IMPACT OF ATATÜRK DAM ON SOCIAL AND ENVIRONMENTAL ASPECTS OF THE SOUTHEASTERN ANATOLIA PROJECT

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ABSTRACT

IMPACT OF ATATÜRK DAM ON SOCIAL AND ENVIRONMENTAL ASPECTS OF THE SOUTHEASTERN ANATOLIA PROJECT

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In this thesis the impact of the Atatürk Dam on social and environmental aspects of the Southeastern Anatolia Project has been discussed in terms of planning and policy making, institutional arrangements, infrastuctural development and human resources development. In order to analyse the impacts of Atatürk Dam data related to several components are collected. These components can be listed as resettlement, land acquisition and land consolidation, education, health, gender issues.

The results show that the Atatürk Resettlement has been done involuntarily. The people mostly have their compensation. However the management abilities of the resettlers for the compensations were poor. Generally the Southeastern Anatolia Project as a large scale multi sectoral projects have positive impacts on the literacy ratio and health standards. Actually the social and environmental aspects of this kind of large scale projects are difficult to predict and measure. Therefore reasonable studies on prediciting the problems related to the environemental and social issues and producing sufficient solutions become more and more important day by day. The Southeastern Anatolia Project becomes an important example for similar projects by considering its both positive and negative impacts.

Keywords: Southeastern Anatolia Project, Atatürk Dam, Resettlement, Social and Environmental Impacts

ÖZ

ATATÜRK BARAJININ GÜNEYDOĞU ANADOLU PROJESİNİN SOSYAL VE ÇEVRESEL YÖNLERİNE ETKİSİ

Akyürek, Gökçe

Yüksek Lisans, İnşaat Mühendisliği Bölümü

Tez Yöneticisi : Prof. Dr. Doğan Altınbilek

Aralık 2005, 127 sayfa

Bu tezde Atatürk Barajının Güneydoğu Anadolu Projesinin sosyal ve çevresel yönlerine etkisi planlama, politika oluşturma, kurumsal düzenlemeler, alt yapı ve insan kaynakları açısından tartışılmışıtr. Atatürk Barajının etkilerini analiz edebilmek için birçok konuda veri toplanmıştır. Bu konular yeniden yerleşim, arazi kamulaştırması ve arazi toplulaştırması, eğitim, sağlık, kadın erkek eşitliği olarak listelenebilir.

Sonuçlar Atatürk Barajının yeniden yerleşiminin istemsiz olarak yapıldığını göstermektedir. Yeniden yerleştirilen insanlar çoğunlukla ödemelerini almışlardır. Fakat yeniden yerleştirilen insanların yapılan ödemeleri değerlendirme kapasiteleri zayıftır. Byük ölçekli ve çok sektörlü bir proje olan Güneydoğu Anadolu Projesinin genel olarak okur yazarlık oranında ve sağlık koşullarında olumlu etkisi bulunmaktadır. Aslında bu büyüklükteki projelerin sosyal ve çevresel yönlerinin tahmin edilmesi zordur. Bu nedenle çevresel ve sosyal konularla ile ilgili problemlerin tahmini için iyi düşünülmüş çalışmaların yapılması ve yeterli çözümlerin üretilmesi günden güne daha önemli hale gelmektedir. Güneydoğu Anadolu Projesi olumlu ve olumsuz yönleri düşünüldüğünde Güneydoğu Anadolu Projesi benzer projeler için önemli bir örnek haline gelmektedir.

Anahtar Kelimeler: Güneydoğu Anadolu Projesi, Atatürk Barajı, Yeniden Yerleşim, Sosyal ve Çevresel Etkiler

To my lovely family,

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ABBREVIATIONS

GAP: The Southeastern Anatolia Project

DSI: State Hydraulic Works

CATOM: Multi Purpose Community Centers

NGO: Non-Governmental Organization

EIE:Electricity Survey Agency

MW: Megawatts

KWh: kilowatthour

KHGM: General Directorate of Rural Services

CHAPTER 1

INTRODUCTION

1.1. GENERAL

Being source of the beginning and continuity of the life in the world, water has a preliminary importance in the human survival from ancient times up to today's world. By the time, the (long) way along the human development for increasing the quality of life, the need for the water has increased day by day. Because of being essential for not only basic needs of human beings such as drinking and hygiene, but also the qualified needs of people like agricultural and industrial development, hydropower generation, navigation and ecosystem conservation; water has an important role in the daily life of each person living on the earth. Another reason for its increasing importance is being a scarce resource in the world. Although the amount of water resources seems to be enough for the entire world, the qualified resources for the specific use of water are not sufficient. Moreover, the water is distributed in time and space unevenly in the world. Also the rapid population growth in recent decades is another direct risk for the water from the scarcity standpoint.

Therefore, the importance and the scarcity, in other words the quality and quantity respectively, become the significant constraints for the use of water by domestic, economic, technological and environmental reasons. The aggressive competition on economic growth at global level has been forcing the balance of the nature in terms of quality and quantity at local, regional

and national levels by exhausting the limited natural resources. And the water is the most affected scarce resource from this exhaustive demand. Consequently, the existing water resources should be managed properly so that the increasing need for rapid industrial, agricultural requirements can be achieved qualitatively and quantitatively.

“Owing to increasing demand for different kinds of natural resources, it has begun to be realized that man can no longer follow a “use and discard” philosophy” (Altinbilek, 2001). Therefore proficient and long term management systems, especially for the water related development projects due to their direct effect on human life, should be established by realizing the rapidly increasing economic growth rates, socio-cultural changes and environmental developments. In other words, as it is used since the mid of 1980s, the sustainability of the water projects is an important issue. In 1987, the World Commission on Environment and Development defined the concept of sustainable development as “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” and recommended it. (Tortajada, 2001).

The trend of the 70s and the 80s was only the construction of infrastructures. Then in the 90s the importance was given to water management in sectoral basis. After the end of the 90s, the trend was changed to integrated water management with the inclusion of multi sectoral perspective, social and environmental issues as well. Stakeholder participation became as a significant point in respect of this approach. Moreover, it is realized that the management of the integrated water based systems should be based on sound planning and implementation with proper institutions having sufficient managerial capabilities and expertise on the issues. Also those institutions should have necessary financial potential. (Tortajada, 2001)

The concept of sustainable development in the water based development projects includes determination and planning of the demands for the water through the project region, rational water use, participation of the stakeholders, equitable development for human development, achievement of the environmental and social protection by a sensible economic growth, comprehensive observation and assessment, effective supervision and provision of the necessary conditions for the protection of water related structures. (Tortajada, 2001)

Increasing need for water creates the need for the large water related projects which covers basically the dams. A dam is a retaining structure which is built across a river. It aims to meet water demand for domestic, irrigational and industrial purposes; to reduce the negative effects related to the peak discharge of flood water, to generate hydroelectric power; to increase the depth of water to improve navigation. The dams providing water from reservoirs regularly according to demand patterns are a vital part of the civilization. Since the third millennium BC dams have played a key role in the development. The first great civilizations evolved on major rivers, such as Tigris-Euphrates, the Nile, and the Indus. Early civilization dams were built for flood control, water supply, irrigation and navigation. Dams had received a new role of producing power after industrial revolution (Altinbilek, 2001). Dams become the most functional water harvesting systems.

Although there is certain need for these structures, some of the groups insist that the expected benefits are not being derived from these kinds of projects, and also major environmental, economic and social costs are not being taken into account. Even tough there being some resisting ideas, the dams are still considered as an important issue in the sustainable management of the finite water resources. Actually, the environmental constraints should be considered during the project selection, planning and

design periods and environmental consequences should be recognized in the dam's project realization.

One of the important issues underlined by dam's critics is the displacement of people. Any kind of human development project, based on the transformation of natural environment due to the construction of large-scale infrastructures, requires land and other immovable assets and so displacement of people who are living in the project areas. Therefore a resettlement action plan should be prepared well before the realization of the project. Moreover, these plans should include applicable and realistic rehabilitation programs for those whose lives have been affected directly from the inundation due to the projects. There is no guarantee that every engineering solution will bring significant development. If the project is economically viable, socially equitable and environmentally sustainable, meaning that it is an excellent project, then extensive human development can be achieved not only regionally but also nationally. Nevertheless, there can be a number of people who are not satisfied completely. The reason of the dissatisfaction can be sentimental, thus people do not want to have a change in their traditional surroundings where they have ties with their ancestral lands.

As a rapidly developing country Turkey, needs sufficient amount of irrigated agricultural products for growing population; cheap, continuous and high quality renewable energy for the industry; qualified water for domestic uses especially for the regions that are having low level of life standards with respect to the national average standards. For developing countries where the semi arid climate is highly dominated like Turkey, dams which are built efficiently can be used for the economic development purposes. Specifically, the energy generation is an important issue for the economic growth. For making use of energy resources available in Turkey, necessary investments are required. The local energy resources in Turkey are mainly hydro and lignite. Faithfully, Turkey has a considerable potential for

renewable energy resources with respect to the regional conditions compared to our neighborhoods. Also dam projects are important for the regions on which their economies are mostly related on the agriculture. The long and severe summer drought negatively affects the agriculture production and product variety. The burden of these regions to the national economy can be reduced by increasing agricultural production. An appropriate contribution to economy can be obtained by producing power. Land and water resources of potential regions can be managed for these purposes by construction of dams. The Southeastern Anatolia Project (with its Turkish acronym GAP) is the largest of so-called projects realized in Turkey.

1.2. LITERATURE REVIEW

Southeastern Anatolia Project is the biggest development project ever undertaken by the Republic of Turkey, it has a great importance in the development history of the Southeastern Anatolia Region and Turkey. GAP has been transformed from being a series of engineering project into a multi sectoral integrated development project and then to sustainable human development project since 1960 up to now.

In this thesis, the technical information related to GAP and the present status of the implementation level has been from the information of State Hydraulic Works (DSI). The articles of “Sustainable Human Development in the Southeastern Anatolia Project” by Altinbilek and Tigrek; “Water and Land Resources Development in Southeastern Turkey” by Altinbilek; “The Role of Dams in Development” and “Development and Management of the Euphrates-Tigris Basin” by Altinbilek are reviewed in the thesis for general view of GAP in consideration the history of the Region and Project. The institutions related to GAP and the development history of GAP by technical, historical and conceptual respects are discussed in the thesis by reviewing

the information in Master Plan, Development Plan and information on web pages of DSI and GAP Administration..

Although having many sub titles and details, the social impacts including environmental and cultural issues are limited to the expropriation, resettlement concept in Turkey and GAP, land consolidation, population change, education, health, gender issues, some of the environmental issues and cultural heritage. The land acquisition and resettlement processes are discussed in the light of the Expropriation Law, Resettlement Law and their revisions. The executive details and problems have been discussed with the governmental execution units of DSI and KHGM. The data regarding to the resettlement were taken from the different governmental institutions because they have been kept by different institutions. also the studies of DSI and KHGM are reviewed about past expropriation and resettlement implementation including problems, suggestions. General information on global resettlement concept is reviewed with the help of the doctoral thesis “Environmental Sustainability of Water Projects” by Tortajada 2001.

The social aspects of the GAP are organized by GAP Administration in respect of sustainable human development in the region. The social projects as CATOMs and the environmental projects, discussed in the thesis according to the information obtained from GAP Administration. The rescue operations for cultural inheritance, Hasankeyf and Zeugma, are discussed in the thesis according to the information obtained from GAP Administration and the Ministry of Tourism and Culture web pages. several daily publications are reviewed for the Hasankeyf and Zeugma on their being popular nowadays. Also the global criticisms are given in an objective way in respect of the study supported by Nippon Foundation. Some other studies related to Southeastern Anatolia Project in global such

1.3. SCOPE OF THE THESIS

In this study, the impacts of the Atatürk Dam on social and environmental aspects of the Southeastern Anatolia Project has been discussed in terms of planning and policy making, institutional arrangements, infrastructural development and human resources development. The economic impacts are also traced by considering the relationship between the economic issues and the social and environmental impacts during the operation period.

One of the topics regarding the social impacts of large scale water projects is resettlement. Resettlement is now considered to be one of the most important factors for the sustainability of large water development projects. The new resettlement law of Turkey is an important topic in this thesis. Also, the resettlement processes in Turkey during the construction period of the Atatürk and Birecik Dam have been reviewed. The land acquisition law and the land consolidation processes are also discussed in the thesis. The impacts of the Southeastern Anatolia Project on education, health and population change are examined. Finally the conclusions of the various issues are discussed in the thesis within the concept of sustainable human development in the Southeastern Anatolia Project.

In this thesis Chapter I is the introduction including general concepts regarding the water management systems, the literature review and the scope of the thesis. The second chapter is describing the Southeastern Anatolia Projects by considering the history of the projects and the technical, historical, institutional and conceptual issues and the future development plans. In Chapter III the social impacts of the large scale projects such as land acquisition, resettlement and the land consolidation are explained. Also in this chapter the new resettlement law is described. The resettlement of the Atatürk and Birecik Dams regarding the old and new resettlement methods of Turkey is also reviewed in the third chapter. The

population change, urbanization, gender issues, change in education and health standards, environmental issues are also analyzed in the third chapter. The cultural richness of the Region and the rescue program of Zeugma and Hasankeyf have been discussed. Then in the fifth chapter the criticisms of the activists on GAP and Atatürk dam are summarized. In the discussion part the over all considerations in the thesis are reviewed shortly. Finally the results are discussed in the conclusion chapter.

CHAPTER 2

THE SOUTHEASTERN ANATOLIA PROJECT

2.1. INTRODUCTION

2.1.1. HISTORY OF THE REGION

Mesopotamia, as it is called the land between two rivers, has been the cradle of many civilizations by use of the waters of the Euphrates-Tigris Rivers and their tributaries. The Mesopotamian civilizations were dating back to 10,000 B.C. The Sumerians, Acadians, Babylonians and Assyrians are the well known ancient civilizations of the Mesopotamia. They had constructed efficient hydraulic systems for irrigation and flood control purposes supporting millions of people in their times. For example the Sumerians and Babylonians carried water by canals to their lands and cities from the Euphrates. The documents from the time of Hammourabi refer to the irrigation systems due to having an important role in lives of those people by flood protection, irrigation and drainage systems viewpoint (Altinbilek, 2001).

After the Mongol invasion in the 13th century, the canal systems of the region were destroyed. Therefore the irrigational facilities were abandoned until recent times. During the Ottoman times, old canals were rebuilt and new systems were constructed to initiate the agriculture in the region (Altinbilek, 2001). After the fall of Ottoman Empire the new borders in the

Middle East has been established as a result of many treaties. A new trans-boundary river basin has occurred after those treaties.

As a matter of fact, the need for the development systems for the natural resources of the region aroused soon after the Second World War. In the second half of the 20th century; modern water storages, hydraulic plants and irrigation systems were built in countries sharing the Euphrates-Tigris Basin. Water facilities were constructed by Turkey and Syria based on the Euphrates and by Turkey, Iraq and Iran based on the Tigris.

2.1.2. CHARACTERISTICS OF THE EUPHRATES-TIGRIS BASIN

The Euphrates-Tigris basin is basically fed from snow precipitation over the mountains of Turkey, Iraq and Iran. The Euphrates is the longest river of western Asia. It originates from Mount Ararat at 4,500 m above sea level nearby Lake Van. Then it goes to south by losing 2 meters per kilometer in elevation in Turkey and crosses into Syria. After flowing southeast almost 680 km within Syria's borders, it enters to Iraq at Al Qaim. By traveling 360 km from the border, it reaches a giant alluvial delta at Ramali. After this point, the river traverses the deserted regions of Iraq. Meanwhile it loses some of its water due to both natural and man made desert depressions and arrangements. Then, the Euphrates becomes a tangle of channels at the downstream near Nasriyah. Some of these channels drain into Lake of Hammar and others join the Tigris at Qurna (Altinbilek, 2001).

The Tigris, the second largest river in western Asia, arises near Lake Hazar at 1,150 m above sea level in eastern Turkey. Before flowing to Iraq by constituting the Turkish-Syrian boundary for 2 km, it is being fed by several tributaries in Turkey. Also, the river has significant contribution of several tributaries along Iraq. Then the Euphrates and Tigris meet together forming a river almost a kilometer wide and 190 km long which is named as Shatt-al-Arab. Due to the contribution to the Tigris River via the lesser Zab, Diyalah

and Kharun rivers, Iran is considered to be a co-riparian of the Tigris-Euphrates system. Even tough being a part of the drainage basin, Saudi Arabia have no contribution to or border with the Euphrates. The Euphrates and Tigris rivers, as the main parts of a single trans-boundary river system are linked at Shatt-al-Arab and constitute a delta (Altinbilek, 2001)..

The particular property of the hydrological flow conditions of the Euphrates-Tigris Rivers is the irregularity between and within the years. The extreme discharge due to snow melting especially on April and May causes severe flooding and inundation of large areas. Unfortunately, these are not the only results of this maximum discharge period. It also means that the loss of extra water is needed during the drought seasons for irrigation and power generation purposes. So the construction of retaining structures to regulate river flows and making use of the extensive discharge for the irrigation works and hydropower generation are necessarily needed. Therefore, by constructing large dams, it is possible to evaluate the abundant water of the Euphrates and Tigris in wet seasons into a scarce commodity because of heavy consumption for irrigation, hydropower generation in summer period. In other words, the rational water and land resources development effort should be achieved by managing the Euphrates-Tigris River systems, properly (Altinbilek, 2001).

2.1.3. DEFINITION OF THE REGION

The most attractive effort by water and land resources development viewpoint in Turkey is the Southeastern Anatolia Project. GAP is a large scale, multi sectoral and regional development project covering 9 provinces (Adıyaman, Batman, Diyarbakır, and Gaziantep, Kilis, Mardin, Siirt, Şanlıurfa and Şırnak) of the Euphrates and Tigris basin. The actual location of the project is in the Southeastern Anatolia Region of Turkey lying at the foot of Taurus Mountain (Figure 2.1).

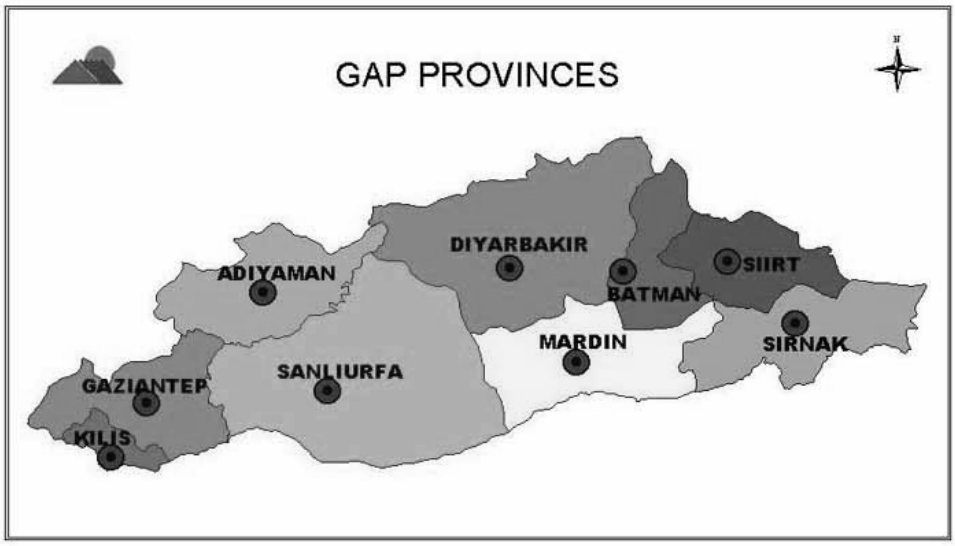

Figure 2.1 GAP Provinces (GAP Administration, 2005)

2.1.4. COMPARISON WITH COUNTRY BY ALL ASPECTS

In spite of being rich in water quantity, land resources and manpower, the Southeastern Anatolia has been a low productive region due to the managerial difficulties of the natural resources. The 28% of the surface waters of Turkey, 20% of its economically irrigable land and 10% of Turkey's population are covered in the Southeastern Anatolia Region. The project area is 75,358 square kilometers by constituting approximately 10% of all area of Turkey. (Table 2.1)

Table 2.1 Comparison of GAP Parameters with Turkey (GAP Administration, 2005)

Parameters	GAP Region	Turkey	Ratio
Total Area (km^2)	75,000	780,000	10 %
Population ($x10^6$)	6.6	67.8	10 %
Water Budget (billion m^3)	52.9	186.1	28 %
Irrigable Land (($x10^6$) hectare)	1.82	8.5	20 %
Hydropower Potential (billion kWh)	27.5	122	23 %

GAP consists of 13 independent but related projects primarily based on hydropower generation and irrigation. These projects include the construction of 22 dams and 19 hydroelectric power plants with a total capacity of 7,485 MW across the Euphrates and Tigris rivers and tributaries. At full development 27.5 billion kWh of hydroelectric energy, which is approximately 23% of hydroelectric energy potential of Turkey, will be generated annually. And also 1.82 million hectares of land (approximately one fifth of irrigable land of Turkey) will be irrigated by a complicated system consisting canals, siphons and watercourses. This amount of irrigation causes a significant decrease in rainfed agriculture will be observed. After the construction of the retaining structures along the Euphrates and Tigris rivers, it is expected that the existing area of artificial lakes will be increased to approximately 228,000 ha in Turkey meaning the twice of the actual position.

2.2. INSTITUTIONS RELATED TO GAP

The Southeastern Anatolia Project was initiated in 1976 in order to assess the waters of the Euphrates and Tigris Rivers for irrigation and hydropower generation. However in 1980s the basic objectives of the project have been transformed into the concept of a multi-sectoral, social and economic development. The development programs cover sectors as irrigation and hydraulic energy, agriculture, rural and urban infrastructure, forestry, fishery, education, health, tourism and social progress for the improvement of living standards in the region. Also the employment opportunities in the Region for both in rural and urban areas were aimed by GAP. Thus, eliminating disparities within the region and between the other regions of Turkey is an expected result of GAP.

For such a large scale project, in implementation and organization points of view, governmental institutions are needed. Essentially, there are two primary Turkish government authorities that advise, build, regulate and

control development in the GAP Region; General Directorate of State Hydraulic Works (DSI) and the Southeastern Anatolia Project Regional Development Administration (GAP Administration).

2.2.1. THE STATE HYDRAULIC WORKS (DSI)

The first governmental institution which was established through need for observing and evaluating the water resources of Turkey is General Directorate of State Hydraulic Works (DSI). It was established in 1954 with the Law No 6200 under the Ministry of Energy and Natural Resources by the idea of conducting basin scale studies in Turkey. Moreover the Law No 167 on groundwater resources and the Law No 1053 on domestic and industrial water supply to cities with populations over 100,000 enacted in 1960 and 1968, respectively.

DSI, as the primary executive state water agency, detects surface and ground water projects and investigates the feasibility of projects from technical and economic viewpoints. DSI is responsible for irrigation development, flood control, hydropower generation, and provision of drinking water to the cities with population greater than 100,000. Some other activities and investigations such as design of water based facilities, material experiments, water and soil related measurements, hydrological data verifications among Turkey are under responsibility of DSI. Moreover, it is the executing institution for land expropriation for water development projects. According to recently established Renewable Energy Law, DSI determines feasible HEPPs among the private sectors investments and forwards those projects to Energy Market Regulatory Authority (EPDK with its Turkish Acronym) which is the organization responsible for granting licenses to private companies. According to the information dated February 2005, DSI employed approximately 30,000 staff including technical staff and other workers. The financial resources of the DSI are national budget

allocation and the foreign loans for certain projects with bilateral agreements. (DSI, 2005)

Until now there are 555 large dams in Turkey. DSI constructed 544 of the large dams in Turkey. Moreover 47 small dams were built by DSI. DSI equipped 2.77 million hectares of land with irrigation facilities. It also put into operation 53 hydropower plants with annual average capacity of 36.5 billion kWh. As a primary executive agency in hydroelectric power development, DSI has developed 10,215 MW (81%) of the total 12,631 MW realized installed capacity in Turkey. DSI supplied some 2.5 million cubic meters of water to 17 big cities with greater population than 100,000. In order to obtain hydrological and meteorological variables such as river flow, groundwater, lake levels, sediment loads, water quality, amount of precipitation and evaporation, DSI has established many measurement and gauge station as follows:

- 1,114 river flow measurement stations
- 120 lake water level gauge stations
- 115 snow level gauge stations
- 452 meteorological measurement stations
- 1,000 water quality measurement stations (DSI, 2005)

Regarding to the technical statute of the State Hydraulic Works, DSI started to investigate the Euphrates-Tigris basin in 1960s. As a result of the studies and reports conducted in the Euphrates and Tigris basins by the end of 1970s, the State Hydraulic Works developed a series of project both in the Euphrates and Tigris River basins under the single title of Southeastern Anatolia Project.

2.2.2. THE SOUTHEASTERN ANATOLIA PROJECT REGIONAL DEVELOPMENT ADMINISTRATION (GAP ADMINISTRATION)

The Southeastern Anatolia Project was considered to be a series of irrigation and hydropower generation projects for utilizing waters of the Euphrates and Tigris Rivers, at first. However, by the end of 1980s with the studies of Master Plan conducted by State Planning Organization, GAP was started to be considered as an integrated regional development project. By this way the outcomes of the project will increase the level of living standards by transforming the undeveloped area into an export region based on agriculture. The GAP Master Plan issued in 1989 states the general guidelines for achieving the integrated development for the region.

By the activities defined in Master Plan, The Southeastern Anatolia Project Regional Development Administration (GAP Administration) was established in 1989 upon the Government Decree no. 388 in Force Law.

This law assigns the following mandate to the new organization:

- To ensure the rapid development of an investment in areas covered by the Southeastern Anatolia Project
- To deliver or cause to be delivered services for this purpose including those in the fields of planning, infrastructure, grant of licenses; housing, industry, mining, agriculture, energy and transportation
- To take or cause to be taken relevant measures to raise the educational level of people living in the region and to ensure coordination among different organizations and agencies involved in these activities (GAP Administration, 2002)

The GAP Administration is affiliated to the Prime Ministry. The decision center is the GAP Higher Council presided over by the Prime Minister or a State Minister appointed by the Prime Minister and the State Minister in Charge of GAP, State Minister in Charge of State Planning Organization

(SPO) and Minister of Public Works and Settlement (GAP Administration, 2002). The GAP Administration has its Central Office in Ankara and Regional Directorate in Şanlıurfa.

2.2.3. DSI AND GAP ADMINISTRATION COORDINATION

DSI is responsible of the evaluation of the actual water and energy resources while GAP Administration is charged with utilizing the water and power gained from the dams, canals, and power stations for land development, industrial improvement and motivation programs which result in economic and social progress. In other words the two governmental agency, DSI and GAP Administration, work for continuous development supported by the qualified infrastructural investments to increase the quality of life of the people in the GAP Region and for achieving sustainable development.

2.3. HISTORICAL DEVELOPMENT OF GAP

Approximately 53 billion cubic meter of annual flow will be controlled by the GAP, meaning the management of 28% of the total water potential of Turkey. Any system for retaining and regulating this amount of water should based on challenging technical studies and engineering solutions by taking into account the environmental and social constraints in order to ensure a sustainable development.

Thus, the observation studies regarding to the Euphrates and Tigris basin have been given at most importance even at early age of the newly established Turkish Republic. The first studies for evaluating the water resources in Turkey had been started by the Electricity Survey Agency (EIE, Turkish acronym) which was founded in 1936 to investigate issues on how rivers in the country could be utilized for hydropower generation.

The first detailed studies began with the establishment of the observation stations for the Keban Project on the Euphrates River. Afterwards the geological and topographical surveys started in 1938 in the Keban Pass. The period from 1950s to 1960s drilling studies were conducted by EIE.

On the other hand, the first studies on the Tigris River were initiated in 1945. These studies were under the responsibility of Electricity Survey Agency. After the data verification via observation stations, due to the need of a new governmental agency for the reconnaissance works, feasibility studies and design processes; DSI was established in 1954. By the time that DSI was established, the basin scale studies for 26 different basins have been rapidly started. Also the engineering studies on the Euphrates and Tigris basin were executed rapidly. As a result of these studies conducted by Diyarbakır Regional Directorate of DSI, the Euphrates Basin Development Report, based on assessing the irrigation and energy potential of the Euphrates, was issued in 1961. Then the Lower Euphrates Report was completed. Also similar studies have been conducted for the Tigris Basin. As a matter of fact, the development solutions for the Euphrates-Tigris Basin have been seen after completion of these studies. The projects for the two basins were given a single name as Southeastern Anatolia Project in 1977. Then in 1986, the State Planning Organization was given the mandate of addressing development activities in Southeastern Anatolia within the framework of integrated regional planning. later on due to the changing concept on how water projects develop their surroundings, the GAP has been improved the development strategies by the Social Action Plan dated 1994. Because of the regional problems decreasing the speed of development, the targets of GAP was reviewed in Regional Development Plan dated 2002. actually the history of GAP starting on 1970s is seemed to be continued for some time more due to not only the delays in project schedule but also the long term impacts of the project.

2.4. TECHNICAL DEVELOPMENT OF GAP PROJECT

The first project on the Euphrates River was Keban Dam and HEPP which was studied in 1950s and designed in 1960s. The construction of Keban Dam was initiated in 1966. In 1974 the Keban Dam was taken into operation.

Meanwhile, after the Lower Euphrates Reconnaissance Report published in 1964, the Lower Euphrates Feasibility Report and the Tigris Basin Reconnaissance Report have been issued in 1970 and 1971 respectively. Later on due to the ease of coordination of the two groups of project conducted for the Euphrates-Tigris River system, all of the projects started to be executed under the name of Southeastern Anatolia Project (GAP) since 1980. The sub-projects of the GAP are shown in Table 2.2. Also Figure 2.3 shows the project region on the map.

Because of being in operation, the Keban dam was not included in GAP. However, Keban dam may be considered as the main structure for GAP since it controls the 70% of the Euphrates basin within Turkey. Consequently, it serves for the downstream projects by providing regular water. Moreover Keban dam is the first model for realization process of such big scale project.

One of the projects following the Keban Project was Karakaya Dam construction. It was initiated in 1976 and started to generate hydropower in 1987. Another one of the seven GAP sub-projects on the Euphrates River is the Lower Euphrates Project. It consists of the most important schemes of GAP like the Atatürk Dam and Hydroelectric Power Plant (HEPP), Şanlıurfa Tunnels, Şanlıurfa -Harran irrigation, Mardin-Ceylanpınar irrigation, Siverek-Hilvan pumped irrigation and Bozova pumped irrigation.

Table 2.2 Sub-projects under GAP from DSI

SOUTHEASTERN ANATOLIA PROJECT (GAP)									
INSTALLED CAPACITY	**:**	**7 490 MW**							
ENERGY PRODUCTION	**:**	**27 387 GWh**							
IRRIGATED AREA	**:**	**1 821 046 ha**							
NUMBER OF DAMS	**:**	**22**							
NUMBER OF HEPPs	**:**	**19**							
EUPHRATES BASIN					**TIGRIS BASIN**				
	Projects	**Inst. Cap MW**	**Energy Pro. GWh**	**Irrigated Area (ha)**		**Projects**	**Inst. Cap. MW**	**Energ Pro. GWh**	**Irrig Area (ha)**
1	**KARAKAYA PROJECT**	**1800**	**7354**	**-**	**8**	**KRALKIZI-DİCLE PRO.**	**204**	**444**	**13015**
	Karakaya Dam and HEPP	1800	7354	-		Kralkızı Dam and HEPP	94	146	-
2	**LOWER EUPHRATES PRO.**	**2450**	**9024**	**718844**		Tigris Dam and HEPP	110	298	-
	Atatürk Dam and HEPP	2400	8900	-		Tigris Right Bank Grav. Irr.	-	-	54279
	Şanlıurfa HEPP	50	124	-		Tigris Right Bank P. Irr.(P2-P5)	-	-	23085
	Şanlıurfa Tunnels and Irr.	-	-	379989		Tigris Right Bank P. Irr.(P6)	-	-	7845
	Ş.Urfa-Harran Irrigation	-	-	151420		Tigris Right Bank P. Irr.(P3-P4)	-	-	44950
	Mardin-Ceylanpınar Grav. Irr.	-	-	116305	**9**	**BATMAN PROJECT**	**198**	**483**	**37351**
	Mardin-Ceylanpınar Pump. Irr.	-	-	118264		Batman Dam and HEPP	198	483	-
	YAS Irrigation	-	-	104589		Batman Left Bank Irr.	-	-	18758
	Siverek-Hilvan Pump. Irr..	-	-	188778		Batman Right Bank Grav. Irr.	-	-	18593
	Bozova Pumped Irrigation	-	-	45488	**10**	**BATMAN-SİLVAN PRO.**	**240**	**964**	**24537**
3	**BORDER EUPHRATES PRO.**	**852**	**3168**	**-**		Silvan Dam and HEPP	150	623	-
	Birecik Dam and HEPP	672	2516	-		Kayseri Dam and HEPP	90	341	-
	Karkamış Dam and HEPP	180	652	-		Tigris Left Bank Grav. Irr.	-	-	19324
4	**SURUÇ-YAYLAK PROJECT**	**-**	**-**	**113136**		Tigris Left Bank Pump. Irr.	-	-	52123
	Yaylak Plain Irrigation	-	-	18322	**11**	**GARZAN PROJECT**	**90**	**315**	**60000**
	Suruç Plain Irrigation	-	-	94814		Garzan Dam and HEPP	90	315	-
5	**ADIYAMAN KAHTA PRO.**	**195**	**509**	**78134**		Garzan Sulaması	-	-	60000
	Çamgazi Dam and Irr.	-	-	7740	**12**	**ILISU PROJECT**	**1200**	**3833**	**-**
	Gömikan Dam and Irr.	-	-	6868		Ilısu Dam and HEPP	1200	3833	-
	Koçali Dam and HEPP and Irr.	40	120	21605	**13**	**CİZRE PROJECT**	**240**	**1208**	**12100**
	Sırımtaş Dam and HEPP	28	87	-		Cizre Dam and HEPP	240	1208	-
	Fatopaşa HEPP	22	47	-		Nusaybin-Cizre -İdil Irr.	-	-	89000
	Büyükçay Dam and HEPP and Irr.	30	84	12322		Silopi Plain Irr.	-	-	32000
	Kahta Dam and HEPP	75	171	-					
	Pumped Irr. From Atatürk Reserv.	-	-	29599					
6	**ADIYA.-GÖKSU-ARABAN**	**7**	**43**	**71598**					
	Çataltepe Dam	-	-	-					
	Gölbaşı,Abbasiye,Besni-Keysun Araban, Kızılin,Yavuzeli,İncesu, Pazarcık Irrigation	-	-	71598					
	Erkenek HEPP	7	43	-					
7	**GAZİANTEP PROJECT**	**-**	**-**	**144064**					
	Hancağız Dam and Irr.	-	-	6945					
	Kayacık Dam and Irr.	-	-	20000					
	Kemlin Dam and Irr.	-	-	3088					
	Belkıs Nizip Pumped Irr.	-	-	11925					
	Pumped Irr. from Birecik Reserv	-	-	95976					
TOTAL		**5 304**	**20 098**	**1125776**	**TOTAL**		**2 172**	**7 247**	**59388**
INDIVIDUAL PROJECTS		**14,4**	**42**	**65615**	**INDIVIDUAL PROJECTS**		**-**	**-**	**35773**

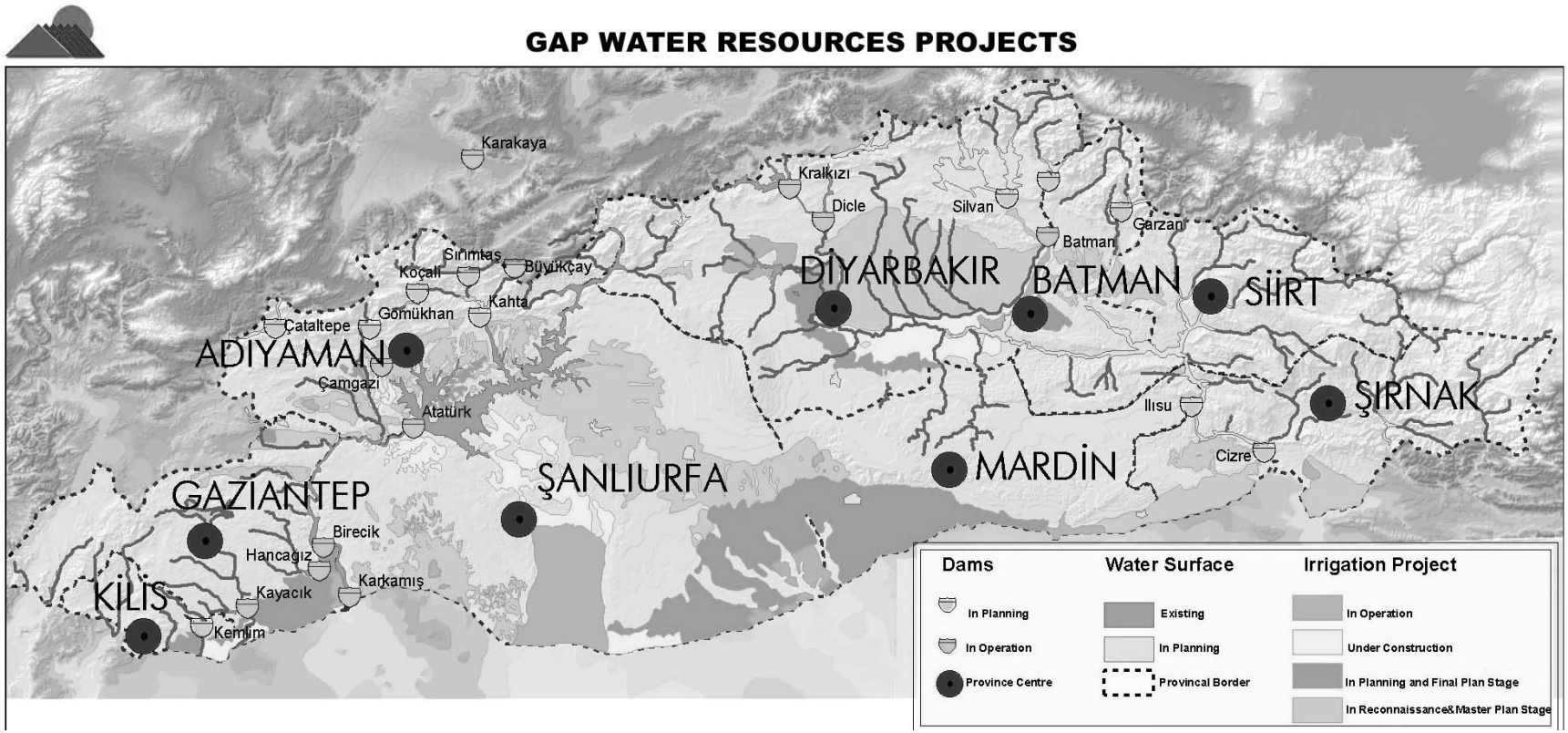

Figure 2.2 GAP Water Resources Project from GAP Administration

The construction of diversion tunnels of Atatürk dam was started in November 1981. It was completed in January 1986. The construction of dam was initiated in 1983 by ATA Construction Company. The diversion of water through the tunnels started in June 1986. The impoundment of the reservoir was initiated in January 1990. The reservoir was filled in August of the same year. The power generation was started in 1992. The previously expected construction period for Atatürk dam was 108 months but it was ended up after a period of 169 months with approximate cost of 2 million dollars including VAT. It is calculated with respect to 1997 prices and exchange rates.

The construction period of the Atatürk Dam was started with 89 workers, as a matter of fact that the Region did not have sufficient amount skilled workers. For such a huge project, it is inevitable to be challenging centre for job opportunities. Therefore, the skilled workers who got their experiences from the projects like Keban dam and Karakaya dam were transferred to this project. The total number of people worked in the construction of the Atatürk dam and related structure were 16,431. The total number of technical staff who was given responsibility was 466 in the whole. Many people who started work in unskilled group were trained in such employments that they could have a chance of receiving new jobs easily in construction and mechanical works (Tortajada, 2001)

The Atatürk dam is the key structure of the GAP. It is located at 24 kilometer away from Bozova town of Şanlıurfa. The main dam comprises from a central core of impervious clay whose width is 10 m at top, downstream shell consisting of basalt rock fill and inner zone of platy limestone whereas between the core and downstream shell transition materials are placed. The height of dam body from the foundation is 169 m, with the maximum water elevation of 542 m above sea level. The spillway is an ogee type with six bays which are controlled by 16.0 m x 17.0 m radial gate at each one. Its maximum discharge capacity is of 16,800 m^3 /sec with the water level of

544.15 m in the reservoir. The length of crest is 1,664 m and the width is 15 m. The elevation of crest is 549 m while the volume of dam is 84.5 million cubic meters.

The three diversion tunnels, lying on the left bank with typical horse shoe cross-section shaped with inner diameter of 8.0 m each, have the maximum total discharge capacity of 2,550 m^3 /sec. The total catchment area is 92,240 square kilometers while the impounded land is 817 km^2. The maximum reservoir capacity of the Atatürk dam is 48.7 billion cubic meters. The minimum level of water in the reservoir is 526 m.

The power plant which was taken into operation in July 1992, equipped with 8 units with total installed capacity of 2,400 MW. The maximum power discharge is 241 m^3 /sec and maximum effective head is 151.2 m. The Atatürk Dam HEPP generates 8.9 billion kWh of energy annually. Furthermore, the total irrigation area of the Atatürk Dam reservoir is 872,385 hectares.

Due to providing irrigation water to almost the half of the area that will be irrigated by the GAP irrigation schemes, the Atatürk dam has a great contribution on the agricultural and in a way of industrial development in the GAP Region and even in Turkey. The irrigation system of Lower Euphrates Project is based on Atatürk dam reservoir.

The Şanlıurfa-Harran Plain Irrigation Project is the first realized scheme within the Lower Euphrates Project. The water is brought to Şanlıurfa-Harran Plain by the Şanlıurfa tunnel system consisting of two parallel tunnels each 26.4 km long and 7.62 m inside diameter with a carrying capacity of 328 m^3 /sec. These tunnels were completed successively in 1995 and in 1998.

The Şanlıurfa tunnels are connected to a downstream system including main conveyance canal, Şanlıurfa HEPP, tailrace canal and Şanlıurfa - Harran Main canals. The irrigation capacity of Şanlıurfa and Harran canals are almost 50,000 hectares and 100,000 hectares respectively by using gravity canalets mostly. Only a small portion of land is irrigated by pumping by Şanlıurfa canals. The first irrigation practice throughout the Şanlıurfa-Harran Plain was in November 1994.

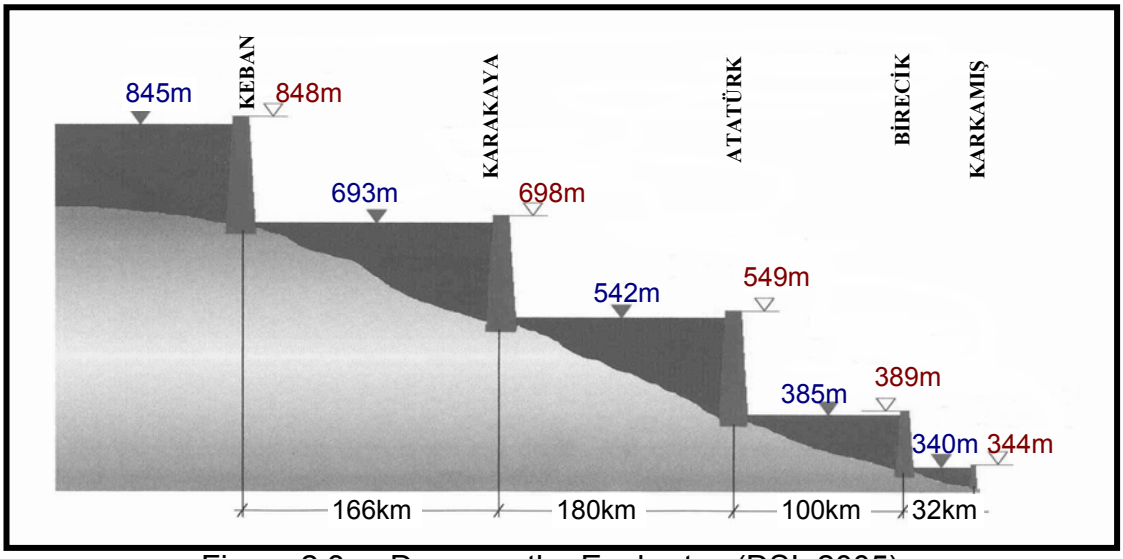

Figure 2.3 Dams on the Euphrates (DSI, 2005)

After the completion of the Atatürk dam, the other sub-projects of GAP followed one by one. Figure 2.3 shows cascades of dams on the Euphrates River.

Meanwhile, there are projects realized on the Tigris River. In 1997 Kralkızı and Dicle dams have been started to keep water in their reservoirs while Batman Dam has filled up its reservoir in 1998 on Tigris River.

The other important infrastructural parts in the GAP under the name of Border Euphrates Project were Karkamış and Birecik dams and their HEPPs. They are successive dams nearby Syrian Border.

The Karkamış dam, which is the last dam of the Euphrates in Turkey and located 4 km away from Syrian Border, was completed in 1999 by an Austrian Consortium with a total cost of 192 million US Dollars on turn-key basis. It has got 6 units with 180 MW installed capacity and producing 652 GWh annually. The only purpose of Karkamış is energy generation. The Birecik dam and HEPP was completed by a private sector involvement called Birecik A.Ş. in a way of build-operate and turnover system (BOT) in 2000. The Birecik hydropower plant generates 2.5 GWh of energy annually by 672 MW of installed capacity. Moreover, the Birecik dam irrigates 92,700 hectares of land besides its energy generation purpose. (Table 2.3)

Yaylak Plain Irrigation Project is another important example of utilizing latest technical developments and scientific researches under GAP. In that irrigation project, a tunnel namely Yaslıca Tunnel derives water from Atatürk Dam by pumping station. Then water is transmitted to the plain. Irrigation system consists of pressurized pipeline and reservoirs which will supply hydrants with necessary pressure (DSI). The Main Canal regulation system is designed to supply necessary amount of water regarding to “on demand” issue. This means that each outlet can supply required amount of water at required time with minimal water loss. Since irrigation network is composed of pressurized pipes, the farmers can make sprinkler irrigation. So, they are able to take water from their hydrants whenever needed (DSI). Due to equitable distribution of water and less water losses, this system is more efficient than the gravity system. Also the labor cost is reduced as a result of the easiness of mechanization. Therefore these benefits of the projects may result in sustainable agriculture.

Table 2.3 Characteristics of Atatürk dam, Birecik dam and Karkamış dam

ITEMS		KARKAMIŞ	BİRECİK	ATATÜRK
Location		Şanlıurfa	Şanlıurfa	Adiyaman
River		Euphrates	Euphrates	Euphrates
Purpose		Energy	Irrigation, Energy	Irrigation, Energy, Municipal Water
Construction Year	Start	1996	1996	1983
	End	1999	2001	1992
Implementing Party		State Hydraulic Works	Birecik A.Ş.	ATA A.Ş.
Dam	Embankment Type	Concrete Gravity/ Earth Fill	Concrete Gravity/ Rock Fill	Centralized Clay/ Rock Fill
	Dam Volume	2,100 hm^3	9,400 hm^3	84,500 hm^3
	Height	22.5 m	63 m	169 m
	Reservoir Volume	157 hm^3	1,220 hm^3	48,700,000 hm^3
	Reservoir Area	28.4 km^2	56.2 km^2	817 km^2
	Irrigation Area	None	92,700 ha	872,385 ha
	Design Flood Discharge	17,411 m^3/sec	17,353 m^3/sec	16,800 m^3/sec
HEPP	Start of Operation	1999	2001	1992
	Installed Capacity	180 MW	672 MW	2400 MW
	Annual Generation	652 GWh	2,518 GWh	8,900 GWh
	Max. Power Discharge	1900 m^3/sec	1900 m^3/sec	241 m^3/sec
	Max. Effective Head	10.55 m	42 m	151.2 m

The inter field systems are not included in the content of Yaylak project. Because it is considered that the farmers will buy the inner distribution systems. Besides the land consolidation works are still carried on. Due to extra charge of energy, the pumped irrigation cost is more expensive with respect to the irrigation by gravity naturally. The pressurized irrigation system is advantageous for the organic agriculture due to the high prices of products harnessed by organic agriculture. The farmers in the region generally do not have sufficient amount of capital for the construction of the pressurized system in the fields. And if they use traditional ways of irrigation, they will face with the soil losses. As a matter of fact there is chaotic position for the irrigation system which is newly establishing in the region. In order to have high priced, qualified, organic products for ease of selling our goods in global markets, the irrigation systems should be established with the ideas based on protection of soil quality, sufficiently studied product diversity and necessary marketing methods.

2.5. CONCEPTUAL DEVELOPMENT OF GAP

From the date of being named as GAP in 1977, the concept of developing water resources in the Southeastern Anatolia has been first changed to multi-sectoral regional development which is basically included not only a physical increase in economic indicators due to the construction of the water based facilities but also increase in social stability regarding to the basics of the development activities. The first refreshment on the project was due to the Master Plan issued in 1989.

2.5.1. THE MASTER PLAN

The most important guideline for GAP to achieve its targets is the Master Plan. Before that, the project was considered to be aimed at the irrigation and the hydraulic power production by assessing the water and soil potentials of the region. In spite of being initiated as a development project

just for land and water resources, the Southeastern Anatolia Project was transformed into a multi-sectoral and integrated regional development due to the need of reflecting the effects of the project to the economic and social development of the region directly.

The publication of the report of the World Commission on Environment and Development as an outcome of the changing trends in the world by the end of 1980's, brought the idea of transforming water based projects into a new form aiming to eliminate disparities and contribute national targets by referring economic growth. Also, social stability became more important and realistic.

An equitable and fair development in order to eliminate inter-regional disparities in the process of social stability and economic growth are considered to be essential for the GAP Region. The GAP Administration, whose responsibility is to plan and organize all the activities serving the concept of a detailed regional development, has been used the Master Plan dated 1989 as the main guideline. The implementation of 7 projects in the basin of Euphrates and 6 projects that of Tigris, will improve urban infrastructure and increase the attractiveness of the urban centers and ensures development in agriculture, industry, rural infrastructures, mobilization and transportation, promotion for export, tourism, education and health services.

The Master Plan is a framework document for regional development. It defines a schedule for the development of water and land resources by considering financial and technical constraints. It has a general perspective on project items such as employment, population increase and distribution along the region, need for education and health services, housing and urban infrastructure and financial requirements.

“The Master Plan formulates the basic objective of GAP as “raising the development indicators of the region up to the country standards in shortest possible time” (www.gap.org.tr). It defines economic and social targets serving to its objective and adopts the basic strategy of transforming the region into an export center for agriculture based goods”. In fact four basic strategies were identified in the GAP Master Plan;

- To develop and manage water and land resources both for irrigation and also for urban and industrial use,
- To improve land use by introducing better farm management, agricultural practices and crop patterns,
- To encourage manufacturing industries by giving special weight to agriculture related and local resource based production lines,
- To improve social services and urban infrastructure facilities to better respond to the needs of local people and to attract and keep qualified personnel in the region.”(GAP Administration, 2002)

As a matter of fact, the Master Plan provides guidelines for plans, programs and projects at macro level and in small. Besides that the GAP Master Plan was prepared in a way which is primarily based on governmental viewpoint.

2.5.2. THE SOCIAL ACTION PLAN

In early times of the Southeastern Anatolia Project, the GAP term were regarded as a series of engineering solution. Although the economical growth and its social interactions were considered, the real social aspects of GAP, which would be probably seen soon after the project implementation, were not considered realistically in multi-disciplinary way. Since the re-evaluation of the GAP by including the social and environmental figures, the project has adopted “the principles of sustainable human development” for achieving equitable and fair human development. It has been obviously seen that only the economical growth and its fruits such as increasing employment options, income levels, and agricultural welfare would not

resulted to have social stability. The widespread human development should be accomplished for the full success of the GAP. The awareness for the need of social improvement in sustainable human development terms supported by global trades in the world, has been directed the GAP Administration to conduct research, planning and implementation activities in the context of sustainability by wide range of social projects.

The rapid changes at both national and international levels have caused to a new study for evaluating the targets and achievement of strategies defined in Master Plan according to changing terminology of “development”. In between 1992-1994, GAP Administration commissioned various civil society activities, several studies and surveys to obtain the clear view of sociological profile of the region. These preliminary social studies mainly focused on the status, problems and expectations of specific social groups including women, children, adolescents, children working in streets, the urban poor, landless peasants and small farmers, nomadic communities, people affected by dam constructions (www.gap.gov.tr). These researches are Trends of Social Change; Population Movements; Status of Women and their Integration to the Process of Development; Resettlement and Employment of People Affected by Dam Lakes.

Following the completion of the results of baseline surveys, it was decided to establish a committee to give the general framework for social and human development related initiatives in the context of the GAP. The members of the committee were academicians from universities, the representatives of NGOs, experts from GAP Administration and State Planning Organization. The committee executed several meetings and workshops. Consequently, the results and suggestions obtained from the surveys, workshops and meetings were assessed together. After the completion of those studies, the GAP Social Action Plan was developed in 1994. The actual reasons of the delays for the project targets analyzed

within the context of the Social Action Plan. The principles of GAP Social Action Plan were defined by GAP Administration as (www.gap.org.tr):

- To fasten the development process and to establish social stability by encouraging the economical growth with social improvements
- To diminish the disparities between the GAP Region and the other ones by increasing the effectiveness of social services for GAP Region
- To identify methods for improving the acceptance of technological development figures
- To obtain integration of people from different social groups and levels in the region through the development process
- To minimize the adverse effects of development
- To encourage the participation of the public in planning, implementation and monitoring stages of the development effort by suitable methods for realizing the conditions of sustainable development
- To perform strategies for enlightening the planning and implementing units' vision

Depending upon the targets encouraged by the preliminary studies, a series of social projects planned and implemented regarding to the framework constituted by the principles of GAP Social Action Plan. Some of the social projects implemented according to the framework of the GAP Social Action Plan are Multi Purpose Community Centers (CATOMs); Rehabilitation of Children Working in Streets; Youth to Youth Social Progress; Resettlement, Employment and Economic Investments of People Affected by Birecik Dam Construction; Enhancement of Employment and Capacity in Urban Informal Sector; GAP Region Public Health Project.

2.5.3. THE REGIONAL DEVELOPMENT PLAN

The unstable political conditions of Middle East and terrorist attacks in Southeastern Region of Turkey have affected the development efforts, regional trade with Middle Eastern countries and investments of the private sector negatively. At the same time, due to the financial crisis of Turkey, the project investments could not be necessarily completed on time. There was a delay to meet project targets in 1994. Actually the reasons of delay were the problems which were aimed to overcome by completing GAP. Since the main purpose of the GAP defined by the Master Plan was to diminish the disparities between the regions both in economical and social perspectives by developing new job opportunities, infrastructural improvements and social programs based on the idea of being “an export center for agriculture based goods”. However the dynamics of the region and the country were not led by the objectives to be realized satisfactorily on time.

Meanwhile the sustainable development concept began to be more and more popular in rational way at global scale due to the apparent exhaustive activities of the developed countries for the world’s scarce sources ongoing many years. The newly shining aspects in development projects, with hope to maintain a sufficient quality in human life, are to satisfy environmental considerations while challenging the technical constraints, to get participation and to supply rehabilitation of the local people from well before, during and after the implementation period and to maintain the idea of continuous use of scarce resources under the concept of sustainability. Actually some of these newly issued properties totally or partially did not exist in the GAP Master Plan. The existing items regarding to sustainability, environment or participation were just like an overlook rather than a detailed and predictive study.

Therefore, an urgent need for a complete revision of the methodology of achieving the targets of the Master Plan appealed. As a result of that,

second Master Plan changed the basis of its vision from regional development to human development. The revision, named as GAP Regional Development Plan which was issued in 2002, included basically three points in the development concept of GAP Region. These are the reasonable use of public resources and capacity, giving a raise for the participation of people especially affected directly by the projects, following the targets on human development. The main idea is to catch up these goals by realistic public investment programs, encouraged private sector involvement and sustainable human development programs.

2.6. THE ACHIEVEMENT OF THE TARGETS AND OUTCOMES OF THE GAP

The Southeastern Anatolia Project contributes several sectors and social issues in spite of being not completed at all. The achievement of the GAP may have discussed separately on those items:

- **Cash Realization:** According to the GAP Master Plan, the public financing need for the targeted investments belonging to 1990-2005 period is approximately 35.5 quadrillion TL at 2005 fixed prices. The total estimated cost of the project is approximately 32 billion US$. Actually in respect of political and economical conditions of the Region and Turkey, the total investments which were realized until 2004 was approximately 19 quadrillion TL which contributes 54.1% as cash realization rate of the project. The rate of cash realization in different sectors throughout the GAP is 81.1% for energy projects, 22.9% for agricultural projects; and 79.3% for other sectors.

- **Energy:** For the developing countries due to the increasing industrial activities, an urgent need for utilizing the hydropower potential is appealed. Hydropower potential is also an attractive solution for energy need because of being a clean way of energy generation. At present 135 HEPPs are in

operation in Turkey with total installed capacity of 12,631 MW and an average power generation of 45,325 GWh/year. As shown in Table 2.4 GAP in operation by energy viewpoint constitutes the 16% of the total hydroelectric potential of Turkey. Besides that the undeveloped part in GAP with respect to the energy sector has very small contribution of total potential. On the other hand the total energy projects in GAP constitutes 9.3% of total energy generation of Turkey including thermal, other hydraulics and wind based systems. The GAP with its 19 HEPPs has got a great contribution to electricity generation. For instance, the cumulative energy generated by the dams on the Euphrates and Tigris rivers under GAP has been reached 234 million kWh by the end of 2004. The monetary equivalent of the energy production is about 14 billion dollars as shown in Table 2.4. The hydropower realization ratio in GAP has reached approximately 75% within the project as shown in Figure 2.4. The Karakaya, Atatürk, Birecik and Karkamış dams and HEPPs on the Euphrates River, and the Batman, Kralkızı and Dicle dams and HEPPs on the Tigris River have been completed and energy is being generated. The Hancağız and Camgazi dams on the Euphrates River have also been implemented but they do not have HEPPs.

Table 2.4 Hydropower Development in GAP and Turkey (DSI, 2005)

ITEMS	**MILLION KWH/YEAR**	**RATIO (%)**
GAP in operation	20,391	16%
GAP to be developed	6,996	5%
Excluding GAP in operation in Turkey	24,909	20%
Excluding GAP to be developed in Turkey	75,085	59%
TOTAL POTENTIAL IN TURKEY	**127,381**	**100%**

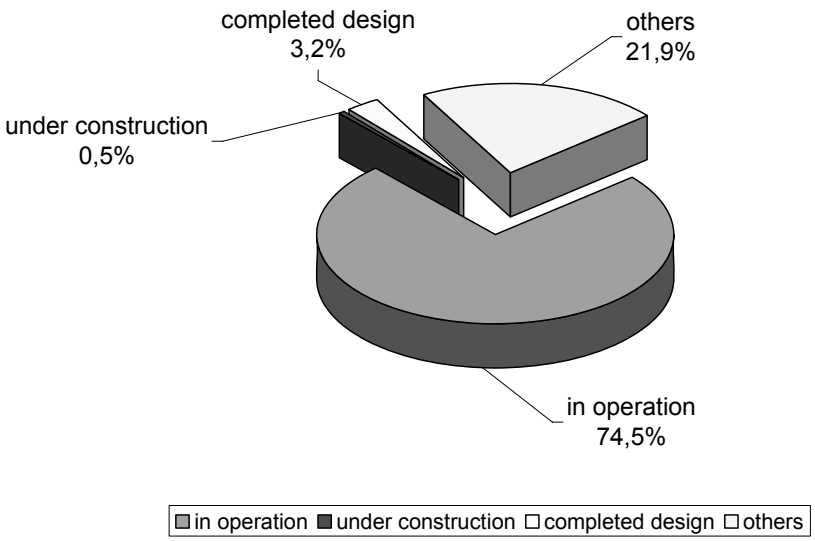

Figure 2.4 Energy production in GAP

Table 2.5 Total energy generation of HEPPs in the GAP and their monetary equivalent from operation date until the end of 2004

Dam and HEPP	Year of Operation	Installed Capacity (MW)	Total Energy Production (billion kWh)	Monetary Equivalent (million $)*
THE EUPHRATES RIVER				
KARAKAYA	1987	1,800	127.83	7,669.80
ATATÜRK	1992	2,450	94.10	5,646
KARKAMIŞ	2000	189	1.67	100.20
BİRECİK	2001	672	7.96	477.60
TOTAL		**5,111**	**231.56**	**13,893.60**
THE TIGRIS RIVER				
KRALKIZI	1999	94	0.58	34.80
DİCLE	2000	110	0.96	57.60
BATMAN	2003	198	0.59	35.40
TOTAL		**402**	**2.13**	**127.8**

* 1 kWh = 6 US cent

- **Irrigation:** The major aim of the GAP is increasing the income level in the Region to ensure social benefits throughout the Region sufficiently and fairly. The GAP covered approximately 75,000 km^2 of land. Actually the basic economical activity in the region is agriculture on those lands. Therefore agriculture becomes an important factor to achieve the targets of GAP. A wide range of crops are harnessed in this area including olive, pistachio, hazelnut, persimmon and cotton. The irrigation of the GAP Region has been started at Harran Plain in 1995. At present approximately 214,000 hectares of land are irrigated contributing only 12% of the total irrigation scheme. It is estimated that this current amount of realization created approximately 36 billion dollars of agricultural output value. Upon the completion of GAP 1.82 million hectares of land will have been in operation. Individual projects whose total irrigation area is almost 110 thousand hectares are also included in the irrigation category of GAP. At the present the miscellaneous projects in operation are irrigating an area of 71,229 hectares. These projects were implemented by the Regional Directorates of DSI. Some of the individual projects consist of ground water based irrigation system. The irrigation projects in GAP and other individual projects included in GAP which is in operation in the Euphrates and Tigris basins are shown in Table 2.6. It can be clearly observed that the progress of energy projects in the GAP is faster than that of irrigation projects. (Table 2.7) Today, 8% of total irrigation scheme is under construction, 25% is at the stage of contracting out and 55% are just planned.

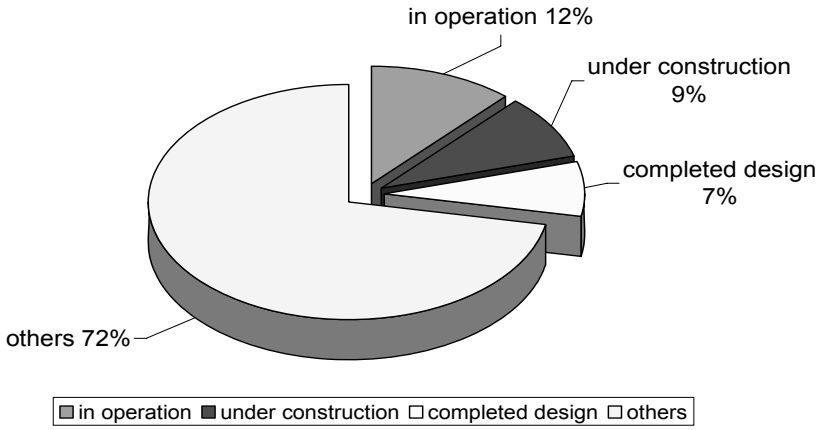

Figure 2.5 Irrigation in GAP

Table 2.6 Irrigation in operation in the GAP (DSI, 2005)

SOUTHEASTERN ANATOLIA PROJECT (GAP) IRRIGATION PROJECT IN OPERATION					
EUPHRATES BASIN			TIGRIS BASIN		
	Projects	Irrigated Area (ha)		Projects	Irrigated Area (ha)
1	ŞANLIURFA HARRAN	123 392	1	KRALKIZI-DİCLE PRO.	4 758
2	ADIYAMAN ÇAMGAZİ	2 000		-	
3	HANCAĞIZ	6 945		-	
4	YAYLAK	5 600		-	
INDIVIDUAL PROJECTS			INDIVIDUAL PROJECTS		
1	NUSAYBİN ÇAĞÇAĞ	8 600	1	DEVEEÇİDİ	10 600
2	AKÇAKALE YAS	10 255	2	SİLVAN I VE II	8 790
3	CEYLANPINAR YAS	9 000	3	SİLOPİ NERDÜŞ	2 740
4	HACIHIDIR	2 080	4	ÇINAR GÖKSU	4 234
5	DERİK DUMLUCA	1 860	5	GARZAN KOZLUK	3 973
6	XV. REGION OF DSI	900	6	X.REGION OF DSI	3 258
7	XX.REGION OF DSI	4 939			
TOTAL		175 571	TOTAL		38 353
213 924 HA					

Table 2.7 The status of GAP (DSI, 2005)

THE SOUTHEASTERN ANATOLIA PROJECT - GAP -								
PROJECT STATUS		**THE EUPHRATES PROJECTS**		**THE TIGRIS PROJECTS**		**GAP PROJECTS TOTAL**	
TOTAL							
INSTALLED CAPACITY	:	5 318	MW	2 172	MW	7 490	MW
ENERGY PRODUCTION	:	20 140	GWh	7 247	GWh	27 387	GWh
IRRIGATED LAND	:	1 188 135	ha	632 913	ha	1 821 048	ha
THE NUMBER OF DAMS	:	14		8		22	
THE NUMBER OF HEPP	:	11		8		19	
IN OPERATION							
INSTALLED CAPACITY	:	5 066	MW	402	MW	5 468	MW
ENERGY PRODUCTION	:	19 464	GWh	927	GWh	20 391	GWh
IRRIGATED LAND	:	175 571	ha	38 353	ha	213 924	ha
THE NUMBER OF DAMS	:	6		3		9	
THE NUMBER OF HEPP	:	4		3		7	
UNDER CONSTRUCTION							
INSTALLED CAPACITY	:	50	MW	0	MW	50	MW
ENERGY PRODUCTION	:	124	GWh	0	GWh	124	GWh
IRRIGATED LAND	:	103 246	ha	57 014	ha	160 260	ha
THE NUMBER OF DAMS	:	1		0		1	
THE NUMBER OF HEPP	:	1		0		1	
COMPLETED DESIGN							
INSTALLED CAPACITY	:	202	MW	1 770	MW	604	MW
ENERGY PRODUCTION	:	552	GWh	6 320	GWh	872	GWh
IRRIGATED LAND	:	909 318	ha	537 546	ha	1 351 471	ha
THE NUMBER OF DAMS	:	7		5		12	
THE NUMBER OF HEPP	:	6		5		11	

* the individual projects with a total irrigation land of 101 388 in the GAP Region is included

- **Domestic Water Supply:** Law No 1053 empowers DSI to supply clean and fresh water for domestic and industrial use for the cities with population of more than 100,000 since 1968. Some of the reservoirs which were constructed serve as a source of clean and continuous municipal water for the cities in GAP Region such as Adıyaman, Batman, Şanlıurfa, Diyarbakır, and Batman. Also Gaziantep, Kilis, and Mardin are in near future program of

domestic water supply. Also there were constructed treatment plants in Diyarbakır, Gaziantep and Şanlıurfa.

- **New Economical Activities:** Fishery activities are popular on dam reservoirs as a new economical activity. DSI supports the fishery activities in GAP Region. The Fisheries Section Directorate carries out research and development studies for dam reservoirs (DSI, 2005) The DSI Fishery Research and Propagation Centers nearby Keban and Atatürk dam reservoirs in Elazığ and Şanlıurfa provinces.

- **Cultural Issues and Tourism:** Attraction level for the Region has increased after the archeological studies conducted for the rescue operations due to inundation, the accessibility to Region becomes easier, infrastructural developments increases, the city centers are adapted to increasing economical activities and the influx of investors by constructing sufficient social facilities such hotels, restaurants and etc., security level has improved so, the national tours for visiting the natural and cultural beauties of Region become more popular.

- **Social and Environmental Issues:** Social and environmental studies, technical and scientific researches have always intended to manage the problems of the region whether it is due to GAP or not. The social programs have been conducted on several topics which will increase the public acceptance and support as well as decrease the out migration. The social and environmental issues are discussed in detail in forward chapters.

Also the contribution of GAP to the national economy is an important issue. Besides that increasing importance related to the economical activities in GAP will hopefully decrease the regional disparities in Turkey. Naturally those impacts of such a large scale project both in positive and negative ways exist. The realistic way of evaluating the GAP should have an objective manner about all kinds of items including or contributing the

project from design period until now. Besides that objective assessment methods may also have a positive impact on the implementation of the not completed sub-projects by the way of diminishing the negative contributions and supporting positive sides. Therefore the previous experiences may be analyzed as “a real life example” not only for other multi-purpose and large scale integrated projects but also within the GAP either.

CHAPTER 3

SOCIAL IMPACTS INCLUDING ENVIRONMENTAL AND CULTURAL ISSUES

3.1. INTRODUCTION

The life of the mankind is strictly based on water from the first breath until the death. The modern world has increased this dependence more and more, day by day. While the ancient people need water for only drinking, hygiene and limited irrigation, the modern world survives on the products harnessed from the water resources like agricultural goods, energy and related facilities, industrial commodities after the historical evolution of the civilizations. Moreover the growth of the global population increases the effects regarding to the water dependence resulted from the modern life.

For that reason the aggressive pressure of modern life and increasing population forces the people to develop large water based schemes. Actually these kinds of development projects are mostly pointed to control and manage the water resources to get qualified drinking water, to have proper irrigated agriculture, to maintain necessary hygiene conditions, to generate sufficient amount of power, to conduct adequate industrial facilities and navigation, and even to get more technical innovations. Due to the dense settlement of rapidly growing population and insufficient amount of proper land, the management of flood and drought get more importance.

The water based projects are the most effective means of development in the world by many aspects because of being challenging for both primitive and complex needs of the human beings. The major component of the water development projects is the construction of large dams due to their ability to control and manage the large amounts of water for many development purposes such as irrigation, municipal water use, hydropower generation, industrial facilities, flood control etc. According to the International Commission on Large Dams (ICOLD) there are about 45,000 large dams defined by the terms of being higher than 15 meters, or higher than 10 m but with more than 500 m crest length, or more than 1 million cubic meter storage capacity, or more than 2,000 m^3/sec spilling capacity. Although there are dams which are more than 2,000 years old, about 73% of the dams have been built only during the last 50 years (Tortajada, 2001). Dam construction is an old way of managing the water requirements of the people, the dams have been constructed more and more in advanced manner by using science and technological improvements. The water management programs basically promoted the technical and economical feasibility of the projects due to the urgent water demand for development targets.

However since 1960s the adverse impacts of the development projects, regardless of its type, were realized. After 1970s until 1980s the level of realization declined. Then after 1980s through a period till 1990s the environmental aspects of the projects have became a key issue in large scale development schemes. There were organized many mega conferences on these issues between 1970 and 1980. This period and events have an important effect on the current societal perception of large dams. (Tortajada, 2001)

Actually the environmental and social issues were not completely neglected in all water projects in the past. Many of the environmental and social impacts such as water logging, salinity due to inappropriate irrigation,

resettlement due to inundation were known. However the scientific and formal studies regarding to environmental and social impacts of the projects have got importance recently. (Tortajada, 2001)

For instance, the availability of the water both in quality and in quantity standpoint was not considered to be a problem in the past. However uncontrolled development of the water based schemes forced the project implementation units to consider efficient use of water by technical, economical, social and environmental viewpoints after oppositions of activists at global level.

Also, the social and environmental issues for water based development projects were not considered. The project implementation units have effectively focused on the technical and economical aspects of the development projects. Usually there were no considerations of possible social and environmental problems in planning and implementation period of water projects. Although having the idea of improving the living standards of people as the basic objective of the development projects, the social effects of the projects were not managed properly in many aspects. As a matter of fact, the full success of any project can be achieved if only the social and environmental effects are properly managed.

In this chapter the social aspects of the GAP have been discussed. The main attention has been given to the resettlement and expropriation studies conducted for some of the sub-projects in the GAP. Meanwhile the resettlement and expropriation processes of Turkey have been examined. And also the other social aspects such as population dynamics of the region, the health and education services and gender issues are discussed.

3.2. LAND ACQUISITION AND RESETTLEMENT

3.2.1. THE REASONS OF RESETTLEMENT

The major development projects, planned for large scale transportation systems, water schemes and industrial establishments are crucial for improving the quality of life on the developing world. In order to originate these multi-structural projects, a certain amount of land is needed. Due to the wide-spread behavior of the human population, the existence of the people in those project areas is unavoidable.

In fact the development projects concerned on establishing necessary conditions for organizing the basic needs of the human beings and for the qualified requirements of modern life. They may serve both people living in modern urban areas and people surviving in the underdeveloped rural areas. However people in rural areas are affected from those projects more directly than urban areas. The development scenarios are resulted in complex structural changes on the project areas. Therefore the development projects shall cover the requirements of not only the people who are on the focus of the positive impacts of schemes but also for the ones who are exposed to the negative results of the projects.

Consequently, the implementation of development projects is primarily based on the land acquisition for the sub-structures of the scheme. Moreover, if there are people over the project area surviving on the resources of it, they will be relocated due to the implementation of the project. Therefore the project affected people may have been involuntarily resettled. Involuntary resettlement is defined as to resettle people living in the project area against their will even tough being given related amount of compensation. In fact, there is a direct connection between the project implementation, land acquisition and resettlement.

Large dams with their huge reservoirs is the most important structures requiring land acquisition and relocation of the people from the project area. Actually the mandatory population dislocation is an inevitable consequence of the large dam construction like all development projects. The displacement of people may have negative impacts on the project if it will not be managed properly. There are always involuntary resettlement cases in all over the world, due to the construction of large dams and the establishment of their reservoirs.

3.2.2. PAST-AND-PRESENT STATUS OF LAND ACQUISITION AND RESETTLEMENT IN TURKEY

In Turkey, land acquisition processes regarding the most of the water and soil development projects are under the responsibility of the General Directorate of State Hydraulic Works (DSI) by Law No: 6200. General Directorate of State Hydraulic Works acquired 520.000 ha of private land and 200,000 ha of Treasury and Forestry Lands due to development projects since 1954 (DSI). The land acquisition processes are conducted according to Expropriation Law for the water based irrigation, energy projects and other services. Expropriation is the acquisition of an immovable asset or resource for public welfare in order to carry out a public service by an advance payment. In Turkey, the Expropriation Law was established in 1983 with the number of 2942 and has been executed for 18 years until it was revised in 2001 with the Law No: 4650.

Actually the expropriation law with number of 2942 was not appropriate for the large scale expropriation studies. It was more useful for small projects. For the projects which are needed comprehensive land acquisition, the compensation payment system and schedule for the immovable assets were not sufficient. Unless the people in the project area are given social support for their project affected new lives, their future may become unknown and probably worse than before. Therefore, the expropriation

should not only be a land acquisition process but also provide resettlement and human development (Bayram, 1995). In fact the second step of land acquisition is the resettlement of project affected people by keeping their life standards at least in their previous level.

Generally, the settlement means to be given a sufficient house to keep the social, economic and cultural life of the family and an appropriate plan for economical survival of the family members. The Settlement Law was established in 1934 with Law No 2510 for the settlements of the newcomers from the Ottoman Lands other than the newly established Turkish Republic. By the changing requirements of the resettled population in time, Law No 2510 was modified several times. After 1960s, the planned development projects' period has been started. Therefore, the land acquisition and resettlement of the people due to development projects appeared as a social and economical problem. For this reason, in 1970s some additional clauses were established under the Law No 1306.

In Turkey, the expropriation works conducted by DSI due to the any scale water projects. Then they are followed by the resettlement processes under the responsibility of General Directorate of Rural Services (KHGM) until it was abrogated on 15.03.2005. The resettlement process has been under the responsibility of General Directorate of Disaster Affairs under the Ministry of Public Works and Settlement since March 2005.

For the Southeastern Anatolia Project, the land acquisition and resettlement processes were conducted by Law No 2942 and 2510, respectively. As a matter of fact, the present status of expropriation and resettlement processes may have been said to be formed regarding to the past experiences of the first large scale water based development project of Turkey, GAP.

3.2.2.1. EXPROPRIATION PROCESS

The expropriation processes according to Law No 2942 executed by following these steps given on below:

1) The public welfare decision:

Before initiating the expropriation schedule for any project that it is an obligatory issue, the public welfare decision should have taken by the administration related to the implementation of the project. In the case of expropriation of the development projects implemented by DSI, Ministry of Public Works and Settlement was responsible for the public welfare decision in spite of DSI's being a directorate of Ministry of Energy and Natural Resources.

2) The arrangement of expropriation plans and preparation works:

The expropriation plans were prepared according to the related specifications of DSI including all the details such as the actual amount of affected lands and immovable assets, the specific properties regarding to the immovable assets. If the cadastral surveys of the areas which would be inundated due to dam reservoirs were not complete, the Directorates of Registration and Cadastral Surveys would be called for finishing the cadastral studies. The inundated and affected areas should be pointed on maps necessarily in detail to inform people about their possibly affected properties.

3) The expropriation decision and administrative commentary on immovable assets:

The expropriation decision was taken according to the public welfare decision based on the expropriation plans under the consideration of the budget allocation of the related administration or government at a close time to the initiation of valuation processes. The expropriation budget was defined yearly with respect to the yearly budget of the administration which is responsible for the implementation of the project according to Law No 2942. Therefore the payment schedule for the expropriation process had always some delays due to insufficient budget allocation for the

expropriation items. After the expropriation decision, the project implementation institutes formally asked for the administrative commentary from the related Registration Offices to have control on selling the lands or immovable assets which would be affected by the project.

4) The determination of expropriation value:

According to the Law No 2942, the members of evaluation commissions for each province were chosen yearly, especially three of them came from the financial and tax offices of the government, technical people from governmental institutions and among agricultural engineers working for government. The other two members were chosen by municipality council of each province among the people who own lands and immovable assets in the project affected area. Actually the large scale water projects affect different places in different cities. Therefore, the valuation commissions were different for each province, even tough the reason of being affected is the same project. This condition causes different evaluation of assets having similar properties affected by the same project. Consequently, this is a situation that increases the disparities within the project area. the date of the evaluation is announced to the commission and affected people. Then the commission investigates the values of the immovable assets and prepares the report including all results according to the Law No 2942. Also the Special Evaluation Commission in the name of DSI is established for another parallel working evaluation of project affected immovable assets. If the evaluation commission and DSI Special Evaluation Commission have given different worth for the same immovable property; the judicial procedure starts to fix one of the compensation value determined by the two previously mentioned commissions for the approval of General Directorate of DSI.

5) Blocking the expropriation funds to the bank, notifications and public notices:

The final values for the expropriated assets are blocked to the bank in the name of the owners. The notifications and public notices are necessarily committed according to 2942.

6) Official registrations:

The official registrations can be made by the approval of owner or the by the judicial way after the unconditional blocking of the expropriation fund to the bank in the name of owner. Actually the judicial way was more prevalent resulting long judicial period and many paper works, as well.

7) Leaving the expropriated immovable assets:

In expropriation for DSI projects, the governmental administrative leader of the project area provides the people's leaving the project affected areas.

8) Partial expropriation:

If there is a partially affected land or immovable asset due to the project items, the owner can apply to the related administration for expropriation after 30 days of notification of expropriation decision.

Another issue for the given expropriation process according to Law No 2942 was the claims against the amount of compensation payment by the affected people. After the evaluation of assets without any particular participation of people or conciliatory process, they have brought suits against the Turkish Government in European Human Rights Court. These actions have been charged the Turkish Government to increase the amount of compensation payment for the project affected immovable assets and to pay that amount of money to the people in defined period. As a result of these cases, the prestige of the Turkish Government at global level about the ability of conducting those kinds of projects decreases. Also Turkey was forced to pay very high amounts of compensation which causes a deadly increment in the budget of the expropriation actions.

Due to the difficulties in judicial actions both at national and international level and socio-economic problems for the expropriation of the immovable assets, especially resulting from water based large scale development projects including dams and reservoirs, some changes were introduced to Law No 2942 under the Law No 4650 in 2001. Among all changes in the revision, the basic points can be summarized as follows:

o The expropriation processes of any project will not start until enough amount of compensation is allocated specifically for that project by the government

o The initial valuation of acquired immovable assets will be done by the government commission including members from the project implementation administration

o The purchasing of assets should be handled by Conciliatory Processes

o In case of disagreement between the government and land owners, the government sues asking the assessment of the properties by the Turkish courts without any further possibility for action. All the legal expenses are paid by the government.

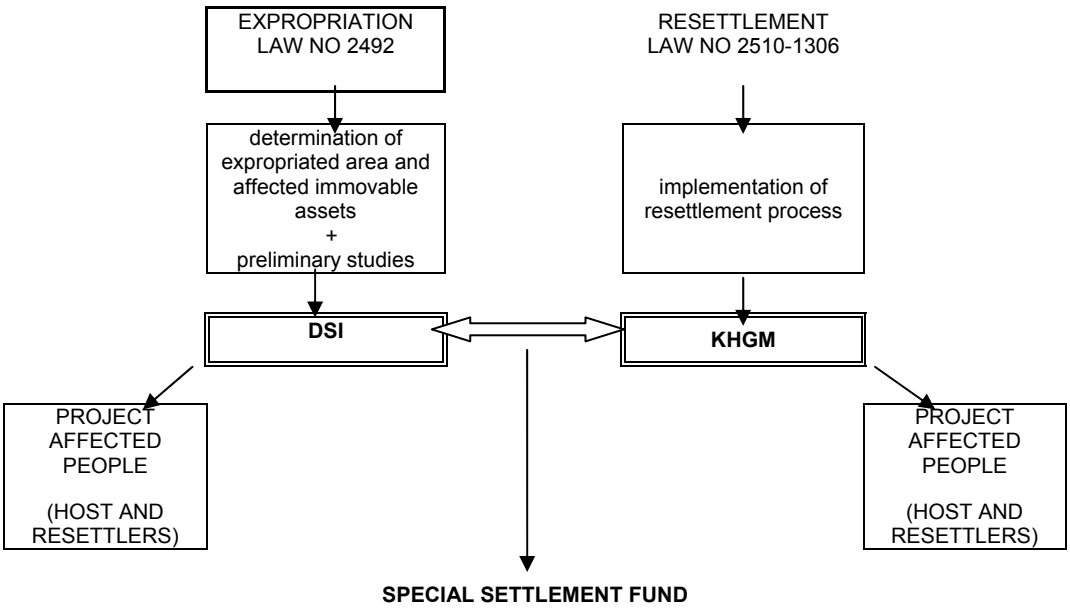

Figure 3.1.Land Acquisition and Resettlement Schema

In the present procedure of land acquisition for the water based development projects including dams and reservoirs; the first step is to mark the axis of the dam, the locations of spillway, reservoir, material storage facilities, construction site, roads and other structural facilities and dam lake on the maps with the scale of 1/25.000. These maps are certified by related

Regional Administrative Directorate and General Directorate of DSI. Final approval of the general lay out of the project items belongs to Minister of Energy and Natural Resources.

The public welfare decision for the acquisition of the immovable assets is taken according to the mentioned approval of general layout of the project. Public Welfare Decision is taken to initiate land acquisition process according to yearly fund that is fixed for expropriation by concerned Regional Administration of DSI. The yearly fund for the expropriation process is estimated by considering the approximate quantity of affected properties and the previous court decisions or payment amount for similar cases or regions. The expropriation process cannot start, if the necessary fund is not provided from the budget of related administration to only use it for the expenses of expropriation.

The actual size and boundaries of the affected area are defined on the maps that are requested from the General Directorate of Registration and Cadastral Surveys according to the results of cadastral surveys. An Expropriation Plan is prepared for each lot by considering the cadastral information. By this step, affected families can be aware of the affected amount of lands and immovable properties at early phase of the project. After the determination of the affected area by coordinated studies of DSI and General Directorate of Registration and Cadastral Surveys, an administrative decision about expropriation will be officially noted on the registrations of farmlands and houses for not allowing people to sell their assets in the expropriation period in an uncontrolled way. The local offices of General Directorate of Registration and Cadastral Surveys can revoke the expropriation process automatically, if the valuation of the assets is not conducted and reported within six months for registry. Therefore, if the expropriation period prolonged for any reason, the marketing of any immovable asset so do the owners would not be affected from this delay.

Besides that, the yearly fund is provided to the concerned regional administration of DSI from the related budget for the previously decided amount of land acquisition. After the allocation of necessary amount of fund for land acquisition, a commission starts to work on the valuation process. The values and amounts of immovable assets and other resources such as mines, forests, orchards, etc. and the related amount of compensation are determined by the independent Valuation Commission consisting of at least three experts from the governmental institute which is responsible for the implementation of the project.

The Valuation Commission asks for the cost and price explanations of the regional agricultural products from the related agricultural organizations and factories. Furthermore, the experts of the commission determine all the properties of acquired immovable assets and the amount of planted farmlands, and also count the trees according to their properties such as diameter, age and type. The Valuation Commission and the owners should agree upon all determined quantity and qualification of the properties. After the agreement, the Valuation Commission prepares the Valuation Report for each lot according to determined and agreed information of the related assets.

By the time that the valuation process is concluded, negotiation between the governmental commission and the predetermined affected people starts. The responsibility of this process belongs to the Negotiation Commission consisting of at least three experts from the implementation agency of the project. A written invitation is sent to the predetermined addresses of the owners in order to get their participation to the negotiation meetings. The Negotiation Commission offers compensation to the owner, which will not exceed the amount that is determined by the Valuation Commission.

If the land owner accepts the amount of compensation, an Agreement Protocol will be signed between the Negotiation Commission and the owner.

The agreement protocol is also approved by the Director of the Regional Administration of DSI. The land owners, who agree the values offered by the negotiation commission, are given a written cession to give up all the rights on the acquired immovable assets. The local office of General Directorate of Registration and Cadastral Surveys organizes all the related processes in order to transfer the registrations of the acquired lands from land owners to the concerned administration.

During the negotiation, if the land owners do not accept the amount of compensation, they can refuse the governmental offer. The refusal of compensation was not possible in the previous Law No 2942. By the last revisions, the representative person of each household has the option of not accepting offered compensation. If this is the case, similarly, a Disagreement Protocol is prepared and then signed by the commission members and approved by the Director of the Regional Administration of DSI. In case of refusal of the amount of compensation, the government side starts a judicial process at the local court for re-evaluation of properties. The courts determine the values of the immovable assets and resources. This is the final judgment for the valuation process. There is no way possible for changing this decision at international courts.

When the amount of compensation for the immovable assets and resources that is to be paid for each family is fixed by any means, by the negotiation process or by the court, the related office of DSI transfers that amount either to the owner's bank account as cash compensation or to the related settlement fund run by General Directorate of Rural Services (KHGM) according to the compensation choice of the land owner. The land owners have opportunity of choosing the way of how they will be compensated and resettled.

3.2.2.2. THE RESETTLEMENT PROCESS

In fact, the two interconnected cases, expropriation and resettlement, are executed mainly in two different ways (Figure 3.2). One of the ways is cash compensation. In this type; people can choose to receive cash compensation and use it to move wherever they wish. The government does not give any house or land and does not organize their resettlement, commercial facilities or rehabilitation processes. As mentioned above, the compensation is directly transferred to the owner's bank account.

The other choice is resettlement by government. The resettlement, by having totally or partially governmental aid and aiming to preserve the productivity of the families mostly engaging in agriculture at least at their previous levels, was on the responsibility of General Directorate of Rural Services (KHGM). Now, General Directorate of Disaster Affairs is empowered to continue those works by law.

The resettlement process starts with the accumulation of information about the families whose immovable assets are affected due to any development project as dams and their reservoirs. The information covers the quantity and qualification of affected lands and immovable assets according to approved general lay out of the project, the lists of the family names and members whose properties are affected totally or partially and the percentages of being affected. After the information about expropriation area is completed, the amount of compensation for these families is supplied by DSI. By the time that the related budget for compensations is transferred from DSI to the resettlement fund of KHGM. The local organization of the KHGM announces the details of resettlement process and informs the affected people by holding meetings. These meetings are organized by the respective governmental agencies to inform the people about how they can be compensated and in which way and under what conditions they can be resettled properly. After those meetings, the

conditions of resettlement are also officially announced by written documents which are exhibited to public buildings such as schools, mosques, café houses, and offices of the head of the villages during a period of 30 days by hanging on wall.

Then, the people who want to have governmental resettlement submit a written application to the governorship of the village including the type of settlement within 60 days starting from the date of announcement. In other words, the ones who will request resettlement instead of cash compensation, whether totally funded or partially aided by government, shall apply to the head of the provincial district during the period of announcement and plus 30 days after the end of it with the necessary documents needed for the procedure. As an important notice; because of being a time consuming process, the resettlement studies shall continue without the consideration of the expropriation schedule because the land acquisition for the project implementation has been needed in a long time.

Later on, all applicants are visited by governmental resettlement teams in order to complete Agreement forms stating that the type of settlement asked by the affected people and other necessary information and documents such as registrations, reports for yearly family income, any deduction for any previously given depts. A folder, consisting of all the written information, is prepared for each family at local office of KHGM.

After the completion of the agreement forms and other documents, an Inspection Committee, consisting of at least three governmental and three public members, investigate the documents together with the affected people. The objections, opinions, complaints and other determinations on the issues related to the data collected are resulted in an official report at end of the meeting. The objections and complaints are investigated for a sufficient period, and are concluded and reported the results. The results are notified to people by signing it.

By the end of investigation period, the inspection committee submits the documents and reports to the Local Resettlement Commission whose mission is to decide the families who will have the right of governmental resettlement according to the information obtained from the studies of Inspection Committee. In other words, the Local Resettlement Commission, including authorized people from related governmental agencies, initiated the determination of the families who will have right to get in the resettlement process and the way of their resettlement. The results are announced to the affected people. After the determination of families, they are transferred to the temporary or permanent residences according to the type of settlement. The commission can change resettlement type if a family asks for it at that stage.

As a matter of fact, there are two main ways of resettlement defined by Law No: 2510:

- The governmental resettlement
  - Urban resettlement
  - Rural resettlement
    - Rural resettlement including land besides the house and other facilities
    - Rural resettlement covering only house other economic instruments but no land for agriculture
- The village transfer with credit support.

Any option can be preferred by the project affected people. However there are some constraints for each option. These constraints are given in detail on below. The existing economical survival instruments of the affected people, the opportunity to find out free and appropriate lands, the time that the people living in the project are some of those constraints. The resettlement methods are summarized in Figure 3.2.

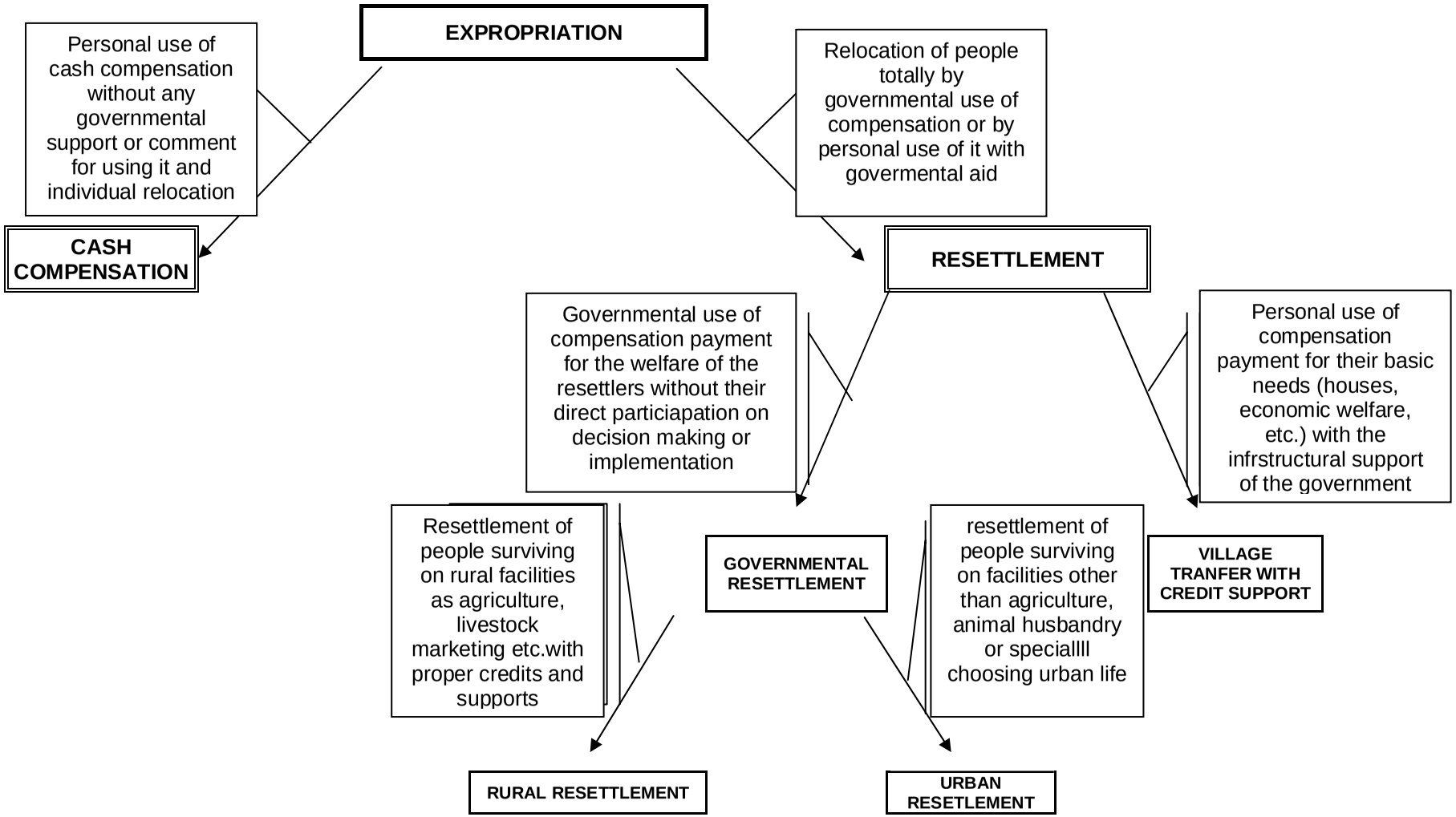

Figure 3.2 Land Acquisition and Resettlement Process Summary

3.2.2.2.1. GOVERNMENTAL RESETTLEMENT

The first type that will be discussed here is the governmental resettlement. The previously given procedure covers the beginning items for the governmental resettlement such as preliminary studies and determination of rights to have governmental resettlement, etc. Consequently, not only the people living in the project area whose immovable assets will be affected totally or partially due to any development project, but also the ones without any assets in the project area who are used to live in the project area for more than 3 years beginning before the year that of the resettlement studies may have right to obtain governmental resettlement according to Law No: 2510.

According to Law No 2510 the ones who are in given in the following conditions can not obtain governmental resettlement

- The people who are constituting a single family according to definitions given in the Law No 2510 were considered to have the resettlement options under their family group without having any further individual rights,
- Also the families who are not blocked or committed to block the funds of compensation payments due to expropriation with all related increments totally
- The people who are not living in the expropriation area although having immovable assets affected by project,
- The ones who do not own any immovable asset and also can not prove that they have been living in the project affected area at least for 3 years before starting from the beginning date of settlement studies in the area,
- The people who have sold the immovable asses without any obligation to do it so since 06/29/1970 without buying any equivalent or more immovable assets,
- The ones who are working as governmental officers and workers,

- The retired people, the small scale retailers, craftsmen who are living in the expropriated area but earning yearly more than the payment of government as minimum wage for twelve months at the year of determination.

After the assessment of obtaining governmental resettlement by following above criteria, the type of governmental resettlement should also be decided with respect to the actual economic and social statutes of the families who desire governmental resettlement.

During the resettlement of people, the location of the new settlement, the properties of farmlands, the construction of houses in villages or in cities are considered in detail. Moreover, the resettled families are given some opportunities to adopt themselves in their new location and life styles.

For instance, the new settlement areas are preferably chosen from the lands owned by Turkish Treasury not far from the affected area. If Treasury Land is not available nearby, the new settlements are tried to be obtained by purchasing or expropriation. The new settlements are preferred to be chosen nearby the project area due to the fact of facing adverse effects of being far away from their original settlement. Moreover soil analyses are performed for the rural resettlement to develop suitable conditions for agricultural activities in the new area.

In order to provide solutions for the housing problem, KHGM constructs houses and farm buildings suitable for the climatic and social conditions of the resettlement area. Farmers are also provided by seeds, fertilizers, agro-chemicals, equipments for start-up of crop production. Loans are also given to undertake animal husbandry activities. Furthermore, the farmers are educated by the Ministry of Agriculture with the training courses for new agricultural methods and optimal land use techniques. Routine health controls and informative meetings about birth control and hygiene are

conducted. Besides social activities to help the integration of the resettled people and the host population are supported. Also the new economical activities, like carpet and cilium manufacturing, are supported not only by the government but also by the private sector.

After receiving the houses and farmlands, all the information related to the population is recorded with respect to the current conditions. All the families move to their new settlement by a transportation program prepared by KHGM. Also all the expenses related to the transportation are paid by the concerned local office of KHGM without any repayment. The families are observed to find out if the assets given during the resettlement period have been used properly and if the credits have been used appropriately and paid back regularly.

If the families choose to have governmental resettlement, DSI transfers the amount of compensation to the related fund run by General Directorate of Rural Services (KHGM). In Turkey, the resettlement law provides payment for the expenses of transportation for each family member moving to the temporary or permanent settlements areas. Furthermore the housing expenses for families that are temporarily settled in different cities or villages until the construction of new settlement areas are provided by the government without any repayment. All the expenses related to the construction of houses, social facilities except for infrastructures, land purchasing are deducted from the each owner's compensation. However in some cases the value of expropriated property of a family may exceed the cost of resettlement. If this is the case, the family will pay the difference in 20 years in an interest free repayment period after a 5 year moratorium. If otherwise happens, the difference shall be paid to the family.

Experiences show that, only one fourth of the families who are affected by the projects of DSI prefer governmental resettlement and three quarters of the affected families of those prefer to receive cash compensation and resettle themselves.

In the case of governmental resettlement; there are two basic options as urban resettlement and rural resettlement.

3.2.2.2.1.1. URBAN RESETTLEMENT

Urban resettlement involves provision of a house in the city and rehabilitation but no farmland. In some cases financing means such as loans and credits are provided by the government. The law provides urban resettlement for the families engaging in occupations other than agricultural activities. Also for the residents who do not have any properties but lived and worked in affected area for a long time are resettled by the government with the provision of only a residence but no cash compensation.

The priority order for urban resettlement is given below:

- The craftsmen and professional people whose own houses and business will be affected
- The craftsmen and professional people whose own business will be affected
- The craftsmen and professional people who do not have their own house or business
- The people who prefer urban resettlement specifically or the ones who can not be provided by sufficient amount of agricultural land because of lack in proper areas in the places where the number of people who are surviving on agriculture is so many
- The people who desire to have a job opportunity in urban areas or the people who want have a new occupation in spite of having some other employment in agriculture sector.

3.2.2.2.1.2. RURAL RESETTLEMENT

Rural resettlement has two sub-options as rural resettlement with and without lands. Rural resettlement with getting land involves provision of a house in the village, land, and rehabilitation for agricultural activities or job opportunities. If the opportunity of finding enough land for resettled people nearby the affected region or in any suitable place in the country exists, a resettlement plan for this land will be prepared. This plan involves not only houses, social facilities and farmlands but also credits for either machinery in case of enough land to irrigate or animal husbandry in case of a need for another type of income due to insufficient amount of land.

On the other hand rural resettlement without land involves movement to another place in or nearby their old village with a house and other village facilities such as school, mosque, medical services but no farmlands. This type of settlement is preferable in case of limited farmlands for settling as a large group. Also the families whose houses are acquired but farmlands are not affected can choose this type of settlement. In case of rural resettlement without land, other income options such as handicrafts, beekeeping, having greenhouses are provided.

The priority order for rural resettlement is given below:

- The people surviving on farming whose houses and lands are affected by the project
- The ones surviving on farming whose houses are not expropriated but the lands are affected
- The people whose lands are partially expropriated but the remaining part is not sufficient for their economical survive
- The ones whose houses are expropriated and who do not own any land but work in the lands that are affected by project
- The ones who can not survive only by their lands although only their houses are expropriated

- The ones who assist a farmer in return for a share of crop and do not have any immovable assets
- The ones who are surviving as worker in the farms without having any houses

3.2.2.2.2. VILLAGE TRANSFER WITH CREDIT SUPPORT

The other type of resettlement is the village transfer with credit support in case of being affected not in lands totally but in villages particularly. According to the investigations on resettlement options through the people in affected area as explained before, sometimes the village transfer with credit may become more preferable. Generally this type of resettlement is used for the people whose immovable assets are expropriated but whom do not prefer governmental resettlement by blocking all the compensation to the bank account of any governmental institution to organize all resettlement activities or for the ones who do not get the right of governmental resettlement due to the given criteria above.

In case of village transfer with credit support, any possible place is chosen in the same administrative district except for the expropriated area or the protection zone of the project. If an agreement is provided with neighborhood administrative districts, the new villages can be established in those places where technical, administrative conditions are appropriate, transportation is possible and the possibility of village formation exists. Moreover, sufficient number of people should prefer the village transfer with credit support for conducting necessary works. The village transfer with credit support can be preferred after the fulfillment of those conditions according to additive clause no 11 of the Law No 2510. Actually this method is also favored by not the governmental implementation agencies like DSI but also the affected people (Ozkalayci and Icten, 2005).

The process starts with the application of village council both to the respective governor of the administrative district and to the agency which is responsible for the implementation of the village transfer. In preliminary studies, the actual location of the village is investigated about by which law that it will be concerned like Forestry Law or etc. other than the Settlement Law. After the convenience for village transfer is determined, the transfer process is proposed for including it into Investigation-Planning Programme of government.

Then all the people of full legal age who are living in the village are called to vote for preferring to move another village. If necessary number of people voted for moving to a new settlement altogether, the village transfer would be included into the program sufficiently after the allocation of suitable settlement area.

By the time that the transfer is decided, the preliminary studies should be started. The maps showing the actual and new settlement areas with a scale of 1/25,000, the written and signed decision on moving of the village and the other related documents have been sent to the respective agency. Some meetings are held with the resettlers in order to inform people about the legal aspects of the process implementation period and the documents asked from them. Also that information is given by written announcement hung on the walls of schools, mosques, head office of village. The application documents are controlled by an Inspection Committee. The objections and complaints of the people are obtained by this Committee. After the assessment of all those data, the assessment reports and related attachments are given to the Local Settlement Commission. The commission determines the ones who will obtain right to be in the village transfer program. The determination is notified to the people whether they are chosen or not with the related reasons.

The technical works started after the approval of the new settlement location. The registration step of the newly established village is completed at first. Later on, the maps showing contour lines with a scale of 1/1,000 are prepared. By considering technical constraints and agricultural conditions, the development plan of the new settlement has been studied on those maps. The approved development plan will be applied to the field. After the cadastral surveys, the new plans are registered by Local Registration Offices.

After these steps, each lot is ready for newcomers. As a result of evaluation studies for the lots of new village, the price categories of one square meter of land are defined for utilizing in credit contracts. Then the lots are drawn by the families. In three days people may have a chance to change their lots with each other if they want to. The prices of lots are calculated by considering the size and properties of the lots. After the determination of lots for each family, they are asked for their choice of payment as cash or not. The credit contracts are signed with respect to their choices. Accordingly, the type of house projects that is to be built by the resettlers with the credit support given by the government is chosen from the typical house projects of the government by each family without any repayment for project drawing. If the people want to construct any other house, they can choose different projects rather than using typical governmental house projects. The expense of houses and lands can be paid back either in cash immediately or in five years at most by five equal times. In case of village transfer with credit support, the government provides suitable location for new village, constructs infrastructural and social facilities as transportation, health and education services.

3.2.2.2.3. COMPARISON OF THE METHODS OF RESETTLEMENT

The most important difference between the governmental resettlement and village transfer with credit support is the possibility to use the compensation given due to the expropriation individually without any limitation. However in governmental resettlement resettlers must block their compensation into the accounts of related governmental agency in order to obtain resettlement. In this case governmental agencies will manage the compensations to make appropriate resettlement. In respect of experiences, generally the project affected people who do not have immovable assets or get sufficient amount of compensation choose the governmental resettlement whether the ones who will obtain a particular compensation choose the village transfer with credit support (Ozkalayci and Icten, 2001).

3.2.3. RESETTLEMENT ACTION PLANS

The most important issue in resettlement process is to find out the suitable method for the specific nature of involuntarily relocated people in each project area. Because improper resettlement actions cause social disparities between the community and resettlers, the involuntary resettlement would be discussed in detail and solved in an optimum way for public welfare according to the specific conditions of each project.

According to DSI, there are approximately 350 thousand people who have been already affected by water projects. Moreover there will be 250 thousand more affected people due to fore coming projects by DSI. (Ozkalayci and Icten, 2005.) It is known that the Resettlement Action Plans has got more importance recently both in the world and in Turkey. Therefore, Resettlement Action Plans should be utilized to inform the affected people about their resettlement options and to consult for the best choice suitable for the nature of resettlers and to keep the quality level of

their lives at least as it was before. In Turkey, DSI has been conducted resettlement action plan in Tahtali Dam (Izmir), Akkopru Dam (Dalaman), Gokpinar Dam (Denizli), İbrala Dam (Karaman), Cat Dam (Malatya). Ilısu Dam (Diyarbakir), Yusufeli Dam (Artvin), Alacali Dam (Istanbul). Also the GAP Administration has executed Resettlement Action Plan for Birecik dam.

The professionals should work within the preparation and implementation of Resettlement Action Plans in order to organize all the steps regarding to resettlement process and to implement resettlement activities synchronously with the project execution. The main purpose of the Resettlement Action Plan is to establish the economical, social and cultural life standards of people as soon as possible at least in their previous level by keeping their productivity and not allowing defects in social structure of the community. By this way the resettlers will be protected from becoming injured party of the project, the environmental protection will be succeeded, social problems will be diminished, and the increase in cost of the project due to the delays resulting from the defects in resettlement will be prevented.

The coordination of governmental agencies included in Resettlement Plans is an important issue for executing resettlement activities efficiently and in proper time. It is better to have constructive cooperation between governmental and non-governmental organization in order to respond the requirements of resettlers properly and immediately. By this respect, three main aspects of the Resettlement Action Plans are given on Figure 3.3

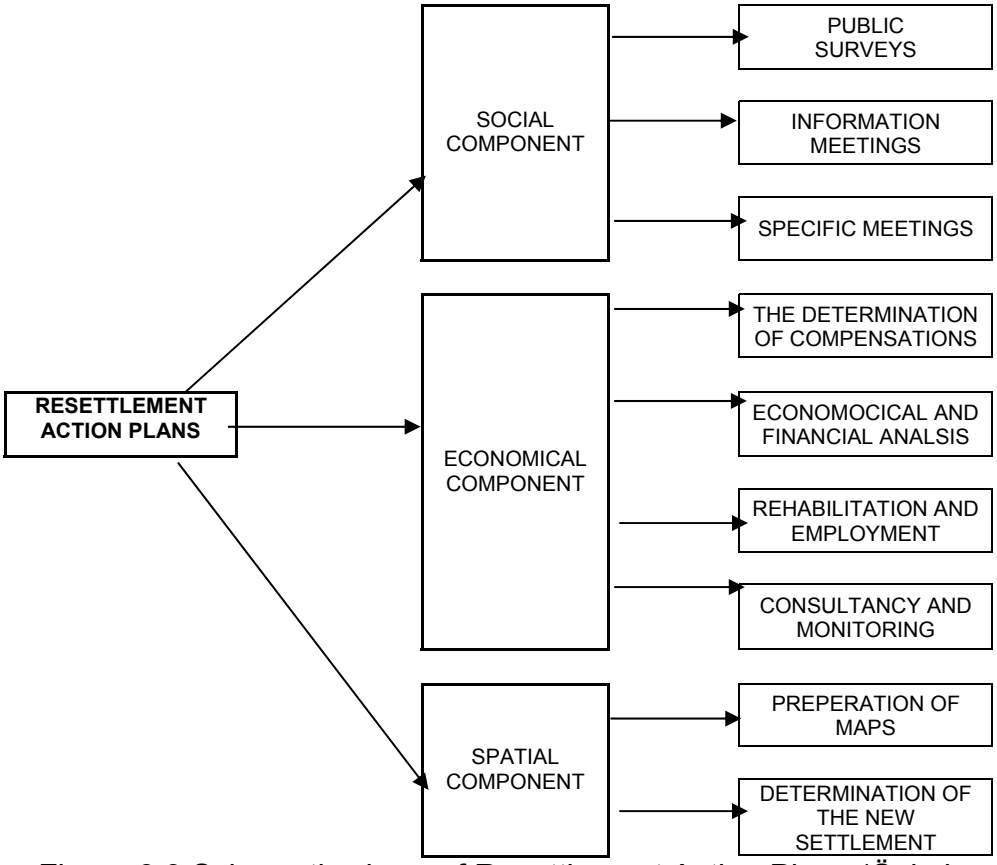

Figure 3.3 Schematic views of Resettlement Action Plans (Özkalaycı and Icten, 2005)

The preliminary studies and the important points for the Resettlement Action Plans are listed below: (Ozkalayci and Icten, 2005.)

- The number of affected people should be determined correctly.
- The sufficient amount of questionnaires to obtain net social profile of the affected area.
- The relationship between engineering studies and social problems should be discussed by designer teams including social scientists.
- The physical conditions of the land that will be used should be determined.
- The expropriation compensation should be defined realistically regarding to current conditions in the project area.

- The housing needs of the affected people should be effectively solved.
- The precautions for not decreasing the productivity and income level of affected people should be defined in early ages of the project.
- Better social opportunities should be satisfactorily established.
- The new resettlement locations should be planned by considering the prevention of environmental conditions against to the negative impacts of influx of resettlers.
- Appropriate rehabilitation and employment options should be studied.
- The constructive behaviors of NGOs for their participation to the interaction between resettlers and government should be encouraged.
- The participation of the affected people in the resettlement activities and decision making processes should be supported.
- The consultancy services will be given for resettlers on economical, social and environmental issues.
- The each implementation step should be professionally monitored by social teams in objective manner.
- The budget including all expenses regarding to the previously mentioned terms should be identified and allocated for only that purpose.
- Economical and financial analysis should be made before the beginning of the project on resettlement and related concepts.

However it is obvious that the resettlement plans, if properly executed, will lead to better resettlement of the project affected people. The coordination of different governmental institutions becomes easier. The general acceptance of the project among the affected people may increase via the close relationship with affected people. The project schedule and the progress of the resettlement may be achieved precisely. The affected people may get rid of the feeling of being excluded in the host areas due to the rehabilitation programs. Therefore resettlement plans are efficient way of conducting problems of resettlement.

3.2.4. ATATÜRK DAM LAND ACQUISITION AND RESETTLEMENT

Dams, due to being large projects, require lands and require also involuntary displacement of people residing in the project area. Thus, the land acquisition and resettlement of people are two important issues of GAP, too. The Atatürk Dam as being the largest sub-structure of the GAP have been affected a large area and many people. Its reservoir affects 143 villages. Approximately 45,000 people have been influenced by the project in some way according to the registration, population documents and etc. Some of those people may have been the ones that migrated to the big cities due to the negative economical conditions and still had some registered land in the project region. Atatürk Dam Expropriation which is the largest expropriation project of Turkey governs 81,700 hectares of land.

The expropriation process of Atatürk Dam was carried by General Directorate of State Hydraulics between 1983 and 1996. Totally the expropriation compensation of 25,700 parcel (43,400 ha) which approximately equals a value of 494 Trillion TL (in 2004 unit prices) have been paid to the owners. Also people, who thought that the compensation payment is underestimated, have sued General Directorate of State Hydraulics to increase the compensation payment. These payments that belong to the ended suits are approximately 163 Trillion TL (in 2004 unit prices). The schedule of yearly payment is given on below figure 3.4. The radical rises belong to the inundation period of the Atatürk Dam reservoir. Due to the legal gaps in Expropriation Processes, people had the chance of getting increment in their compensation. This was increased the expropriation budget of Atatürk Dam. Also the judicial processes affected the time schedule of expropriation.

Actually, there are 1131 families who preferred governmental resettlement due to Atatürk Dam at the end of 2002 except for the ones being compensated in cash. 169 families have had rural resettlement and 315

families have had urban resettlement, 416 families have had lands to construct new houses and remaining 231 families will get their houses after the tender and construction processes continuing in 2004 on the responsibility of local KHGM offices. The construction period given to this project is estimated as one year. The schedule of yearly resettled families is given on Table 3.1. The accommodation of people who have not resettled yet is organized and their rents are paid by the government.

As it may have seen from Table 3.1, most of the families have been resettled in Adiyaman Province which is nearby their previous livelihood. However a considerable amount of families have been resettled in provinces in the west of Turkey. Actually the reasons of displacement into the west could not be found in the governmental documents. In fact it may be because of their choice or more probably due to having appropriate lands in those places.

Unfortunately, there are families still not resettled to their permanent livelihoods. This is a very important issue for the resettlers. because they can not make their future plans clearly due to living temporarily for long years after the completion of Atatürk Dam construction. The long term uncertainties in the resettlement of those people are an important problem. Moreover, the people who were paid cash compensation could not be monitored on the issues of proper management of their compensations or standards of their lives, etc. Actually Atatürk Dam Expropriation and Resettlement Processes were very difficult to manage properly. Although several years have been passed, the discussions are still ongoing on those problems. Therefore, the Atatürk Dam example should have been used for establishing sound systems for future expropriation and resettlement studies of large scale projects.

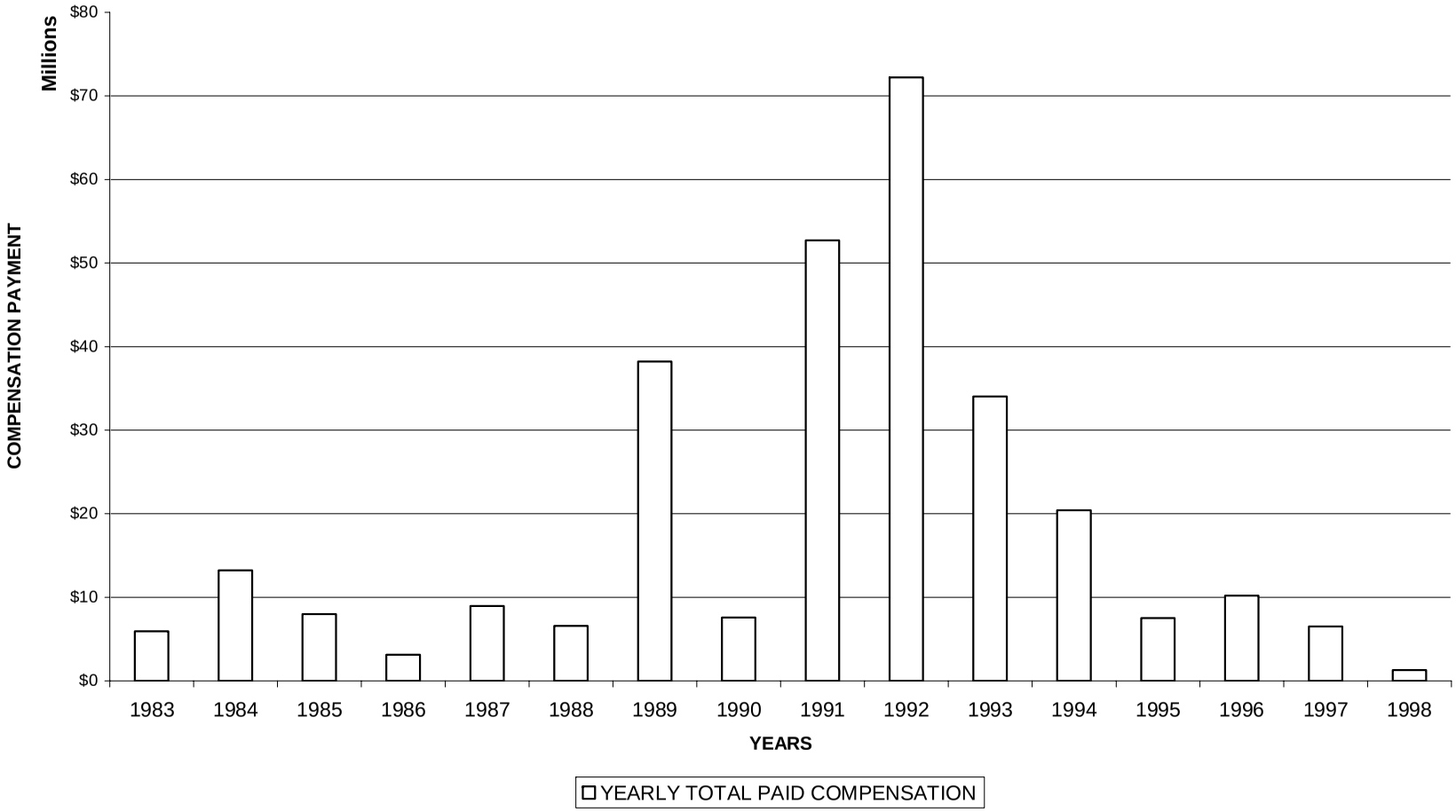

Figure 3.4 Yearly Total Paid Compensation for Atatürk Dam

Table 3.1 The Number of Affected People due to Atatürk Dam

YEAR	NAME OF THE PROJECT	PRESENT LOCATION			NUMBER OF FAMILIES TO BE RESSETTLED	TYPES OF RESETTLEMENT		RESETTLEMENT AREA		
		PROVINCE	DISTRICT	VILLAGE		RURAL	URBAN	PROVINCE	DISTRICT	VILLAGE
1988	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	219	-	185	ADIYAMAN	Y.SAMSAT	-
		ADIYAMAN	VARIOUS	VARIOUS		34	-	AYDIN	SÖKE	YALIKÖY
1989	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	77	42	-	AYDIN	SÖKE	YALIKÖY
		ŞANLIURFA	VARIOUS	VARIOUS		20	-	AYDIN	SÖKE	YALIKÖY
		DİYARBAKIR	ÇERMİK	DİLEKPINAR		3	-	AYDIN	SÖKE	YALIKÖY
		ADIYAMAN	KAHTA	GELDİBULDU		-	1	BURDUR	BUCAK	
		ADIYAMAN	MERKEZ	HACIHALİL		1	-	ŞANLIURFA	CEYLANPINAR	
		DİYARBAKIR	ÇERMİK	DİLEKPINAR		1	-	DİYARBAKIR	CENTRE	
		ADIYAMAN	SAMSAT	VARIOUS		-	6	ADIYAMAN	Y.SAMSAT	
		ADIYAMAN	MERKEZ	KARICIK		-	1	ORDU	ÜNYE	
		ADIYAMAN	MERKEZ	OVAKUYUCAK		1	-	AYDIN	SÖKE	DENİZKÖY
		ADIYAMAN	KAHTA	ADALI		1	-	AYDIN	SÖKE	DENİZKÖY
1990	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	21	18	-	HATAY	REYHANLI	T.SÖKMEN
		ADIYAMAN	KAHTA	GELDİBULDU		1	-	KONYA	SARAYÖNÜ	KAYIÖREN
		ADIYAMAN	KAHTA	BOSTANLI		2	-	ÇANKIRI	ÇERKEŞ	AKHASAN
1991	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	2	2	-	HATAY	REYHANLI	T.SÖKMEN
1993	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	19	-	18	ADIYAMAN	Y.SAMSAT	
		ŞANLIURFA	BOZOVA	DİKİLİ		1	-	HATAY	KIRIKHAN	KARATAŞ
1997	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	6	6	-	HATAY	CENTRE	HASANLI
1998	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	36	36	-	İZMİR	TORBALI	AYRANCILAR
2001	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	73	-	73	ADANA	CENTRE	
2002	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	31	-	31	ADANA	CENTRE	
					484	**169**	**315**			
*	ATATÜRK	ADIYAMAN	VARIOUS	VARIOUS	416	-	-	ADIYAMAN	Y.SAMSAT	
**2004	ATATÜRK				231	177	-	ADIYAMAN	CENTRE	
						54	-	ŞANLIURFA	CENTRE	AÇIKYAZI
				TOTAL	**1131**	**400**	**315**			

*land is given to construct houses **the house construction are at the level of tender

3.2.5. BIRECIK DAM LAND ACQUISITION AND RESETTLEMENT

Birecik Dam which is situated at the downstream of Atatürk Dam was first major hydropower plant financed by the private sector under a Build-Operate-Turnover method. Private investors have founded a new party which is responsible for completing the project and also operation and maintenance facilities for 15 years. After the repayment of loans by electricity generation income during that time, it will be transferred to the Turkish Government. The construction of Birecik Dam was started in 1996 and completed in 2000.

The previous resettlement experiences have been shown that the public participation and the sustainability of the quality of life for the resettlers could not be established sufficiently. Therefore GAP Administration launched the project “Resettlement, Employment and Economic Investments of People Affected by Birecik Dam” to help the affected population to resettle and to facilitate their adaptation to their new environments in social, economic and cultural terms. (Tigrek, 2004) The project was started in August 1997 and finished in December 2000. Also it was one of the projects in Sustainable Development Programs in GAP Region which is supported by the United Nation Development Program.

The Birecik Dam impoundment started in December 1999 by affecting Nizip, Yavuzeli and Araban which are administrative districts of Gaziantep Province; Birecik, Halfeti and Bozova which are administrative districts of Şanlıurfa Province; central and Besni administrative districts of Adiyaman Province. Accordingly, there are 9 villages fully inundated whereas 3 villages and Halfeti district center have been partially affected by the impoundment. Also 31 villages have been affected by inundation of their agricultural area. Consequently, 44 administrative districts were affected in some way from the reservoir lake.

At the beginning, the number of people that is estimated to be affected by this project is 31,971.Later on, among those people, 850 households would need to be resettled with an approximately 6,500 individuals.

The resettlement of those people was organized according to the Resettlement Action Plan of GAP Administration. The resettlers and other related parties are provided to be informed and kept in the decision making processes at all levels of project implementation. For that reason an information and consultancy office was established in Halfeti. The participation of project affected people and proper resettlement process are given at most important in Resettlement Action Plan.

The Resettlement Action Plan has been executed in three main components as social, economical and spatial. The social component included the surveys for determination of the public items of resettlers, the studies to inform the people about the legal procedure of the resettlement, their rights, and alternatives, the supportive activities to keep social, cultural and economical position of resettlers in an appropriate level.

First of all some surveys were executed with questionnaires in 13 villages which were affected mostly. Then face to face meetings were hold with 1,307 families for getting detailed information. The people were informed by public meetings about the dam construction and expropriation schedule, their rights due to expropriation, resettlement alternatives and processes. Also their opinions were asked for the assessment of preliminary plans of resettlement. In order to adapt the people faster and easier, some supportive education programs and institutional activities were executed. In Halfeti district, a Multi-Purpose Community Center was established. Then it has been moved to Karaotlak village after the resettlement process was completed.

The economic component was primarily based on the compensation payment due to the expropriation. The important point was to direct these funds to resettlers' economical development by preventing their inappropriate use of those funds. Due to the loss of agricultural lands, the crop patterns were also affected from Dam Lake. Therefore, the new types of crop and non-agricultural sources of income would be introduced to compensate for the loss of agriculture based income possibilities due to dam construction and inundation. Education programs and consultancy services for economical improvement were held in the region to facilitate the economical condition as soon as possible. These programs were carried out in cooperation with GAP Entrepreneur Support Centers.

The basic point of the spatial component is to identify new settlement locations in parallel with the opinions of the project affected people. The exact resettlement locations were determined by the participation of resettlers. The plans of new settlement areas have been prepared with coordination of General Directorate of Agricultural Reform and General Directorate of Rural Affairs. The resettlement processes were executed depending upon the preferences of people through technical and/or credit support for relocation or governmental resettlement.

For implementation of resettlement process, following actions were executed:

- In Meteler Village, Regional Directorate of Agricultural Reform has been produced 46 housing lots at higher elevations than the previous village. The resettlers constructed their own houses in those lots.
- In Keskince Village 125 housing lots were prepared and distributed to the relevant resettlers. The village transfer with credit support method has been utilized for resettlement. The infrastructural facilities have been completed by the governmental agencies.
- In Dorucak village 18 families have preferred governmental resettlement and 33 families have chosen village transfer option by

constructing their own houses. Among these 33 families, 30 households wanted to get credit support. The village has been transferred to upper elevations.

- In Savasan village 45 households have preferred village transfer with credit support. They have constructed their own houses on higher elevations determined by the relevant agencies. The infrastructural facilities were constructed by the government.
- In Gozeli village 95 families have chosen village transfer with credit support. The houses were constructed with the technical and credit support of government by the affected people.
- In Kavunlu-Belkiz village 24 families have preferred governmental resettlement. Not only the relevant plans were conducted but also the houses were constructed and distributed to the resettlers by KHGM. Moreover 20 families were chosen village transfer with credit support method. The lands in the same places were given to the resettlers by credit. Then the families constructed their own houses.
- 116 families were still waiting for urban governmental resettlement method to Gaziantep Province center. The 86,000 square meters of land was found in the city but the settlement studies continue.
- Due to the inundation of Halfeti district center, the families were governmentally resettled to Karaotlak location. 220 houses were constructed by Şanlıurfa municipality. Moreover one primary school, a three storey hospital and a shopping center including 30 shops were constructed. In 2001 they are moved to those houses.

For the people who are still waiting for resettlement the rents for their accommodation are paid by the government without affecting their compensation. The compensations of 850 households were fully paid. Actually the Birecik Dam resettlement is a better experience than the others. However the delays in some parts should be evaluated for better future applications of the new projects.

Table 3.2 The Number of Affected People due to Birecik Dam

YEAR	NAME OF THE PROJECT	PRESENT LOCATION			NUMBER OF FAMILIES TO BE RESETTLED	TYPES OF RESETTLEMENT		RESETTLEMENT AREA		
		PROVINCE	DISTRICT	VILLAGE		RURAL	URBAN	PROVINCE	DISTRICT	VILLAGE
1999	BİRECİK	ŞANLIURFA	BİRECİK	GEÇİTTEPE	1	-	1	ADANA	CENTRE	-
2000	BİRECİK	ŞANLIURFA	HALFETİ	VARIOUS	58	24	34	ŞANLIURFA	HALFETİ	KARAOTLAK
		GAZİANTEP	NİZİP	BELKIS	24	24	-	GAZİANTEP	NİZİP	BELKIS
2002	BİRECİK	ŞANLIURFA	BOZOVA	IRMAKBOYU	3	1	2	TOKAT	ARTOVA	
		ŞANLIURFA	BOZOVA	IRMAKBOYU	2	-	2	SİİRT	CENTRE	
2003	BİRECİK	GAZİANTEP	NİZİP	VARIOUS	32	-	32	ADANA	CENTRE	
					120	**49**	**71**			
**2001	BİRECİK				80	-	80	GAZİANTEP	CENTRE	
				TOTAL	**200**	**49**	**151**			

**the house construction are at the level of tender

3.2.6. SEEKING PROPER AND ACCEPTED RESETTLEMENT PROCESS

The development projects are not only engineering problems but also sociological complication which directly affects the success of the development. The land acquisition and resettlement should be considered as a sociological project item not just a result of the project implementation. Therefore, scientific study methods should be included on the land acquisition and resettlement processes by the experienced agencies. By considering the technical and economical opportunities, if possible, project implementation units should prefer to reduce the number of affected people from the project to minimum extent. Obviously, it is not possible to avoid involuntary resettlement entirely from the large scale development projects which are implemented for the welfare of the people. Therefore, necessary precautions should be taken to stabilize the life standards of the project affected people at least as it were before the project. The resettlement scenarios are usually considered as a different operation from the basic project. However the involuntary resettlement should be thought as a socio-economic development phase of the main project. (Tortajada 2001)

As a matter of fact, a complete resettlement processes mainly include four steps such as; planning by participation of the project affected people, displacement of them, and rehabilitation of project affected people (resettled and host) and monitoring the level of self sustainability of project affected people.

For conducting a successful resettlement process one of the important items is the participation of the project affected people both in the project area and in the host area. The information about the governmental procedures regarding to the resettlement should be explained properly including the relocation and compensation steps. The lack of information in the public may increase the resistance to the project. Also, the information

is necessary for avoiding the manipulation attempts of the some people for their own advantages. Therefore, communication with project affected people is a necessity for establishing confidence between the resettlers and implementation units. The constructive NGOs may help for conducting social surveys, organizing resettlers' participation, observing closely the possible problems of the resettlement and rehabilitation processes and taking the attention of the national and even international agencies for the expected problems to generate proper solutions.

Firstly, social surveys both on affected area and assumed host area should be conducted by the social scientists with appropriate experiences. The feed back on their social behaviors and perceptions of the project may help the decision makers for establishing a proper road map for the resettlement process and communication skills for conducting an appropriate way of participation of project affected and host people in the planning period. There should be arrangements for increasing public participation in all steps of the project. The project affected people should be sufficiently informed about all their rights, options and legal procedure to make clear choices in a planned manner. The people may have chance to decide on management of compensation payments with proper consultancy from professionals of government and may be from constructive NGOs. It would be difficult to consider a complete success about the project, if the resettlement and land acquisition processes without any participation of the stakeholders, with no consideration of their opinions about their near future changing due to the projects implementation and without well organized management processes for keeping the life standards of the project affected people at least as it was before exists.

Actually the resettlement processes usually have some basic deadlocks for budget standpoint. Generally, the evaluation of the cost of resettlement by the governmental institutions is a weak an insufficient step. Due to the underestimated cost of some items as the social and technical surveys,

population and property census, the expected benefits from expropriated properties, land reclamation of both affected areas and the host areas, land improvements at new settlement sites, construction of proper urban and rural infrastructures, rehabilitation processes, mitigation of the impacts on host populations, temporary losses due to displacement on production and income levels, industrial and commercial activities, health, education and public services; the resettlement processes become underfinanced. (Tortajada, 2001)

Another issue of resettlement is the improper utilization of the cash compensations by the resettlers because of lack of consultancy to whom used to survive only by agriculture. After the evaluation of the properties affected by the project, people choose the way of compensation as land based or non-land based, in general. In case of cash compensation choice, generally the urgent daily needs are provided from this money and then they become destitute who starts farming on canal banks, public lands or etc. Furthermore, the compensation payment schedule sometimes fails due to improper budget organizations of related institutions, long judicial processes in case of resettlers' asking re-evaluation and any similar reason which may be aroused by specifically the conditions of project country or region. Therefore the resettlers can not have a chance of planning their resettlement on right time without affecting the project targets. And also the land prices may increase due to the value added by the main project or scarcity of empty and appropriate land. So people who choose the cash compensation and want to resettle nearby their previous livelihood would not have a chance of buying land at the amount of their lost. This will cause a decrease in their income level and life standards. The number of uncertainties on the issues of compensation amounts and schedule, housing facilities and the construction period, the possible delays, the employment options, land use, agricultural methods which are suitable for new lands should be minimized.

The infrastructural development and the quality of the services such as health, education, and social facilities should be established properly for the ones that governmentally resettled. In fact, the affected people should have some extra opportunities regarding to the destroyed activities of survival in the region. For instance, if there is a dense agricultural facility in the area, the sufficient agricultural inputs and credits and proper marketing arrangements should have ensured. Essential rural infrastructures, operation and maintenance systems for irrigation and drainage systems should be established. (Tortajada, 2001)

Another important stakeholder of the projects is the people who are living in the host area. The population density will increase suddenly due to the severe influx of resettlers which may cause some conflicts on limited resources between the host population and newcomers. Moreover, the infrastructural facilities should be improved according to the volume of the resettlement. In order to establish social integration, education, health and public facilities as water, electricity, access roads, and communication network should cover all of them. Also some social actions should be established to improve cultural and social impressions about each other. The newcomers should be considered not as a cheap labor force but as a neighbor. In order to establish positive host population perception for the resettlers, the advantages due to project should be allocated for both of them in an equitable manner.

As a matter of fact, the awareness on resettlement increases day by day not only by non-governmental stakeholders but also by governmental agencies. Governments tried to improve their performances on the resettlement process by the creditors' and activists' social measures issuing the social burden of unsatisfactory resettlement. The governments should avoid from the absence of social surveys and participation of project affected people. Also they should establish institutional mechanisms to manage effectively the entire process. The relation between the

compensation rates and project affected land prices in the region should be considered by governmental agencies. Also the experience of governmental implementing agencies, the quality of staff including multi-sectoral experts, the budget constraints and the successful cost estimation are the important items of proper implementation of resettlement processes.

It should be ensured that the resettlers will also be the beneficiaries of the project with their participation in decision making process of resettlement, by their getting full compensation and proper rehabilitation. The main purpose of the resettlement should be creating self sustaining individuals rather than the ones who used to survive on governmental aids due to complaining in all occasions continuously about the given opportunities. The reasonable way of instituting such a system should have a proper planning and monitoring mechanism. The affected families should be necessarily monitored through the project and also after the resettlement.

Due to the issues revealed regarding the resettlement and land acquisition processes and implementations in last three decades; governments, creditors, NGOs and the people whether they are affected directly from the project or not are interested in those processes more precisely. Because stakeholders of the project and the area affected may cause social movements against to these development projects resulting delays in the schedule and degradation in the future targets of developing countries. Therefore, the interest on those kinds of projects should be considered as an alarming issue which forces decision makers to be more sensitive about the social impacts regarding to involuntary resettlement.

Turkey, as a developing country, tries to keep a dynamic improvement strategy based on its natural sources as water since 1960s intensively. In that period, the sustainability issue has become challenging figure on global scenery. Therefore with respect to the experiences obtained from the past projects and the challenging terminology on development at global level, the

Turkish Government has introduced new systems supported by legal infrastructural changes, particularly, to minimize the social deficiency of water based development projects. Actually the most critical deficiencies regarding to the social impacts resulting from large scale water projects are the land acquisition and the resettlement of people. The instruments are tried to be improved the social stability injured by considering today's requirements and public welfare. Today, the executive units organize the development projects with broaden minds. Besides that, due to the rapidly changing styles, perceptions and requirements of people, the development systems are tried to be designed as an alive and dynamic system for sustainable development.

In case of water and soil development projects in Turkey, while the expropriation processes are executed by DSI, KHGM resettled the people affected by the land acquisition respectively. After KHGM was abrogated on March 2005, the responsibility of resettlement processes was given to General Directorate of Disaster Affairs under Ministry of Public Works and Settlement. Actually the legal infrastructures on the issue of resettlement are not clarified yet. The governmental institutions are still waiting for some official notices for further field implementations. In reality the new system should be observed in detail with considering the need for experienced staff employment in the General Directorate of Disaster Affairs. This refreshment period should be transformed into a renewal period for discussing and including modern resettlement techniques.

3.3. LAND CONSOLIDATION

Agricultural lands are becoming smaller day by day due to infrastructure studies on farm lands, land purchasing, increment in population and inheritance. Because of land splitting, the irrigational activities get more difficult and less efficient. It also increases the cost of irrigation and discourages the use of modern techniques in irrigation. In all over the world

the most popular method to cope with the land splitting is the wide ranged land consolidation study.

Land consolidation is the rearrangement of the small pieces of farm lands, divided due to any reason mentioned above, into larger units according to the needs of the society with the help of today's rapidly improving technology. Larger and regular units permit use of advanced agricultural technology, economical agriculture, better water distribution and better field access. If the construction of irrigation channels, draining systems, roads and land grading continues by the time of reuniting small land pieces, the cost of these facilities decreases at an amount of 30-40 %.

In Turkey the first land consolidation project started in 1961 at Province Konya, district Çumra, Village Kargin. In 1964 United Nations Agricultural Organization and State Planning Organization executed an investigation project that included land consolidation studies. There were some simple land consolidation studies in Burdur, Antalya, Manisa and Izmir to increase the irrigational productivity. However, these attempts were limited to small size applications until the first statute about land consolidation which was published in 1966. In spite of having lots of missing points, the first land consolidation studies had been done according to this statute. By the time that the Law of Land and Agriculture Reforms with Law No 1757 was being in effect, the first land consolidation statute was not used since 1973. Until 1978 the land consolidation had been done by General Directorate of Land and Water with respect to Land Consolidation Governing Statute of the Law of Land and Agriculture Reforms. The Law of Land and Agriculture Reforms with the number of 1757 had been cancelled by the Court of Constitution in 1978. After that Land Consolidation Statute had been published in 1979 to regulate the land consolidation studies. Also in 1984 the Law of Agricultural Reforms on Organization of Irrigational Lands with the number of 3083 had been published for regulating not only the land consolidation studies but

also the studies for increasing irrigational development and improving the social structure. (Ataç, et all, 2003)

In Turkey, two governmental departments have been working particularly on land consolidation. The General Directorate of Rural Services executes the studies related with land consolidation according to Turkish Civic Code Article 678. According to the Land Consolidation Statute, Council of Ministers should determine the lands to be rearranged in extend of land consolidation concept for certain villages. After the determination of extends of rearrangement, voluntary participation of the peasants should be obtained. The regulations include that both the people who had the 2/3 of the lands and the half of the all of the land owners should permit to land consolidation voluntarily. The double majority concept creates difficulty in getting permission from the land owners for the land consolidation. Unless having the majority for the land consolidation, the ongoing irrigational projects as irrigational channels, draining system constructions, roads, etc. can be affected inversely. (Ataç, et all, 2003)

Another governmental department is General Directorate of Agricultural Reform which regulates the land consolidation process according to the Law of Agricultural Reforms on Organization of Irrigational Lands with the number of 3083. This law includes parts both for encouraging voluntary land consolidation applications and for providing obligatory land consolidation studies.

The first applications for land consolidation in the GAP Region had been started in 1989 and then transferred to the GAP Administration by State Planning Organization. The main aim of the land consolidation studies in Southeastern Anatolia Project is to reunite the lands that are separated due to the irrigation facilities. The land consolidation studies in the GAP Region through the first irrigated lands as Şanlıurfa and Harran Plains aimed to

achieve the irrigation and transport services easily and to decrease parceling ratio.

The land consolidation project, covering approximately 22,000 hectares in Ceylanpinar - Iki Circip Plain and 54,000 hectares in Şanlıurfa Plain, was the first largest project of Turkey. The first stage of the project had been conducted in Ceylanpinar. The land consolidation studies over an area of 22,000 hectares had been resulted in 1988, and then the land registration processes was finished by the GAP Administration. In the second stage the land consolidation studies for the Şanlıurfa plain had been started by dividing the plain into two sub divisions covering an area of 20,000ha and 34,000 ha. The land consolidation and land registration studies through the subdivision of 20,000 ha had been completed by the GAP Administration in 1995. The land consolidation study for the remaining part was transferred to the responsibility of General Directorate of Agricultural Reform. Also in Harran plain land consolidation processes accomplished by Southeastern Anatolia Project Regional Development Administration and General Directorate of Agricultural Reform.

3.4. POPULATION CHANGE – URBANIZATION – EMPLOYMENT GENERATION

The Southeastern Anatolia Project, as an integrated, multi sectoral development effort, contributes several sectors and social issues in spite of being not completed at all. Actually due to the political and economical conditions of the Region and Turkey, the total cash realization rate until 2004 was only 54%. Among series of sub-projects in GAP 75% of energy projects were completed and only 12% of irrigation projects were realized. Therefore, the benefits of the GAP are limited to this amount of realization. However the main benefits may only arise after the complete realization of the irrigational facilities.

Besides that; continuous construction works throughout the Region in order to complete sub-projects of GAP and to establish necessary industrial structures, sufficiently implemented urban infrastructures were transformed the Region as a large scale construction site. Although a deceleration period due to the political and economical reasons were affected the project implementation rate; the people of the Region has been affected positively from those activities by employment generation viewpoint. Also due to the infrastructural development in the Region, new job opportunities have been aroused such as fishery activities in dam reservoirs, tourism facilities regarding the archeological studies and easier transportation facilities.

After the complete implementation of the projects, irrigation will increase the agricultural output and agro-industry. This high agricultural and industrial contribution of GAP will create significant amount of job opportunities. Then improved level of employment will directly affect the incomes of the families and the quality of life standards of the people in the GAP Region. As a matter of fact, agricultural development goals of the GAP concern with the increase in income level of rural sector, provision of industrial inputs for attracting the entrepreneurs, advance of employment in the region to minimize out migration and encouragement for export based production.

As a matter of fact, the rising amount of energy generation, irrigated agriculture and construction needs are resulting a dynamic force in employment generation. Therefore, population movements are started through the economical attraction centers of the Region. Also the stress in rural areas, especially in which the agriculture have no contribution to the economical life, on security issue has been forced the people to move the urban centers. Both the attraction of employment opportunities and the stress of security, the people migrate interregional. The urban population growth rate of GAP between 1990 and 2000 is much greater than the rural population growth rate as shown in table 3.4. In the period of 1990-2000, in

spite of existence of in migration, the net migration was still negative value meaning that the Region is subjected to out migration in total.

In respect of the negative net migration, the population growth rate in the same period has been expected to be low. However, the population growth rate in GAP Region is greater than that of Turkey in an amount of 6.5%. The contradiction may be explained by high fertility rates of the Region with respect to the other regions.

The population movements though the urban centers creates a great depression on the infrastructural development of the cities. Therefore, urgent action plans should be implemented to cope with the negative impacts of the influx from rural areas. Unless otherwise, the people may have been subjected to worse conditions in respect of social and environmental issues including domestic water use, hygiene, sewerage systems, housing, education and health services, transportation.

Table 3.3 Migration Rates in GAP (Ercin, 2005)

1990-2000				
	In migration	**Out migration**	**Net migration**	**Net migration rate ‰**
Adıyaman	17,624	58,369	-40,745	-70.2
Batman	20,133	38,165	-18,032	-45.2
Diyarbakır	62,996	111,060	-48,064	-40.0
Gaziantep	68,550	65,051	3,499	3.1
Mardin	26,083	68,165	-42,082	-67.6
Siirt	17,932	34,994	-17,062	-75.1
Şanlıurfa	38,320	87,362	-49,042	-38.9
Şırnak	28,457	22,507	5,950	21.8
GAP	280,095	485,673	-205,578	-34.0

Table 3.4 Population Growth Rates in Turkey (Ercin, 2005)

	1990			**2000**			**‰**		
	Total million	Urban million	Rural million	Total million	Urban million	Rural million	Total	Urban	Rural
Turkey	56.5	33.7	22.9	67.8	44.0	23.83	18.28	26.81	4.21
İstanbul	7.2	8	0.5	10.0	9.1	1.0	33.09	29.27	80.72
West Marmara	2.6	1.3	1.3	2.9	1.6	1.3	11.18	24.76	-3.54
Aegean	7.6	4.3	3.3	8.9	5.5	3.4	16.29	23.50	5.76
East Marmara	4.7	3.0	1.7	5.8	3.05	1.9	20.25	25.19	10.77
West Anatolia	5.2	3.9	1.3	6.4	5.0	1.5	21.35	24.19	12.29
Mediter.	7.0	4.0	3.0	8.7	5.2	3.5	21.43	25.03	16.30
Middle Anatolia	3.8	1.9	1.9	4.2	2.4	1.8	9.27	20.58	-3.73
West Blacksea	4.9	2.0	2.9	4.9	2.4	2.5	0.13	17.78	-14.53
East Blacksea	2.9	1.2	1.7	3.1	1.5	1.6	9.32	28.47	-6.38
North-east Anatolia	2.4	1.0	1.4	2.5	1.3	1.2	6.32	28.99	-13.14
Middle-east Anatolia	3.1	1.4	1.7	3.7	2.0	1.7	18.36	38.78	-1.17
Southeast Anatolia	5.2	2.9	2.3	6.6	4.1	2.5	24.79	36.57	7.67

3.5. EDUCATION

The basic issue for permanent development of any community in the world is the continuous and systematic education by means of technology and science. The understanding of the need for development projects will be easier if it is communicated with educated and informed people. Moreover, it is possible to maintain self sustaining community driven from the people that have education life previously.

As a multi sectoral development project in a respectively under developed area with traditional resistance to education of some groups like young girls and women, the Southeastern Anatolia Project should have a great contribution to the education in the Region. The social stability and economical growth should be supported by properly educated people who can easily access to the global technology and science features.

As a matter of fact the clear view of education by this respect can be observed from the comparison of literacy ratio for man and woman in the Region. As it is shown in Table 3.5, the literacy ratio has been increased by percentage of 22.98 for woman in between 1985 and 2000. On the other hand, the literacy ratio for the men has been increased in the same period at an amount of 16.77%. In Turkey, there is compulsory military service for men. So, they get ability of reading and writing during the military services. Although the increment for women is larger than that of men, the resulting total amount of literacy for women considerably less than the ratio for the men in a percentage of 29.89. Eventually, women should be encouraged more and more to have qualified education in order to establish a comparable rate of literacy in the community. In fact the women education should be the most important part of the development projects for under developed regions. Because the women have always difficulties to access the fruits of development, the education may help them to get their share from the development cake in an equitable and fair manner. (Ercin, 2005)

Table 3.5 Literacy percentages in the GAP Region for man and woman (Ercin, 2005)

Years	Women	Men	Total
GAP-1985	29.28	65.38	47.92
GAP-1990	38.66	72.79	56.21
GAP-2000	52.26	82.15	67.74
Turkey-2000	**80.00**	**94.00**	**87.32**

Table 3.6 Literacy percentages of GAP provinces and the totals for the Region and Turkey (Ercin, 2005)

LOCATIONS	1980	1985	1990	2000	Rate of Years
Adıyaman	43.95	61.90	67.36	79.87	**35.92**
Batman	-	-	57.62	70.97	13.35
Diyarbakır	41.18	52.24	56.26	69.59	**28.41**
Gaziantep	57.42	70.97	73.91	83.78	26.36
Mardin	36.23	48.07	54.12	71.22	**34.99**
Siirt	36.07	51.22	53.97	68.66	**32.59**
Şanlıurfa	38.00	47.92	56.21	67.74	**29.74**
Şırnak	-	-	40.80	65.75	24.95
GAP	42.14	55.39	57.53	72.20	30.06
TURKEY	67.48	77.45	80.49	87.32	19.84

In respect of literacy rates in the Region without consideration of gender, it is obviously seen from Table 3.6 that a considerable increase in the literacy ratio were realized especially in cities as Adiyaman, Mardin, Siirt, Şanlıurfa and Diyarbakir. The overall average increase for GAP Region is greater than the average increase for Turkey during the period in between 1980 and 2000.

The recent actual position of the GAP with respect to the Turkey is also given below in consideration of school numbers, teachers and students. Approximately 13% of the students both in primary and secondary school level have been attending schools in the GAP Region. This is an important potential for the development figures showing the scale of the effect if sufficient development measures on education concerned. (Table 3.7)

Table 3.7 The GAP and Turkey Ratio for the numbers of schools, teachers and students in 2003-2004 education year (Ercin, 2005)

2003-2004 Education Year			
	TURKEY	**GAP**	**RATIO (%)**
Primary Schools	36,114	5,179	14.34
Teachers in Primary Schools	384,170	37,598	9.79
Students in Primary Schools	10,413,579	1,359,352	13.05
Secondary Schools	2,727	192	7.04
Teachers in Secondary Schools	79,545	5,292	6.65
Students in Secondary Schools	2,170,482	189,346	8.72
Vocational Schools	4,204	213	5.07
Teachers in Vocational Schools	68,231	2,643	3.87
Students in Vocational Schools	1,080,544	42,323	3.92

Moreover rather than the formal education system for the youth, training programs for the remaining and usually uneducated people in the Region are proposed for sustainable development. In those programs, women learn sufficient information for a better life (particularly in CATOMs), the farmers have been educated for new agricultural methods, and the others who are not keen on agriculture are gained occupational skills in newly established industrial facilities.

Although the education programs are existing in the region, the quality and quantity of those should highlighted in many ways. First of all they should become widespread especially for women and the children who have difficulties to access the fruits of the development. For the people who are from different ethnic groups and not able to talk the formal educational language should have learnt it before the primary school in pre-school courses to increase the success level in primary schools. For the families who are not willing to and their daughter or sisters to the primary, secondary or the other high schools should be convinced by the governmental institution by explaining the benefits. The traditional structure giving

pressure on especially the improvement of the women in the region may only be diminished by educating the women first in an urgent and qualified way. The transformation of the region from an under developed one to a socially stable and economically reliable region will be accomplished by special regional education program executed within the sustainable human development strategy.

3.6. HEALTH

As an integrated development project, GAP is regarded to be a multi disciplinary dynamic mechanism for improving the quality of life. One of the basic requirements of human is the easily accessible and sufficient health services including infrastructural organizations like hospitals, polyclinics, medical centers; health personnel as doctors, nurses, midwives; and relevant materials as equipments, medicines, and emergency supplies.

Actually the health indicators such as infant mortality rates, birth ratio in the houses, occurrence of some specific diseases, the number of beds in the hospitals and etc. for the GAP Region are under the average level of indicator through the country although the improvement studies are ongoing with the sustainable human development approach in coordination with Ministry of Health.

The first study conducted by the GAP Administration, under the responsibility of Ministry of Health, in 1991 was the GAP Health Sector Implementation Plan. The aims were to evaluate the existing health services and define the necessities in the region, and also to predict the quality and the quantity of investment targets throughout the region. The main principle of the Health Sector Implementation Plan, dated 1991, was considering the solutions for the health problems both of the region and of the country altogether. In 1992 for developing National Health Policy, the first National Health Congress had been organized by the Ministry of

Health. During the congress, the GAP and Health Group emphasized the relationship between the regional and national health problems. As the existing health problems and the possibility of occurrences of new health problems were mentioned in the congress, the solutions were also suggested. The second National Health Congress had been organized in order to discuss the juridical concepts regarding the realization of National Health Policy in 1993. The main principle of this study related with the GAP Region was reducing the difference between the GAP regions and other regions on the health standards.

By this respect the first project that was executed by GAP Administration is for the bacteriological disease named as “Aleppo boil” in 1995 by collaboration of international and regional universities. There were other local projects conducted on infectious illnesses with collaboration of national and international universities and institutions.

Also GAP Region Public Health Project has been started in 2001 for an objective assessing the adverse public health effects of ecological and environmental changes following after the transition to irrigated agriculture and developing an action plan to prevent or eliminate such adverse effects. The project covers the actual conditions of health services, maternal health, child health, infectious illnesses, epidemic diseases, chronic illnesses, environmental conditions, handicapped people, and seasonal population movements. The preliminary studies completed in 2003. The results of the investigations with suggestions in an action plan were reported and distributed to the relevant institutions. The Action Plan suggested to improve education opportunities in the region, to generate employment potentials, to protect water resources, to provide clean and enough water for houses, to force people to have healthy kitchens, toilets and bathrooms in housing projects, to complete infrastructural facilities such as sewerage systems, to provide social insurance for all people, to supply necessary health services for all people, to keep animal farming in healthy conditions.

There are two implementation projects regarding to this action plan for controlling malaria in Diyarbakir and Batman provinces; and for improving maternal health conditions in the region.

By the time that the sustainable development term was included in GAP, the effects of whole project by human development viewpoint became more important. In respect of the increasing importance of contribution of projects items to human development, the interaction between health and the project outputs has came to one step forward. Because of affecting large scale areas by dam lakes, irrigation facilities and energy generation, the health risks have been alerted in the GAP Region regarding to increasing wetlands and humidity, changing agricultural patterns and fast industrialization. Thus the concept of health should be revealed in such sensitive way that the on going improvement effort would not be under the shadow of epidemic diseases, increasing immortalities and other health failures.

3.7. GENDER ISSUE

The GAP Region is an under developed area with respect to the development parameters compared to not only fully developed countries but also the general standards of Turkey. In respect of women development in urban and rural areas, the case does not differ by achievement of equitable and fair distribution of fruits of development. Although their having multi functional participation of families' economical survive, they usually have no contribution in the decision making mechanisms of the households. Generally the direct contact with the community and the interactive relationship with the development figures are not possible for the women regarded as one of the disadvantageous group in the community. In the rural area, the responsibilities of women distributed over all activities at home, in agricultural production and animal farming and also in traditional facilities. However in the urban area, the women without marketable abilities for the business, is usually forced to stay at home as a mother figure. While

in the rural area they have too many responsibilities without having any opportunity to contribute for changing their lives, the women in cities can not even directed their potential in any economical activity other than being a cheap labor force.

As a matter of fact any development projects without a fair distribution of opportunities for both men and women would not perform an equitable and realistic success. Therefore these projects should positively encourage the women participation and contribution in any fields of activity that the project has aimed. Otherwise the development will be limited to a certain group of people as losing the sustainability viewpoint in time.

The study called “Status of Women and their Integration to the Process of Development” were conducted by GAP Administration, as one of the baseline surveys of Social Action Plan, resulting the concept of creating opportunities for the women in the project region to materialize their preferences and potential fully, fairly and in equitable manner. Among several projects of the Social Action Plan, the Multi Purpose Community Centers (CATOMs) are the one that is focused on training in various fields, promoting income generating skills, part time policlinic services and various social and cultural activities specially designed to improve the status of local women considered as a group which can not obtain the fruits of development directly in an equitable way (www.gap.gov.tr). The first Multi Purpose Community Center has been established in Şanlıurfa Province since 1995. There are 30 CATOMs have been initiated in 9 provinces of GAP Region since 1995.

Multi Purpose Community Centers have performed training programs for women and young girls on literacy, health, family planning, maternal and child health, nutrition, home economy, income generating activities. Also CATOMs have organized social and cultural activities which were even not known by the local people such as World Women’s Day, Mother’s Day.

Eventually they are situated in squatter settlements of the provinces and central villages for being in touch with then most disadvantageous groups. Although the target population is the women and young girls above age of 14, the CATOMs are also serving for children and even sometimes for the men. They are primarily based on participatory, holistic and integrated approach to establish improvement in the quality of life of the women. “The purpose of the centers is to build awareness among women about their problems, to create opportunities for the solution of these problems, to ensure their participation in the public share, to promote gender balanced development by empowering women and developing replicable models relevant to local context.” (Tigrek, 2004)

The CATOMs are established in case of local demand with co-operation of civilian administration by the technical support of Turkish Development Foundation. Moreover, some projects were implemented within co-operation of both national and international organizations. The Multi Purpose Community Centers are managed by the CATOMs Councils. These councils are including 5-7 people elected from the participators of the CATOMs. By this way, managerial capacities of woman with a democratic perspective tried to be increased. The participators of CATOMs and the members of the council organize visits to the nearby household to inform people about their activities, to prevent prejudices about the centers, to increase the neighborhood participation for widespread improvement. In order to help the gender balanced improvement CATOMs are performing programs and activities focused on 5 basic fields (Tigrek, 2004):

- Education and training:

Regular training programs for literacy, pre-school education for children in age group of 4-6, study rooms for children in age groups of 4-6 and 7-14, home economics, nutrition, computer skills, student support, civil law and the rights based on it

- Health programs:

Family health, hygiene, environmental health, maternal and child health, health investigations in rural areas and squatter settlements of urban areas, partial polyclinic and mobile health services

- Income generation and supportive programs for women employment:

Training programs to get skills and information for income generating occupations as rug weaving, machine knitting, cutting-sewing, embroider, garments, silver works, stone working, hide processing, hair dressing, computer skills, production of souvenir items from local materials, etc. and also for entrepreneurial skills, to provide support for starting up their own business with micro-scale credits. Marketing-sale elated activities such as exhibitions, fairs are performed. A web catalogue has been issued for advertising and marketing purposes.

- Social support and sensibility programs:

In order to direct the governmental and non-governmental resources of development in an easy way, social supportive programs are utilized. The health insurance for poor citizens, grant of scholarships for successful students but in need, civil marriage contracts for couples who were married by religious ceremonies, which are not legally valid, to find out supportive funds for the needs of handicapped people. Social sensibility programs are performed to encourage activities for increasing the number of educated people, the level of environmental consciousness by giving priority to environmental protection and planting activities, the frequency of the community works for public welfare

- Cultural and social activities:

Seminars on various issues relating particularly to women, exhibitions, interactive meetings, celebration on World Woman’s Day, Mother’s Day , social activities as picnics, cinema, theatre.

As a matter of fact, the activities of CATOMs are finally reported in respect of parameters defined by participatory development terms, periodically (monthly, six months and yearly). These reports are assessed by both GAP Administration and Turkish Development Foundation. Also in every two year Social Impact Assessment studies are conducted.

Consequently, the Multi Purpose Community Centers are an interactive way of achievement of women's accessibility to development items in a great range including basic public services such as education and health and various specific programs such as occupational training, managerial improvement activities. Therefore, CATOMs provide practical way to achieve gender balanced development. Although the prejudices due to traditional reasons in the region may have negatively affected the social perception of the CATOMs, the easily accessible health services and continuous visits to families abolish the intolerance for such mechanisms.

In fact, the self confidence of women has been challenged due to the awareness obtained from CATOMs' projects. They are started to be a self-sustaining, educated and productive part of the community who may have ability to discover life by only their own viewpoints. In spite of effort on income generating activities, the full success has not been achieved yet. The context of income generation has been limited to small scale; home based activities rather than real entrepreneurship. Thus, young girls should fulfill the educational requirements at early ages. Then, they can perform business activities generating professional income.

Consequently, CATOMs are an active party in the community life issuing on gender balanced public development in the GAP Region. The number of CATOMs has been increased upon popular will by gaining a sustainable character. The GAP Administration has identified a new target as to

institutionalize these centers as semi-autonomous organizations with the support and participation of voluntary organizations in near future.

3.8. ENVIRONMENTAL ISSUES

Due to the needs of today's people, the developing countries should sustain on their own resources for improving the quality of life in their country. For this aggressive competition on the scarce sources of old earth, the mankind should establish proper development strategies for their long-lasting survival on those resources. While trying to keep natural balance on earth; the people should keep the environmental, social and cultural heritage coming from their ancestors. If there is a possibility of being affected from development project, the maximum attention should be paid for those features of the community by considering sustainability standpoint.

The large scale water based development projects including the construction of large dams and irrigation systems have interaction with not only the economical aspects but also environmental issues. Previously, the projects were relied on not the social and environmental aspects but the technical and economical features. However the ones that was not included social and environmental effects' assessment in the project items could not achieve a complete success. Unless the probable environmental problems and related prevention methods were not discussed at the design stage with experienced specialists, environmental problems become unavoidable such as; salination problems, soil erosion, loss of the forests and green lands, environmental pollution due to lack of necessary infrastructural facilities and increasing population, increasing pollution levels in air, soil and water in industrial sites, decrease in ecological diversity due to changing air, water and land conditions, close and negative interaction between developing urbanization and migration paths of birds and livelihood of wild animals .

In case of GAP; by completion of all the sub-projects of GAP, 1.82 million hectares of land will be irrigated; at least 22 artificial dam reservoirs will be impounded large areas. Certainly, that amount of physical change in water and land resources of the region will result dramatic changes in the environmental pollution and protection interaction viewpoint. Although the direct effects of project implementation can be predicted easily, the indirect consequences due to the pollution movements through the attraction of economical and agricultural centers introduced by the projects, rapid urbanization without sufficiently completed infrastructures. This sharp transformation of the region not only economically and socially affects the quality of life but also contributes environmentally by resource allocation, protection and sustainability standpoints. The concept of the environment was first identified in Turkey in 1982 with Article 56 of the Turkish Constitution. The Environment Law was enacted in 1983. It should be, obviously, realized that environmental issues must be introduced as an important aspect of the GAP for introducing a sustainable development in the region. The GAP Master Plan has been issued those items since 1988.

In respect of the importance given to environmental studies, DSI is studying on salinisation problems in the irrigated part of the GAP Region. Also there were conducted some environmental projects by GAP Administration. www.gap.gov.tr

Completed Projects:

1. Environmental Study Of Diyarbakir Area:

In 1992, the flora-fauna inventory of Diyarbakir Province and its surrounding studied by collaboration of GAP Administration and Dicle University. Moreover the degree of pollution has been identified in that study.

2. Development Plan For The Sub-Region Of Atatürk Dam Lake

One of the studies was the Atatürk Dam Lake downstream development plan including a general assessment of environmental impacts.

3. Adiyaman, Mardin and Nusaybin Environmental Education Project

In Adiyaman province, Midyat and Nusaybin districts educational programs have been implemented in order to improve the environmental consciousness within the young people at the age group of 10-11.

4. Ecocity Planning Aprroach for Adiyaman

The aim of the project is to provide sustainable and environment friendly urbanization in Adiyamn and its surroundings. The final report including the ideas of the local institutions about their livelihood was submitted in 2003.

5. Studies on the Present and Prospective Climatic Features of the GAP Region

In order to investigate the climatic conditions and changes in the GAP Region in near future, GAP Administration and Ankara University have signed a protocol. Then the project was concluded in 2004.

6. GAP Biodiversity Resaerch Project

A research has been conducted to investigate the biological diversity in the GAP Region. The GAP Region, being a climatic trans-boundary zone between arid and semi-arid regions, has different types of life species. The project has been implemented with the support of UNDP and completed in 2004.

Ongoing Project:

1. Wild Life Project for GAP Region:

The objective of that project is to keep the migratory species under the threat of extinction along the Euphrates River and the dam lakes in GAP by protecting biological diversity in the region. The project is included in the investment program of 2004. Then the work definitions have been prepared. The first endemic species of that project content is the soft shelled turtle. Surveys suggested a suitable place within Bozova Governorate on the

Euphrates Riverside for this rare species. a protocol was signed with the Village Services Unit of Bozova Governorate to sustain this protected area. However, financial support is needed to continue this project.

For sustainable development in water based development projects, in order to keep the continuity of projects it is important to predict threats for the existence of resources, to provide necessary solutions, and to supply enough financial funds in proper time for solving those problems. Otherwise, the economical life of the investments would be shortened and fields of economical activities would be diminished and social degradation may be start. For that reason project implementation units should be aware of the risks and be ready for the necessary solution methods.

3.9. CULTURAL HERITAGE

The Southeastern Anatolia Project and relevant infrastructural facilities cover a widespread land in the Region in order to establish a development mechanism for eliminating the social and economical disparities in the Region. Although particularly focusing on human development, GAP included some constraints regarding to human survival in the region as land acquisition, resettlement, environmental issues, historical remains, and cultural inheritance. Among all these constraints, the cultural inheritance may be regarded to be different. Due to not only affecting many people at international perspective, but also concerning in timely manner covering past, present and future generations; the cultural inheritance and historical remains are given at most importance. Furthermore, due to being a cradle of civilization for thousands of years, the project region is rich in cultural heritage viewpoint. Many civilizations had been constructed houses, irrigation systems, infrastructures and survived on the resources of the region as we did. Thus we should behave not like the ancestors of the ancient civilizations but the borrowers of the future societies.

Fortunately, the awareness of the risk of losing our cultural richness under the artificial dam lakes was eventually realized. The main aim is now to transfer these assets to future generations. For this reason, GAP Administration carry out documentation, restoration projects, environmental arrangement projects, urban planning and excavation and rescue activities in the areas that will be submerged under dam lakes in the Region. “The GAP Administration ensures coordination regarding the activities carried out by the Ministry of Culture, Ministry of Tourism, General Directorate of Foundations, relevant universities and other public institutions and agencies; expert teams from various universities also ensure that these studies are carried out and supervised in a sound manner.” (www.gap.org.tr)

There were many civilizations from different historical periods generating a rich historical culture under the fertile lands of the Upper Mesopotamia Region along the area of Border Euphrates and Tigris rivers. After the city of old Samsat were submerged under the Dam Lake of Atatürk, the rescue operations of our cultural inheritance have got particular concern in the human development issue of the GAP.

3.9.1. HASANKEYF

The ancient city Hasankeyf beside the Tigris River, which is expected to be affected by Ilısu Dam Reservoir in near future, attracts particular attention both national and international level.

When the Hasankeyf was first founded is not known yet. However the geo-political structure of the city shows that it should have been founded in early ages. The name of the city was coming from one of the two castles which were constructed in 4 century A.D. by Byzantine Empire. In 639 A.D. the city was fallen under rule of Muslims. The name was “Hesna-Kehpa” in Byzantine times meaning as “stone castle” and “Hısn-Keyfa” in Muslim

times meaning that “steep castle”. Then it has changed in “Hasankeyf” in time. The city was an important city in ancient times because:

- the Tigris River was passing through the city
- it was easy to protect the city due to its geographical structure
- the formation of rock on which the castle was constructed is appropriate to build cave houses keeping from hot in summer and cold in winter on trade
- due to being nearby Tigris River, it became an important trade center on the way of historical trade ways between east and west,
- the waters of Tigris River were carried up to the castle with water carrying systems
- there were some hidden passes through the caves reaching the Tigris River built in ancient times

Some of the important historical structures are:

- Hasankeyf Castle including Big and Small Palaces and Ulu Mosque
- The Castle Door
- The Bridge which was estimated to be the greatest bridge in the Middle Ages. The space between two bridge piers in the middle of it was 40 meters. The middle part was wooden to open and close in case of an enemy threat.
- Other Mosques (El-Rızk Mosque, Koç Mosque, Kızlar Mosque)
- Tombs (Zeynel Bey Tombs, İmam Abdullah Tomb)

The first studies conducted by GAP Administration, soon after its establishment, was the project of “Hasankeyf Historical and Archeological Research, Excavation and Rescue” with the Ministry of Culture beginning in 1991. Although the studies were started in 1991, the project was terminated by Ministry of Culture in 1992 due to the terrorist attack against the excavation teams. The excavation and rescue works has been restarted in 1998 generating important information and documents. In 2004, within a new protocol signed between GAP Administration and Ministry of Culture,

some studies were conducted. However any study aiming full excavation of the city and surrounding are estimated to be needed 50 years at least. Therefore Ilısu Dam project is a risk for the structures under Hasankeyf waiting for sun light. Technical and cultural assessments for the project should be done objectively and urgently because there is no way to return in any case if the Hasankeyf is impounded under the waters of Tigris River. However Ilısu dam project may have been reviewed according the sustainability trends which have been improved after the design ages of the GAP. It is now discussed some technical solutions for preventing the inundation of Hasankeyf without refusing the Ilısu Project totally. also it is difficult to defense any project injuring historical sensibility in global sceneries. Besides that the international financial opportunities for implementing that project can not be found easily because of increasing importance of sustainability in global world. Therefore, now it is time to revise our minds to keep our historical richness without losing our economical improvement but just making our efforts more sensitive to our surrounding.

3.9.2. THE RESEARCH OF CULTURAL ASSETS AT RISK DUE TO THE WATERS OF BIRECIK AND KARKAMIS DAMS

In 1997, another protocol signed by GAP Administration and Ministry of Culture regarding to “The Research of Cultural Assets at Risk Due to the Waters of Birecik and Karkamış Dams”. And also a separate protocol was signed between GAP Administration and Hacettepe University for the project of “The Documentation of Stationary Cultural Assets in the Districts of Birecik, Halfeti, and Suruc”. The research has been executed in Birecik, Halfeti, Suruc, Bozova and Rumkale. Their important and unique historical features have been studied and documented. The context of studies included the histories, plans, facades, interior of buildings, architectural elements, and technical achievements of the past generations lived in those

areas. The significant historical monuments such as mosques, churches, caravansaries have all been examined in detail.

3.9.3. ZEUGMA

Among those, the significant and widely known rescue project was the one that were executed in Zeugma. The Zeugma, or the Belkis as the name of the village where the ancient settlement has been situated nearby, is located in Southeastern Region of Turkey, 10 km from the town of Nizip in the province of Gaziantep. Zeugma is the name of two pair towns where are situated on both sides of the Euphrates river. The towns were founded by one of the generals of the Alexander the Great named as Seleukos I in 300 B.C. The pair towns are named as Seleukia and Apamea after himself and his wife respectively. They were situated on one of the points that the Euphrates River has led the passage to the other river bank. Therefore a permanent bridge was built across the river by linking the two cities. The name of Zeugma was given to these cities which has meaning of bridge or yoke in Greek. Due to not only being the only crossing point of west to east, but also being concerned as a guard post in the region; Zeugma had a great strategic importance. The control of the city is estimated to be felt in the first century to the Kommagenian Kingdom which had its capital upriver at Samosata (Samsat). Then, in the late 30's B.C., Zeugma probably fell under Roman rule becoming part of the Roman province of Syria. Then a Roman legion was stationed in the town in the first century A.D. By the way, it became an important stop on the Silk Road. By 200 A.D. the city's military important and active commercial life made it one of the great cosmopolitan centers of the Roman Empire. After the further military achievements of Romans to the east, the armies were moved to east causing a loss of security in the city. Then in 256 AD the Sassanid king Shapur I attacked the city. The city was destroyed by this attack. Although getting a smaller volume because of the legions movement, it was still an important crossing point. After Arabs conquered the Sassanids in seventh century, the city lost

its importance in time. Later on the village of Belkis was founded in 17th century. Throughout such a history as being an important cross and security point, Zeugma has faced many cultural transformations generating valuable historical assets. (GAP Administration, 2002)

In fact the first studies have been conducted since 1987 by Gaziantep Museum in the area on the southeast of Belkis Hill. Some mosaic pieces were found when the construction of Birecik Dam was started in 1996. Consequently, an international effort rapidly started to excavate, document, save and exhibit the cultural heritages of Zeugma in 1996. Due to rising of reservoir level, an urgent schedule has been initiated under the name of Zeugma Archaeological Project 2000. The archaeological rescue operation has been financed by Packard Humanities Institute of the USA working in collaboration with GAP Administration and the Turkish Ministry of Culture. An international team of experts, which was coordinated by the Oxford Archaeological Unit of England, consisted of specialists from Turkey, Britain, France and Italy. The co-operation of those experts conducted studies to excavate, record, and preserve the historical assets of Zeugma. The conservation studies were on the responsibility Centro di Conzervazione Archeologica. The mosaics and frescoes, which could not be moved out, were cleaned and then covered by lime paste to increase their water resistibility. Almost 120 archaeologists and conservation specialists with 250 workers studied at the site for 7 days a week in four months regarding a work potential of 10 years. The precious efforts of those have led the excavation and preservation of buildings, temples, churches, water canals, stone made objects, ceramics, glass, iron and bronze figures, 91 frescoes, 1,500 square meters of mosaics and 90,000 bulla (which is the largest amount ever founded in the world informing us about the development level of trade and other facilities in Zeugma). All the historical remains founded from the excavation area are documented in electronic media. The documentation works have 3 stages consisting of written documents, drawings and digital camera conventional photography. By the

way, the found remains can be visited in the Gaziantep Museum. (GAP Administration, 2002)

Although the success of the urgent schedule and precious efforts of the experts and workers; the one third of the Zeugma is now under the waters of Euphrates in which any time in the past it has given a holy challenge for the life in the Zeugma. Actually the significant point is to be aware of not only the valuable and seeable features of our lands but also the historical assets under those fertile lands. Proper funds and efforts should be utilized in order to achieve a full success in human development by rescuing our historical richness under our feet. Unless otherwise, our financially developed future will deeply submerge its past under the concrete works of giant development structures. Hopefully the increasing attention on Zeugma facilitates the tourism sector in the GAP Region. This attraction not only includes the historical magnificence of Zeugma but also the other significant historical existences in the region. The remaining cultural inheritances lying under our feet and waiting our help for seeing sunlight again will be hopefully found and preserved before any development attempt. Because there should not be a case of preference between the past and future or in other words cultural inheritance and development structures, both the remains of past and the investments for future should be available for sustainable human development.

CHAPTER 4

CRITICISMS REGARDING SOUTHEASTERN ANATOLIA PROJECT AND THE ATATÜRK DAM

As a large scale multi-sectoral development project, like all others, the Southeastern Anatolia Project has got significant interactions with its surrounding both positively and negatively on the environmental, social, cultural, and economical issues. In order to achieve improvement in the quality of lives of people, the projects should be planned and implemented adequately regarding the idea of sustainable human development. Actually close interactions of structures of the project with the natural resources and cultural features may not allow a full success of bringing benefits to people harmlessly. Although the large dam activists insist on the idea of constructing small dams for managing water resources, it is obviously not possible for the developing countries because of the urgent need for development for their survival on the global scene. The optimum way should be realized by minimizing the negative impacts and supporting positive impacts via utilizing properly planned, monitored and reacted mode of behavior throughout the project.

As an important figure on the menu of the activist, the Atatürk dam has been criticized on many issues as discussed below (Nippon Foundation, 2004):

- Syria and Iraq, riparian countries of the Euphrates-Tigris river system claimed that the GAP will allocate their water:

In the reservoir filling period of the Atatürk Dam, it is seemed that they were right. However Turkey claimed that more water than the amount of 500 cubic meters per second (the release amount according to the protocol signed in 1987) had been released before the impoundment of the dam so that the Syria and Iraq would store the additional purpose for future use in that period. The downstream countries have carried the conflict on the international scene. Due to the conflict on the waters of the Euphrates, the credit option of the GAP from the World Bank was committed to an agreement in water allocation among those countries.

- Turkey is blamed for planning to sell the waters of Euphrates to countries such as Israel, Jordan, the Gulf States, Saudi Arabia and Kuwait:

Although Turkey is considering water selling, the resources that would be planned to use is national rivers like Ceyhan and Seyhan river system.

- Security problem due to Atatürk Dam

The Atatürk dam will create a security problem in case of instability in the region. Nevertheless, those ideas were expressed without any sound evidence.

- Mandatory population relocation due to the impoundment of the reservoir and the dam construction. The legal implementation of resettlement according the existing law of that dates is considered to be targeted actions against the Kurdish population:

In such a big project in anywhere else in the world would, of course, result involuntary displacement of the people in respect of future development of the people both in the local area and the country. Actually the expropriation law which was valid through Atatürk dam case was not applicable for projects that need such a large land to be inundated. Moreover the

experiences of the implementation agencies were not motivated with the trends of sustainable development yet. Although the people received their expropriation money, the payment schedule was not sufficiently short due to the yearly budget arrangements concerned according o the expropriation law. Furthermore the judicial processes for increasing the compensation payment throughout the European Rights Court also delayed the schedule. Unfortunately, the managerial capacities of the resettlers were not enough for the proper utilization of the compensations. Therefore the received money was gone to the daily needs of people in an inflationary economy without any individual future investment of the families. The people who has preferred governmental resettlement were relocated the new settlement with good quality services. During the period of resettlement, the accommodation expenses were paid by the government without any repayment including transportation costs. It should be admitted that the Atatürk dam resettlement and land acquisition process would have been planned and implemented better although the resettlers were given governmental assistance. As a matter of fact, the experiences from that project forced the Turkish Government to give life for a better solution. The new established in 2001 is an important step showing the good will of Turkey. Also the concept of sustainable human development were started to be assimilated by all governmental institutions for issuing public welfare in the project region. The governmental programs including social support services for the local population to give an opportunity to be self sustaining members of the community would hopefully result a proper public perception of he development projects. At the end the social stability of the region will be achieved by economical growth in the region covering all the people from different ethnic groups. .

- Environmental impacts of Atatürk dam which mainly referred to pollution by pesticides, agricultural return flows to the river and the quality of the water carried to the riparian countries:

Actually environmental issues, regarding to the pollution via sudden increment of industrial facilities without proper infrastructural systems and the rapid change from dry agriculture to irrigated one without sufficient use of water and chemicals, should be discussed in detail not only being an activist claim but also having a great importance for the sustainability of our resources. In fact the degree of pollution can not be at a severe level due to having a small area of total planned irrigation in the project (only 12% of the irrigation has been implemented until now). However this may be a future problem that will diminish the benefits of the project.

- The salinity due to the over use of water by the farmers:

The training programs and particular planning for irrigation should be undertaken by agricultural institutions. After the increasing humidity in the region by artificial lakes and irrigation systems, the pests are appeared. The use of pesticides of course will be in a controlled way. If possible, ecological solution should be preferred. Unless proper management would have been conducted until all the system starts to work, the quality of the products will be decreased resulting loss of economical value of irrigation.

- The health problems aroused by the excess water in an arid area. The diseases like malaria, schistosomiasis, leishmaniasis are claimed to be seen in a wide spread manner:

Although the potential for those diseases realized, there are not an outbreak of an epidemic disease yet. Moreover health program is introduced for preventing the people from that potential risk in the irrigated region.

- The archaeological issues affected by the dam construction or impoundment of Dam Lake:

Faithfully Turkey is one of the countries (may be the only one) that can be considered as an open museum by archeological viewpoint due to being not only home for many civilization from different historical period but also having many stops on ancient trade ways from east to west. The GAP

Region has no difference from the other regions by this respect. However the conjunction the development project and the remains of the past create contradictory position. Therefore many rescuing studies are still executed by relevant institutions. Although in the early stages of the implementation of GAP some valuable assets were submerged under the water of the Euphrates like old Samsat, the international and national attraction has forced to conduct necessary studies for the excavation, preservation and documentation works of remaining cultural inheritance. The past civilizations lying under the lands of a country not only realizes tourism activity, social integration and economical results but also constitutes its real identity coming from history.

Eventually, the many points regarding to activists' concern on the development project executed in the Southeastern Anatolia have not proper bases. However while assessing the claims regarding to the past events, the approach should be measuring the good will in the newly implemented projects. In other words, the progress in project implementation period should be considered as intent to diminish the negative impacts while flourishing the positive ones. Of course, there will not e full happily end in such projects due to having many interactions with several different issues. It is important to aim minimizing the negative ones and to encourage the positive ones.

CHAPTER 5

DISCUSSION OF THE ISSUES

The Southeastern Anatolia Project is an integrated, multi sectoral development effort including series of technical schemes for economical growth, social and environmental sub projects for sustainable human development. The interactive dynamics of the projects transformed the GAP into a development project focused on increasing the quality of life in general. The significance of those kinds of projects for public welfare in the developing countries is obvious. However the large scale projects result many positive and also negative impacts in environmental, social and economical aspects. The resistibility of the project at macro level in sound manner directly related with the increased positive impacts of the development scenarios in micro level.

The GAP does not only provide energy and agro-industrial based facilities. Besides, it supplies services directly related to the quality of life in the region such as supplying clean and continuous domestic water, new economical activities like fishing, historical tourism, social and environmental programs and etc.

The GAP Region is structured by a mosaic of multi cultural, multi ethnic and multi religious. It is difficult obtain one single solution for all over the region due to social structure of the Region. Therefore the social problems should be solved in case sensitive manner in different places.

At the beginning of the project, the social and environmental issues were not studied precisely. Actually, the project implementation units have effectively focused on the technical and economical aspects of the solution. Although having the idea of improving the living standards of people as the basic objective of the development projects, the social issues were not managed properly. Unfortunately, the water based project planning history of Turkey was not so much differs from that of the world. The Southeastern Anatolia Project, being an interactive development process, has been modified in many times by the consideration of the trends of the world on large scale development efforts.

As a large scale water based development project GAP has many effects, both positively and negatively, on the Region and Turkey. In fact the development projects concerned on establishing necessary conditions for organizing the basic needs of the mankind and qualified requirements of modern life throughout the country without making any difference whether they are living in urban centers or surviving in the underdeveloped rural areas. Therefore the development projects shall cover the requirements of not only the people who are on the focus of the positive impacts but also for the ones who are subjected to the negative results of the project.

The impacts of the GAP which are limited to the content of this thesis can be discussed as follows.

- Since the beginning of GAP, new employment options in the Region due to the construction period of infrastructures have increased. The training programs in the construction sites transformed people from being unskilled workers into being experienced and potential staff for any similar project. For instance, the Atatürk dam was a training center for the Region for the construction sector. On the contrary due to the financial problems, the construction activities are limited meaning a

general unemployment in the sector although they are trained well enough in the past projects.

- After the construction period by introducing the irrigation to the Region, agro-industrial facilities have increased. This creates new employment options for the people who may have wanted to go big cities for finding good jobs. Industrial and agricultural activities are increased in sectoral basis in advance of both Turkey and the Region. However population movement data shows that there are still many people getting out of the Region by some reason.
- Independency on energy generation has been increased. The energy needed for increasing industrial development can be achieved by the HEPPs of GAP in a considerable ratio.
- Irrigation in the Region has increased even tough the project targets are achieved only 12%. For instance, the most important structure of GAP, the Atatürk Dam, is not only generating energy but also irrigating approximately the half of the total land that is to be irrigated by GAP when all of the irrigation systems will be completed. Modern irrigation systems are introduced to the Region. Although having higher initial investment cost, those systems reduce the labor cost, increase the quality of agricultural products and their prices due to the prevention of soil. These systems should be encouraged by financial support. Otherwise traditional irrigation methods are used by resulting unavoidable loss of natural resources. Increasing agricultural activities and introduction of new irrigation systems and production of new crops affects the agriculture in the Region positively. Although having agricultural education programs in the villages to increase the consciousness for preventing negative effects of dense irrigation as salinity, loss of soil and decrease in water quality and etc., they should be increased. It should be discussed that if the irrigation projects fulfilled, how the conditions of soil, water and air will change. Therefore projection studies should be done by scientists to manage the possible results and problems in a professional way.

- The opportunities for education have been increased due to social projects encouraged by governmental institution. However, it is still not sufficient yet because of the severe gap between the other regions of Turkey. Also the traditional structure of the Region is different. Therefore people should be convinced for supporting their children to have higher levels of education. Increasing the number schools or teachers would not be the only solution to encourage the education in the Region. Social programs should be conducted sensitively.
- The health programs for epidemic disease have been started in the Region although a general case has not seen yet. However by increasing irrigation possibilities of those kinds of diseases should be managed properly unless otherwise all the project benefits would be destroyed. The concept of health should be revealed in such sensitive way that the ongoing improvement effort would not be under the shadow of epidemic diseases, increasing mortality rates and other health failures. Also the health and hygiene conditions of cities which were faced with a great population influx should be increased by sufficient infrastructural investments. by increasing those services the acceptance of the project will increase more.
- The land acquisition and resettlement processes are improved since the beginning of those projects. The rising awareness of the governments on those issues will necessarily improve the performances on the expropriation and resettlement. The responsible agencies should avoid from the absence of social surveys and participation of project affected people, lack of proper institutional and legal mechanisms. Also the experience of implementing agencies, the quality of staff including multi sectoral experts and the budget constraints and the successful cost estimation are the important items for proper implementation of resettlement processes. It should be ensured that the resettlers will be beneficiaries of the project with their sufficient participation, by their getting full compensation and rehabilitation. In case of GAP, informing and monitoring the resettlers should become an important item in future

projects in order to establish the acceptance of the resettlement and to review the methods that have been used previously.

- In order to establish a gender balanced development in the GAP Region, CATOMs are introduced as an active party in the community life working for women particularly. multi cultural and multi religious structure of the Region creates difficulties in solving social problem with a unique way. Therefore social problems, especially the ones regarding the woman status, should be investigated in each group separately according to the specific properties and priorities of them.
- For sustainable development based on water, the main aims for keeping the continuity of the project should be to predict threats for the existence of resources, to provide necessary and scientific solutions, and to supply enough funds in proper time for the related activities. Otherwise, the economical life of the investments would be shortened and the field of economical activities would be diminished. For that reason the project implementation units should be aware of the risks and be ready for the necessary solution methods.
- Faithfully, Turkey is on the lands of many civilizations that had been passed away many years ago. Actually the significant point is to be aware of not only the valuable and seeable features of our lands but also the historical assets under those fertile lands. Proper funds and efforts should be utilized in order to achieve a full success in human development by rescuing our historical richness under our feet. Unless otherwise our financially developed future will deeply submerge its past under the concrete works of giant development structures.
- As a large scale multi sectoral development project, like all others, the GAP has got significant interactions with its surrounding both positively and negatively. Hence, the large dam activists have been criticized the GAP and Atatürk Dam as being one of the largest dams in the world. Although the large dam activists insist on the idea of constructing only small dams for managing water resources, it is obviously not possible for nearly all of the developing countries because of the urgent need for

development for their survival in the aggressive economy of the today's world. Eventually, many of points regarding to activists' concern on GAP have not proper bases. However while assessing the claims regarding to past experiences of the project implementation, the good will in the newly implemented projects should be included. And also the criticisms should be studied in detail, if there is a necessary point which will contribute a beneficial result through the project implementation.

CHAPTER 6

CONCLUSION

It is obvious that the overall benefits of the Southeastern Anatolia Project are extensively positive not only for the region but also for the whole country. The rapid transformation of the Region after the introduction of the features of GAP show that the objectives of GAP are achieved in some circumstances even tough the project is not completed at all. However due to having long implementation period of the project, the assessment of positive and negative impacts of the project is very difficult.

The rapid development requirements of the Region have been resulted radical changes economically, socially and environmentally. The failure point is that of lack in estimating measures of possible negative impacts in a scientific way at the level of project planning. Moreover, the limited financial sources forced the project implementation units to make a priority order on the issues of development.

As the first macro scale development project, there were not so many experts and experiences on executing such a large scale project. Even the legal infrastructure was not completely appropriate for assessing some critical points such as land acquisition, resettlement. The participation of the project affected people in decision making processes in planning period is absent in the project. Moreover the previous law regarding to the land acquisition were not allowed the government to make a proper planning. The rehabilitation of the affected people after their resettlement was also

insufficient although some governmental support had been given. However the self sustainability of people was not established successfully in case of Atatürk Dam resettlement.

Also the strong desire for development in the Region resulted unplanned and uncontrolled use of the project outputs as in the case of irrigation. Hence, the people who used to have dry agriculture suddenly faced with the excess water which will apparently be contribute to a large amount of agricultural output. So the salinity problem arises in the region. Also water and land losses are became significant issues in a very short period. Moreover due to changing environmental figures the extinction of many items in the specific flora and fauna of the Region may become a critical result for future generations.

The issues of education, health and woman participation are positively but not sufficiently affected by the GAP. These items should hav improve in short time at least at the average level of Turkey. The population movements are decreased due to the new economical activities in the Region but there are still people leaving the Region. Therefore, it is clearly seen that any economical effort would not be sufficient unless it is supported by necessary social projects to improve the quality of life by all aspects.

Furthermore the planning studies were conducted without a clear consideration of historical values in the Region. As a result of that some examples of ancient civilizations are under the water of Euphrates and Tigris in which they have given life to those civilizations long time ago.

Due to the rapid development in the Region which was not predicted and prepared properly, it is time to work on minimizing the negative effect of the project on environmental surrounding, cultural skin, and social structure by implementing scientific studies with necessary experts.

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