

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 I Executive Summary

October 2000

**NIPPON KOEI CO., LTD.
RECS INTERNATIONAL INC.**

LIST OF REPORTS

(This Volume is indicated by)

Volume I	Executive Summary
Volume II	Master Plan
Volume III	Economic Sectors
Volume IV	Social Sectors
Volume V	Environment
Volume VI	Spatial Development and Infrastructure
Volume VII	Institutional Development
Volume VIII	Project Reports

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(September, 1999)

PREFACE

In response to a request from the Government of the Republic of Turkey, the Government of Japan decided to conduct a Study on the Regional Development Plan for the Eastern Black Sea Region in the Republic of Turkey and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Osamu Takahashi of Nippon Koei Co., Ltd. and consist of Nippon Koei Co., Ltd. and RECS International Inc. to the Republic of Turkey, three times between March 1999 and March 2000.

The team held discussions with the officials concerned of the Government of Turkey and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Turkey for their close cooperation extended to the Team.

August, 2000

A handwritten signature in black ink, appearing to read 'Kimio Fujita', written in a cursive style.

Kimio Fujita
President

Japan International Cooperation Agency

August, 2000

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Mr. Fujita,

It is with great pleasure that we submit to you the Final Report of the Study on the Regional Development Plan for the Eastern Black Sea Region in the Republic of Turkey completed by our study team composed of experts from Nippon Koei Co., Ltd. and RECS International Inc., with cooperative efforts of the State Planning Organization (SPO) and other Turkish parties concerned. The Final Report is composed of Executive Summary Report, Master Plan Report, five Sector Reports and Project Reports.

The Eastern Black Sea Region has been one of less developed regions in Turkey. With a number of favorable conditions, however, the Region is starting to see a chance for economic development. The development of the Eastern Black Sea Region will contribute not only to the job creation in the Region but also to further economic development of the Country. Our study team hopes that the proposed master plan will provide useful materials in implementing the Eighth Five Year Plan (2001-2005) and the subsequent 9th and 10th Plans, and that it will guide the formulation and implementation of provincial and village development plans in the Eastern Black Sea Region.

Our study team would like to take this opportunity to express its heartfelt gratitude for the kind assistance and cooperation extended by the members of the Steering Committee and the Consultation Group in the SPO and by all other parties concerned, during the period of our study in Turkey from March 1999 to March 2000. The final report is a fruit of excellent collaboration of all participants in this study.

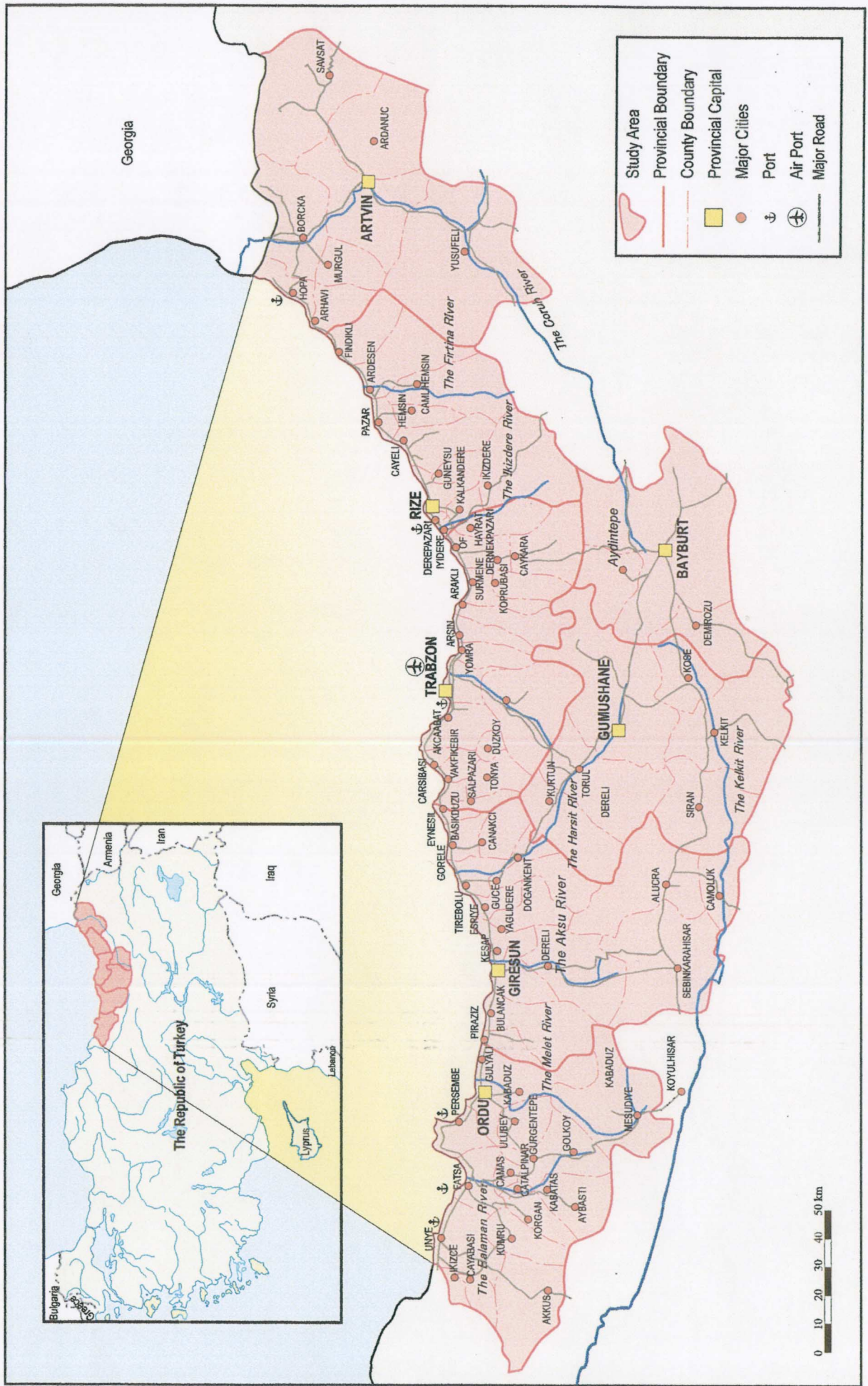
Sincerely yours,



Osamu TAKAHASHI

Team Leader

The Study on the Regional Development Plan for the
Eastern Black Sea Region in the Republic of Turkey



Location Map

**THE STUDY
ON
THE REGIONAL DEVELOPMENT PLAN
FOR
THE EASTERN BLACK SEA REGION
IN
THE REPUBLIC OF TURKEY**

Final Report

Volume I Executive Summary

Table of Contents

	<u>page</u>
1. INTRODUCTION	1-1
2. DOKAP REGION.....	2-1
2.1 DOKAP Socio-Economy.....	2-1
2.2 DOKAP Spatial Structure.....	2-1
2.3 Resource Capacity of DOKAP Region.....	2-2
3. DOKAP REGIONAL DEVELOPMENT OBJECTIVES AND STRATEGY	3-1
3.1 DOKAP Regional Development Objectives.....	3-1
3.2 Basic Strategy for DOKAP Regional Development.....	3-1
4. DOKAP DEVELOPMENT FRAMEWORKS AND SCENARIO	4-1
4.1 Socio-Economic Framework	4-1
4.2 Spatial Development Framework.....	4-2
4.3 Development Scenario.....	4-7
5. STRATEGY BY SECTOR.....	5-1
5.1 Strategy for Economic Development	5-1
5.2 Strategy for Social Development	5-7
5.3 Strategy for Environmental Development	5-8
5.4 Strategy for Spatial/Infrastructure Development	5-11
6. DOKAP DEVELOPMENT PROJECTS AND PROGRAMS	6-1
6.1 Structure of DOKAP Master Plan.....	6-1
6.2 DOKAP Development Projects and Programs.....	6-3
6.3 Investment Requirements.....	6-10
7. DOKAP OPERATIONS PLAN.....	7-1
7.1 Master Plan Adoption and Promotion	7-1
7.2 Restructuring/Strengthening of Implementing Arrangements.....	7-1
7.3 Project Development and Implementation.....	7-2

List of Tables

Table 1	More Promising Tourism Resources in DOKAP Region	2-4
Table 2	Hydropower Development Potential by Province.....	2-5
Table 3	Planned and Potential Irrigation Areas by Province	2-5
Table 4	GRDP and Employment by Sector in DOKAP Region, 2020	4-1
Table 5	Population Projection in DOKAP Region, 1997 – 2020.....	4-2
Table 6	Future Land Use in DOKAP Region.....	4-4
Table 7	Urban Hierarchy in DOKAP Region.....	4-7
Table 8	Development Scenario for DOKAP Regional Development	4-8
Table 9	Sub-sector Strategies in Agriculture (1/2).....	5-2
Table 9	Sub-sector Strategies in Agriculture (2/2).....	5-3
Table 10	Investment Requirements and Allocation to 10 Programs	6-11
Table 11	Agencies to be Involved in Initial Consultation for DOKAP Programs	7-2

List of Figures

Figure 1	Existing Land Use.....	2-6
Figure 2	Changes in DOKAP Economic Structure, 2000 - 2020	4-1
Figure 3	Future Land Use Map	4-3
Figure 4	Artery Network in DOKAP Region.....	4-6
Figure 5	Structure of DOKAP Master Plan with 10 Programs	6-2

ABBREVIATIONS

AGM	General Directorate of Afforestation and Erosion Control (Agaçlandırma ve Erozyon Kontrolü Genel Müdürlüğü)
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 Hatları ile Petrol Tasıma A.Ş.)
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 (Doğal Hayati Koruma Derneği)
DOKAP	Eastern Blacksea Regional Development Plan (Doğu Karadeniz Bölgesel Gelişme Planı)
DSİ	General Directorate of State Water Works (Devlet Su İşleri Genel Müd.)
EIA	Environmental impact assessment
EİE	Electrical Power Resources Survey and Development Administration
EİEİ	Electric Survey Administration (Elektrik İşleri Etüt İdaresi)
FAO	Food and Agriculture Organization of U.N.
FNCCC	UN Framework Convention on Climate Change
FCRI	Field Crop Research Institute
FIRR	Financial Internal Rate of Return
FİSKOBİRLİK	Association for Hazelnut Marketing Cooperatives (Fındık Tarım Satış Kooperatifleri Birliği)
FTSİİ	Forest Trees and Seed Improvement Institute
GAP	Southeastern Anatolia Project (Güneydoğu Anadolu Pro.)
GATT	General Agreement on Trade and Tariffs
GDAR	General Directorate of Agricultural Research (Tarımsal Araştırmalar Genel Müdürlüğü)
GDNPGW	General Directorate of National Parks, Game and Wildlife
GDP	Gross domestic product
GDRS	General Directorate of Rural Services (Köy Hizmetleri Genel Müdürlüğü)
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 Traders
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)
TÜSİAD	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

cm² = Square-centimeters
m² = Square-meters
km² = Square-kilometers
ha. = Hectares (10,000 m²)

Volume

cm³ = Cubic-centimeters
m³ = 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
°C = Degree Celsius

1. INTRODUCTION

The Eight Five Year Plan (1996-2000) has re-established the regional development policy of the Government to rectify inter-regional disparities in order to strengthen the national cohesiveness in social, economic, cultural and political aspects. The Eastern Black Sea or DOKAP region is one of less developed regions in Turkey. The region once thrived centering on trading activities between the East and the West along the Silk Road, which reached Trabzon through Erzurum and Bayburt. Such a position may be revived in the 21st century as the free trade regime is established following the collapse of the cold war structure. Recognizing the increasing importance of cross-border trade and cooperation, the Turkish Government has taken the initiative for establishing the Black Sea Economic Cooperation (BSEC).

Development of the Eastern Black Sea region would contribute to accelerated growth of the Turkish economy and also to strengthening the national integration. Moreover, the Eastern Black Sea region may hold a key for Turkey to pursue more advanced relationships with neighbouring countries and further to enhance its status in the international society. A prerequisite is to prepare a regional development plan that would substantiate the region's potentials.

Therefore, the Government of the Republic of Turkey requested the Government of Japan for technical cooperation to prepare a multi-sector regional development master plan for the Eastern Black Sea region. In response to this request, the Government of Japan has decided to implement this technical cooperation and entrusted the implementation to Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation program of the Japanese Government. The Scope of Work for this technical cooperation was agreed upon between the State Planning Organization (SPO) of the Turkish Government and JICA, and signed by respective representatives on December 17, 1998.

2. DOKAP REGION

2.1 DOKAP Socio-Economy

Most salient features of the DOKAP socio-economy are described in five points.

(1) One of less developed regions in Turkey

Per capita GRDP in the DOKAP region was only 66% of the per capita GDP of Turkey in 1996.

(2) Net out-migrating region

The DOKAP region recorded negative population growth during 1990-97, losing more than 50,000 population over this period.

(3) Relatively large services sector

The share of the services sector in the DOKAP GRDP was 56.0% in 1994, only slightly smaller than the services sector share of 58.1% in Turkey's GDP. This reflects the importance of trade and distribution functions established over centuries as Trabzon, Gumushane and Bayburt developed along the ancient trade route of the Silk Road, and also large Government services.

(4) Dependence on single-crop farming

The economy of the DOKAP region depends heavily on tea and hazelnuts in coastal areas occupying more or less 50% of the total agricultural land as well as cereals in inland areas. Production, processing and marketing of these dominant crops and their products rely on state enterprises, limiting opportunities for agro-processing and related service activities.

(5) Large intra-regional disparities

Within the DOKAP region, large intra-regional disparities exist in various aspects, caused in part by harsh topography and maldistribution of natural resources such as water resources, prime agricultural lands, and some mineral resources.

2.2 DOKAP Spatial Structure

Most salient features of the DOKAP spatial structure are described in five points.

(1) Harsh topography

The DOKAP region is characterised topographically by extensive mountainous areas reaching well over 3,000 m and limited lowland of high agricultural potentials.

(2) Undeveloped artery network

The DOKAP region is served by only one east-west artery road along the coast, and north-south lateral access capacity is limited. The region has only one airport in Trabzon, and local air services network has not been developed even with neighbouring regions. The region has no rail link, and major ports in the region are not effectively utilized.

(3) Maldistribution of urban centers

Most urban centers in the DOKAP region concentrate in coastal areas, and no cluster of urban centers has developed except in Ordu and around the city of Trabzon.

(4) Lack of sizable urban centers

The largest urban center in the DOKAP region is Trabzon with the urban population of 182,552 in 1997, which is only one of ten largest urban centers in East Turkey, and ranked at the third level of urban hierarchy in Turkey.

(5) Dispersed rural settlement

Rural settlements in the DOKAP region are dispersed throughout its large territory. The average population per village is only 550.

2.3 Resource Capacity of DOKAP Region

(1) Land resources

The land of the DOKAP region is classified into seven capability classes according to the ease of cultivation determined by erosion susceptibility, wetness and physico-chemical property of soil. Lands under classes I to IV suitable for crops, orchard and pasture occupy 3,824 km² or 9.8% of the total land. The average size of agricultural holdings is 2.5 ha in the DOKAP region, less than a half of the national average of 5.9 ha.

(2) Water resources

The total mean annual runoff in the DOKAP region is estimated to be over 15 billion m³, corresponding to some 8% of the surface water potential in Turkey estimated by DSI, substantially larger than the DOKAP share of the national land (5.1%).

(3) Human resources

The male literacy rate in the DOKAP region is above the national average, but the female literacy rate is significantly lower than the national average. Schooling rates in the DOKAP region as a whole are generally comparable to

national averages at different levels, although there are wide variations among DOKAP provinces. The rate of successfully completing schools of all the levels is higher in the region than the Country. Reflecting the culture and tradition, 84.4% of working age women in villages are in the labour force as compared to 70% of men, while 22% of women in urban areas are in the labour force as compared to 73.8% for men.

(4) Fauna and flora

The DOKAP region has most extensive forest areas in Turkey with the total forest area covering 13,448 km² or 34% of the DOKAP land, consisting of 6,472 km² productive and 6,975 km² unproductive forests. The Coruh river valley is known for rich flora with exceptionally high endemism. Some 2,500 species of vascular plants occur in the area, including 160 endemic ones. Large mammals are well represented in the area. The area is important also for amphibians and reptiles, and at least three species of viper are recorded.

(5) Tourism resources

Tourism resources in the DOKAP region include archaeological/historical objects/sites, culture/folklore, opportunities for nature experiences and adventures and natural resources with flora, fauna, and landscape. More important resources are summarized in Table 1.

(6) Mineral resources

In addition to copper mine operation in Artvin and Rize, reserves of copper and gold have been identified in Artvin, but their exploitation has been stopped due to environmental concerns. Other reserves of metallic mineral resources in the DOKAP region include 700 million ton copper-lead-zinc reserve, 10 million iron, 250,000 ton manganese, 1,400 ton metallic silver and 36 ton metallic gold. The DOKAP region relatively abounds in non-metallic mineral resources, mainly construction materials and cement raw materials.

Table 1 More Promising Tourism Resources in DOKAP Region

	Artvin	Giresun	Gumushane	Ordu	Rize	Trabzon	Bayburt
Archeology/ History	· Ishan/Barhal, Yusufeli	· Giresun Kale · Giresun Is (Amazones) · Tirebolu Kale · Andoz Kale · Espiye Kale	· Imerd Monstry	· Fatsa Kale · Yesilgecit Kale · Faldaca Kale · Arikmusa Yer l · Ericok Tepe · Kalekoy Kale · Ikizce Kale	· Zil Castle · Bala Kale · Rize Kale	· Sumela* · Aya Sofia* · Boztepe* · Ataturk Mansion* · Ortahisar*	· Bayburt Kale · Aksar Mound · Aydin Tepe (Under-ground city) · Sehit Osman Mound
Culture/ Folk life	· Kalfasor Fest. (Bullfights)	· Aksu Art Fest.	· Rosehip Syrup · Kadirga Fest.	· Hazelnut Fest · Hazelnut Fact	· Tea Plantation* · Anzer (honey)	· Akcabat · Uzungol*	· Eهران weaving · Dede Korkut Festivities
Plateau Experiences	· Kocabey · Velikoy · Savst	· Bektas · Kumbet	· Zigana	· Cambasi · Keyfalan	· Ayder* · Ayder (spa)*	· Hamsikoy · Hidirnebi · Sultan Murat	
Nature/Scenery/ Flora & Fauna	· Hatilla N.P. · Karagol-Sahara N.P. · Protected lands of Camili, Gorgit and Efeler		· Karaca Cave · Artabel Lakes, Torul · Tomara Fall · Ulukoy, Kurtun · Kirani, Evliya ardici · Ali aganin kavagi	· Kurul Rock	· Kackar Mts.* · Camlihemsin	· Altindere N.P.* · Uzungol* · Akcabat · Arakli · Natural monuments of Orumcek ormani Ladini ve Goknari · Camburnu	· Ammonikito Rosso Fossils · Sirakayalar Falls
Sports/ Soft adventure	· Coruh River* (Rafting)		· Zigana (skiing)		· Kackar Mts.* (climb/ trekking) · Firtiina (canoeing) · Ikizdere (hand-gliding)		

Note: * Included in tour itinerary of foreign tourists.

Sources: Ministry of Tourism Brochure "Black Sea Region" 1998 edition

General Directorate of National Parks & Wildlife "National Parks and Protected Areas in DOKAP Region"

Ministry of Culture "Inventory of Cultural and Natural Assets" 1999

(7) Hydropower potentials

The total annual energy to be produced by planned hydropower development projects amounts to 19,393 GWh with the combined installed capacity of 5,695 MW (Table 2). The total potential corresponds to some 20% of the present power consumption in Turkey (86,2467 GWh in 1995).

Table 2 Hydropower Development Potential by Province

	Artvin	Giresun	G.Hane	Ordu	Rize	Trabzon	Bayburt	DOKAP
Installed capacity (MW)	2,591	959	293	557	966	329	0	5,695
Annual Energy (GWh/Year)	8,537	3,262	814	1,887	3,759	1,134	0	19,393
No. of hydropower stations	20	16	6	17	19	10	0	88

Source : DSI

(8) Irrigation potentials

The total potential irrigation area is estimated at 635,435 ha, corresponding to 16.2% of the total land of the DOKAP region. The total area of on-going and planned irrigation development, however, amounts only to 120,685 ha (Table 3).

Table 3 Planned and Potential Irrigation Areas by Province

(Unit: ha)

	Artvin	Giresun	Gumushane	Ordu	Rize	Trabzon	Bayburt	DOKAP
Planned/existing irrigation area	17,383	9,933	44,792	2,200	0	3,044	43,333	120,685
Potential irrigation area	60,285	110,950	49,691	117,298	50,292	56,729	69,504	514,749
Total irrigation development area	77,668	120,883	94,483	119,498	50,292	59,773	112,837	635,434

Source: GDVA and DSI

(9) Black Sea

Black Sea constitutes another important resource for the DOKAP region, which offers fish resources, coastal and marine environment, landscape and navigational routes.



LEGEND

- Irrigated Agricultural Land
- Dry Agricultural Land
- Orchard & Diversified Orchard
- Pasture
- Forest
- Hazelnut
- Tea
- Settlements
- Others

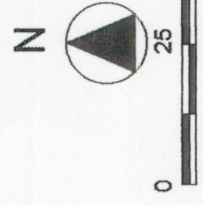


Figure 1 Existing Land Use Map

The Study on the Regional Development Plan for the Eastern Black Sea Region in the Republic of Turkey

Japan International Cooperation Agency

3. DOKAP REGIONAL DEVELOPMENT OBJECTIVES AND STRATEGY

3.1 DOKAP Regional Development Objectives

Objectives for the DOKAP regional development are defined to address the most critical problems in economic, social and environmental aspects. They are expressed as follows.

- (1) To strengthen the economic structure, responding to emerging opportunities, in order to diversify employment opportunities, raise income levels, and contribute to capital accumulation within the region.
- (2) To promote regional integration or social cohesiveness through minimizing intra-regional disparities and out-migration.
- (3) To restore and sustain resource and environmental capacity as a basis for diversifying socio-economic activities.

3.2 Basic Strategy for DOKAP Regional Development

Basic strategy for the DOKAP regional development is defined related to most fundamental problems identified. These are institutional problems represented by inadequate development planning and administration system, and weak local administration, and infrastructure/resource related problems. The basic strategy consists of the following four elements.

(1) Upgrading of trunk infrastructure

To overcome problems related to the harsh topography and the distance and poor access from advanced regions of West Turkey, trunk transport and communication infrastructure should be much upgraded. This strategy may be supported by improvement of highway system as the prime mode of transport, more extensive use of Black Sea with integrated port network development, establishment of high grade, multi-purpose, multi-media telecommunication networks, establishment of local air services network, and possibly rail links with neighbouring regions.

(2) Multi-purpose water resources development and management

The DOKAP region has large water resources potential, which have not been much utilized. Proper development and management of water resources for various purposes hold a key for the DOKAP regional development. This strategy comprises multi-purpose dams for hydropower, irrigation, urban water supply, tourism and flood control, incorporating also various community facilities, irrigation development with crop diversification, development and management of water supply systems by and for alliances of local governments, and watershed management for land conservation and

forest resources management.

(3) Land tenure improvement

Improving land tenure holds a key for encouraging more rational land use. Particularly important for enhancing livelihood and economic conditions of villagers, while protecting the environment are clarification of land tenure for forest areas occupied by forest villagers, establishment of use rights for exploitation of non-wood forest products, strict enforcement of forest protection with re-delineation of protection areas, establishment of communal ownership of grazing land, and consolidation of land tenure on prime agricultural land to discourage indiscriminate conversion into urban/industrial uses.

(4) Strengthening of local governments

Local administration should be strengthened to effect the decentralization of development planning and administration. Effective implementation of this strategy requires the enactment of a local administration reform bill similar to the original bill proposed to the parliament in 1997. Within that framework, the strategy comprises improvement of urban services by alliances of local governments; improvement of local taxation system and financial management of local governments; development of human resources for local planning; environmental management, and social services delivery; and effective consolidation of villages through provision of common service facilities as well as access improvement.

4. DOKAP DEVELOPMENT FRAMEWORKS AND SCENARIO

4.1 Socio-Economic Framework

A socio-economic framework has been set for the DOKAP regional development to the year 2020. The framework specifies the level of development expected in the target year by selected socio-economic indices projected in a mutually consistent way.

(1) GRDP and employment

The gross domestic product (GRDP) of the DOKAP region is projected to increase by 5.8% per annum to the year 2020 and will be US\$18,256 million (Table 4). Sector shares in 2020 are 8.1% for agriculture, 24.2% for industry and 67.7% for services. Changes in the economic structure from 2000 to 2020 are illustrated in Figure 2.

Table 4 GRDP and Employment by Sector in DOKAP Region, 2020

Sector	GRDP		GRDP/worker (US \$)	Employment	
	(10 ⁶ US\$)	Share (%)		(10 ³)	Share (%)
Agriculture	1,474	8.1	2,557	429	31.5
Industry	4,429	24.2	12,865	344	25.2
Services	12,354	67.7	20,948	590	43.3
Total	18,256	100.0		1,363	100.0

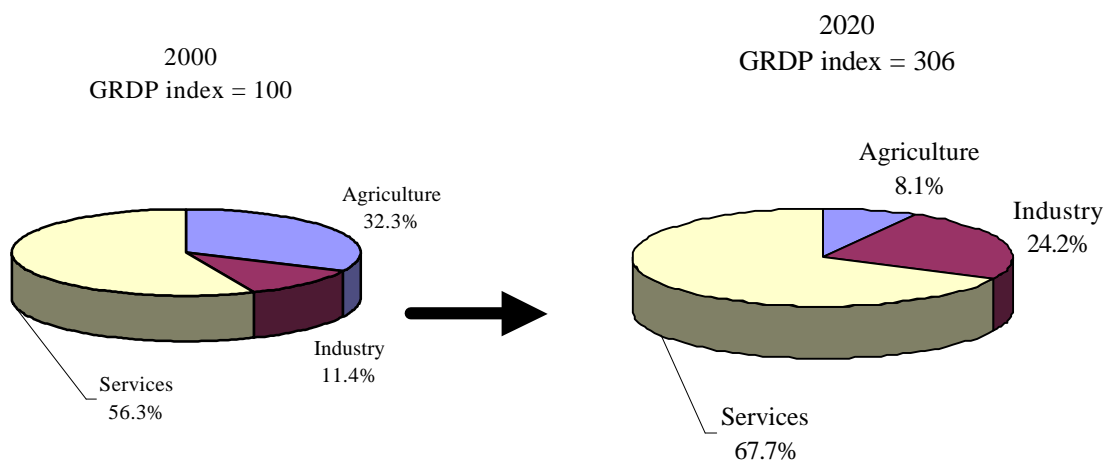


Figure 2 Changes in DOKAP Economic Structure, 2000 - 2020

(2) Population

The total population in the DOKAP region is projected to increase from 2,911,108 in 1997 to 3,447,000 in 2020. This represents the average annual increase at 0.74%. The urbanization ratio will increase from 48.6% in 1997 to 80.0% in 2020 (Table 5).

Table 5 Population Projection in DOKAP Region, 1997 – 2020
(Unit: '000)

Population	Year			
	1997	2000	2010	2020
Urban	1,416	1,510	2,165	2,760
Rural	1,495	1,401	963	687
Total	2,911	2,911	3,128	3,447

(3) Per capita GRDP

Based on the projected GRDP and population, the per capita GRDP in the DOKAP region is calculated at US\$5,013 in 2020. This may correspond to some 79% of the projected per capita GDP in Turkey, and represent a reasonable improvement from 1996, when the per capita GRDP in the DOKAP region was only 66% of the per capita GDP.

4.2 Spatial Development Framework

(1) Land use framework

Criteria for land use planning include the following:

- 1) Limited agricultural land should continue to be used in principle for agriculture, but expansion of land cultivated for hazelnut should be discouraged in order to regulate the price of hazelnut by adjustment of the production volume;
- 2) Maximum irrigation development should be pursued to enhance land productivity for agriculture with crop diversification as much as possible;
- 3) Use of limited forest areas for tree crops and exploitation of non-wood forest products should be allowed depending on land suitability, and forest protection areas should be re-delineated;
- 4) Urbanization into lush plateau and on limited alluvial plains along flood-prone river courses should be controlled; and
- 5) Use of grazing land should be rationalized based on land capability.

A land use plan is developed for each province based on these criteria. The results are presented in Table 6 and Figure 3.



- LEGEND**
- Irrigated Agricultural Land
 - Dry Agricultural Land
 - Diversified Orchard
 - Orchard
 - Pasture
 - Forest
 - Hazelnut
 - Tea
 - Others
 - Settlements (existing)

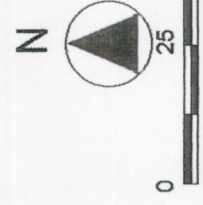


Figure 3 2 Future Land Use Map

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Table 6 Future Land Use in DOKAP RegionUnit: km²

	Artvin	Giresun	Gumushane	Ordu	Rize	Trabzon	Bayburt	DOKAP
Irrigated Agricultural Land	415.16	118.42	175.44	32.95	6.44	35.51	407.02	1,190.94
Dry Agricultural Land	452.89	639.03	700.45	169.12	168.60	294.31	783.57	3,207.97
Orchard	624.01	775.81	605.55	504.47	598.18	725.34	922.68	4,756.04
Diversified Orchard	186.88	484.23	256.24	950.64	345.59	412.09	95.23	2,730.87
Pasture	948.94	1,455.66	2,499.76	324.23	490.25	982.03	1,374.64	8,075.51
Forest	4,473.11	1,694.28	2,178.21	2,516.74	1,140.20	970.81	92.35	13,065.70
Hazelnut	34.80	1,131.02	0.00	1,431.60	39.33	660.63	0.00	3,297.38
Tea	153.37	163.28	0.00	0.00	677.56	384.63	0.00	1,378.86
Settlements	7.26	10.05	12.30	19.66	8.96	26.46	10.26	94.96
Others	683.79	495.24	261.07	37.13	410.83	93.20	70.57	2,051.81
TOTAL	7,980.21	6,967.00	6,689.01	5,986.53	3,885.94	4,585.00	3,756.33	39,849.10

"Others" includes No Data, Rocky Areas, Sand Dunes, Flood Plain and Artificial Lake Areas

(2) Transportation system

A multi modal artery system should be developed in the DOKAP region through selectively upgrading existing facilities (Figure 4). The future artery system comprises the east-west artery road (the Black Sea highway), north-south lateral highways, secondary east-west artery, supplemental secondary artery roads, and sea transport in Black Sea. Rail links and a local air services network with another airport within the region connecting to neighbouring regions may also constitute the artery system in the medium to long term future.

(3) Settlement system

The urban hierarchical structure of the DOKAP region is expected to change as a result of planned development. Expected changes include the following:

- i) Increase in population in the inland as land productivity is enhanced with planned /on-going irrigation projects,
- ii) Development of the Trabzon-Rize corridor,
- iii) Further suburbanization in Ordu with urban cluster formation, and
- iv) Integration between the southern and northern parts of the region.

Functional division among different urban centers should be clarified. Selected urban centers should be supported to specialize in certain functions for more effective overall services delivery to local people and visitors. Also location of any urban centers in relation to existing and future arteries, other major urban centers and facilities is taken into account in designating functions to be strengthened. The future hierarchy of urban centers in the DOKAP region is defined in Table 7.



The Study on the Regional Development Plan for the Eastern Black Sea Region in the Republic of Turkey

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Figure 4
Artery Network in DOKAP Region

Table 7 Urban Hierarchy in DOKAP Region

Hierarchy	Urban Center	Main functions
1. Regional center	Trabzon	Multi-functionanl urban center for high-grade urban services and amenity Regional trade center and tourism gateway
2. Sub-regional centers	Ordu Rize	Multi-functional urban center complementary to Trabzon Agro-industrial center and trade sub-center Multi-functional urban center complementary to Trabzon Industrial and trade center
3. Major urban centers	Giresun Unye Artvin Bayburt Gumushane	Trade and financial center Agro-processing sub-center Social and cultural services center Tourism sub-center Social services and agro-processing center Social services center Tourism sub-center
4. Secondary urban centers	Akcaabat Fatsa Bulancak Gorele Cayeli Pazar Tirebolu Hopa Sebinkarahisar Macka	Trade and social services sub-center Trade and cultural sub-center Trade and cultural sub-center Social services sub-center Social services sub-center Social services sub-center Social services sub-center Social services and trade sub-center Trade and cultural sub-center Trade, social services and cultural sub-center Tourism sub-center
5. Service urban centers	Espiye, Besikduzu Aybasti, Golkoy, Of Ardesen, Korgan, Arhavi, Kelkit, Persembe, Surmene, Yonra, Akkus, Gurgentepe, Alucra	
6. District capitals	49 urban centers	

Source: JICA Study Team

4.3 Development Scenario

The DOKAP regional development will be realized over time as resource capacity expands and institutional measures are taken in steps. Various elements of the basic strategy will be combined in time and space to support the development. Sequence of activities to develop and events to take place over the planning period define a development scenario. Expected performance and characterization of the DOKAP region are summarized in Table 8 by phase: Phase 1 for 2001–05), Phase 2 for 2006-10, and Phase 3 after 2011.

Table 8 Development Scenario for DOKAP Regional Development

	Phase 1 2001 – 2005	Phase 2 2006 - 2010	Phase 3 2011 -
1 Population growth	Zero population growth (Stop depopulation)	Natural population growth (Balance between in- and out-migration)	Manageable magnitude of in-migration (Realization of mixed culture society)
2 Economic growth	~ 4% per annum	6 ~ 7% per annum	5 ~ 6% per annum
3 Economic characterization	Preparation for economic re-structuring <ul style="list-style-type: none"> • Improvement of land tenure • Applied research and extension for crop cycles under irrigation • Market development for horticultural crops, aquaculture products, export processing etc. • Initiation of region-wide rural tourism promotion • Institutional arrangements for promoting cross-border trade 	Economic re-structuring <ul style="list-style-type: none"> • Development of viable and sustainable forestry and livestock activities • Full scale implementation of irrigation with crop diversification • Establishment of new strategic industries • Diversification of trade, business and personal services, and financial services 	Sustainable economic growth <ul style="list-style-type: none"> • Fully established irrigated agriculture with new crop cycles • Industrial agriculture with controlled environment greenhouses • Robust industrial structure with basic, linkages and resource-based industries • International tourism linked with other regions and countries • Advanced central service functions within BSEC cooperation
4 Social characterization	Establishment of local foundations for social development <ul style="list-style-type: none"> • Full adaptation to eight-year compulsory education system • Initial devolution of health services • Establishment of another major vocational training institute 	Extension of improved social services throughout DOKAP <ul style="list-style-type: none"> • Distance education at all levels • Further devolution of health services with local government initiative and community participation • Expansion of the new vocational institute with sub-centers 	Upgrading of social services network linked to other countries supported by multi-media telecommunication system
5 Environmental characterization	Establishment of community-based environmental management system <ul style="list-style-type: none"> • Community-based forest/watershed management • Strict enforcement of EIA with open information system • Information exchange on Black Sea environment 	Broadening of environmental management system <ul style="list-style-type: none"> • EIA and environmental M&E with community involvement and people's participation • Eco-community network to exchange environmental information • Black Sea environmental inventory 	Upgrading of environmental management system linked to the rest of the world

5. STRATEGY BY SECTOR

5.1 Strategy for Economic Development

(1) Agriculture

Diversification and intensification

Crop diversification should be promoted based on competitive advantages in terms of land suitability and marketing. High value crops such as kiwi, flowers and vegetables may be promoted in the coastal provinces, while new cropping systems under irrigation would be introduced in the inland provinces.

Greenhouse production and integrated farming combining crops and backyard livestock/poultry may be promoted for intensive agriculture in the coastal provinces. The inland provinces should introduce mechanization to pursue large scale modern agriculture together with improved livestock systems supported by corn and soybean production under irrigation.

Entrepreneurial development

Farmers should be organized into marketing cooperatives supported by market information system and post-harvest facilities. Farmers should be trained on business planning and management.

Land tenure improvement

The cadastre survey should be completed, and land tenure established for areas occupied by forest villages subject to land suitability evaluation. At the same time, indiscriminate sale of forest land without vegetation to forest villagers with no regard to land suitability should not be allowed. Use rights for non-wood forest products should also be clarified.

R&D enhancement

R&D activities should be enhanced, focusing on the following:

- market research on tea exports to diversify market channels,
- silage production technology for feeding animals during winter,
- integrated livestock development encompassing breed improvement, feeding, disease control and better managed sheds,
- farming systems under irrigation,
- green house production for maximum profits,
- agro-forestry system in forest villages for income generation,
- processing of chestnut, walnut and hazelnut,
- rosehip production technology for increased production,

- production of raspberry, blackberry, blueberry, citrus and others as alternative crops for hazelnut,
- herb products development,
- production of new bee breeds, and
- effective veterinary services.

Extension with farmers participation

Farmers of outstanding performance in various fields should be utilized as an extension arm, and also trained for new technology. Group farmer training should be conducted by subject matter, using the trained farmers' field effectively as experimental farms.

Sub-sector strategies

More specific strategies in the agriculture sector are presented by subsector in Table 9.

Table 9 Sub-sector Strategies in Agriculture (1/2)

Sub-sectors	Prospects	Strategies	Priority
Crops			
Hazelnut	Dominant share in world market High quality oil	<ul style="list-style-type: none"> • Production control through law enforcement • Product development (processed product) 	<ul style="list-style-type: none"> • Giresun, Ordu, Trabzon
Tea	High value tea production (first harvest tea, organic tea, etc.)	<ul style="list-style-type: none"> • Products development • Market research 	<ul style="list-style-type: none"> • Rize, Trabzon, Artvin
Cereals (wheat, barley, maize, rye, oat, etc.)	Increase in production /productivity to contribute to activation of local economy	<ul style="list-style-type: none"> • Establishment of production plan based on demand for domestic consumption, livestock and feed industry • Establishment of crop rotation system together with other field crops (potatoes, sugarbeet, beans, etc.) • Land consolidation for large scale farming • Organizing producers' cooperatives 	<ul style="list-style-type: none"> • Irrigated field in Gumushane and Bayburt
Forage crops	High demand on feed for animals	<ul style="list-style-type: none"> • Silage production through maize and soybean production • Mechanization • Range improvement 	<ul style="list-style-type: none"> • Mechanization • Irrigated fields in Gumushane and Bayburt
Vegetables	High demand for fresh vegetables Steady demand for daily consumption	<ul style="list-style-type: none"> • Further promotion of greenhouse production (tomatoes, cucumbers, lettuces, green peppers, strawberry, etc.) • Multiple cropping to maximize profit • Establishment of market channels • Vinyl mulch for early planting of temperate vegetables (cabbage, lettuce, spinach, etc.) 	<ul style="list-style-type: none"> • Throughout DOKAP • Irrigated fields Gumushane

Table 9 Sub-sector Strategies in Agriculture (2/2)

Sub-sectors	Prospects	Strategies	Priority
Cutflowers and ornamental plants	Growing demand High value	<ul style="list-style-type: none"> Organizing farmers Planned production Contract farming 	<ul style="list-style-type: none"> Coastal provinces
Fruits	Favorable climate for temperate fruits (apple, cherry, peach, pear, kiwi, etc.) Various berries for processing (blueberry, raspberry, blackberry, mulberry)	<ul style="list-style-type: none"> Pursuing economy of scale Organizing producers Cold storage Products development Links with tourism 	<ul style="list-style-type: none"> Coastal provinces Ordu, Giresun, Gumushane, Rize, Trabzon
Specialty products	One village-one product movement High value product	<ul style="list-style-type: none"> Increase in production of quality rosehip varieties (quality control) Herbal plants production (inventory, research) Mushroom (inventory, processing) 	<ul style="list-style-type: none"> Gumushane Coastal provinces
<u>Livestock and poultry</u>			
Livestock (dairy and meat)	Large scale production	<ul style="list-style-type: none"> Improvement of production system (barns) and further breed improvement Veterinary services (eradication of foot-mouth disease) Expansion of feed base (silage) Organizing farmers Meat/dairy processing factory 	<ul style="list-style-type: none"> Gumushane and Bayburt
Dairy	Backyard livestock	<ul style="list-style-type: none"> Organizing farmers Efficient milk collection system Pasture improvement 	<ul style="list-style-type: none"> Coastal provinces
Poultry	Local chicken production	<ul style="list-style-type: none"> Intensive production system using concentrate feed 	<ul style="list-style-type: none"> Trabzon
Honey	High quality brand honey	<ul style="list-style-type: none"> Quality control Brand honey production Bee breeding 	<ul style="list-style-type: none"> Throughout DOKAP

Source: JICA Study Team

(2) Forestry

Private forest development

To encourage private sector participation in forestry activities, the following measures should be taken:

- Enhancement of public information on the Forest Law no.6831 allowing private forestry activities,
- Modification of the Forest Law no.6831 to remove the limitation of forest plantation size,
- Supply of seedlings of fast growing trees,
- Extension of silvicultural technology, and
- Provision of credits for forest planting.

Strengthening forest management

The following should strengthen forest management:

- Education of local people on the role of forest,
- Rehabilitation of degraded coppice forest with local people's participation,
- Designation of coppice forest area adjacent to forest villages as community forests giving them the use right of forests as well as responsibility of management,
- Closer coordination of planning and budget allocation between logging and management activities, and
- Strengthening of control measures to infestation of Dendroctonus micans.

R&D enhancement

R&D on forestry should focus on the following:

- Effective control methods for Dendroctonus micans,
- Genetic improvement of indigenous as well as exotic fast growing tree species,
- Introduction of new exotic tree species including bamboo, paulownia, etc.,
- Agro-forestry technology for sloping land,
- Utilization and management of non-wood forest products (mushroom, resin, dye, etc.), and
- Processing and marketing of chestnut and walnut.

Land tenure improvement

The same strategy as presented above for agriculture should apply to the forestry subsector.

(3) Fishery

Resource inventory

A resource inventory of Black Sea should be worked out to provide a reasonable base for cooperative management of its marine and fishery resources, extending the efforts initiated by the Bucharest Agreement signed in 1991 by six countries.

Experiments on sea farming

On-going practices of sea farming with floating cages should be improved, and other kinds of sea farming experimented, including innovative mariculture to widen options for Black Sea fisheries.

Freshwater aquaculture supports

The output of trout farming and other freshwater aquaculture should be expanded through the following:

- 1) Establishment of a hatchery to ensure regular and quality supply of fingerlings,
- 2) Establishment of fish feed manufacturing for quality feed at reasonable prices,
- 3) Technical support in selection of sites, design of ponds, and diagnosis, prevention and control of diseases, and
- 4) Encouragement of cooperatives for management and marketing.

(4) Industry

Expansion of the existing industries

Priority in the DOKAP region should be given to the expansion of the existing industries. This can be achieved by implementing a package of complementary programs. The priority is on upgrading production technology, skill development, availability of finance at reasonable interest rates, and improvements in marketing. The number of plots in industrial estates already developed is sufficient for meeting the medium term requirements in the region.

The existing industrial structure is compatible with rapid growth. Manufacturing sub-sectors that have comparative advantage are wood processing and furniture, metal products and plastics. These are well represented in the region at present and they can be expanded by appropriate support measures.

Selective introduction of new industries

New industries need to be introduced into the region if the large expansion projected in employment and output is to be achieved. Industries to be introduced should be skilled labour intensive, foot loose (the size of the regional market is small and raw material availability is very limited), and they should strategically strengthen the industrial base, and should be environmentally friendly.

New industries that meet these conditions are high precision metal components, assembly of electrical equipment, and complete units of furniture. Both the domestic and the export markets will be targeted for these industries. In the long run, markets should be developed for completely new products through intensive market development efforts.

Industrial support measures

An integrated package of programs is proposed. These programs will integrate the ongoing efforts of various public agencies and local associations around specific products. Skill development, technology, product standards and marketing issues

should be addressed for the selected priority product groups in an integrated manner.

(5) Tourism

Products development

Tourism products should be developed for both domestic and international tourism through proper packaging and routing together with improved site presentation and visitor services. A new line of tourism products should be introduced to diversify opportunities and expand the market. Rural tourism, or yayla tourism as defined by MOT, should be promoted, utilizing local culture and tradition.

Market development

Collaborative marketing should be undertaken for DOKAP brand tourism by combining efforts and resources of DOKAP provinces. Inter-regional tourism should be promoted, linking other major tourist regions with major urban centers in the region. Direct access should be made to international market through professional partnership from outside the region with airlines, tour operators, conference organizers, and business associations.

(6) Trade and other services

Structural changes

The service sector is the dominant source of income and employment. This dominance will increase further in the future accounting for up to 80% of the regional income in the future. This development will be achieved by a combination of increased productivity and changes in the composition of the services sector.

At present, government employment is the largest component of this sector. The absolute size of the government sector will be stagnant, or it may even be reduced if alternative sources of employment can be successfully generated.

Growth in international trade

The largest growth is expected in international trade. Border trade, trade from free trade zones, and trade under the regular trade regime need to be expanded. The primary instruments for supporting the first two types of trade are institutional improvements and incentives. Improvements in international trade under the regular trade regime will depend on improvements in transport services (increased availability and cost reductions), financing, and trade arrangement, including progress of Black Sea Economic Cooperation, and bilateral trade.

Growth of specialized services

The DOKAP region should be developed as a center for specialized health and education services. Facilities for health and education are relatively well provided in the DOKAP region. These will serve not the region but the rest of the Country and the neighboring countries. Selective expansion of the capacity of universities, specialized hospitals and specialized vocational training centers should be emphasized.

5.2 Strategy for Social Development

(1) Education

Eight year compulsory education

The eight-year compulsory education system should be further streamlined extending the on-going efforts to consolidate schools, provide bus services, and expand boarding schools. Distance education should be strengthened to complement these.

Devolution of education services

Planning and implementation of education services should be devolved to local administration. To improve the quality of education under devolution, special benefits or incentives should be provided by local governments to motivate staff and encourage competition in recruitment.

Innovative education system and program

Distance education should be extended in steps from primary to other levels, and complemented by intensive courses with transport and boarding services. A cadre of successful businessmen in other regions originated from the DOKAP region should be mobilized for occasional training and intensive education courses. Higher education and research institutes may be established in particular fields, such as marine science and maritime engineering, mining and metallurgy, geology, disaster management, and tourism and hotel administration to utilize comparative advantages of the DOKAP region.

(2) Skill development

Value development

Value development education should start at the primary level to prepare many people for value systems of the coming age. Specialized training should be provided for new types of industries by the private sector initiative, and farmers should be trained in business planning and management.

Capacity increase for vocational and technical education

Facilities at existing apprenticeship centers and vocational high schools should be expanded/upgraded based on assessment of existing facilities and equipment. Another major institute for vocational and technical education and training should be established to generate a large number of graduates in new fields to be demanded by industries.

(3) Health services

Devolution with community involvement

Health services should be devolved to local governments with transfer of staff and financial resources in steps. The devolution should be accompanied by enhanced community involvement in the health sector to realize self-reliant societies with sustainable health care systems.

Health education

Health education should be geared up to raise the awareness of the people for health and sanitation, and extended to cover primary health care as a whole and some curative health services as well. Education on traditional medical care and use of medicinal herbs and plants would also be provided.

Health referral system

To utilize limited staff and financial resources effectively, the health referral system should be re-established with proper telecommunication systems. The system would be linked to advanced facilities outside the DOKAP region through high grade health functions to be established at major health facilities in the region. Specialized facilities should be established for typical diseases in the region such as goitre and rickets.

Health personnel disposition

Along with the devolution, local governments should compete each other to attract more qualified health personnel by providing special benefits or incentives. Also locally trained health staff would better be employed in their homelands.

5.3 Strategy for Environmental Development

(1) Forest ecosystem

Forest resources inventory

The existing forest inventory should be updated and upgraded using scientific methods and advanced technology such as a GIS and GPS, and bioprospecting. Indigenous knowledge and use of plants should also be included in the inventory.

Comprehensive forest management planning

Existing management plans related to forest areas and resources should be integrated, and comprehensive forest management plans should be prepared by involving all the stake holders, particularly forest villages.

Extending KTU faculties

To expand effectively the human resource base for the management of forest ecosystems, new programs and faculties may be added to KTU in the fields of plant biology, conservation biology, biochemistry, genetic resource center with gene bank, and anthropology.

Reforming protected area management system

The General Directorate of National Parks should be reformed into a more area-specific office that may be called a “Park Ranger”, under which activities of different ministries related to protected area management should be coordinated. A new master plan should be prepared with the participation of local people based on the upgraded forest inventory, covering potential protection areas as well.

(2) Marine ecosystem

Comprehensive coastal management planning

Various issues related to the Black Sea ecosystem should be discussed among all the stakeholders, including municipalities, research institutes, fishermen’s groups, local business communities, NGOs, and related government agencies. Priorities should be clarified, and a comprehensive coastal management plan prepared by the participatory approach covering reclamation, beach protection and waterfront beautification as well as use and management of coastal and marine resources.

Local alliances for wastewater treatment and solid waste management

Alliance of local governments should be promoted for cost-effective provision of wastewater treatment and solid waste management along the Black Sea coast.

Extending KTU faculties

The existing Marine Science Faculty at KTU should be supported for new programs in oceanography, maritime engineering including hydraulic simulation, water quality modeling and other fields.

(3) Urban environment

Preparation of waterfront development plans

Major urban centers in the Black Sea coast should prepare waterfront development plans, incorporating Black Sea and its coast as important part of urban environment for amenity, and ensuring access to beaches selectively.

Provision of core urban areas/facilities

Urban renewal or redevelopment may be undertaken for existing mixed land use areas. The possibility of relocating factories and workshops to create areas for core urban facilities should be explored. Some high grade facilities and amenity such as cultural and sporting facilities and shopping arcades may be provided in larger urban centers.

“Coopetition” among municipalities

“Coopetition” or cooperative competition should be encouraged among municipalities for improvement of urban environment with various urban facilities in different municipalities in a mutually complementary manner. Another way to encourage “coopetition” is for the Central Government to introduce additional criteria for allocating funds to finance infrastructure needs, depending on performance of municipalities in compliance with various environmental regulations.

(4) Rural environment

Rural tourism promotion

Rural tourism should be promoted to protect and enhance rural environment. Rural houses may be renovated to provide low cost accommodations together with the provision of common facilities. Local festivals and food, and participation in socio-cultural or even economic activities should be featured.

Land tenure improvement

Land tenure should be improved to manage living environment for villagers, avoiding indiscriminate use of forest areas and overuse of grazing lands, as clarified in the agricultural sector.

Agricultural land use rationalization

Sound agricultural practices especially on slope land and under irrigation should be promoted with proper cropping systems to be established not only from economic but also soil protection points of view.

5.4 Strategy for Spatial/Infrastructure Development

(1) Transportation

Institutional re-structuring

Clearly defined planning, design and implementation guidelines should be set for the transport investments to use the limited public resources in most effective way, minimizing effects of political pressures. The new system for village roads improvement by GDVA provides a good case in point, whereby planning, construction and improvement of “group village roads” will be prioritized on the basis of assessment by well defined criteria in accordance with the master plan prepared by GDVA. The same should be done for the priority individual village roads.

EIA for natural and social environments

The conduct of EIA should be mandated for any transportation projects that might have significant impact on natural and social environments.

Port management

Operation and management together with customs at the Trabzon port should be improved, and the privatization issue reinstated. Complementary operation of all the major ports in the DOKAP region should be pursued for more frequent and reliable services through more efficient allocation of berthing spaces to accommodate increasing number of ship calls.

Multimodal transportation

Containerization and use of multiple modes for transport hold the key in the near future. Links between the sea and land transport need to be planned for the DOKAP region, anticipating the shift to multimodal transportation.

(2) Telecommunications

Multi-purpose, multi-media telecommunication system

A high grade, multi-purpose, multi-media telecommunication system should be established in steps to support the DOKAP regional development in various aspects. Sub-systems may include an Internet for distance education, health referral system network, market information network, and other social and community services network.

Establishment of center functions

The DOKAP region should establish some central facilities that would serve the Black Sea region such as a Black Sea information technology incubator and environmental information center.

(3) Urban system

Urban development with hierarchy

The hierarchical structure of urban centers should be strengthened with clear functional division, and various urban infrastructure facilities selectively improved in accordance with the functional division. Some urban centers at upper tiers of the hierarchy should be equipped with high-grade services and amenity facilities to serve neighbouring countries as well.

Promotion of local government alliances

Alliances of local governments should be promoted for cost-effective improvements of urban infrastructure, in particular water supply, sewerage and solid waste management. This approach would also minimize adverse social and environmental effects.

Creation of larger urban centers inland

Larger urban centers should be created by providing improved infrastructure in inland areas located at strategic points along transport arteries, where major water resources development is expected to improve water supply and related community facilities.

Strengthening of urban planning and control functions

Urban planning and urban land use control functions should be much strengthened through promoting sharing of limited human resources among many municipalities.

(4) Water resources

Multi-purpose dams with community development

Planning and implementation of any multi-purpose dam project should be taken as an opportunity to vitalize rural economies in the project area. Local communities should be involved in the project from an early stage of development, facilitated by relevant local governments, to plan for community and possibly tourism facilities associated with the dam project.

Watershed management

Watershed management should also be taken as an inherent component of any dam project. Local communities should be organized and involved in tree planting, promotion of sound land use and conservation practices, and monitoring and evaluation.

Irrigation for crop diversification

Irrigation would better be used for diversifying crops. Various horticultural crops should be introduced under supplemental irrigation, and corn and soybean produced to improve the feed base for livestock.

Water supply by alliances of local governments

At present three government agencies are responsible for delivery of water. Distribution and maintenance are the responsibility of local governments. Water supply expansion with an integrated system should be undertaken by alliances of local governments for more cost-effective undertakings in terms of both facilities and personnel costs. This approach may apply in steps also to sewerage systems installation.

(5) Energy

Local participation in hydropower development

Local governments and communities should be involved in large and small hydropower developments to ensure that they would not undermine the social and natural environment. In particular, local communities to be affected directly by any hydropower project should be involved in the planning for resettlement and other related schemes to incorporate their choices in the project.

Increase in power exchange with neighbouring countries

The DOKAP region should benefit from surplus power to be supplied through inter-connections with the European power system (USTE). Power purchase from neighbouring countries would contribute also to rationalizing power prices.

Development of renewable energy resources

The DOKAP region should effectively utilize limited renewable energy resources for various purposes, including mini-hydro for small-scale processing of tea, and solid wastes to generate electricity.

Demand side management

Demand side management of energy should be intensified as the energy demand for industries accelerate in the coming decades. Rational pricing of electricity would

play an important role to avoid wasteful use of cheap imported energy and to ensure financial viability of selected BOT/BOO power generation schemes.

Price regulation

Energy distribution will remain a local monopoly in the near future. The pricing under the BOT schemes is completely opaque. This can lead to abuse and commitments for unreasonably high priced energy. This in turn will adversely affect the competitiveness of the end-users. Turkey urgently needs to introduce a system for review and regulation of utility prices not only for energy but for urban water, and gas as well. The issue will become more urgent as the privatization proceeds.

6. DOKAP DEVELOPMENT PROJECTS AND PROGRAMS

6.1 Structure of DOKAP Master Plan

The DOKAP regional development to the year 2020 will be supported by a set of development projects and programs and related institutional measures constituting the DOKAP Master Plan. Proposed institutional measures are presented in the next chapter. This chapter presents projects and programs. A total of 52 projects and programs in different sectors are included in the DOKAP Master Plan. They have been packaged into 10 broad programs.

Structure of the DOKAP Master Plan with the 10 programs is illustrated in Figure 5. Three of them aim at transforming DOKAP spatial structure directly in line with the basic strategy for DOKAP regional development. Within such spatial structure, three programs aim at strengthening the DOKAP economic structure. These six programs are supported by the third group of programs aiming at enhancing administrative, social and environmental accountability. Another program aims at establishing the DOKAP identity.

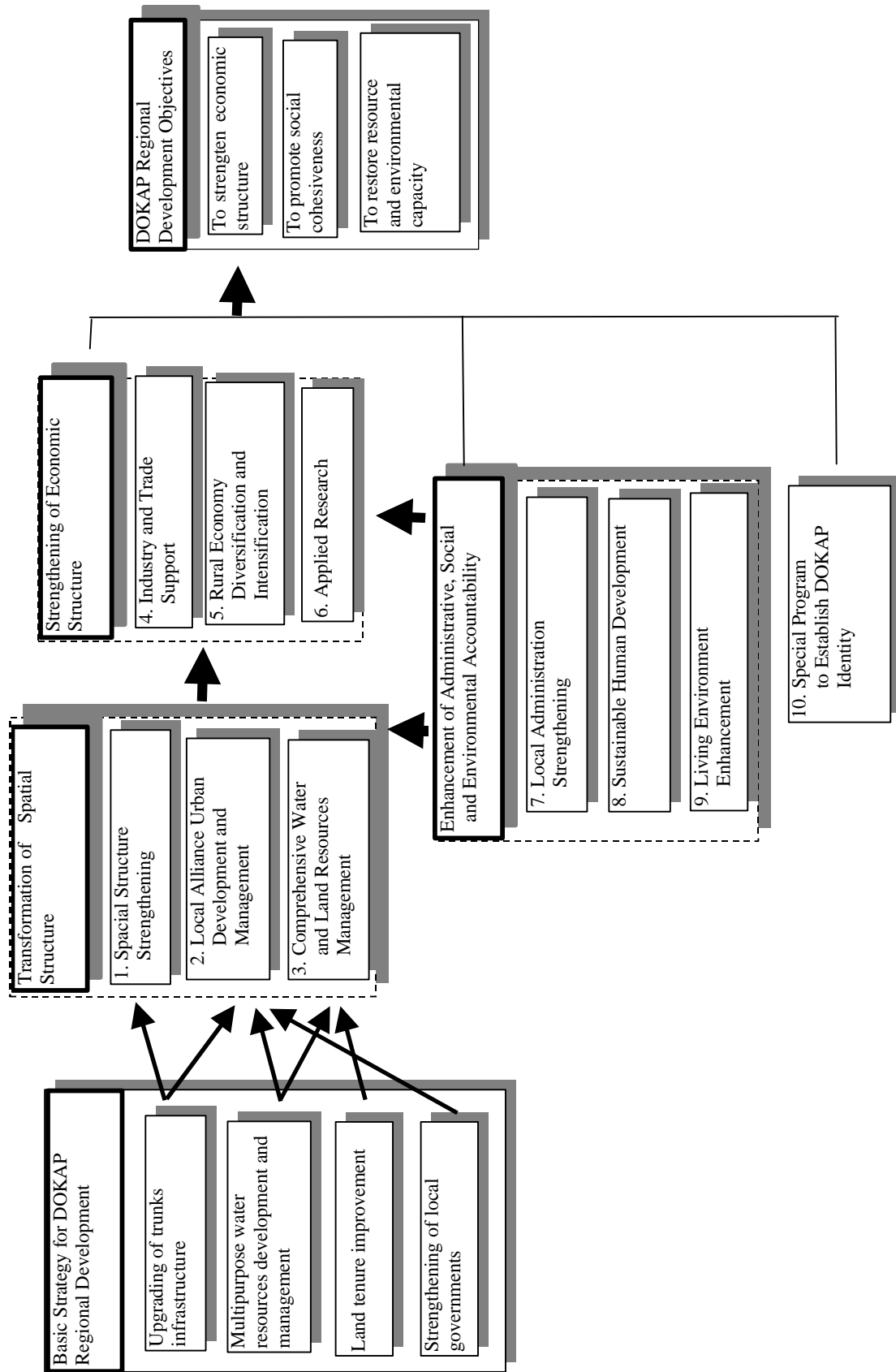


Figure 5 Structure of DOKAP Master Plan with 10 Programs

6.2 DOKAP Development Projects and Programs

(1) Transformation of spatial structure

The Spatial Structure Strengthening Program consists of nine projects listed below.

Project/program	Description
1.1 Trabzon-Rize Corridor Development	<ul style="list-style-type: none"> Integrated development of industries and services by various infrastructure improvements to form a corridor.
1.2 Inland Urban Centers Development	<ul style="list-style-type: none"> Concentration of new service and manufacturing activities in Gumushane, Bayburt and Artvin provincial centers, and secondary centers in Ordu province, to achieve economies of scale and growth momentum
1.3 Black Sea Highway	<ul style="list-style-type: none"> Phased development starting with the on-going expansion of some sections and viaducts for through traffic in major urban centers.
1.4 Highway Network Improvement	<ul style="list-style-type: none"> To strengthen the highway network of DOKAP as the main mode of transportation through two-lane highway system improvement and O&M improvement.
1.5 Integrated Port Network Development	<ul style="list-style-type: none"> To promote integrated operation and management of major ports in DOKAP initially for domestic trade and passenger movements and increasingly for international trade and tourism.
1.6 Telecommunication Improvement	<ul style="list-style-type: none"> To establish in steps high grade, multi-purpose, multi-media telecommunication system for the region linked to the rest of the world.
1.7 High Voltage Power Transmission Lines Extension	<ul style="list-style-type: none"> To extend power transmission lines at high voltages as local power production and import from neighbouring countries increase.
1.8 DOKAP – DAP – GAP Transport Development	<ul style="list-style-type: none"> To plan for artery transport system in East Turkey in view of international and inter-regional transport needs, focusing on highways, railways, ports and pipelines.

The first two projects, (1.1) and (1.2), promote concentration of urban population in particular areas by selectively improving various urban infrastructure. The next two projects, (1.3) and (1.4), will strengthen the artery road network for the DOKAP region by upgrading existing roads. Three projects, (1.5), (1.6) and (1.7), will improve different kinds of trunk infrastructure: port network, telecommunications, and power transmission. Another project (1.8) is a study project to examine future options for the DOKAP trunk infrastructure including rail links.

The Local Alliance Urban Development and Management consists of five projects as listed below.

Project/Program	Description
2.1 Local Alliance for Urban Planning	<ul style="list-style-type: none"> It is recommended that a Union of local governments should be established to deal with regional settlement issues. It will consolidate and improve the existing programs for providing local physical infrastructure, and amenities in selected DOKAP cities.
2.2 Integrated Water Supply Systems Development	<ul style="list-style-type: none"> Planning and implementation of larger water supply systems by cooperation of neighboring municipalities and provincial governments.
2.3 Area-wide Solid Waste Management	<ul style="list-style-type: none"> To introduce more sophisticated solid waste treatment and disposal methods by joint efforts of local governments.
2.4 Black Sea Participatory Coastal Management	<ul style="list-style-type: none"> Creation of a forum to prepare Black Sea comprehensive coastal management plan by all the stakeholders, leading to establishing a management entity.
2.5 Eco-community network	<ul style="list-style-type: none"> To establish telecommunication links between local communities, industries and government offices to exchange information for effective monitoring of pollution and enhancement of accountability.

The first project (2.1) will establish unions of local governments to deal with regional settlement issues for better urban planning. The following two projects, (2.2) and (2.3), deal with most critical urban infrastructure issues that can be addressed by cooperation of neighbouring local governments. The other two projects, (2.4) and (2.5), will contribute to improving environmental quality as a prerequisite to creating urban amenity.

The comprehensive Water and Land Resources Management Program contains seven projects as listed below.

Project/Program	Description
3.1 Multi-purpose Dams and Community Development	<ul style="list-style-type: none"> • Planning for various community facilities by people's participation in association with multi-purpose dams.
3.2 Irrigation Development Acceleration	<ul style="list-style-type: none"> • Accelerated implementation of planned/on-going irrigation projects including land consolidation and drainage improvement as well as extension in crop cycles, on farm management and input use.
3.3 Land Conservation	<ul style="list-style-type: none"> • Application of community-based approach to watershed management by extending on-going efforts.
3.4 Cadastral Survey Acceleration	<ul style="list-style-type: none"> • To complete cadastre survey in the region as a prerequisite to more rational land use including some forest land through augmenting capacity of the General Directorate of the Title Deeds, Cadastre Surveys, and Ministry of Forestry.
3.5 DOKAP Environmental Inventory and Management Planning	<ul style="list-style-type: none"> • Preparation of an environmental inventory of the DOKAP forest and water ecosystems, and management planning by community involvement.
3.6 Protected Area Management System Improvement	<ul style="list-style-type: none"> • To establish a new system with park rangers for improved management of the national park system to be pioneered in the national parks in DOKAP.
3.7 DOKAP Environmental Improvement Fund	<ul style="list-style-type: none"> • Special fund based on part of the forest revenue to be used exclusively for compulsory purchase of particularly intrusive rural homesteads and private assets in areas of special importance for environmental management; the fund may also purchase homesteads where infrastructure provision is particularly costly.

The first two projects, (3.1) and (3.2), are directly related to water resources development. The following two projects, (3.3) and (3.4), address to critical land issues. The next three projects, (3.5), (3.6) and (3.7), aim at restoring resource and environmental capacity as a base for sustainable socio-economic development.

(2) Strengthening of economic structure

The Industry and Trade Support Program consists of five projects as follows.

Project/Program	Description
4.1 SMI Production and Marketing Center	<ul style="list-style-type: none">Center to facilitate effective utilization of marketing and advisory services presently available from various public agencies.
4.2 Small Enterprise Credit and Support Project	<ul style="list-style-type: none">Combined credit and technical assistance program to support existing and new projects; it will provide the full range of consultancy services as well as directed credit to SMI's.
4.3 Vocational Training Improvements	<ul style="list-style-type: none">To improve quality of training with upgrading facilities and to meet the changing demands of industries.
4.4 Job Opportunities Information and Placement Center	<ul style="list-style-type: none">To establish functional linkages between the government's placement agency, vocational training centers and employers' associations; this should help placement of graduates as well as giving direction to the design of new training programs.
4.5 DOKAP Trading and Manufacturing Zones Expansion	<ul style="list-style-type: none">Support for the existing free trade zones to expand their facilities and provide additional incentives for both export and domestic market oriented manufacturing companies to locate in these zones.
4.6 Sarp Customs Gate Improvement	<ul style="list-style-type: none">To improve physical layout and customs services at Sarp gate for easy flow of traffics of international trade and tourism.

The first two projects, (4.1) and (4.2), specifically support small and medium enterprises. The following two projects, (4.3) and (4.4), will contribute to improving the matching between labour demand and supply. The last project (4.5) will support the existing free trade zones to expand their facilities and provide additional incentives for firms to locate there.

The Rural Economy Diversification and Intensification Program comprises five projects as follows.

Project/Program	Description
5.1 Livestock and Poultry Development	<ul style="list-style-type: none"> To establish new livestock production system on the basis of improved feed base; promotion of poultry in all provinces.
5.2 Greenhouse Promotion	<ul style="list-style-type: none"> Credit scheme to promote the production of vegetables, cut flowers, ornamental plants and other crops in greenhouses.
5.3 One Village-One Product Model Area Development	<ul style="list-style-type: none"> To increase production of various fruits and other crops along the Harsit river based on one village-one product model.
5.4 Freshwater Aquaculture Support	<ul style="list-style-type: none"> Market development for trout and other freshwater aquaculture products with cold chains; provision of a hatchery, establishment of feed industry, and other technical supports.
5.5 Rural Tourism Promotion	<ul style="list-style-type: none"> Concerted marketing of tourism products for low impact tourism utilizing local resources and revitalizing local cultures.

The first two projects, (5.1) and (5.2), will strengthen the DOKAP agricultural sector, adding diversity to the crop sub-sector. The remaining three projects, (5.3), (5.4) and (5.5), aim at re-vitalizing the rural economies by establishing or strengthening less conventional activities.

The Applied Research Program includes three projects as listed below. All of them support economic activities in rural areas.

Project/Program	Description
6.1 Renewable Energy Applied Research Center	<ul style="list-style-type: none"> To promote applied research on more promising renewable energy resources including solid wastes, biogas, mini-hydro, and wind; priority will be given to areas which are not presently served by the conventional systems.
6.2 Irrigated Crop Cycles Research	<ul style="list-style-type: none"> Research on crop cycles under irrigation, combining both traditional crops and new crops for crop diversification
6.3 Innovative Mariculture Experiment and Development	<ul style="list-style-type: none"> To experiment on alternative aquaculture practices including innovative mariculture; support for KTU marine research center.

(3) Enhancement of administrative, social and environmental accountability

The Local Administration Strengthening Program contains three sub-programs as listed below.

Project/Program	Description
7.1 Local Development Planning Improvement Program	<ul style="list-style-type: none"> To establish a system to pool limited human resources for development planning to be shared by local governments.
7.2 Enhancement of Local Administrative Capacity	<ul style="list-style-type: none"> Various measures to enhance the capacity of local administration such as improvement of tax system and financial management, promotion of local alliances, and human resources development; to implement pilot program for the transfer of authority from the sectoral agencies to the local governments under the proposed legislation.
7.3 Establishment of Local Administration Evaluation System	<ul style="list-style-type: none"> To introduce evaluation system for local governments starting from DOKAP municipalities.

The Sustainable Human Development Program consists of six projects: three each for the education and the health sectors. They are as follows.

Project/Program	Description
8.1 Eight-year Compulsory Education System Support Program	<ul style="list-style-type: none"> Continued efforts to consolidate schools, provide bus services and expand boarding schools.
8.2 Distance Education	<ul style="list-style-type: none"> To provide distance education to serve remote rural areas. Programs will cover formal education at all levels as well as adult education.
8.3 Value Development Education	<ul style="list-style-type: none"> To introduce curricula for value development to expose young generations to value systems of coming age.
8.4 Community Health Care Promotion	<ul style="list-style-type: none"> Promotion of various community-based health care systems including traditional ones along with devolution of health services.
8.5 Health Education Program	<ul style="list-style-type: none"> To provide health education to raise awareness of people for health and sanitation for self-reliant society.
8.6 Health Referral System improvement	<ul style="list-style-type: none"> To re-establish effective health referral system with proper telecommunication links and upgrading of key health facilities.

The Living Environment Enhancement Program consists of four projects as below.

Project/Program	Description
9.1 Rural Service Centers Support	<ul style="list-style-type: none"> Strengthening of basic service functions of service urban centers catering for their rural hinterlands.
9.2 Rural Infrastructure Improvement Program	<ul style="list-style-type: none"> To accelerate improvement of various rural infrastructure through prioritization with clear criteria and participation of villagers.
9.3 Social Telecommunication Network Development	<ul style="list-style-type: none"> To establish telecommunication links between rural and urban communities to share and exchange information on various social services, socio-cultural events and opportunities.
9.4 Community-based Forestry Development and Management	<ul style="list-style-type: none"> To utilize forest villages for sustainable use and management of forest resources with clarification of land tenure or utilization of present forest areas.

These projects will help to improve living environment mainly in rural areas together with the five projects under the Rural Economy Diversification and Intensification Program. Three of them, (9.1), (9.2) and (9.3), will improve the provision of various infrastructure to support better living, and another project (9.3) will improve rural environment through providing viable livelihood opportunities for forest villagers.

(4) Special programs

Establishing strong and visible identity of DOKAP will help to attract external resources in the public and the private sectors. It will also contribute to accelerating regional development through promoting sense of participation among a wider range of people under common vision. The Special Program to Establish DOKAP Identity consists of six projects as follows.

Project/Program	Description
10.1 Black Sea Technology Center	<ul style="list-style-type: none"> Joint project of KOSGEP, KTU and DOKAP regional agency to provide technology selection, adaptation and referral services for SMI's; it will provide the full range of product testing and certification services on commercial basis.
10.2 DOKAP Trade Fair	<ul style="list-style-type: none"> Permanent trade fair to be established in Trabzon; it will be jointly managed by the Chambers of Commerce and Industry in the region and the DOKAP regional agency.
10.3 DOKAP Brand Tourism Products Development	<ul style="list-style-type: none"> To introduce a new line of tourism products that appeal to a larger market segment and diversify the range of products on offer; this involves integrated development of existing resources in Zigana-Hamsikoy, Sumela-Artindere, Uzungol, and Ayder-Kackar.
10.4 DOKAP Tourism Professional Partnership Program	<ul style="list-style-type: none"> To seek professional partnership from outside the region for effective marketing and the region's exposure to the world.
10.5 Genetic Resource Center	<ul style="list-style-type: none"> Establishment of a center to preserve seeds of plants endemic to DOKAP and its vicinities and also to develop database for their distribution and traditional uses.
10.6 Information Technology Incubator	<ul style="list-style-type: none"> Establishment of Information Technology Revolving Fund to promote entrepreneurship in high tech industries, fully utilizing KTU.

The first two projects, (10.1) and (10.2), support manufacturing and trade activities. The next two projects, (10.3) and (10.4), support the DOKAP tourism to establish fame in the international market. The last two projects, (10.5) and (10.6), aim at making the DOKAP region a world center in specialized fields.

6.3 Investment Requirements

The investment requirements for achieving the projected socio-economic development in the DOKAP region over 2000-2020 have been estimated. The public investment requirements is estimated based on the projected GRDP growth over 2000-2020, investment efficiency (ICOR: Incremental Capital-to-Output Ratio) to be expected, and the share of public investment to the total investment. The total investment required is estimated at US\$ 46.5 billion over 2000-2020, of which US\$ 17.9 billion may be required as public investments. The latter is broken down by phase as US\$3,241 million for Phase 1, US\$5,300 million for Phase 2, and US\$9,373 million for Phase 3.

Crude estimates of investment costs are made for all the projects and programs proposed in the DOKAP Master Plan. They are allocated to different phases in due consideration of the DOKAP development scenario presented in Section 4.4. Results are compiled by broad program and summarized in Table 10.

Table 10 Investment Requirements and Allocation to 10 Programs

(Unit: US\$ million)

Program	Investment Costs (US\$ x 10 ⁶)			
	Phase 1	Phase 2	Phase 3	Total
1. Spatial Structure Strengthening	494	948	600	2,042
2. Local Alliance Urban Development and Management	88	136	241	465
3. Comprehensive Water and Land Resources Management	110	147	274	531
4. Industry and Trade Support	18	57	71	146
5. Rural Economy Diversification and Intensification	9	16	9	34
6. Applied Research	4	3	3	10
7. Local Administration Strengthening	7	8	11	26
8. Sustainable Human Development	25	76	46	147
9. Living Environment Enhancement	322	440	560	1,322
10. Special Program to Establish DOKAP Identity	23	11	11	45
Total	1,100	1,842	1,826	4,768
Estimate of Public Investment Requirement				
GRDP	1,440.6	3,312.5	7,651.6	-
Investment efficiency (ICOR*)	4.5	4.0	3.5	-
Cumulative investment (a)	6,482.7	13,250.0	26,780.6	46,513.3
Share of public investment (b)	0.50	0.40	0.35	-
Cumulative public investment requirement (axb)	3,241.3	5,300.0	9,373.2	17,914.5

Note: * The Incremental Capital-to-Output Ratio (ICOR) is the ratio between the amount of investment and the increase in value-added (GDP/GDRP) over a certain time period. The smaller the value of ICOR, the more efficient the investment is.

7. DOKAP OPERATIONS PLAN

The bulk of development projects and programs proposed by the DOKAP Master Plan can be implemented or further developed within the competence and policies of relevant sector agencies, together with other regular programs. For coordinated and timely implementation of all the proposed projects and programs, however, three sets of activities need to be taken after the completion of the Master Plan: (1) adoption and promotion of the Master Plan; (2) restructuring/strengthening of implementing arrangements; and (3) further development and initial implementation of individual projects and programs.

7.1 Master Plan Adoption and Promotion

As the first step to formalize the DOKAP Master Plan, related agencies should discuss the Master Plan proposals to resolve sector concerns and conflicts. The National Steering Committee, established for the DOKAP master planning, provides the most appropriate forum for this, where the Master Plan should be formally adopted as a matter of principle, if necessary with addenda. Master Plan proposals should also be discussed at the regional level to further promote the cooperation between local governments, institutes and NGOs. The Regional Steering Committee for the DOKAP master planning may be utilized to make a resolution for continued cooperation among members in the implementation phase of the DOKAP Master Plan.

In parallel with the Master Plan adoption procedure, Master Plan proposals should be disseminated widely to facilitate the implementation through further cultivating public acceptance. The following will be particularly effective:

- (1) implementation of orientation seminars for different audiences,
- (2) preparation of various publicity materials,
- (3) drafting of promotion materials for priority projects,
- (4) launching of a series of local TV programs, and
- (5) organization of international donors meetings.

7.2 Restructuring/Strengthening of Implementing Arrangements

To facilitate the DOKAP Master Plan implementation through effective planning, coordination and monitoring, a regional agency should be established. There are many possible forms for the regional agency, but a union of DOKAP local governments is most recommendable. It would represent the local initiative in line

with the decentralization policy, its membership consisting of the seven provincial governments and selected municipalities.

7.3 Project Development and Implementation

Some projects and programs proposed by the Master Plan are expected to be initiated or further developed during Phase 1 by relevant sector agencies. The planning and coordinating functions for timely implementation of various projects may be performed by the proposed DOKAP regional agency once it is established.

Inter-agency consultation should be conducted for each of the 10 broad programs among related agencies, coordinated by the SPO. In addition to relevant sections of the SPO, those agencies to be involved in this initial consultation are given in Table 11. Relevant private sector representatives should also be invited. At each consultation meeting, the key implementing agency will be confirmed for any project/program, and roles of other agencies clarified. Projects to be supported by international aid organizations should also be selected.

For projects to be implemented by the local government initiative, the SPO initially or the DOKAP regional agency should provide guidance for relevant local governments to prepare implementation programs, to take actions or to make requests to government agencies for their actions. The DOKAP Master Plan includes some projects for private sector participation. It has also identified promising areas for private investments. The SPO or the DOKAP regional agency will provide guidance and support to promote them for the private sector.

Table 11 Agencies to be Involved in Initial Consultation for DOKAP Programs

Program	Lead agencies	Other public entities
1. Spatial Structure Strengthening	MPWS, KGM, DLH	TEAS, TEDAS, TCDD
2. Local Alliance Urban Development and Management	Provincial governments	BOP, KTU
3. Comprehensive Water and Land Resources Management	DSI, GDRA, MOF, MENR, Local governments	TCZB
4. Industry and Trade Support	KOSGEB, MOE, PM	Halk Bank, TESK
5. Rural Economy Diversification and Intensification	MARA, MOT	
6. Applied Research	MARA, MENR, Provincial governments	KTU
7. Local Administration Strengthening	Provincial governments	
8. Sustainable Human Development	MOE, MOH, KOSGEB	
9. Living Environment Enhancement	GDRA, MOF, Provincial governments	
10. Special Program to Establish DOKAP Identity.	KOSGEB, MOT, MOF, MENR, Provincial governments	KTU