



THE STATE COMPTROLLER
AND OMBUDSMAN OF ISRAEL

2021



Introduction

National Climate Action by the Government of Israel Summary

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Summary

Background

The industrial revolution and technological advancement have led humanity to significant achievements, such as rising life expectancy, better quality of life, and improvement in many aspects of human welfare and wellbeing. Yet these achievements have exacted a heavy environmental price, including depletion of natural resources, biodiversity loss, and ecosystems degradation.

The atmosphere, the layer of gases that envelops our planet, is vital for supporting life on Earth. Two main types of gases, some found naturally, are emitted into the atmosphere. The first, polluting gases, such as nitrogen oxide and sulfur dioxide, are poisonous and directly damage health and the environment. In contrast, the second type, greenhouse gases (GHGs, carbon dioxide or CO₂) do not directly influence human health, but they have been known to have severe negative impacts, including an indirect impact on human health. Some of the gases are released from natural sources, like breathing, volcanic eruptions, forest fires, and biomass (mass of organic matter) decomposition, while others are the result of human activity (anthropogenic GHGs). Most of the anthropogenic GHGs originate from burning fossil fuels for generating energy, through activities such as production of electricity, transportation, cooling, and heating.

For hundreds of millions of years, Earth's climate has been determined by the quantity of solar radiation that reaches the planet through the atmosphere (a layer of gases that envelopes the Earth, including GHGs) and by the quantity of radiation that it emits. One of the main causes of climate change is the greenhouse effect. Solar radiation penetrates the layer of gases, and some is absorbed by the planet while some is released into space. Due to human activity that causes increased emission of GHGs, the concentration of GHGs in Earth's atmosphere has grown, thus sealing the atmosphere to radiation that would otherwise be released into space. This trapped radiation is converted into heat energy, warming of the atmosphere and increasing global temperatures. This process creates the physical conditions on Earth that eventually lead to climate change, as we will describe below.



This process, known as the “greenhouse effect,” can also lead to a feedback loop: a chain of mutually interactive processes that intensify the risks involved in climate change at an ever-increasing pace. This feedback loop might produce extreme changes in the world climate that may even surpass the point of no return – known as the “tipping point.” This extreme situation refers to a critical point of rising temperatures that will lead to other physical changes at a much faster rate than scientists predict today. Examples of such changes are accelerated melting of glaciers – including in Greenland; change in ocean functions and their ability to absorb GHGs that are emitted into the atmosphere; acidification of oceans; change in marine currents; reduction of the quantity of solar radiation that is returned from the Earth to the atmosphere due to reduced coverage of the ice layer; and additional fires due to drought.

Climate change has many effects, and these are expressed in four main trends: rising temperatures; reduction in rainfall; rising sea levels; and increase in frequency of extreme weather events, which influence both natural and human systems, and are related to social, economic, and demographic pressures. For example, the forecasted trend for rising sea levels is expected to lead to the flooding of thousands of square kilometers of land populated by hundreds of millions of people, mainly in coastal regions, ocean islands, and river drainage basins. This flooding will likely impact human living areas, lead to the loss of agricultural areas and the salination of underground water reservoirs, which will reduce the sources of available water in the world, thus leading to immigration of inhabitants.

In addition, climate change is likely to harm human health for several reasons. The human body is sensitive to extreme weather conditions such as cold, heat, and storms. In addition, climate change causes the spread of infectious diseases that are carried by animals and sensitive to temperature change, such as malaria and the West Nile virus.

The main actions performed today to combat climate change stem from the need to promote a sustainable global climate policy, based on two related insights. The first is that we must act to reduce emission of GHGs into the atmosphere, to prevent intensification of the greenhouse effect and global warming. The second insight is that even if the level of GHGs in the atmosphere declines or stabilizes, we still anticipate a certain unavoidable increase in global temperatures. This will lead to effects that we will describe in this report, and we must prepare for them in advance.

These insights were expressed in the principles defined at the United Nations Framework Convention on Climate Change (UNFCCC). At this convention, the need arose for basing global action for combating climate change on commitments ratified by some two hundred countries, including Israel, in these fields: reduction of GHG emissions (mitigation); promotion of actions to prepare for and adjust to the effects of climate change (adaptation); and international cooperation in funding, research, and promotion of new technologies.

According to the Intergovernmental Panel on Climate Change (IPCC), countries must cooperate to integrate actions for mitigation and adaptation,¹ based on a policy that integrates the required actions in both fields. International and national entities must effectively promote their activities. Further, humanity must make changes in modern lifestyle and infrastructure. In addition, funding must support research in innovative technologies and investment in them.

Key figures

			2015-2020
6	35%	24%	
Main types of GHGs: carbon dioxide (CO ₂); methane (CH ₄); perfluorocarbons (PFC); sulfur hexafluoride (SF ₆); Nitrogen oxides (NO _x); Hydrofluorocarbons (HFC)	The share of greenhouse gas emissions produced by the electricity sector from burning fuels	The share of greenhouse gas emissions caused by various type of land use	The hottest six years ever documented according to the World Meteorological Organization
127 billion tons	198	315 Mha	23%
Quantity of ice lost annually in Antarctica during 2002-2018	Parties signed on the UNFCCC as of 2021	Area of world forest lost 2001-2015 due to deforestation, fires, urbanization, and agriculture	Percentage of global GHGs that are accumulated and absorbed by water areas across the globe

¹ Mitigation refers to actions that aim to reduce greenhouse gases. Adaptation refers to actions for adapting to climate change.



Audit actions



From February 2020 to June 2021, the State Comptroller and Ombudsman of Israel (the State Comptroller) examined aspects related to the activities of dozens of government ministries and other government and public entities on the issue of national adaptation to climate change. The audit mapped areas and entities relevant to the climate crisis and examined government actions related to reduction of GHGs emissions and energy efficiency. The audit also studied how the government is preparing to manage the risks related to climate change and their effect on the state, and examined the state's level of preparation for extreme weather events. The State Comptroller also reviewed the economic consequences of climate change and the financial, scientific, and technological tools needed to manage the climate crisis effectively. In addition, it examined how policy tools and government work processes are formulated to address the climate crisis. As part of the audit, a comprehensive comparative review was performed that assessed how this issue was managed in other countries, international organizations, and professional bodies; whether the climate crisis was considered a national strategic issue; and what were the relevant integrated recommendations for Israel based on the current professional knowledge around the world.

The audit was conducted at the following Israel government ministries, offices and entities: Ministry of Environmental Protection, the Israel Meteorological Service, the Ministry of Agriculture and Rural Development, the Ministry of Health, the Ministry of Finance, the Prime Minister's Office, the Israel Innovation Authority, the Planning Administration, and the National Emergency Management Authority. Additional reviews were conducted at the Israel National Security Council, the Ministry of Economy and Industry, the Ministry of Defense and the Israel Defense Forces, the Securities Authority, Bank of Israel, Ministry of Foreign Affairs, Israel Land Authority, the Electricity Authority and Israel Electric Company, Ministry of Public Security, as well as other government entities, supporting bodies, local authorities, and non-government entities.

As part of this audit, the State Comptroller held round-table discussions with various companies and entities from Israeli industry. It distributed a questionnaire to 63 government ministries and other government and public entities to obtain information about their activities and the government's activities related to the climate crisis, and about their understanding of the required actions to address the issue on the national and sectorial levels (Questionnaire). In addition, the State Comptroller further clarified additional issues with entities in Israel and abroad, reviewing global processes and trends involved in the climate crisis.



This audit report includes four main sections on the following topics:

Chapter 1 | Mitigation – Actions to Reduce GHG Emissions

Chapter 2 | Adaptation – National Plan and Measures

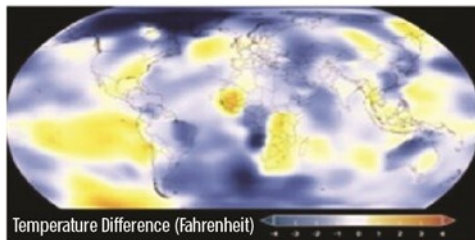
**Chapter 3 | Review of Economic and Financial Risks of Climate Change and their
Management by the State of Israel**

**Chapter 4 | Climate Change Governance - Organizational, Functional and
Professional Structures**

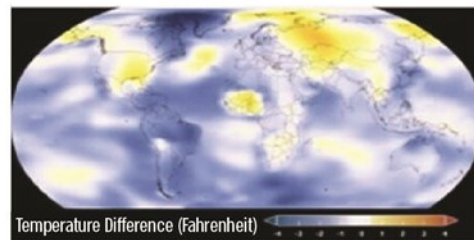


Map of Global Warming, 1900-2021

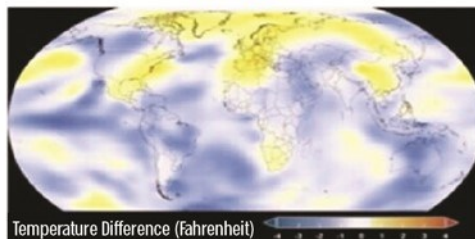
1900



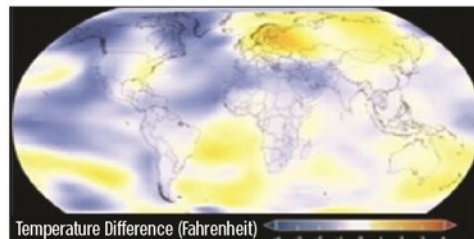
1925



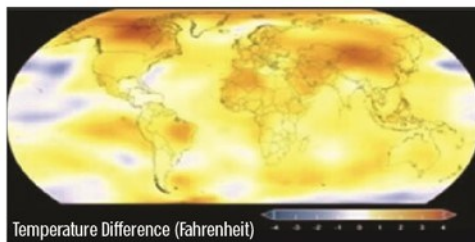
1950



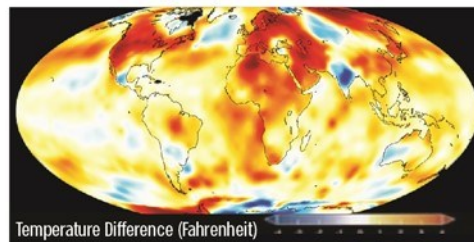
1975



2000



(June) 2021



Based on NASA data, adapted by the State Comptroller.