POLICIES TO STRENGTHEN TURKISH AGRICULTURE FOR ADAPTATION TO CLIMATE CHANGE


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Introduction

Climatic uncertainties are the major constraints for development of agriculture in Turkey. Being in the Mediterranean basin, the country is expected to be affected by global warming and climate change as other countries in the region. Even without further worsening, frequent drought spells and irregular precipitation already cause concerns for agricultural production. However, diverse natural resources offer opportunities to design policies for adaptation of agricultural systems to changing climatic conditions.

Overall coordination of climate change related actions in Turkey has been assigned to ‘The Coordination Board on Climate Change - CBCC) which was established in 2001 to work as an advisory group reporting to Council of Ministers and underwent a number of revisions since then (1). At present, overall coordination responsibility of this board is designated to Ministry of Environment and Forestry. The board is composed of all relevant ministries and institutions including Ministries of Environment and Forestry, Agriculture and Rural Affairs, Foreign Affairs, Finance, Public works and Settlement, Transport and Communication, Industry and Trade, Energy and Natural Resources, Health, Treasury and State Planning Organization as well as the Union of Chambers and Exchanges (TOBB) and Association of Industrialists and Businessmen as non governmental organizations. The objective of the Board is to establish and coordinate policies and measures towards climate change. Technical work of the Board is executed through a number of working groups which includes, among other specific topics, use of land resources, adaptation, training and awareness raising, education, financing, energy, greenhouse gas inventory and policy and strategy development.

A number of projects and programmes have been initiated (2) to strengthen capacity of Turkey in order to improve resilience of the country to climate change. Nationally financed activities have been complemented by projects that are financed by international funds including UN MDG Achievement Fund. As a result of these initiatives a number of capacity building projects have been put into action and the ‘National Climate Change Strategy Paper’ has been produced to design strategies for the period 2010-2020 (3). The strategy paper outlines short, medium and long term actions in various areas as well as the national vision and strategic objectives towards climate change.

In principle, these initiatives foresee development of policies to mainstream climate change actions in national development plans and capacity development for managing disasters induced by climate change. Specific objectives include development of policies for capacity building, research and development and technology transfer as well as land use, agriculture and forestry.
Agricultural Strategies towards adaptation to climate change

Agricultural policies outlined in the National Climate Change Strategy Paper concentrate on capacity building, conservation of natural resources and planning process for development and use of advanced technologies to ensure efficient use of inputs such as water, land, seeds, fertilizer and pesticides in view of climate change. In this context, the Ministry of Agriculture has taken a number of actions in order to strengthen the capacity of the agricultural systems to adapt to climatic constraints. Some of these actions have direct linkage with climate change matters while some have indirect consequences. These actions can be considered in categories of institutional arrangements and programme development.

Structural arrangements

Drought is the most immediate impact of climate change and a major structural initiative has been taken for its management by establishing a ‘Agricultural Drought Management Board’ under the coordination of Ministry of Agriculture and Rural Affairs. This Board includes members from other stakeholders such as State Planning Organization, Ministries of Finance, Interior, Energy and natural Resources, Environment and Forestry as well as Ankara University and Non Governmental Organizations such as Union of Chambers and Commodity Exchanges (TOBB) and Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA). As an output a strategy paper and an action plan have been developed for monitoring and management of agricultural drought. According to this action, plan immediate actions concentrate on establishment of structures for monitoring, forecasting, early warning and risk assessment while long term strategies include capacity and programme development to facilitate adaptation of the agricultural systems to drier conditions.

Current institutional arrangements concentrate on capacity development and restructuring some of the institutions to strengthen research, development and planning efforts towards adaptation to climate change. These efforts aim at facilitating more efficient use of land and water resources as well as adaptation of production systems to drier conditions. In this respect, The General Directorate of Agricultural Research (GDAR) has designated 8 Research Institutes located in different regions as Land and Water Research Institutes, those located in Sanlıurfa and İzmir having primary responsibility for research and training in development of irrigation technologies to improve water use efficiency. The International Agricultural Research and Training Center based in İzmir, also provides international research and training services in irrigation technologies and in agriculture in general (4).

In addition, GDAR is at present undertaking an infrastructure development programme to establish a Center for Drought Tolerance Screening at the BD International Research Institute located in Konya, where a major programme has been implemented against desertification. This center is envisaged to serve all cereal improvement programmes in the country complementing the agronomy work undertaken in dry lands of Central Anatolia by the Central Research Institute for Field Crops based in Ankara and the Anatolian Research Institute in Eskisehir. Moreover, as part of the immediate actions, a GIS center has been established to coordinate various units in order to facilitate monitoring and forecasting of crops and drought, throughout the country.

With regards to mass capacity development, a number of regional development projects are aimed at developing irrigation infrastructures to expand areas under efficient irrigation techniques and natural resources conservation. Among
these, the South East Anatolia (GAP) and Konya Basin projects will establish large scale irrigation facilities. Moreover, rehabilitation projects in 5 river basins namely Kızılırmak, Yeşilırmak, Göksu and Seyhan, Ceyhan (5) are expected to improve natural resources conservation and agricultural production while releasing pressure on less fertile areas for more production.

**Programme Development and Planning**

Research and development is the key tool to establish effective long term strategies against climate change. Thus, adaptation to climate change has been set as a priority area for research and development. Breeding and agronomy projects have been combined into Integrated Crop Management Programmes, drought management being considered as a major objective as well as management of pests and diseases related to climate change.

Considering that the farmer involvement is the key element of adaptation to climate change, burning of stubbles, which used to be a common practice in cereals - grain legume production systems in dry lands, has been forbidden and a number of programmes have been developed to provide technical and financial support to farmers. These programmes are aimed at promoting practices which would help agricultural production systems to adapt changing climatic conditions. These include support for the following:

- use of certified quality seeds,
- unexpected severe droughts and other disasters,
- protection of land and water resources,
- use of alternative energy sources,
- organic agriculture,
- conservation and rehabilitation of pastures,
- utilization of soil and water analysis services as well as
- investments for
  - advanced irrigation tools,
  - reduced tillage practices and
  - agricultural insurance schemes.

These tools have been proved to be very effective in adoption of the instruments which reduces vulnerability of farming systems to climate change. Some of these initiatives are also expected to contribute reduction in greenhouse gas emissions caused by agriculture.

In addition to the programmes directly related to the climate change issues, other initiatives also help realization of these actions. In this respect, the ‘Agro Ecological Zoning Project’ which has been introduced recently will assist crop production planning to ensure more effective use of resources and consequently strengthening farming systems to be more resilient to climate change.

**References:**