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A NEW APPROACH FOR PLANNING AND ENVIRONMENTAL POLICIES IN REGIONAL DEVELOPMENT: SOUTHEASTERN ANATOLIA PROJECT (GAP) IN TURKEY AS A CASE STUDY

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The Southeastern Anatolia Project (GAP), one of the most ambitious regional development projects, is open to both planning and environmental developments. It has been carried out as a human resources by developing irrigation and energy project. This project is expected to cause important changes and transformations in the region when it is completed.

Major reasons of developing such an integrated regional development project can be expressed as follows: The undeveloped social-economic and cultural structure of the region, rich but unvalued natural resources and geo-political situation of the region.

Recently important strategic and political changes came into consideration. Especially, the concept of sustainability of the development has become dominant for this project; Beside physical developments, some concepts such as planning and environmental have started to become main topics.

The purpose of this study is to make clear the basic components of the project and developments, and to put forward the circumstances of obtaining sustainability of development. It is also aimed to analyse the processes which are being applied.

In the first section of this study, the Southeastern Anatolia Region and Southeastern Anatolia Project (GAP) a brief historical development will be introduced.

In the second section the concepts of planning and environmental which are being processed in the GAP Project will be explained and its human related and social dimensions will be analyzed.

¹ Las opiniones expresadas en estos artículos son propias de sus autores. Estos artículos no reflejan necesariamente la opinión de UNISCI. The views expressed in these articles are those of the authors. These articles do not necessarily reflect the views of UNISCI.

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In the last section the basic frame of the structure with which will be changed and developed is going to be analyzed. In this section proposals and approach necessary for the success of the project will be presented within planning and environment concepts.

1. Southeastern Anatolia Project (GAP)

The Southeastern Anatolia Project, the most ambitious initiative of the Republic of Turkey, covers an area of 74 000 square kilometres at the downstream of the Euphrates and Tigris Rivers and at the plains extending in between. The project consist of 13 project packages related to irrigation and energy production. Seven of these packages are in the Euphrates Basin and 6 in the Tigris. Upon the completion of the project about 1.7 million hectares of land will be brought under irrigation, and the energy production capacity of the region will be more than 27 billion kWh prior to irrigation and 23 billion kWh after irrigation (GAP Administration, a/1993).

GAP is a multi-sectoral and integrated regional development project based on the concept of sustainable development.

Its basic aim is to eliminate regional development disparities by raising people's income level and living standards; and to contribute to such national development targets as social stability and economic growth by enhancing the productive and employment generating capacity of the rural sector.

The original initiative consisted of irrigation and hydroelectric energy production projects on the Euphrates and the Tigris. Along the 80s, the project was transformed into a multi-sectoral regional development programme of a socio-economic character. This programme covers such sectors as irrigation, hydraulic energy production, agriculture, urban and rural infrastructure, forestry, education and health.

Its water resources programme envisages the construction of 22 dams and 19 power plants and irrigation schemes on an area extending over 1.7 million hectares. The total cost of the project is 32 billion US \$. The total installed capacity of its power plants is 7476 MW which means an annual production of 27 billion kWh.

The project is based upon the concept of sustainable development which aims at generating an environment in which future generations can fully develop themselves and reap the benefits of development.

Equitable development, participation, protection of the environment, employment generation, spatial planning and infrastructure development are the basic strategies of GAP.

By this time, Southeastern Anatolia Region with its agricultural structure has not been able to break the growing circle of existing backwardness; and has not been able to use her rich resources for the development.

Region's significant backwardness in all areas, geopolitical position, unutilized rich resources and facing the major investments like irrigation and energy in GAP Project resulted industrialization as an undeniable economic, social and political targets for the region.



Meanwhile, the only way to close the gap compare to other developed regions is in order to get region's industrilization; changing from an agricultural society to an industrialized one (Acma, 2000).

1.1. Socio-Economic Characteristics of the GAP Region Area and Population

Area: Covering the provinces of Adiyaman, Batman, Diyarbakir, Gaziantep, Kilis, Mardin, Siirt, Sanliurfa and Sirnak, the GAP Region has an area extending over 75,358 square kilometres which corresponds to 9.7 % of the total area of the country.

Population: According to Census results (1997) the population of the region is 6,128,973 which corresponds to 9.7 % of the total population of the country (62,865,574). Urban-rural distribution of population is, respectively, 64 % and 36 %.

In the period 1990-1997, the rate of population growth was 2.5 % for the region whereas the country average was 1.5 %.

When we look at the issue in terms of urban and rural rates of population growth, the rate of urban population growth in the region is 4.6 %. This is quite high compared to the overall urban population growth rate which 2.9 %. Growth rate of rural population, on the other hand, is falling both in the region and in the country. The corresponding values are -0.5 % and - 7 %, respectively, for the region and the country, showing that the slowing down in the rate of growth of rural population is faster in the country than it is in the region.

In the region, the share of urban population was 56 % in 1990, later to rise to 64 % in 1997. The share of rural population dropped from 44 % to 36 % in the same period.

This high rate of urban population growth in the GAP region put a further stress on already insufficient urban infrastructure services at the first hand.

Furthermore, unless appropriate measures are taken, the problems of employment will further aggravate (Republic of Turkey Prime Minister, 1991).

1.2. Basic Magnitudes in GAP

When the project is completed, 28.5 % of the total water potential of the country will be brought under control through facilities on the Euphrates and the Tigris which together flow more than 52.94 billion cubit metres of water annually. It will be possible to irrigate 1.7 million hectares of land, 4.5 times larger than Cukurova, and produce 27 billion kWh energy at an installed capacity of 7460 MW annually. The planned irrigation area corresponds to 20 % of total irrigable land in Turkey, while annual energy production will have a share of 22 % of total energy production capacity of Turkey. Energy to be produced upon the completion of the energy production programme of GAP Project will be equal to Country's total hydraulic energy production in 1988.

The dams of Karakaya and Atatürk provide a substantial part of energy circulated in the interconnected system.

Energy supply of these two dams reached 116 billion kWh as of the end of 1997. This corresponds to a value of 7.8 billion dollars and makes up about a half of the total hydraulic



energy production of Turkey. GAP Project's share in total energy production (thermal and hydraulic) of the country is 20 %. The region's contribution to the economy of the country can be conceived better if it is considered that the total energy production of the region is equivalent to 28 million tons of fuel oil or 23 million cubic metres of natural gas.

When the irrigation projects of GAP Project are complete, the area brought under irrigation will be equal to the total area so far brought under irrigation by the State. High agricultural and industrial potential to be generated by GAP Project will increase the total economic output of the region 4.5 times and generate employment for 3.5 million people in a region whose population will then reach 9-10 million. Along with the expansion of area under irrigation, expected increases in crop yield is 104 % in wheat, 69 % in barley, 388 % in cotton, 556 % in tomato, 24 % in lentil, and 80 % in vegetables.

At present, 203,080 hectares of land is irrigated in the region by networks constructed by the State Hydraulic Works and the region has a share of about 36 % in the total cotton output of Turkey.

Taking 1985, the year GAP Master Plan was phased in as a base, per capita Gross Regional Product (GRP) was 47 % of Turkey's per capita Gross Domestic Product (GDP). The Master Plan projects an annual increase of 7.7 % in GRP. Projected annual increases in individual sectors are given below (at 1987 fixed producer prices).

- Gross Regional Product : 7.7 %
- Agriculture : 4.9 %
- Industry : 10 %
- Construction : 6.6 %
- Services : 9 %

Along with the change in the economic structure of the region, the share of agriculture will drop from 40 % to 23 % while that of industry will rise from 15 % to 24 %, and services from 44 % to 53 %. Per capita GRP will, at 1997 prices, approximately double and reach 235 million TL(GAP Administration, b/ 1993).

2. Concepts of Planning and Environmental of Southeastern Anatolia Project

The Southeastern Anatolia Project (GAP) which is the biggest project of the republican era, is an ambitious project in terms of the geographical area it covers, its physical magnitudes and objectives when compared with the similar other projects throughout the world.

GAP is a multi-sectoral, integrated regional development project being carried out in 9 provinces of the Southeastern Anatolia Region which is a relatively underdeveloped region in Turkey.



As an integrated project, it is not limited to the dams, hydro electric power plants, irrigation systems only; but it contains industries and investments for the development of socio-economic sectors such as agricultural development, industry, urban and rural infrastructure, communication, education, health, culture, tourism and other social services in a coordinated way.

GAP set its own objectives within the framework of the government's overall policy aimed at the elimination of the interregional disparity which gain a gradual importance.

GAP coincides with the government policies to the effect that stirring the development potential in the underdeveloped regions will contribute to the national objectives such as the economic growth, social order and export encouragement. Actually, when GAP Project's development objectives are studied this trend can clearly be seen.

2.1. General Development Objectives

- To raise the income level in the GAP Region by improving the economic structure in order to narrow the income disparity between the Region and other regions,
- To increase the productivity and employment opportunities in rural areas,
- To enhance the assimilative capacity of larger cities in the Region,
- To contribute to the national objectives of sustained economic growth, export promotion and social stability by efficient utilization of the Region's resources.

2.2. GAP's Planning Approach

As clearly defined in the GAP Master Plan, the ultimate target of GAP is to contribute to the economy of the country by raising the income level of the individuals through regional economic development. One of the two inter-related features of GAP is an integrated approach which covers different sectors (agriculture, industry, education, social services) in a coordinated way and the other is a sustainable development.

With these two characteristics, GAP not only aim at economic growth but also a social metamorphosis in the region.

The original goal of GAP development plan is to increase the efficiency of the investments made on irrigation and hydro-electric power, in coordination with other related projects and investments made in other sectors.

In concurrence with agricultural development, raise in the income level of the individuals, change in their consumption-production patterns which will be reflected in their life-styles and resulted in an overall social improvement, will be realized.

In this context, projects to be developed will contribute to filling the gaps in meeting the needs, identifying social tendencies and potentials for change, adjusting people to the new economic and social order.

The list of the conducted research projects in the Region to identify the needs and potential of the Region is given below:



- Social Change Trends in the GAP Region.
- Demographic (Population) Movements in the GAP Region.
- Status of Women and their Integration into the Development Process in the GAP Region.
- Resettlement and Reemployment problems in the areas Effected by Dam Construction.
- Socio-Economic Studies of the Project on Management, Operation and Maintenance of the GAP Irrigation Systems.

The aim of the projects is to collect information on the social and cultural structures of the Region, the economic expectations of the people and the demographic trends in one hand and to encourage the communal participation and to integrate every group in the Region into the development process (women, nomads, urban destitute, people without land) in the other hand, by defining ways of reducing the socio-economic disparity between these groups, to develop concrete action plans under the light of these pieces of information and present them to the attention of the involved institutions and organizations.

"GAP Social Action Plan" was developed policy goals, strategies and programs. The plan includes seven headings as organization and participation, population movements and settlement, education, health, agricultural extension, employment, ownership and use of land (GAP Administration c/1993).

3. Sustainable Development and Basic Strategies of GAP

Sustainable development was defined by the Brundtland Commission as one that "meets the needs of the present without compromising the ability of future generations to meet their own needs. "Under this very broad definition, there are many issues which must be considered: social, economic, cultural, gender, educational, health, physical planning, agricultural, environmental, institutional, among others. At the hub of all these issues is people, either as object, or as the agent, or both. Hence, human development is the core of sustainable development of the GAP Region. Consequently, GAP has adopted two main approaches:

- integrated, regional development and multi-sectoral planning as opposed to project-specific development and sectoral planning and
- sustainable development.

In order to define the scope and composition of sustainability for GAP , a participatory approach was adapted. A seminar was jointly sponsored by UNDP and GAP Administration in March 1995 attended by a large number of different stakeholders of the development process of the GAP Region. Consensus was reached on the following issues.

a) Community participation in decision making process in project design and implementation; providing equity and fairness among population groups; providing a sustainable population structure; and developing human resources in the field of education, training and provision of health services.



b) Providing adequate shelter for all; improving human settlement management; promoting sustainable land use planning; promoting integrated provision of clean water, sanitation, solid waste disposal etc.

c) Management of human activities geared to development goals and initiatives; controlling harmful impacts of human activities on the environment.

d) Land and water resources are used for a variety of purposes which interact and may compete with one another. It is desirable to plan and manage all uses in an integrated manner. Integration should take place at two levels, the first level considers social and economic factors and the second covers environmental and resource components (water and soil resources conservation and protection).

e) Sustainable agricultural development requires not only conservation, reuse, minimization of environmental damages, but also suitable- production practices, appropriate technology, profitability, a system of reinforcing incentives and enforcement of relevant laws and regulations.

f) Use of economic instruments and development of means of institutional mechanism and incentives to encourage small -scale entrepreneurs and industry.

Based upon the results of this Seminar and the objectives and targets of the GAP Master Plan, following "sustainability" goals have been adapted for the development process:

- Increasing investments to the best achievable level which would accelerate the economic conditions of the Region;
- Enhancing healthcare and education services so that they reach national levels;
- Creating new employment opportunities;
- Improving the quality of life of the cities and improving urban and social infrastructure so as to create healthier urban environments;
- Completing the rural infrastructure for optimal irrigation development;
- Increasing the inter -and intra -regional accessibility;
- Meeting infrastructural needs of existing and new industry;
- Protecting water, soil and air and the associated ecosystems as a priority consideration; and
- Enhancing community participation in decision-making and project implementation.

3.1. Sustainable Development Programme in GAP Project

The ultimate aim of GAP Project is to ensure sustainable human development in the region. Therefore it is a human centred development process. Physical structures which are now being built will be the basis of human development. The aim of sustainable development will be achieved by eliminating disparities, spreading welfare, ensuring community participation and developing human resources. The combination of economic growth targets with a human



development perspective envisages the transformation of the projected social change into participatory solutions specific to the eco-system and cultural make-up of the region.

The Earth Summit held in Rio in 1992 had adopted a document titled "Agenda 21". The Agenda includes some basic principles which are to be adapted to the specific circumstances of individual countries. In this respect, GAP Project's planning and implementation for sustainable human development fully confirm to these basic principles. This planning and implementation have the following basic principles:

- Participation
- Equity
- Development of Human Resources

Participation is conceived as the active presence of all stakeholders in the processes of project development, decision making, implementation, monitoring and evaluation. This principle is valid for all projects. When translated into actual processes, the principle yields ample benefits by raising awareness, enhancing the social feasibility of projects, reducing costs and by actually solving problems. One of its side effects is the democratisation of communities involved.

The second principle, equity or fairness in development means the integration of those who are in socially, culturally or economically disadvantaged positions to the process of development. As far as GAP is concerned, such disadvantaged groups are identified as women, children, landless peasants, small farmers and farmers living in areas not under irrigation. Special programmes are being developed with the participation of such groups.

In sum, GAP Project's aims include sustainable economic growth; fair income for all; better access to such services as education, health and cultural activities; sustainable utilisation of natural resources; a clean and safe environment; decent sheltering for all; and participation to decision making. All these mean the creation of sustainable society which progresses through its internal dynamics.

This sustainable human development approach has started to attract the attention of various international organisations and foreigners. For example, the United Nations Development Programme (UNDP) shows its interest by supporting the project (GAP Administration and UNDP, September 1997).

UNDP and GAP co-sponsored the Symposium "Sustainable Development and GAP Project" which took place in March 1995. The event was participated by the representatives of universities and local and private organisations.

The seminar was a platform on which the principles of sustainable human development were discussed in the context of GAP.

The seminar also formed the basis of the present Sustainable Development Programme in GAP which is being carried out jointly by the GAP Administration and UNDP since March 1997.



The programme supports the implementation of 29 sub-projects presented below under five headings:

- Encouragement of social sustainability and improvement of social services,
- Encouragement of agricultural sustainability and improvement of rural productivity,
- Encouragement of local entrepreneurship and industrial development for economic viability
- Encouragement of sustainable human settlements,
- Sustainable utilisation of natural resources at an optimal level(GAP Administration, April 1996)

3.2. Examples of Projects Implemented through the Approach of Sustainable Human Development

The projects listed below are actually interrelated within the framework of sustainable human development. The list includes a grouping for analytical purposes.

1. Projects for Environmental Protection: The outputs of these projects can be taken under two main headings.

- (i) to create the conditions which allow future generations utilise natural resources; and
- (ii) to create healthy and safe living conditions for people.

- Management-operation-maintenance of GAP irrigation systems (GAP-MOM),
- Regulation of irrigation water and introduction of methods and technologies which save water,
- Pilot implementation for a modern irrigation technology,
- Urban waste water treatment,
- Re-use of water after irrigation,
- Eastern Anatolia erosion control and watershed rehabilitation project,
- Protection of bio-diversity,
- Environmental work in the GAP region -The Euphrates Basin,
- Environmental work in the GAP region - The Tigris Basin,
- Assessment of climatic conditions in the GAP region for the present and near future.



2. Urban Planning and Infrastructure Projects: These projects are developed and materialised with the participation of people. Participation assures the social feasibility of projects and helps the promotion of a democratic culture in urban management and life. The projects aim at raising the quality of urban life.

- Participation to urban zoning and planning,
- Resettlement and employment of people affected by dam lakes,
- Ataturk Dam Lake sub-region development plan,
- Eco-city and eco-village planning and development works in pilot areas.

3. Projects for the Elimination of Disadvantaged Positions and Poverty: These projects aim at gender balanced development; closing income gaps; better access to health, education and social services; and awareness building.

- Establishment of multi-purpose community centres for women (CATOM),
- Enhancement of the income level of people living in areas out of the coverage of irrigation,
- Distribution of treasury land to landless peasants,
- Establishment of centres for supporting and guiding entrepreneurs (GAP-GIDEM).

4. Human Resources Development and Institutional Arrangements: These projects enhance efficiency and income and also set the conditions of internal and external participation.

- Transfer of irrigation systems to farmers,
- Institutional capacity building,
- Farmers' training and extension,
- Agricultural research and development projects,
- Consolidation of farm lands(GAP Administration, September 1999).

4. GAP Project Will Change the Socio-Economic Structure of the Region

The integrated project covers not only multi-purpose dam and irrigation schemes but also investments in such development related areas as agriculture, energy, transportation, telecommunication, health, education and urban and rural infrastructure building.

The basic development scenario of the GAP Master Plan(GAP Master Plan, 1991) is to transform the region into a “base” for agro-industrial products. In more concrete terms, the GAP envisages the following:



- Irrigation of 1.7 million hectares of land,
- Production of 27 billion kWh energy,
- 106 percent increase in Per capita income, and
- Generation of employment for 3.8 million people.

“Sustainability” is the basic development approach of the GAP. Its basic components are:

- Sustainability of irrigation,
 - Environmental sustainability,
 - Sustainability of agricultural production,
 - Social sustainability, and
 - Spatial sustainability.
- Sustainability and human development in GAP:
- Sustainability of natural resources and the environment,
 - Sustainability in agriculture (irrigation, soil and land use),
 - Sustainability of economic dimensions (development, growth, employment and marketing),
 - Spatial sustainability (carrying capacity),
 - Social sustainability (development of human resources, participation, equity).

Conclusion

The GAP Project, which is one of the most important development projects in the world, is based on a sustainable development and is human oriented. Actually, in recent years the concepts of sustainable development and regional development have become a complementary concept to each other.

In order to develop the Southeastern Anatolia, which has underdeveloped socio-economic structure and unvalued natural resources up to now, only physical development is not satisfactory. The most important thing to do is to realize the regional development process. But this process must be accorded with both socio-economic and cultural structure.

Recent years, cooperation with some national and international organizations such as UNDP and joint projects have brought out a new meaning and acceptance of a new approach for the GAP Project.



Both participating of region inhabitants to GAP Master Plan, and establishing a sustainable frame will help the GAP Project become a more effective and functional regional development project.

Moreover, it will be inevitable to join some dimension; such as sustainability, public funds and encouragement, participating of inhabitants, a new vision approach. All those dimensions must be directed to the GAP Project.

Bibliography

Acma, Bulent (2000): "Industrialization Strategy of Southeastern Anatolia Project in Turkey". Invited paper in *APDR Conferences*, Ponta Delgade University of Azores, in Portugal 29 June-2 July 2000.

GAP Administration (1993a): *GAP Status Report*, Republic of Turkey Prime Ministry, in Turkish, Ankara.

GAP Administration (1993b): *GAP Action Plan*, Republic of Turkey Prime Ministry, in Turkish, Ankara.

GAP Administration (1993c): *Social Trends ant Attitudes Towards Transformation in GAP Region*, Republic of Turkey Prime Ministry, in Turkish, Ankara.

Guastello, S. J. (1995): *Chaos, Catastrophe, and Human Affairs: Applications of Nonlinear Dynamics to Work, Organizations, and Social Evolution*. Hillsdale, NJ: Lawrence Erlbaum Associates.

GAP Administration: *GAP Project an Innovative Approach to Integrated Sustainable Regional Development* (April 1996)., Republic of Turkey Prime Ministry, Ankara.

GAP Administration and UNDP: *Sustainable Development Programme in GAP* (September 1997), Republic of Turkey Prime Ministry, in Turkish, Ankara.

GAP Administration: *Latest State in GAP* (September 1999), Republic of Turkey Prime Ministry, Ankara.

Hart, M. (1998): *Sustainable Community Indicators: Trainer's Workshop*. North Andover MA.: USEPA Office of Sustainable Ecosystems and Communities and the Lowell Center for Sustainable Production at the University of Massachusetts.

Krizek, K. and Power, J. (1996): *A planner's Guide to Sustainable Development*. Pas Report: 467, Chicago, Ill.: American Planning Association.

Meadows, D. H., Meadows, D. L., Randers, J., and Behrens, W. W. III (1972): *The Limits to Growth*. New York: Universe.

President's Council on Sustainable Development (1996): *Sustainable America: A New Consensus*. Washington, D.C.: U.S. Government Printing Office.

Republic of Turkey Prime Minister (1991): "GAP Master Plan". Ankara.

United Nations (1992): *Agenda 21: Programme of Action for Sustainable Development*. New York: United Nations.