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Agricultural development strategies and southeastern Anatolia project regional development activities in the GAP region

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SUMMARY – GAP is the largest regional development project in Turkey, and also one of the major projects in the world. The GAP project area lies in southeastern Turkey, covering the eight provinces of Adiyaman, Batman, Diyarbakir, Gaziantep, Mardin, Kilis, Sanliurfa and Sirnak. The population of the region in the 1997 census was 6,152,000, of which 35.93% was urban. There are 13 projects in the lower Firat and Dicle basins that consists of dam hydropower plants and irrigation schemes and accompanying growth of agriculture, transportation, industry, telecommunications, health and education sectors and services in the region. The GAP area is bigger than Holland, Denmark, Belgium, Ireland and Luxembourg.

Key words: Turkey, southeast Anatolia Project, agriculture, irrigation.

RESUME – "Stratégies de développement agricole et activités de développement régional du projet du Sud-Est Anatolien dans la région GAP". Le GAP (Projet de la Grande Anatolie) est le plus grand projet de développement régional en Turquie, et également l'un des plus grands du monde. La zone objet du projet GAP se trouve au sud-est de la Turquie, couvrant les huit provinces de Adiyaman, Batman, Diyarbakir, Gaziantep, Mardin, Kilis, Sanliurfa et Sirnak. La population de la région lors du recensement de 1997 était de 6 152 000 dont 35,93% étaient des citadins. Il y a 13 projets dans les basses vallées du Tigre et de l'Euphrate qui consistent en des centrales hydroélectriques de barrages et des programmes d'irrigation, accompagnés du développement des secteurs et services de l'agriculture, transport, industrie, télécommunications, santé et éducation dans cette région. La région GAP est plus grande que la Hollande, le Danemark, la Belgique, l'Irlande et le Luxembourg.

Mots-clés : Turquie, projet du Sud-Est Anatolien, agriculture, irrigation.

Indroduction

GAP is the largest regional development project in Turkey, and also one of the major projects in the world. The GAP project area lies in southeastern Turkey, covering the eight provinces of Adiyaman, Batman, Diyarbakir, Gaziantep, Mardin, Kilis, Sanliurfa and Sirnak.

There are 13 projects in the lower Firat and Dicle basins that consist of dams hydropower plants and irrigation schemes and accompanying growth of agriculture, transportation, industry, telecommunications, health and education sectors and services in the region. A total of 22 dams and 19 hydropower plants are to be constructed by DSI. The total surface area is 75,000 km², of which 42.2% is cultivated (36% rainfed), 33.3% pastures and 20.5% forest and bush. The GAP area is bigger than Holland, Denmark, Belgium, Ireland and Luxembourg.

The population of the region in the 1997 census was 6,152,000, of which 35.93% was urban.

The GAP region includes 3.1 agricultural area. It covers nearly 10% of the total area of Turkey and 9.7% of the national total population. These Firat and Dicle rivers constitute 28% of the total water potential of Turkey. The irrigable land in the GAP region, which is 1.7 million hectares, is equal to 20% of the economically irrigable land in Turkey.

In the GAP Master Plan, the strategy adopted for the regions development has the following four basic components:

(i) Develop and manage soil and water resources for irrigation, industrial and urban uses in an efficient manner.

(ii) Improving land use through optimal cropping patterns and agricultural practices.

(iii) Promote agro-industry and other types of industry based on indigenous resources.

(iv) Provide better social services, education and employment opportunities to control migration and to attract qualified personnel to the area.

The GAP Master Plan's basic development scenario is to transform the region into an export base for its agricultural products.

For the development of the region, three main cities, that is Gaziantep, Sanliurfa and Diyarbakir, are considered to be the main development axis. Investments are to be concentrated along this corridor for improving infrastructure and for attracting agro-industry and other employment-generation opportunities. For the medium-to-long term, this corridor will be expanded by promoting economic interaction with other sub-regions.

As a direct result of the introduction of irrigation, agricultural production and crop variety will increase substantially. An increase in agricultural production contributes to infrastructure development and increased economic activities accelerate development of agro-industry and other agricultural services. The region is fast becoming attractive for domestic and foreign investment projects.

As a direct result of the GAP investments, the living standards of many inhabitants have already started to increase. With progressive implementation, more and more people have become direct beneficiaries of the project. Rural-urban interactions have increased following the construction of the transportation and communications networks. The region is becoming more open to the outside world and thus attracts additional investments.

The project is socially essential as it is intended to significantly improve the living standards and quality of life of local people, increase their per capita income, create new employment opportunities, and protect the environment.

Agricultural development objectives

The aim of agricultural progress

The aim of agricultural progress in the GAP region is to increase crop production, livestock and fisheries and on the basis of the analysis in the present conditions in the GAP region with its resource base: (i) to raise the income level in rural areas; (ii) to supply sufficient inputs to agro-processing industries in the region; (iii) to increase employment opportunities to minimize the drift of people out of the rural areas; and (iv) to contribute to the production of exportable surpluses.

Agricultural development strategy

Basic strategy

(i) To develop and manage water and related land resources for irrigation.

(ii) To improve land use by managing cropping patterns and establishing better farming practices and farm management.

(iii) To promote the manufacturing industry with emphasis on agro-related ones and those based on indigenous resources.

Overall strategy

(i) To provide irrigation facilities effective in overcoming adverse agro-ecological conditions.

(ii) To promote farm mechanization in proper combination with the application of fertilizers, agro-chemicals and irrigation water.

(iii) To distribute better inputs timely and in sufficient quality and quantity.

(iv) To improve land tenure systems.

(v) To improve pricing and marketing to give incentives for farmers.

Sub-sectors strategy

Irrigation development

(i) To identify and promote strategic crops in view of marketability and agro-ecological conditions.

(ii) To encourage high crop intensity by establishing crop cycles and adjusting water charges.

(iii) To organize farmers in irrigated areas for on-farm water management and extension.

Livestock

(i) To improve husbandry productivity by:

- Improving the local cattle breeds through artificial and natural insemination.
- Improving feeding by pasture management and forage and feed concentrate production.
- Improving veterinary services.

(ii) To improve the physical infrastructure to promote commercial livestock production.

Fishery

(i) To utilize dam lakes to promote inland fishery.

(ii) To provide a package of support services for aquaculture including hatchery, fingerling production, training and research, processing, marketing and pricing.

Forestry

To conduct intensive afforestation within the designated forest areas and areas around the reservoirs and to encourage on-farm tree planting.

Ministry of southeastern Anatolia Project regional development administration activities

Land-water resources projects

(i) Ceylanpinar groundwater feasibility study. Ceylanpinar groundwater feasibility studies aim to determine correct water potential and planning of irrigation systems.

(ii) Regulation of water in irrigation canals. Regulation of irrigation water in Turkey has traditionally been source controlled. With the irrigation methods and technologies project, gated-controlled distribution is being introduced in the country's largest irrigation network. Automatic controlled radial shutters in the canals are being used to distribute water through the network in accordance with the balance between demand and supply.

(iii) Comparing different irrigation methods and technologies projects. Of the water distribution systems in use in Turkey, four were selected for pilot implementation over a 3000 ha area in Harran Plain. These four systems are: the pressure system, the low pressure system, unit area-unit canal system and classical DSI canal network system.

(iv) New irrigation methods and technologies. Demonstration activities under this project have started in parallel to commencement of irrigation, for introducing and promoting expanded use of irrigation methods and technologies.

(v) Irrigation system management project (operation, maintenance and management of irrigation systems in the GAP region). The Irrigation System Management Project aims at determining methods of transfer, distribution and application that maximize irrigation water's productivity value while minimizing the negative impact of irrigation and drainage activities on the environment; determining management structures that would provide for adaptation of the irrigation infrastructure to the likely changes in three factors, namely, water availability, climatic conditions and cropping patterns; applying the management rules on all the elements of the irrigation system both during consistency in the system's performance for operation of the infrastructure efficiently and with minimum interruption.

(vi) Land consolidation. Where open canal and canalet irrigation systems are prevalent, land consolidation projects must be completed prior to irrigation in order to keep the soil fertility level to provide efficient use of irrigation water. Among the benefits of consolidation one can reiterate: uniform water distribution, limited land fragmentation, suitable parcel shapes, elimination of joint ownership of titles and provision of ownership rights on a personal basis, and finally increased income levels through adoption of better Agricultural technologies.

(vii) Sanliurfa-Harran Plain on-farm and village development project.

Financial studies

(i) Economic analysis of agricultural enterprises in the GAP region; survey on short, medium and long term credit needs. Objective of the survey include the following: exposing the present socio-economic structure of agricultural enterprises in the region and credit facilities available to farmers; identifying the causes of bottlenecks and shortcoming in this field; assessing the short, medium end long term credit needs of agricultural enterprises of varying sizes with respect to crop patterns (under irrigated and dry farming) and corresponding costs; and developing alternative agricultural credit extension models which can be functional in the region.

(ii) Agricultural marketing and crop pattern. With the expansion of land under irrigation, there will be substantial increases in the total agricultural output of the region as well as a diversification of crop types. The objective of the study which started out from this fact is to supply data to agricultural policies and planning work for to the next 15-20 years in line with the changing socio-economic structure of the region, its water and land resources, and with the supply-demand projection made for domestic and international markets.

(iii) Post-harvest technologies in fresh vegetable and fruit culture. The survey investigates the ways of utilizing the potential of the region in terms of fresh fruit-vegetable progressing and marketing with a specific reference to the perspective of expanded irrigation. The survey thus covers investigations on post-harvest technologies suitable to the region, identification of post harvest technologies to be adopted and ways to improve storing, sizing, progressing and marketing conditions.

Agricultural research and development

(i) Cukurova University research and development project packets. Although the university is located in Adana, it has a large and qualified faculty with research experience in cotton.

(ii) Harran University research and development project packets. Within the framework of a protocol of research and development, a research station was established. The projects are continuing.

(iii) TUBITAK research and development project packets. GAP-RDA and Scientific and Technical Research Council of Turkey (TUBITAK) signed a protocol to operate the station for 2 years. Projects are funded by a credit taken from World Bank for GAP Researches to TUBITAK. Research is ongoing on corn, wheat, cotton, soybeans, vegetables, fruits trees and irrigation technologies.

Rural development projects

Raising the income level of people living in non-irrigated areas

The GAP Administration accordingly developed the project "Raising the Income Level of People Living in Non-irrigated Areas" to depict the population potential of such people, existing socio-economic status, their natural and social environment and to develop and introduce new skills and areas for income generation: (i) to establish demonstrative fruit orchards; (ii) mushroom, beekeeping and capparitis growth; (iii) to develop greenhouse farm; and (iv) fisheries.

Mechanization

(i) Study on the needs of agricultural mechanization in the GAP region. Procurement and utilization models; planning for the production of Agricultural machinery in the region; spotting of maintenance-repair stations; and introduction of models for collective machinery use within the irrigation district of the GAP region.

(ii) Collective use machinery. The objective is to make agricultural machinery available to farmers who do not own them in order to remedy capital outlay shortages and limited farm sizes and to support low income farmers to adapt themselves to agricultural mechanization based on advanced technology.

Livestock

Livestock has great potential to increase exporting, to supply raw material, to succeed balanced and sustainable development between region and sectors, to tackle employment in rural areas, to enable new employment opportunities in industry and service sector with the bases of development finance to the source.

(i) On-contract livestock breeding project in Sirnak. The solidarity Fund of the Governate of Sirnak and Agricultural Directorate under the technical supervision of GAP administration to promote small head animal husbandry. 990 Ivesi type animals, that is 900 sheep and 90 rams, were taken from Ceylanpinar farmland distributed to 90 farmers.

(ii) Organized livestock project in Batman. Farmers who are engaged in animal husbandry at the center of Batman will be moved to an out-of-town organized site to continue their activity under more modern and improved conditions This will contribute to quality improvement and healthier growth of central town.

International projects

- (i) ICARDA Project Packet.
- (ii) IWMI Project Packet.
- (iii) FAO Project Packet.
- (iv) MASAHAV Project Packet.

Conclusion

The overall objective of all projects phased in the GAP regions is to raise the welfare level of people and contribute to the national economy. Implemented and on going projects are certified by GAP administration and private sectors. In this case, the main purposes are to bring new agricultural methods and technologies to the region.

As the project area is wide and heterogeneous, grass roots participation is essential. Such grass roots participation is foreseen in all agricultural and rural development approaches, activities and

projects. The activities and projects are generally small scale and a demonstrative aiming sample for the region to be extended in all possible areas. GAP RDA activities are based on co-ordination principles which ensures global regional development and sustainability. Thus GAP RDSA has very close contact and joint activities with other official or private sectors as well as target groups.

As a direct result of the introduction of irrigation, agricultural production and crop variety will increase substantially. An increase in agricultural production contributes to infrastructure development and increased economic activities accelerate development of agro-industry and other agricultural services. The region is fast becoming attractive for domestic and foreign investment projects.