Water Balances in the Eastern Mediterranean

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INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
Ottawa • Cairo • Dakar • Johannesburg • Montevideo • Nairobi • New Delhi • Singapore

Published by the International Development Research Centre
PO Box 8500, Ottawa, ON, Canada K1G 3H9

January 2000

Legal deposit: 1st quarter 2000
National Library of Canada
ISBN 0-88936-907-0

The catalogue of IDRC Books may be consulted online at
http://www.idrc.ca/index_e.html

This book may be consulted online at http://www.idrc.ca/books/focus/907

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Chapter 6

TURKEY'S WATER POTENTIAL AND THE SOUTHEAST ANATOLIA PROJECT

Mehmet Tomanbay

Introduction

As one of the relatively water-rich countries in the Middle East, Turkey often finds itself in the midst of discussions at international meetings on water issues in the region. In these discussions, it is usually assumed that Turkey is in a more favourable position than other Middle Eastern countries because of its larger size, its snowy mountains, and its climate, with its abundant precipitation. Consequently, it is perceived as holding the key to the solution to Middle Eastern water shortages. In this context, several water-related projects involving Turkey have been proposed as solutions to the water shortages of its neighbouring countries. In none of these proposals has Turkey's water potential been realistically assessed. None of these proposals can be ratified, designed, or carried out by Turkey without dependable data and realistic assessments.

Available data on freshwater resources in the region indicate that Turkey (as well as Iraq) does in fact have more water per capita than other Middle Eastern countries, but this is not sufficient to classify Turkey as a water-rich country. In water-related literature, hydrologists use commonly accepted criteria to determine relative water abundance (Falkenmark 1989; Naff 1993; Serageldin 1995). If we assess Turkey's water resources according to accepted, established parameters, it is incorrect to categorize Turkey as a water-rich country. To be rich in water resources, a country must have more than 10 000 m^3/person per year. Water supplies of between 1 000 and 2 000 m^3/person per year make a country water stressed. When the figure drops below 1 000 m^3/person per year, the country is

Table 1. Availability of water by region in the world.

Region	Annual internal renewable water resources		Percentage of population living in countries with stressed and scarce annual per capita water resources	
	Total (1 000 km^3)	Per capita (1 000 m^3)	<1 000 m^3	1 000–2 000 m^3
Sub-Saharan Africa	3.8	7.1	8.0	16.0
East Asia and the Pacific	9.3	5.3	<1.0	6.0
South Asia	4.9	4.2	0.0	0.0
Eastern Europe and former Soviet Union	4.7	11.4	3.0	19.0
Other Europe	2.0	4.6	6.0	15.0
Middle East and North Africa	0.3	1.0	53.0	18.0
Latin America and the Caribbean	10.6	23.9	<1.0	4.0
Canada and the United States	5.4	19.4	0.0	0.0
World	40.9	7.7	4.0	8.0

Source: World Bank (1992).

classified as water scarce, and this usually manifests itself in severe constraints on food production, economic development, and production of natural ecosystems (Table 1).

Turkey's water potential

All of the water resources of Turkey are continuously monitored in a large web of hydrological and meteorological gauge stations throughout the country. Therefore, the data used in this study are accurate and up to date.

The climate within Turkey varies from region to region. Rainy weather during all four seasons is only characteristic of the northern part of Turkey. In the Mediterranean region of the country, the weather is mild and rainy in winter but hot and dry in summer. In the middle, eastern, and southeastern parts of Anatolia, a very large portion of Turkey, the weather is usually drier than in the other regions. Prevailing weather in this region is very hot and dry during summer, and there is less precipitation during the winter as well. In and around Ankara, for instance, a significant water shortage, specifically for agricultural activities, occurs from April until the first week of October (Thontwaite et al. 1958).

Besides seasonal variation, immense differences in precipitation are also found from region to region and from year to year. For example, 63.3 mm of rain fell in Himmetdede, Kayseri (an important province in Middle Anatolia) in 1933, whereas Rize (a province in Northern Anatolia) had 4 043.3 mm of precipitation just 2 years earlier. Urfa, an important province in Southeast Anatolia, only receives an average of 3.9 mm of rain in the summer months (June, July, August), which is the most important period for agricultural cultivation (SHW 1997). Average annual precipitation is 643 mm in Turkey as a whole but changes from region to region and from year to year, ranging from 250 mm in some regions in some years to 3 000 mm in other regions in other years (Altinbilek and Pasin 1998). In short, average annual rainfall varies greatly according to season, year, and region of the country. Therefore, water shortages are an important problem, specifically for agriculture, in Middle Anatolia and in Southeast Anatolia, where an immense water project is currently under way. Irrigation is essential to sustaining and increasing agricultural productivity in these regions. Moreover, many big cities, such as Istanbul and Ankara, experience severe water shortages for domestic and industrial uses during the summer months.

The 643 mm of average annual precipitation in Turkey translates into an average annual water volume of 501 Gm^3 (Figure 1). Of this amount, 186 Gm^3 ends up as surface runoff (Table 2). Some 274 Gm^3, or about 55% of total precipitation, is lost to transpiration and evaporation. Another 69 Gm^3, about 14% of total precipitation, feeds the underground water system. Of this amount, 28 Gm^3 returns to the surface via springs and joins the river systems. In addition, 7 Gm^3 of water comes into Turkey from neighbouring countries. So, altogether (158 + 28 + 7), Turkey's renewable surface-water potential is 193 Gm^3, but the country

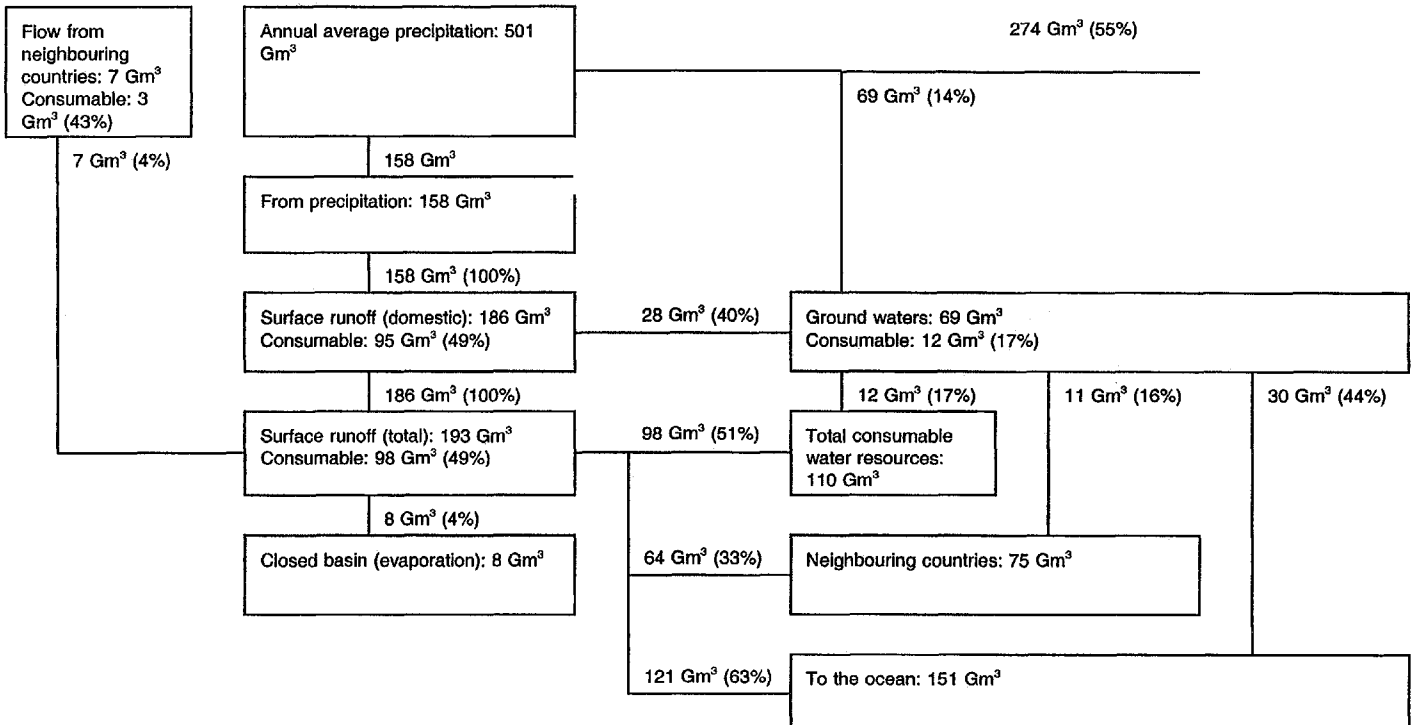

Figure 1. Turkey's water budget.

Table 2. Water potential of Turkey.

Source and origin	Average annual precipitation (mm)	Average annual water volume (Gm^3/year)	Flow (Gm^3/year)	Economically consumable (Gm^3/year)
Surface water in Turkey	643	501	186	95
Surface water outside Turkey			7	3
Underground				12

Source: Altinbilek and Pasin (1998).

cannot use or harness the entire 193 Gm^3 because of technological, topographical, and geological constraints. An estimated 95 Gm^3/year of Turkey's surface-water runoff cannot be used, but some 98 Gm^3 can be. Of this amount, 95 Gm^3 originates in the country, whereas 3 Gm^3 is transboundary water that originates in neighbouring countries. Some 12 Gm^3 of renewable underground water flows into the sea and to neighbouring countries, and this water can be tapped. Therefore, Turkey's total renewable water potential is 205 Gm^3 (193 + 12) a year, and of this amount 110 Gm^3 (98 +12) can be used economically.

This country of 65 million people has an average annual renewable water potential of 205 Gm^3, or about 3 150 m^3/person per year, which is far below the 10 000 m^3 parameter needed to classify a country as water rich. Taking into consideration the economically usable water potential of the country (110 Gm^3), the available annual per capita water goes down to about 1 700 m^3, which would make Turkey a water-stressed country. Furthermore, rapid population growth, industrialization, and rising standards of living will decrease the annual per capita renewable water potential to 2 500 m^3 by 2000 and to 2 000 m^3 by 2010. If we estimate the economically usable per capita annual water potential, we can project a severe situation in which available water goes down to 1 580 m^3/person per year, or even less, by 2000. As can be seen from these data, Turkey's water resources are far from abundant. Table 2 shows that it has only about one-fifth or one-sixth of the water available in water-rich regions, such as the Caribbean, Latin America, North America, and even Western Europe.

There are 26 hydrologic basins in Turkey (Table 3). Of these, 22 are river basins and the other four are enclosed basins that have no flow to the sea. Two

river basins (the Euphrates and the Tigris) contain the largest volume of flow of all the rivers in Turkey, 28.5% of the nation's total surface flow (17% in the Euphrates and 11.5% in the Tigris). Dogu Karadeniz (East Black Sea), with an 8% contribution, Dogu Akdeniz (East Mediterranean), with a 6% contribution, and Antalya, with a 5.9% contribution, are other relatively water-rich basins.

Turkey has built hundreds of dams and hydroelectric power plants, and it has carried out other water-related projects to harness water, produce energy, and irrigate arid lands, but this still does not mean that Turkey has fully benefited from these resources. About 37 Gm^3 of Turkey's 110 Gm^3 of usable water is actually used. Almost 33% of economically usable water can actually be used at present. The remaining 67% of economically usable water, which Turkey desperately needs for economic development, still flows freely into the sea.

In 1997, 681 dams higher than 15 m were already built or under construction to harness the economically usable surface water of Turkey. Of these dams, 465 are now in operation and harness about 30% of this water. The remaining 216 dams are still under construction. Moreover, many projected and planned dams will be used to harness the remaining 67% of economically usable water in Turkey to meet future needs.

Some of the main purposes of these dams are recreation, flood protection, domestic water supply, irrigation, and energy production. The majority of Turkish dams are for domestic water supply and irrigation, and many of them are multipurpose dams. These dams generate electrical energy and also supply water for irrigation or domestic needs. Of the 681 dams, 63 are used only to generate electrical energy. Multipurpose dams that generate energy account for almost 10% of all dams. This low figure for hydroelectric generation is a result of the priority given to developing water resources mainly for domestic and agricultural use.

Despite its own growing need for water, Turkey is still willing to export some of its water to neighbouring countries to relieve their shortages. The main water resources that can be used for this purpose are in the southern basins of Turkey. These basins (Eastern Mediterranean, Antalya, Western Mediterranean, Seyhan, and Ceyhan) constitute almost 25% of Turkey's total renewable water potential. Several dams are in operation on these rivers, and several more are under construction, but much of the water of these rivers still flows into the Mediterranean Sea, without being used. This water could be used to alleviate water shortages in some countries of the Middle East, as well as in the parts of Turkey,

Table 3. Turkey's annual average water potential by basin.

Basin	Average annual flow (Gm^3)	Contribution to total (%)
Firat (Euphrates)	31.61	17.0
Dicle (Tigris)	21.33	11.5
Dogu Karadeniz	14.90	8.0
Dogu Akdeniz	11.07	6.0
Antalya	11.06	5.9
Bati Karadeniz	9.93	5.3
Bati Akdeniz	8.93	4.8
Marmara	8.33	4.5
Seyhan	8.01	4.3
Ceyhan	7.18	3.9
Kizilirmak	6.48	3.5
Sakarya	6.40	3.4
Coruh	6.30	3.4
Yesilirmak	5.80	3.1
Susurluk	5.43	2.9
Aras	4.63	2.5
Konya	4.52	2.4
Buyuk Menderes	3.03	1.6
Vangolu	2.39	1.3
Kuzey Ege	2.09	1.1
Gediz	1.95	1.1
Meric	1.33	0.7
Kucuk Menderes	1.19	0.6
Asi	1.17	0.6
Burdur Goller	0.50	0.3
Akarcay	0.49	0.3

Source: SHW (1998).

that experience water shortages. Several projects have been devised to use the water of Turkey's Mediterranean rivers for this purpose.

One of the best known projects to this effect is the Manavgat Water Supply Project. This project and others have been devised to alleviate water shortages in some parts of Cyprus, the Middle East, and Turkey. In the last week of July 1998, a project went into action to transport water from Turkey's Mediterranean rivers to the Turkish Republic of Northern Cyprus in big balloons, with the Manavgat facility as the point of loading.

Southeast Anatolia Project

A foremost aim of Turkey is to eliminate interregional economic and social imbalances within its borders. The optimal use of land and water resources is an important means to achieve this goal. The most important investment scheme this country has undertaken in this endeavour is the Guneydogu Anadolu Projesi (GAP, Southeast Anatolia Development Project).

Goals of GAP

The Turkish government has designed and implemented this large project in Southeast Anatolia for two main reasons. First, Southeast Anatolia is endowed with good water and land resources, and Turkey wants to use these resources optimally for the sake of the entire region, as well as for Turkey as a whole. GAP is being developed on the Euphrates and Tigris rivers and their branches that originate in Turkey. These watercourses supply the majority of Turkey's total surface water, flowing later through Iraq and Syria to reach the Persian or Arabian gulf. Second, Southeast Anatolia is the most backward region of the country. There are big economic and social disparities between this region and the rest of Turkey. For instance, per capita income in the region is 47% lower than the per capita income of Turkey as a whole (GAP RDA 1995). In other words, the average per capita income of Turkey is more than twice that of Southeast Anatolia. Moreover, many economic and social indicators, such as per capita electrical energy consumption, number of hospital beds per 10 000 people, and manufacturing's share of the gross national product in the region, make it clear that it desperately needs investment. Development of this region is key to eliminating economic disparities between Southeast Anatolia and other parts of Turkey. The project on the two transboundary rivers aims at eradicating regional inequality and promoting economic growth and social stability in this region.

Initial work on the Euphrates River was started by the Euphrates Planning Authority, established in Diyarbakir in 1961. Coming out of this work, the *Reconnaissance Report for the Euphrates Basin* appeared in 1964, and it clarified the irrigation and energy potential of the basin concerned. Further studies have subsequently been carried out and published. Meanwhile, work of a similar nature has been carried out on the Tigris Basin by the Diyarbakir Regional Directorate of the State Hydraulic Works (SHW 1998). These studies made clear that the Euphrates and Tigris rivers have significant potential to help the region develop economically. Finally, in 1977, projects related to these two basins were merged and adopted as an integrated, multisectoral single project, under the title of the GAP.

The GAP area lies in southeastern Turkey and takes in nine provinces. This region is part of Upper Mesopotamia, which was the cradle of the ancient Mesopotamian civilization. The total area of the project is about 10% of Turkey, and according to recent statistics, includes about 9.5% of Turkey's total population. The project envisages the construction of 22 dams, 19 hydroelectric power plants, and 2 irrigation tunnels on the Euphrates and Tigris rivers and their tributaries. The major element of the project, the Ataturk Dam and the Sanliurfa Tunnel System, are already completed and in operation.

When the whole project is completed, 1.7 million ha of land will be irrigated, the ratio of irrigated land to the total GAP area will increase from 2.9% to 22.8%, and the area of rain-fed agriculture will decrease from 34.3% to 7%. In addition, 27 TWh of electricity will be generated annually from an established capacity of 7 460 MW. The area to be irrigated is 19% of all economically irrigable land in Turkey (8.5 million ha), and annual electricity generation will come to 22% of the country's economically feasible hydroelectric power potential (that is, 118 TW).

The economic benefits expected from the project are substantial. Many agricultural crops will double or even triple. GAP will provide Turkey with food self-sufficiency and will create 3.3 million jobs. Turkey's national income will be 12% higher than it would otherwise have been, and the gross regional product of Southeast Anatolia will increase by more than fourfold. Urbanization will receive a boost in the region (actually it has already been boosted), and rural migration will slow down considerably.

The objectives and the main features of the integrated project are outlined in the GAP Master Plan, completed in 1989 (GAP 1989). The Prime Minister's

Office published the strategy adopted in the GAP Master Plan, with the following four basic components:

- To efficiently develop and manage soil and water resources for irrigation, industrial, and urban uses;
- To improve land use through optimal cropping patterns and better agricultural management;
- To promote manufacturing with emphasis on agro-related industries and those based on indigenous resources; and
- To provide better social services, education, and employment opportunities in order to control migration and attract qualified personnel to the area.

In short, the GAP Master Plan's basic development scenario is to transform the region into an export base for agroindustrial products. The project was initially conceived only to irrigate arid lands in the region and generate hydroelectric energy from the Euphrates and Tigris. However, the objectives of the project have been expanded to include overall socioeconomic development, and GAP is now a multifaceted development project that will bring economic, social, and cultural changes affecting not only the local region but also the country as a whole. What started out as a simple project for hydroelectric power plants and irrigation systems has turned into a massive project with interests in urban, rural, and agricultural infrastructure, transportation, industry, education, health, housing, and tourism, and investments in many other fields.

Social aspects of GAP

Until a few years ago, the main emphasis of GAP was on planning, construction, start-up, and operation of physical components, such as dams, hydroelectric plants, and irrigation systems. The Turkish government has made immense efforts to implement the largest and most comprehensive regional development investment plan in Turkey during its Republican era. In financial terms, the project had, in 1998, a realization rate of more than 40%. The rates of realization for the sectors of

energy and agriculture were, respectively, 73% and 11%. Having already accomplished many of its goals, the project has reached a new phase, and policymakers have adopted a new approach. The main features of this new approach are sustainability and human development, no longer just physical implementation. As a result, the social aspect of the project, along with water and land-resource development, has become one of the main concerns of the GAP administration.

As defined by the GAP Administration, the objective of "sustainable human development" was "to take economic growth into the human development perspective and to convert the social transformation, which will cover the whole region, into participatory solutions of an ecological, cultural and local nature" (GAP RDA 1995). A symposium on Sustainable Development and GAP was held by the GAP Administration and the United Nations Development Programme in March of 1995. Based on the results of this seminar and the objectives and targets of the GAP Master Plan, the following sustainability goals have been adopted for the development process:

- To increase investment to the highest possible level in order to accelerate the improvement of economic conditions in the region;
- To enhance health care and educational services so that they reach national standards;
- To create new employment opportunities;
- To improve the quality of life in the cities and build urban and social infrastructure so as to create healthier urban environments;
- To complete the rural infrastructure for optimal irrigation development;
- To increase inter- and intraregional accessibility;
- To meet the infrastructure needs of existing and new industry;
- To protect water, soil, air, and associated ecosystems as a priority consideration; and

- To enhance community participation in decision-making and project implementation.

To give a higher priority to the social aspect of the project, the GAP Administration planned and carried out community-survey studies to make the people of the region fully aware of the nature of GAP and raise interest in becoming an integrated part of it. The survey studies were

- Trends of Social Change in the GAP Region;
- Population Movement in the GAP Region;
- The Status of Women in the GAP Region and the Integration of Women into the Process of Development and Resettlement in Areas Which Will Be Affected by Dam Lakes;
- Management, Operation and Maintenance of GAP Irrigation Systems; and
- Socioeconomic Aspects.

Based on the results of these survey studies, the Gap Administration prepared a document called the *GAP Social Action Plan*, in which the human aspects of development are emphasized. This plan, with a sustainable, participatory and integrated approach, constitutes the framework for the implementation of mid-term phases of the project. The objectives of the GAP Social Action Plan are as follows:

- To underline the human factor in GAP and relate this basic element to each project developed in accordance with the GAP Master Plan;
- To ensure the integration of different groups and layers of society in GAP Region into the development process;

- To enhance the efficiency and coverage of social services in the region in a way that eliminates disparities between this region and other regions of the country;

- To bring about sustainable development by ensuring people's participation in the design and implementation of projects; and

- To produce strategies and policy proposals to guide planners and implementors.

In line with the goals of the development process and objectives of the Social Action Plan, some pilot projects have been implemented in the region and then expanded. Multi-purpose Community Centres (MPCCs) and GAP Entrepreneur Support and Guidance Centres (GAP ESGCs) are worth mentioning.

MPCCs are centres where training is provided for women and girls in literacy, health care, maternal care, child care, nutrition, home economics, and income-generating handicrafts. A participatory and integrated approach is the basic policy of all MPCCs, and more than 10 of them have been established in the region. They have already become one of the main instruments of the government to improve the status of women and children and the living standards of all people in the region.

The purpose of the GAP ESGCs is to encourage private-sector investment in the GAP provinces and to provide consulting services to entrepreneurs before and after they make their investments. GAP ESGCs are an important tool to accelerate economic development in the region.

The environment is another main concern of the GAP Administration, and several preliminary environmental studies have been carried out. The main objective of these studies is to identify existing and possible future environmental problems that could be caused by implementation of the irrigation projects, dams, and hydroelectric power plants and to make recommendations to limit environmental damage without interfering with development objectives.

Environmental policies have also become one of the main concerns in relation to sustainable economic and human development. In this context, the Ministry of the Environment and the GAP Administration signed a joint protocol laying down principles of cooperation for the two organizations to identify environmental

Table 4. Foreign finance in the GAP region.

Source of Credit	Amount of credit (million USD)
US Exim Bank	111
Swiss Commercial	467
Swiss-German Commercial	782
European Investment Bank	104
World Bank	120
European Council Social Development Fund	183
Italian Government	85
French Government	33
German Government	15
Austrian Government	200

Source: GAP RDA (1995, 1998).
Note: USD, United States dollar.

problems in the region and the relevant measures to address these problems. The protocol was signed on 21 April 1998.

Current status of gap development

The total estimated cost of the GAP development is 32 billion United States dollars (USD). As of the end of 1997, total spending on the project had reached 12.6 billion USD, at a financial realization rate of 41.3%. GAP is largely financed by national resources, that is, the budget of the Turkish government. Nevertheless, a combination of foreign suppliers' credits, loans from international agencies and foreign banks, and state export-insurance schemes are used to finance the various GAP component projects: dams and hydroelectric power plants, water infrastructure, health projects, agricultural research, and new and modern irrigation systems, among others. Table 4 shows that about 2.1 billion USD worth of external credit, secured from various sources, has contributed to GAP development.

Because of Turkey's economic problems in the period of 1990 to 1998, its share of GAP investment allocations in the Annual Investment Programs declined from 8.1% to 6.6%, at 1998 fixed prices. This created a bottleneck from the point

of view of implementing the project within the projected time frame. To alleviate this bottleneck, the Turkish Government decided to create new financial sources for GAP projects, to add to the already existing national and international sources. As a result of this decision, some new financial mechanisms, such as Build–Operate–Transfer (BOT), were created to finance some GAP projects. For instance, construction on the Birecik Dam and Hydroelectric Power Plant is being carried out on the BOT basis.

Completed GAP projects, such as the Ataturk and Karakaya dams, are generating a substantial amount of hydroelectric energy since they went into operation. There is a significant change in crop patterns and a large increase in agricultural incomes from newly irrigated lands. In other words, some of the GAP investments are already starting to pay dividends. This situation has created new motivation for the Turkish government to generate new financial sources. If the project receives a new financial boost, it could be completed earlier than originally planned. The Ataturk and Karakaya dams, the most important investments of GAP, have generated almost 135 TWh of electrical energy, as of 15 June 1998, for a monetary value of 8 billion USD. If we were to compare this amount to alternative sources of energy, it would correspond to having to import 33 million t of fuel oil or 25.5 Gm^3 of natural gas.

In the Euphrates and Tigris basins, the area brought under irrigation for the 1998 irrigation season reached 174 080 ha, almost 10% of the projected irrigation area within the scope of GAP (1.7 million ha). Irrigation for another 11% is now under construction (183 995 ha).

There are striking changes in crop patterns in the region, now that there is irrigation. Before, wheat, barley, and lentils used to be the main crops. Now, cotton, maize, peanuts, sunflowers, soybeans, and vegetables are being produced, and they contribute to the growth of the agricultural industry. The biggest change is in the amount of land used for cotton. As of the end of 1997, about one-third of the cotton harvest in Turkey was carried out in the GAP region. Cotton is grown on 38 664 ha, part of a total of 60 000 ha of land thus far brought under irrigation in the Sanliurfa-Harran Plain.[1] The total value of agricultural production in the

[1] A population of 66 360 in 104 villages located in 60 000 ha of land brought under irrigation.

Table 5. Economic returns from 60 000 ha of land opened to irrigation in the Sanliurfa-Harran Plain.

Indicator	Prior to irrigation (USD)	After irrigation (USD)
Agricultural Income	31.5 million	120.5 million
Agricultural value added	600/ha	1 619/ha

Source: GAP RDA (1998).
Note: USD, United States dollars.

region is estimated at 120.5 million USD, up from 31.5 million USD (Table 5). These figures, which refer to a small portion of the total area to be irrigated, give a general idea of the economic returns to be reaped when the project is fully completed.

Irrigation and the resulting increase in agricultural production have already resulted in positive developments in terms of industrial entrepreneurship in the region, and, as mentioned previously, GAP ESGCs have had an important function in this development. Several Organized Industrial Districts (OIDs) and Small Industrial Estates (SIEs) have been established and are being expanded in the region to foster this development by providing settlements and infrastructure for small and medium-sized enterprises. As of the end of 1997, there were 3 OIDs covering a total of 1 060 ha. The 1998 Annual Investment Program includes 11 new OIDs and three water-treatment projects in the GAP region. Some 18 SIEs were active in the region in 1998.

Despite these developments, the project is still far from its targets. As mentioned above, there are big problems in financing. If the government does not want to revise the timetable for project implementation, it must generate new sources of financing and invest more money in the project. There seems to be a desire for this in the Turkish government. On the down side of investment, accelerated economic development and the resulting increase in demand for land have caused real-estate prices to skyrocket. Several financially powerful companies and individuals started to buy up real estate in the region to sell later for large profits. A natural result of this is that much of the land is now in the hands of a few people. In other words, a new monopoly of land ownership has become an economic problem in the region.

As can be seen, the impact of GAP on the region's as well as Turkey's economic, social, and cultural life is enormous. Water in the Euphrates and Tigris rivers has already started to improve the standard of living of local citizens by increasing income levels, providing employment, and bringing stability to the region. Using the water of the Euphrates and Tigris rivers has become one of the prerequisites for the Turkish government to make the region economically prosperous and socially and politically stable. The contribution of the production of hydroelectric energy to the Turkish economy and economic returns on irrigation being reaped by the people of the region have spurred the Turkish government on to want to complete the project as soon as possible.

Turkey, as an oil-poor, developing country, needs to use its water for the economic and social development of Southeast Anatolia, as well as for that of the country as a whole. At the same time, Turkey should be very diligent when it uses the waters of the Euphrates and Tigris rivers so as to prevent any adverse effects on neighbouring countries or the environment. By adopting a sustainable approach to economic development, using improved irrigation techniques to conserve water, and releasing more water than the amounts agreed on from Turkish territory, Turkey has constantly revealed its good will toward its southern neighbours. When neighbouring states choose to adopt a rational attitude toward GAP, the benefits of this project will not be limited to Southeast Anatolia, nor solely to Turkey, but will also produce far-reaching positive effects for the whole Eastern Mediterranean region.

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