

Adapting to Climate Change – Facing today the challenges of the future

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Although Cyprus, due to its size, cannot contribute significantly to the international efforts for mitigating climate change, it is already being adversely affected by the phenomenon due to its geographical location in one of the most vulnerable areas of Europe, and therefore the design and implementation of an effective climate change adaptation strategy is of paramount importance.

Our audit has covered the general framework of establishing and implementing a successful adaptation strategy and has focused into the measures taken in the sectors of water, forests and agriculture.

The main audit findings are as follows:

(a) General findings

- Cyprus is very vulnerable to climate change, however no formal risk and vulnerability assessment has been carried out and a national strategy for adaptation to the future climatic conditions has not been designed yet. These issues will be addressed by the project “CYPADAPT”, which is currently being carried out and is expected to be completed in 2014. The project is co- financed by the European Union, in the context of the programme “Life+”. Since the risk and vulnerability analysis and the adaptation strategy are currently under preparation, we had the opportunity, through our audit, to offer recommendations as to what they should entail and their qualitative characteristics, a procedure which we consider to be more effective rather than criticizing the strategy after it is finalized. We stressed that, taking into consideration the current financial crisis and the need for wise public spending, the proposed measures should be prioritized according to a cost benefit analysis, and those with the lower cost and the highest contribution to adaptation should be implemented first.
- the national meteorological service department has acquired the specialized programme “PRECIS” from the UK, for running climatic forecasts, and has input data for various scenarios. However, it has not yet processed the information generated by the programme. We recommended that the processing of data regarding the future climate conditions that will prevail in Cyprus is given priority so that these are taken into account and form the basis of the national adaptation strategy that is currently being designed.

- As Cyprus is already experiencing the adverse effects of climate change in many sectors, many measures are being taken by various Ministries/Departments, which, however, aim towards solving already existing problems and not towards adapting to future climate conditions. As these measures are implemented at Department level, there is no coordination or overall monitoring, supervision and evaluation.
- Both the experiences of the past and various studies indicate that delay in taking action increases the cost of corrective action.

(b) Sector specific findings:

Water

- According to the Water Development Department, the problem of reliance on weather conditions for meeting demand for drinking water has been successfully addressed through the construction of desalination plants. We noted that no feasibility study and cost benefit analysis has been carried out prior to the construction of the desalination plants so as to determine the optimum number of plants that should be built, their type (temporary or permanent) and their capacity. In addition, the environmental consequences of their construction have been assessed ex post, thus reducing the scope of carrying out an environmental impact assessment.
- The government is obliged to pay the full capital cost and part of the operational cost of the plants in the case where their operation is suspended due, for example, to adequate rainfall. This fact, in conjunction with the significantly higher cost of desalinated water, in relation to water from dams, indicates that a solution, combining the production of a lower quantity of desalinated water with the better management of water stored in dams, would be more beneficial financially to the state and would have a lower environmental cost, as the production of desalinated water is energy-intensive.
- The sustainability of the solution promoted (ie construction of desalination plants, operated using conventional energy sources) is questionable.
- There is still potential for the better utilization of recycled water. To avoid quantities produced dumped into the sea, we suggested that the disposal of such water for the irrigation of golf courses is examined.
- We expressed the view that a pricing policy is one of the most effective tools to control water demand and encourage its efficient use, noting that the

current pricing policy does not reflect the real cost of water provided. The Water Development Department has carried out a study on pricing of water, so as to comply with the requirements of the Water Directive of the EU, and has submitted a Bill to be adopted by the House of Parliament, for water billing.

Forests

- Studies carried out by the Forest Department indicated that the death of trees (especially Cyprus cedars) was attributed to the drought that prevailed during the periods 1999-2001 and 2005-2008. Short-term measures were taken to deal with the consequences and the Department is currently developing a 10 year action plan regarding the adaptation of Cyprus forests to climate change, which is expected to be completed in 2013. The plan will cover the monitoring of the condition of the forests, measures to protect them from wildfires and the protection and preservation of the most vulnerable species, such as the Cyprus cedar and the black pine (*pinus nigra*).
- Measures are taken to protect genetic material of vulnerable species both in Cyprus and abroad. For example, the plantation of Cyprus black pines in German forests is under study.
- Much of the infrastructure developed in previous years, such as forests roads, anti-fire zones and forest fire stations, will facilitate the implementation of further adaptation measures.

Agriculture

- Some measures of the Rural Development Programme 2007 – 2013, which has been developed by the Department of Agriculture, address environmental issues and contribute towards adaptation to climate change.
- According to the Department, the subsidization of improved irrigation systems and various campaigns undertaken have led to annual savings of up to 60 mln c.m³ of water.
- We recommended that the actions described in the working paper accompanying the White Book issued by the European Commission on climate change adaptation, both at farm level as well as sector-wide, should be promoted as soon as possible.

- The Institute of Agricultural Research is undertaking many projects that will address, directly or indirectly, problems caused by climate change or that will facilitate adaptation.