
USA	252	1,348	30	1,570
Former USSR	240	70	2	308
Mexico	200	45	24	221
Spain	198	38	96	140
Taiwan	188	7	150	45
Pakistan	175	1	10	166
TURKEY	155	4	18	141
France	154	232	64	322
Filippines	150	1	24	127
UK	113	178	31	260
Portugal	101	15	81	35
Iran	60	-	-	60
Germany	56	381	51	386
South Africa	45	12	4	53
Malesia	45	5	28	22
Canada	22	83	4	101
Australia	15	41	3	53
Bulgaria	15	1	4	12
Greece	14	22	5	31
Austria	13	47	15	45
Hungaria	12	7	4	15
Holland	6	118	56	68
Hong Kong	6	1,348	1,323	31
Denmark	5	27	7	25
New Zealand	4	8	1	11
Finland	4	13	2	15
Switzerland	4	41	6	39
Sweden	2	30	4	28
Singapur	2	35	19	18
Benelux	2	83	38	47
Norvey	1	17	1	17
Ireland	1	17	5	13

Appendix 27 Output and Foreign Trade Statistics of Footwear Industries in Turkey
(All Money values are 1994 constant prices)

	Production		Output		Export		Import	
Year	(Mill Pairs)	% Change	(Billion TL)	% Change	(Mil Pairs)	USD	(Mil Pairs)	USD
1988	85.5		24,053		2.65	25.8		
1989	86.4	1.1	24,146	0.4	3.41	48.5		
1990	88.9	2.9	25,205	4.4	2.69	36.8		18.5
1991	91.9	3.4	25,894	2.7	7.27	59		33.7
1992	96.6	5.1	27,669	6.9	12.8	83		25
1993	109.5	13.4	30,653	10.8	18.53	94		45.1
1994	104.6	(4.5)	27,903	(9.0)	27.32	158		28.1
1995	129.1	23.4	36,506	30.8	32.87	114		45.6
1996	143	10.8	38,820	6.3	32.9	151		98
1997	166	16.1	44,981	15.9	48.53	225	7,102	74.5
1998	146	(12.0)	37,647	(16.3)	59.89	253	6,569	69.8
1999*	155	6.2	39,192	4.1	62.69	259	6,742	73.1

Source : Compiled from SIS, IGEME, SPO data. 1999 values are SPO estimates.

Appendix 28 Structure of Footwear Industry in DOKAP and Turkey

		DOKAP				TURKEY (1996)							
		# Work P	%	# Worker	%	# Work P	%	# Worker	%	VA ($)	%	VA/emp $	*Conc Inx DKP*
3	MANUFACTURING INDUSTRIES												
31	Food , Beverages and Tobacco	1,740	*30*	44,023	*69*	1,821	*17.2*	171,375	*16.6*	2,814,946,759	*15.15*	16,426	*4.16*
32	**Textile, Apparel and Leather**	**1,186**	***21***	**3,551**	***6***	**3,329**	***31.5***	**354,691**	***34.3***	**3,208,919,652**	***17.27***	**9,047**	***0.16***
321	Textile	45	*1*	668	*1*	1,594	*15.1*	223,875	*21.7*	2,190,303,376	*11.78*	9,784	*0.05*
322	Apparel except shoes	996	*17*	2,492	*4*	1,466	*13.9*	117,632	*11.4*	920,031,263	*4.95*	7,821	*0.34*
323	Leather, and leather-like products	3	*0*	6	*0*	150	*1.4*	7,007	*0.7*	61,086,684	*0.33*	8,718	*0.01*
324	**Footware**	**136**	***2***	**385**	***1***	**119**	***1.1***	**6,177**	***0.6***	**37,498,329**	***0.20***	**6,071**	***1.01***
	10-24 workers					49	*0.5*	792	*0.1*	4,197,276	*0.02*	5,300	
	25-49					35	*0.3*	1,192	*0.1*	8,757,182	*0.05*	7,347	
	50-99					24	*0.2*	1,578	*0.2*	8,467,130	*0.05*	5,366	
	100-199					5	*0.0*	666	*0.1*	3,490,198	*0.02*	5,241	
	200-499					5	*0.0*	1,408	*0.1*	10,929,473	*0.06*	7,762	
	500-999					1	*0.0*	541	*0.1*	1,657,069	*0.01*	3,063	
	1000+						*0.0*		*0.0*	-	-	#DIV/0!	
33	Forestry & Wood Processing	1,533	*27*	6,388	*10*	419	*4.0*	23,168	*2.2*	225,031,037	*1.21*	9,713	*4.47*
34	Paper & Paper products	99	*2*	1,039	*2*	370	*3.5*	36,090	*3.5*	661,915,942	*3.56*	18,341	*0.47*
35	Chemistry	91	*2*	1,158	*2*	932	*8.8*	98,336	*9.5*	5,300,637,170	*28.52*	53,903	*0.19*
36	Soil & Stone based	162	*3*	2,715	*4*	842	*8.0*	67,888	*6.6*	1,297,970,137	*6.98*	19,119	*0.65*
37	Basic Metal Industries	4	*0*	108	*0*	374	*3.5*	58,074	*5.6*	1,147,903,611	*6.18*	19,766	*0.03*
38	Metal Products Manufacturing	881	*15*	4,656	*7*	2,390	*22.6*	217,679	*21.1*	3,866,273,507	*20.80*	17,761	*0.35*
39	Other Manufacturing Industries	43	*1*	152	*0*	106	*1.0*	6,756	*0.7*	62,626,620	*0.34*	9,270	*0.36*
	TOTAL *(and Average VA/Employee)*	***5,739***	***100***	***63,790***	***100***	***10,583***	***100.0***	***1,034,057***	*100.0*	**18,586,224,435**	*100.00*	**17,974**	

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 29 Provincial Distribution of Footwear Industries in DOKAP

		Artvin		Bayburt		Giresun		G.Hane		Ordu		Rize		Trabzon		DOKAP			
		# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	# Worker	# Work P	%	# Worker	%
3	MANUFACTURING INDUSTRIES																		
31	Food , Beverages and Tobacco	135	3,743	84	835	274	5,518	92	218	139	5,617	382	20,152	634	7,940	1,740	*30*	44,023	*69*
32	Textile, Apparel and Leather	138	276	52	123	150	337	20	219	236	721	46	350	544	1,525	1,186	*21*	3,551	*6*
321	Textile	-	-	3	25	5	15	5	190	11	138	5	268	16	32	45	*1*	668	*1*
322	Apparel except shoes	138	276	49	98	140	305	15	29	225	583	41	82	388	1,119	996	*17*	2,492	*4*
323	Leather, and leather-like products	-	-	-	-	-	-			-	-	-	-	3	6	3	*0*	6	*0*
324	Footware	-	-	-	-	5	17			-	-	-	-	131	368	136	*2*	385	*1*
33	Forestry & Wood Processing	297	917	115	345	287	1,441	23	68	355	1,898	98	458	358	1,261	1,533	*27*	6,388	*10*
34	Paper & Paper Products	9	27	2	6	14	456	7	19	10	30	6	18	51	483	99	*2*	1,039	*2*
35	Chemistry	-	-	3	22	24	140	-	-	16	221	9	37	39	738	91	*2*	1,158	*2*
36	Soil & Stone based	-	-	15	97	39	180	5	42	30	697	12	50	61	1,649	162	*3*	2,715	*4*
37	Basic Metal Industries	-	-	-	-	1	20			2	70	-	-	1	18	4	*0*	108	*0*
38	Metal Products Manufacturing	106	1,494	92	250	191	441			129	402	24	284	339	1,785	881	*15*	4,656	*7*
39	Other Manufacturing Industries	-	-	5	10	1	2			-	-	-	-	37	140	43	*1*	152	*0*
	TOTAL *(and Average VA/Employee)*	685	6,457	363	1,678	981	8,535	147	566	917	9,656	577	21,349	2,027	15,399	*5,739*	*100*	*63,790*	*100*

Source : Field Survey in DOKAP region 1999, and SIS Manufacturing Industry Statistics 1996

Appendix 30 Shoe Exports (1,000 $)

	1993	1994	1995
Russia Fed	17,695	58,286	34,808
Ukraine	995	1,651	13,317
Poland	17,789	12,864	12,097
Germany	5,517	5,760	7,837
Saudi Arabia	7,383	7,956	7,427
Romania	301	1,267	6,175
England	2,989	9,063	5,912
Hungaria	5,513	4,290	5,298
Uzbekstan	10,050	5,000	3,384
Greece	1,756	1,943	2,969

Appendix 31 The Structure of Costs for a Shoe Factory

Cost items	Quantity	Unit ($)	Total $
1. Land & Building [1]	**1000**	**230.00**	**230,000**
2. Machinery Costs [2]			
Hydrolic Leather Cutting Press	1	8,000.00	8,000
Splitting Machine	1	9,000.00	9,000
Marking Machine	1	1,850.00	1,850
Skiving machines	1	1,900.00	1,900
Sewing machine	10	1,800.00	18,000
Toe puff fusing machine	1	2,000.00	2,000
Back puff fusing machine	1	2,400.00	2,400
Insole stapling equipment	1	3,500.00	3,500
Insole side trimming machine	1	2,000.00	2,000
Front moulding machine	1	20,000.00	20,000
Back moulding machine	1	22,000.00	22,000
Sides moulding machine	1	5,500.00	5,500
Back side tracing machine	1	5,000.00	5,000
Bottom roughing machine	1	3,500.00	3,500
Humid-heat setting unit	1	5,000.00	5,000
Leather ?roning machine	1	2,000.00	2,000
Gluing machine	1	2,750.00	2,750
Drying Assembly	1	3,800.00	3,800
Sole attaching Press	1	9,000.00	9,000
Cooling unit	1	4,000.00	4,000
Last pulling machine	1	2,500.00	2,500
Leather cleaning finishing station	1	3,500.00	3,500
General purpose compressor	1	1,600.00	1,600
Total Machinery costs			**138,800**
3. Transport & Installation costs [3]	**1**	**20,000.00**	**20,000**
4. Personnel costs including meal and SSK premiums			
Skilled Worker	28	580.00	16,240
Formen	2	650.00	1,300
Designer	1	750.00	750
Plant manager	1	1,100.00	1,100
Accountant	1	800.00	800
Total	**33**		**20,190**

5. Yearly Operating costs	Qty	Unit $	Total $	Op.Cap $
Raw material [4]	90,000	11.00	990,000	82,500
Personnel (Monthly total x12)			242,280	20,190
Electricity	120,000	0.06	7,200	1,200
Heating			6,000	1,000
Transport			6,000	500
Repair & Maintenance (5% of machinery)			6,940	578
Packaging	90,000	0.30	27,000	2,250
Sales & Marketing			20,000	1,667
Depreciation			39,260	-
Financial expenses [5]			-	-
Total			**1,344,680**	**109,885**
Tolerance 5%			67,234	5,494
Grand Total Operating costs			**1,411,914**	**115,379**

NOTES ON COST BREAKDOWN

1. Unit cost of land & building calculated from typical costs in Trabzon OIE.
2. Machiney costs are approximate FOB-Italy prices.
3. Estimeted Customs fees and transprotation to Turkey
4. Raw material including tranportation is assumed to be 10% higher than Ankara market prices.
5. Investment is assumed to be fully financed by the owner.
6. For operating capital calculation, monthly raw material stock, bi-monthly payment of electricity and monthly payment of all other cost items is assumed.

Appendix 32 Project Costs of a Shoe Factory

Investment	Total $
Land & Building	230,000
Machinery	138,800
Transport & Installation	20,000
Operating Capital	115,379
Total	**504,179**
Tolerance 5%	25,209
Overall total	**529,388**

Operating costs at full capacity	Qty	Unit $	Total $
Raw material including transport			990,000
Personnel			242,280
Electricity			7,200
Heating			6,000
Transport			6,000
Repair & Maintenance (1% of machinery)			6,940
Packaging			27,000
Sales & Marketing			20,000
Depreciation			39,260
Financial expenses			-
Total			**1,344,680**
Tolerance 5%			67,234
Overall total			**1,411,914**

Analysis of project revenues and costs	Qty	Unit $	Total $
Revenue [1]	90,000	25.00	2,250,000
Total Production costs			1,411,914
Profit Before Tax [2]			838,086
Corporate tax (33%)			276,568
Real estate tax (0,2%)			460
Net Profit after tax			561,058
Net Profit per unit ($)		6.23	
Break-even production at 100% [3]	**84,920**		

Notes on project costs

1. Quantity is total units produced at 100% capacity. Unit price is typical Ankara market price.
2. Taxes incurred should actually be accounted for the following years balance.
   They are included to give an idea about the overall financial picture.
3. Break-even production is total investment cost divided by net profit per unit.