

## **An Assessment of the Southeastern Anatolia Region in Turkey in terms of the Sustainable Development Targets**

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This study aims to examine the Southeastern Anatolia Project in Turkey, which contains irrigation, energy and drinking water development schemes. The project is the biggest regional development effort ever undertaken by Turkish Government and has influenced the sustainable economic and human development targets. With the completion of each step of the project, it has been expected that there have been many important economic and social changes in Turkish regions, especially the southeast part of Turkey (called as "Southeastern Anatolia Region") and its surrounding areas. The project also interests in both Turkey and its related regions and sustainability is a major issue of concern. Following a brief introduction of the project, the paper examines the type of recent social-economic changes in the region and Turkey in terms of sustainable development components. Under the light of our investigations from different perspectives, it is observed that GAP region with its development project is very far from expectations in the point of sustainability.

**Key Words:** *Sustainability, Southeastern Anatolia Region, GAP, Regional Development, GDP per capita, Turkey*

### **1 INTRODUCTION**

In short, sustainable development is an approach, which is defined as 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987). In this regard, it can be suggested in five main dimensions.

1. Social dimension
2. Economic dimension
3. Spatial dimension
4. Ecological dimension
5. Cultural dimension

All dimensions above are also, at the same time, the main development issues of countries. For this reason, among international unions and/or within national bases, there have been many policies and applications about the sustainability and its dimensions. As in many countries, Turkish Governments have also produced some regional policies for a sustainable development, especially

in the southeastern part of Turkey since 1960. This region, which is called as Southeastern Anatolia Region (or GAP region in its Turkish acronym) is also known as the cradle of antic civilizations and served as a bridge among continents. Thus, the region has also historical importance as much as developmental targets of Turkey.

In 1960s, some particular regional development plans were considered in the region for utilizing the region's adequate sources. In two decades after 1980s, these particular regional plans were transformed into a multi-sectoral and regional development policy with one of the biggest development projects in the world, which is called as Southeastern Anatolia Project.

The expectations of people in the region and countrywide from the project with \$ 32 billion investment need are also very high as big as its scale. In terms of countrywide (nationwide) and interregional interactions, the effects of the project were investigated from different aspects in our previous studies and by other researches as well. However, focusing on some sustainable development components, this study will bring a different approach for the region. For this reason,

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in the following parts of the study, we will focus on provinces with some important indicators as a case study to analyze the developments in the region.

## 2 SOUTHEASTERN ANATOLIA REGION

As seen in Figure 1, the Southeastern Anatolia Region (GAP region) covers the provinces of Adiyaman, Batman (established after 1991), Diyarbakir, Gaziantep, Kilis (established after 1996), Mardin, Siirt, Sanliurfa and Sirnak (established after 1991). This region is also surrounded by Syria to the south and Iraq to the southeast. On the other hand, GAP region has a surface area of 75,358 square kilometers, which corresponds to 9.7 percent of the total surface area of Turkey (Figure 1) and 20 percent of a total of 8.5 million hectares of irrigable land in Turkey is also in the same region. This feature of region, of course, has additional importance for GAP project.

The aim of this GAP project is not only to achieve a sustainable economic development in region but also to develop the social, environmental, and human components such as development of region's agriculture, industry, and service sectors while protecting natural resources

and environment. Thus, subprojects and plans with implementation processes were outlined in the Master Plan and Action Plan (GAP- RDA, 2002). Although there have been delays in processes, three basic projects have been under construction to provide a sustainable development in the region. As mentioned in the Master Plan, these projects are briefly as follows;

**Irrigation projects:** The construction of 22 dams and irrigation tunnels will provide irrigation for 1.7 million hectares of land and 28 % of Turkey's total water potential will be taken under control with the facilities on the Euphrates and Tigris Rivers. However, only 14 % of irrigation projects have completed currently.

**Energy projects:** The construction of 19 hydroelectric power plants will provide 27 billions kilowatt/hour electric energy in a year and 22 % of Turkey's annual electric energy potential in total will be produced by these plants and 74 % of plants have been completed.

**Drinking water projects:** Drinking water projects in the rural area of region have been completed about 55 %, however, 45 % of rural areas have not enough supply and/or salubrious drinking water and total need of areas is about 1.6 billion m<sup>3</sup>/year (SPO, 2003a).

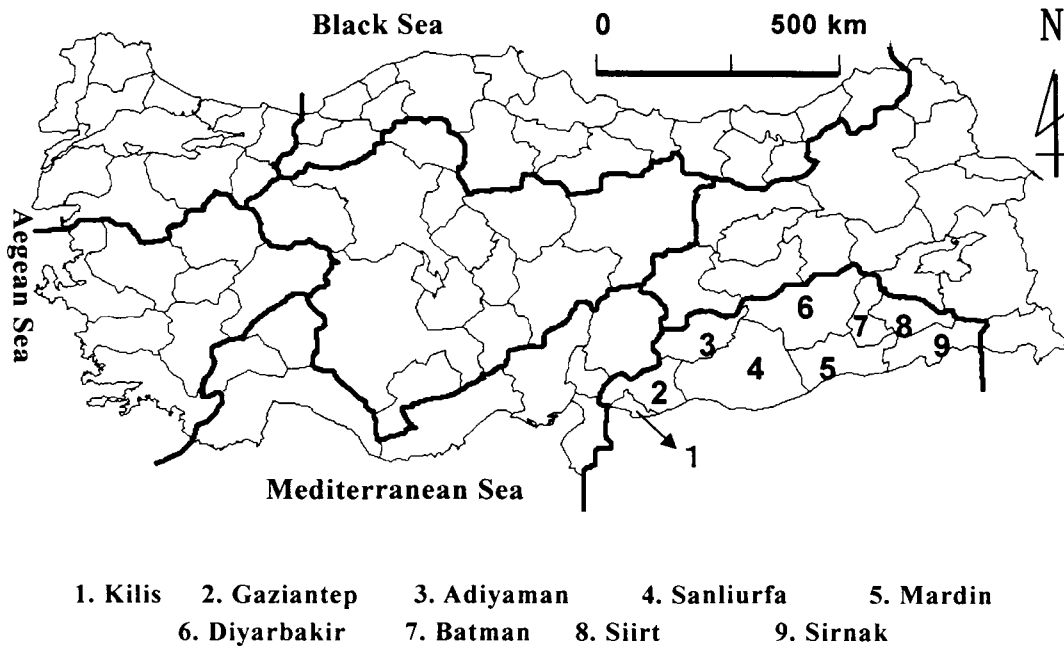


Fig. 1 Geographical Regions in Turkey

Source: SPO (2004), Provincial distributions according to the regions.

As also seen above, although the construction and completion efforts of GAP projects were not established successfully so far, only the energy projects could approach to targets relatively.

Consequently, these issues have a big importance to establish a sustainable development in the region and spread it over the country that is why they are also the main implementation fields of GAP project. For this reason, sustainable development as a policy item is expected that there have been firstly some positive and successful reflections in the region, especially among provinces in the region such as in mobilizing regional resources, creating new employment opportunities, increasing income levels, developing urban centers, and thus ensuring economic development and social stability in the region (Swiss Federal Institute of Environmental Science and Technology, 2001).

### 3 GAP PROJECT AND SUSTAINABLE DEVELOPMENT

As a multidimensional regional development project, there are six types of sustainable component for the region aimed under the GAP project. These are "Social Sustainability", "Physical and Spatial Sustainability", "Sustaining the Environment", "Sustainable Development of Natural Resources", "Sustainable Agricultural Development", and "Economic Viability" (Unver, 1997).

In social sustainability, the main goal of sustainable development is to create a sustainable society. In this process, some very important issues have appeared in the region. These are community participation, development of social services, equal opportunity of employment, and improvement of education and health conditions.

In analyzing of social sustainability, unemployment rate as a complicated indicator of social structure is in increasing tendency in both Turkey and GAP region (Figure 2). But, GAP region has higher unemployment rate than Turkey average. In this regard, it can be assumed that GAP project targets for social sustainability are under the expectations and it has to be a goal firstly to reach the Turkey average in unemployment rate by encouraging agricultural sectors among people to

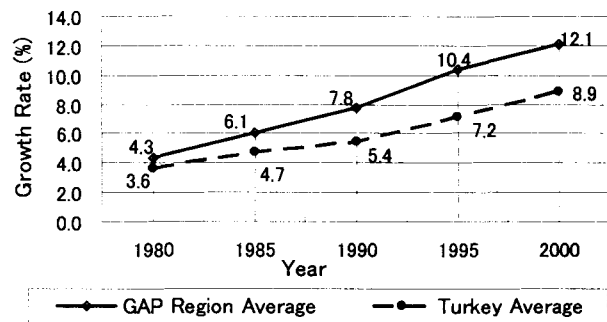


Fig. 2 Unemployment Rate

Source: SIS (2003a)

utilize irrigation projects efficiently.

On the other hand, size, growth rate, and structure of population are the most important project implementation fields that have resulted in intra and inter regional migration and settlement pattern. Thus, these tendencies in the region will be also investigated in the following parts of the study as a research focus.

In physical and spatial sustainability, rapid population growth and urbanization are the key factors underlying the enormous growth in the demand for urban services and increased degradation of environment.

Therefore, the growth of population will increase the demand for water industrial use, treatment of wastes, housing and recreation areas, and commercial and business sites (Unver, 2001).

In terms of GAP investment projects, the quality of water, soil, and air are, of course, affected by the applications. In this regard, investing the regional development projects and policies, they must be designed and implemented with concentrating the interactions within and between ecosystems not to damage the living condition of people. However, the most immediate and critical problems facing the cities in the region are the health impacts of urban pollution resulting from inadequate water, drainage and sewerage, poor management of urban and industrial waste, and air pollution.

Similarly, there is another important problem that some villages still have no sufficient freshwater distribution network in the region. In this regard, the ratio of villages by sufficient freshwater was shown in Figure 3. GAP region is under Turkey average in this indicator as well. The only optimistic point is GAP region has a tendency

to reach Turkey average in recent years with 72.35. However, as one of the biggest regional development projects of the world including drinking water projects, it is expected that there should be more effective developments in freshwater indicator for the region.

In terms of sustaining environment, environmental considerations require some specific projects particularly on physical planning, which should be focused on protecting the natural environment. For this reason, management of human activities has special importance as a goal of GAP project while sustaining environmental quality because there have been some harmful impacts of human activities on the environment. Thus, it is necessary that the negative effect of activities must be controlled and decreased by applying the environmental preservation plan and programs for future activities.

In sustainable development of natural resources, the development of land and water resources is the main framework of GAP. In this regard, if sustainable development means also more efficient use of natural resources, then soil erosion and loss of soil productivity have to be reduced to protect large areas of agricultural lands for production. However, in the use of water resource, executive irrigation causes saline and water logging of cropland.

In sustainable agricultural development, the objective is the creation of a system that improves in a substantial and lasting way underlying productivity of natural resources. Hence, sustainable agricultural development issues are very closely linked to sustaining the environment and sustainable development of natural resources.

Sustainable agricultural development does not require only protection, regeneration/ recycling, and minimizing environmental problems, but also suitable production applications, improved technology, productivity, and a system of strengthened encouragement.

In analyzing of sustainable agricultural development, as seen in Figure 4, the share of employees in agricultural sector in GAP region has a higher share than Turkey average in total employed population. In the first sight, it seems like positive development but GAP region is also losing its employees in the agricultural sector

rapidly. The decrease in GAP region can not be interpreted by sustainable development component. Thus, it is against one of the most important targets of the project, which is to utilize the region's great agricultural potential.

Similarly, if it is another key objective of GAP project to use the technology for agricultural activities, then the number of tractor per person will be very important indicator to explain simply the general situation. Unfortunately as seen in Figure 5, this indicator for GAP region is also under Turkey average extremely in 1995, 2000, and

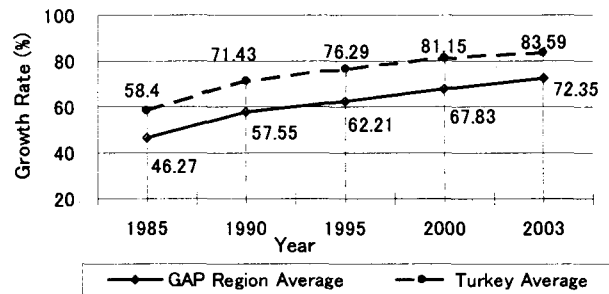


Fig. 3 Ratio of Villages by Sufficient Freshwater  
Source: SIS (2003b)

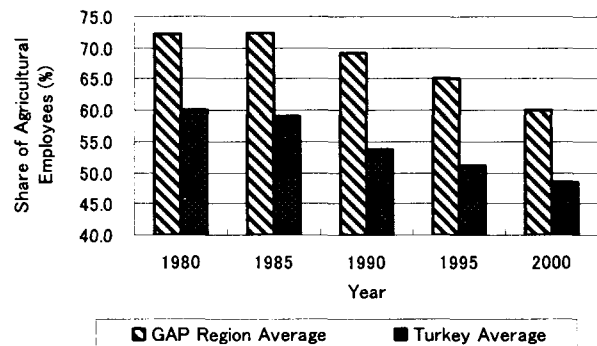


Fig. 4 Share of Agricultural Employees in Total Employed Population  
Source: SIS (2003c)

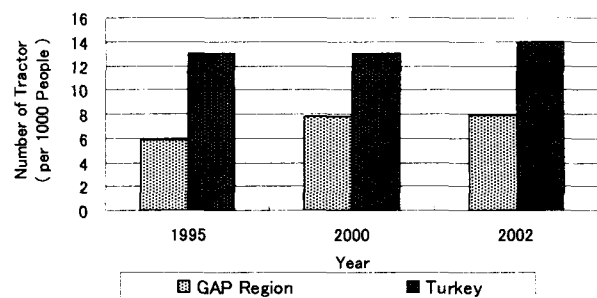


Fig. 5 Number of Tractor  
Source: SIS (2003d)

2002.

In the economic viability, it is a general concept, which includes social, environmental, agricultural sustainability, and human development components. Moreover, these components are also very closely related with some other issues such as building of regional transportation system, more accessible credit policies for small-scale investment projects, more improved communication systems among economic/social organizations or local/central bodies, and training centers with using high-tech equipment. Therefore, GDP per capita, one of the main indicators of economic viability will be investigated in the following part of study as the second research focus.

#### 4 DISCUSSION

As giving some data about Turkey and GAP region, it is aimed to show the generalities on social and economic tendencies of both Turkey and GAP region. Therefore, population and GDP per capita indicators were chosen to discuss the developments in Turkey and GAP region. Additionally, the comparison of Turkey and GAP region will give us a perspective to analyze the effect of GAP project on the region.

As seen in Table 1, the growth rates of both Turkey and GAP region have decrease tendency during the last two decades. This means Turkey and GAP region are going towards a stagnation period in population growth. However, GAP region has faster decrease tendency than Turkey average. As the main reason of this, people in the region have also tendency to migrate to other areas in the western part of Turkey..

In this point, a very important question must be asked if a sustainable development was established and/or the living standards were improved in the region so why do they need to leave their homelands or what is the reason that region have lost its population during the last two decades at the same period of GAP project. It is such a paradox that regional development projects occasionally face it because population is also a determining factor of project reflection as much as project implementations.

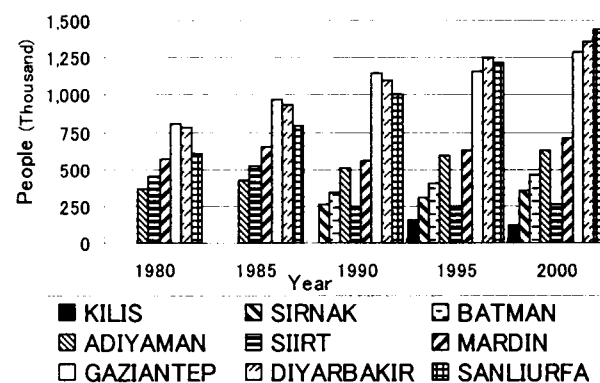
On the other hand, the movement of population among the provinces shows irregular distribution

as well. Especially, as seen in Figure 6, the population distribution in Siirt province has very serious decreasing trend while Sanliurfa province oppositely have been taking a very high population trend. This can be also interpreted as especially three provinces (Sanliurfa, Diyarbakir, and Gaziantep) in the region will be extremely affected by urbanization problems in the near future.

**Table 1 Rate of Population Growth**

| Year              | 1985 | 1990 | 1995 | 2000 |
|-------------------|------|------|------|------|
| <b>GAP Region</b> | 0.21 | 0.20 | 0.15 | 0.11 |
| <b>Turkey</b>     | 0.13 | 0.11 | 0.09 | 0.10 |

Source: SIS (2003e)



**Fig. 6 Population Growth in GAP Region's Provinces**

Source: SIS (2003f)

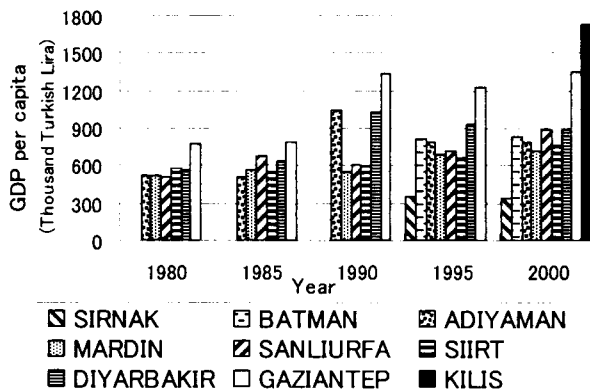
In terms of GDP per capita distributions, it is observed in Table 2 that there has been a very instable growth rate in both Turkey and GAP region, especially in 1990 and 2000. As a matter of fact, Turkey is a very sensitive country in terms of economic fluctuations in the global or domestic markets. For instance, the economic crisis and its stabilization program with very high level of devolution in exchange rates in 1995 affected all development targets in Turkey. However, it is very clear that GAP region and Turkey had increase values in the selected years. The remarkable observation in Table 2 is GAP region has faster growth rates than Turkey average, however, it never means that there is an equal income distribution among people that is why

**Table 2 Growth Rate of GDP per capita**

| Year              | 1985 | 1990 | 1995 | 2000 |
|-------------------|------|------|------|------|
| <b>GAP Region</b> | 0.07 | 0.38 | 0.20 | 0.35 |
| <b>Turkey</b>     | 0.10 | 0.22 | 0.12 | 0.22 |

Source: Karaca (2004) and SPO (2003b)

Note: Numbers in the table denote the average growth rate during five year.

**Fig. 7 GDP per capita in GAP Region's Provinces**

Source: Karaca (2004) and SPO (2003b)

Note: Units are in Thousand TL, at 1987 prices.

population growth rate is decreasing higher than Turkey average.

On the other hand, according to the population density and land surface area, the smallest province Kilis (see also Figure 1) had the highest per capita income value (Figure 7) in 2000. This is, of course, not because of increases in production capacity of the province, it can be just explained by the high level of informal economy. Besides, Adiyaman province also shows a very fluctuating trend with increase in 1990 and decrease 1995. In this regard, it is very difficult to state that there is an equal or balanced income development among provinces as well.

Consequently, it can be summarized that GAP project has affected and/or some provinces could be profited from GAP project's opportunities more effectively than others. For this reason, as a next step or planning period, the project implementation efforts must be focused on more balanced approaches not to accelerate inequalities among provinces of regions.

## 5 CONCLUSIONS

GAP is the most important and integrated regional development project ever undertaken by Turkey. GAP as a people-focused development project aims to draw the project area among the developed regions in Turkey, and of course, to promote equitable development.

If it is planned for achieving a sustainable development in the region, this approach needs to be structured again for the region in the view of sustainable development components. Eventually, these unbalanced socio-economic distributions as also explained in the previous parts of the study will affect the environment and living conditions of people more seriously in the future. And also, Turkey will not be able to take the benefits from the project inputs as planned and expected in the point of multiregional development targets.

In this regard, the creation of employment opportunity and its feasibilities, cooperation and participation with national and international investors should be main approaches by providing suitable infrastructure services. And of course, the improvements of land-use and agricultural planning system have additional importance in the solution of migration problem from the region. Finally, all strategies above have to be transformed in application field to create a synergy in the GAP region and extend it over Turkey.

## REFERENCES

- GAP – RDA (2002): The GAP Regional Development Administration, Overall Information on GAP, GAP Master Plan. <http://www.gap.gov.tr/>
- Karaca, O. (2004): Regional Income Differences in Turkey; Is There Convergence? Institute of Turkish Economy, 7, pp.13-15.
- SIS (2003a): State Institute of Statistic, Prime Ministry, Republic of Turkey. Provincial Indicators 1980-2003, Unemployment Rate, p.34.
- SIS (2003b): State Institute of Statistic, Prime Ministry, Republic of Turkey. Provincial Indicators 1980-2003, Ratio of Villages by Sufficient Freshwater, p.92.
- SIS (2003c): State Institute of Statistic, Prime Ministry, Republic of Turkey. Provincial Indicators 1980-2003, Share of Agricultural Employees in Total Employed Population, p.48.
- SIS (2003d): State Institute of Statistic, Prime Ministry,

- Republic of Turkey. Provincial Indicators 1980-2003. Number of Tractor, p.54.
- SIS (2003e): State Institute of Statistic, Prime Ministry, Republic of Turkey. Provincial Indicators 1980-2003. Population Growth Rate, p.4.
- SIS (2003f): State Institute of Statistic, Prime Ministry, Republic of Turkey. Provincial Indicators 1980-2003. Population, p.2.
- SPO (2003a): State Planning Organization, Southeastern Anatolia Project (Güneydogu Anadolu Projesi, GAP). <http://www.dpt.gov.tr/bgyu/> (in Turkish)
- SPO (2003b): State Planning Organization, Regional Development Report, Ekonomik Gelismeler. <http://www.dpt.gov.tr/bgyu/> (in Turkish)
- SPO (2004): Regional Development; Distributions of Provinces according to the Regions. <http://www.dpt.gov.tr/bgyu/>.
- Swiss Federal Institute of Environmental Science and Technology (2001): Center for International Studies, Case-Study: Southeastern Anatolia Project in Turkey – GAP, 2. pp.5-6.
- Unver, O. (1997): Water resources development, Southeastern Anatolia Project (GAP), 13, p.454.
- Unver, O. (2001): Southeastern Turkey; Sustainable Development and Foreign Investment, Gap Regional Development Administration Prepared For OECD-China Conference on FDI in China's Regional Development, p.2.
- WCED (1987): World Commission on Environment and Development. From One Earth to One World: An Overview. Oxford University Press, p.8.