



State of Israel
Ministry of Environmental Protection



CLIMATE CHANGE ADAPTATION IN ISRAEL

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climate change

INTRODUCTION

How best to prepare for a changing climate? Experts and countries worldwide have been grappling with this question and identifying policy options to reduce the potential adverse impacts of climate change for years. Israel is no exception.

In accordance with a June 2009 decision by the Israel Government, the Ministry of Environmental Protection is preparing a national climate change adaptation program aimed at reducing the adverse effects of global changes on water scarcity, drought and increased frequency of extreme events, among others. To help develop the scientific knowledge base and the policy documents which will be integrated in the national plan, an Israeli Climate Change Information Center (ICCIC) was set up by the Ministry of Environmental Protection in Haifa University in March 2011.

Over the past year and a half, multidisciplinary think tanks, made up of about a hundred representatives from government, academia, industry and NGOs, have been hard at work gathering the existing knowledge in such areas as climate, water resources, public health, biodiversity and green building and analyzing these areas on a multidisciplinary basis, using geostrategic and economic perspectives. They identified the risks and implications of climate change and the existing knowledge gaps in each of these areas and submitted their recommendations on prioritized research requirements, on the proposed national adaptation policy, and on ways of marketing the scientific and technological knowledge collated by the ICCIC for application in Israel and around the world.

An essential component of the work process was the selection of “no regret” alternatives – win-win measures that should be implemented even if the effects of climate change prove to be less severe than predicted. Investment in these alternatives will yield social, environmental and/or economic benefits and will not be regretted in any case.

GREEN BUILDING

The challenges of accelerated urbanization are exacerbated by climate change, on the one hand, but open opportunities for formulating general strategies of adaptation and mitigation, on the other. Green building addresses the dual needs of mitigation and adaptation – reducing greenhouse gas emissions in the long term while responding to the impacts of climate change in the short term. The foundation stones for advancing green buildings include legislation, economic tools, training and education and information.

The main recommendations of the green building team call for establishing a governmental agency to serve as the hub for sustainable green building in Israel, providing economic incentives for green buildings, applying mandatory regulations for energy rating and tagging new and rehabilitated green buildings, raising public awareness, and incorporating courses on energy-saving buildings, sustainable design and climate change adaptation in institutes of higher learning.

Green building addresses the dual needs of mitigation and adaptation

GEOSTRATEGY AND ECONOMICS

Climate change is expected to impact on a host of areas, including tourism, transportation, energy, national infrastructures, food security, migration and geopolitics. A key recommendation is for Israel to transform the risks of climate change into levers for the advancement of projects that should be implemented in any case – whether enhancement of water production, preservation of agricultural land, or securing of food and energy sources such as local natural gas resources.

To help professionals and policy makers identify the most suitable interventions for reducing damages, improving adaptation capacity and increasing resilience, a qualitative assessment of the costs and benefits of adaptation options in different areas was initiated. Market failures in the adaptation process were identified along with projects and policies that will enhance social well-being, even if the climatic scenarios are not realized in their full severity.



PREDICTED CLIMATE CHANGES IN ISRAEL

Global climate forecasts predict an average warming of 0.3°C-0.5°C per decade, a reduction in rainfall and an increase in the frequency and strength of extreme weather events such as heat waves and floods in the Mediterranean region over the next fifty years. Since seventy-five percent of Israel's available freshwater comes from rainfall, the realization of these climate scenarios could lead to major impacts on the country's water resources, agriculture, public health, coast, energy resources, geostrategy, biodiversity, and more.

The recommendations of the climate team call for expanded monitoring so as to provide a reliable database on climatic data in Israel and for improved research in order to better understand climate systems and their impacts.

Seventy-five percent of Israel's available freshwater comes from rainfall

WATER RESOURCES IN ISRAEL

Israel's water sector will be highly affected by climate change. Decreases in precipitation are already evident in the Sea of Galilee area and in the southern region of Israel. Reduced rainfall and increased extreme weather events are likely to increase flooding and surface runoff as well as to reduce the replenishment of water storage. Desalination and advanced wastewater treatment for agricultural reuse are helping to close the gap between water supply and demand in Israel, but they carry a high cost.

Thirty-one strategies for coping with the effects of climate change on Israel's water sector, ranging from the most desirable ("no regret") to the least desirable ("high regret"), were identified by the water sector team. The recommendations call for promoting research and raising public awareness, using water saving devices and minimizing water losses, increasing wastewater treatment, preventing pollution and remediating contaminated wells, advancing water-sensitive planning, and reusing gray water and treated wastewater. Desalination, the most widely used strategy in Israel, is classified as a "high regret" strategy.



PUBLIC HEALTH

Climate change is expected to affect public health directly through extreme heat and cold events and indirectly through the transmission of vector, food and water-borne diseases and the exacerbation of cardiovascular and respiratory diseases by air pollution.

In light of the uncertainty, a “no regret” perspective is advocated based on the allocation of resources for preparatory measures that will have a positive effect on public health, with or without climate change. Interventions that aim to reduce the use of conventional energy sources, to improve air quality and to promote “greener” neighborhoods are especially significant.

The recommendations of the public health team call for real-time monitoring and coordinated response to extreme events together with coordinated adaptation to gradual changes in temperature and rainfall which could lead to the outbreak of diseases due to the invasion of new disease vectors. In parallel, the recommendations call for strengthening the preparedness of the health system through such means as personnel training and dissemination of information and guidelines to employees and the public.

BIODIVERSITY

Biodiversity is likely to be extensively affected by climate change, bringing about changes in the ecological services provided by natural ecosystems – whether the provision of drinking water, genetic resources and recreation or the prevention of soil erosion. As the impacts of climate change on biodiversity are complex and existing knowledge is inadequate, the preferred strategy for preserving biodiversity is a policy targeted at reducing sources of negative impacts which are not necessarily connected to climate change.

Expanding the scientific base for preparedness through monitoring and research is a priority

The recommendations of the biodiversity team call for reducing the pressure on freshwater ecosystems and recognizing nature’s right to water, conserving open areas and the ecological corridors between them, enforcing laws and policies which prevent adverse effects on open areas, managing invasive species and dealing with invasive disease vectors, and expanding the scientific base for preparedness through monitoring and research.



WITH AN EYE TO THE FUTURE

The ICCIC's leading recommended adaptation policies are:

- **Enhancement of information availability:** Increasing the availability and dissemination of information on climate change to improve economic efficiency.
- **Water resources strategy change:** Implementing solutions from least cost to highest cost, with priority to maximizing water supply efficiency, water recycling, water loss prevention and water demand management, and only lastly to investments in desalination plants.
- **Regulation that stimulates the autonomous adaptation of markets:** Promoting policies and regulations that support autonomous adaptation actions which would not otherwise be implemented due to lack of public awareness or bureaucratic obstacles.

Plans also call for addressing other vulnerable areas – whether energy, agriculture, tourism, transportation, sea-level rise or local government.

Meanwhile, Israel's Ministry of Environmental Protection is fully committed to its partnership in CIRCLE 2 - Climate Impact Research & Response Coordination for a Larger Europe (ERA-NET). This network of institutions coordinates European research on climate change impacts, vulnerability and adaptation, facilitates the transfer of research outcomes, and shares experiences and knowledge on the development of national and regional adaptation practices. Within this framework, an international conference on climate change and forest fires was convened in Israel in January 2012 which focused on forest fire prevention and ecological rehabilitation under climate change in the Mediterranean basin.

Innovative adaptation measures must be undertaken by governments the world over in order to effectively deal with the anticipated effects of climate change. Therefore, the Ministry of Environmental Protection in coordination with other government ministries and civil society is preparing recommendations to the government on a climate change adaptation action plan. In parallel, the ICCIC has prepared an international marketing program which presents its capabilities and relative advantages in comparison to similar centers around the world, including its location in a country with a semi-arid climate. The ICCIC is poised to emerge as a leading organization on a global scale in the area of climate change adaptation.



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