



THE STATE COMPTROLLER
AND OMBUDSMAN OF ISRAEL

2021



Chapter 2

Adaptation – National Plan and Measures Summary

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summary

Background

The conventional professional position by most climate scientists and international entities is that the world is undergoing changes in climate patterns and new climate conditions, with significant consequences for countries worldwide. These changes lead to lengthening of extreme weather events and exceptional environmental events (climate events) and increase in their frequency and magnitude, as well as other exceptional events that can be unpredictable. Increase and intensification of climate events and continued change in climate patterns can cause considerable negative impacts to Israel's economy and represent a risk to Israel's national security. Some of the areas that may be affected are: natural water sources; national food security; nature areas, ecological systems, and biodiversity loss; public health; electricity production; technological systems; national security and geostrategic threats. Other fields affected are work productivity, at-risk populations and increase of "energy poverty," risks in the insurance market, and risks to national infrastructure.

As a result, the need has arisen in Israel to implement actions on the national and strategic level to promote effective adaptation to climate change, as part of Government Resolution No. 474 (2009); the document "Recommendations for Strategy and a National Action Plan" (2017) (Scientific Study and Recommendations for National Strategy); Government Resolution No. 4079 (2018); and the Adaptation Report written in Israel in 2021 by the Climate Change Adaptation Administration of the Ministry of Environmental Protection (below, the CCAA). These reports emphasized the need to promote preventive measures and early action, based on a national strategic action plan, through coordination between multiple public entities and long-term budgeting. The purpose of these actions is to promote ongoing adaptation actions and research, some of which will extend over a period of years.



Key figures

~+1.2°C	2.1 billion	+37%	2-4 \$ billion/year
Rise in global temperature since 1985	Number of people harmed by global climate events between 2000-2019, including 1.2 million deaths	Rise in global deaths 1991-2018 due to global warming	Global annual economic damage due to the direct and indirect effects of climate change until 2030
84%	16%	92%	2 of 50
Percentage of the 63 public entities that received the State Comptroller's questionnaire (Questionnaire) that do not have a plan for adaptation to climate risks	Implementation rate for actions that were reported as budgeted and scheduled for implementation, out of the 378 actions listed in Government Resolution No. 4079 and involving the public entities listed there	Percentage of the public entities that responded to the Questionnaire and reported that they do not act based on prioritization and analysis of climate trends of the CCAA	Out of 50 projects that the CCAA recommended that the government promote for national adaptation, only 2 are under discussion with the Ministry of Finance for budgeting purposes

Key findings



1. National Adaptation to Climate Change

- A. Preparedness for the effects of climate change:** Three years after Government Resolution No. 4079, Israel does not have a budgeted, implementable national action plan that it follows, reflecting failure to achieve the overall goal of this Government Resolution: "Israel will demonstrate a high level of preparedness for the effects of a changing climate".

- B. Advance preparation:** According to Government Resolution No. 4079, advance preparation and promotion of long-term actions for prevention of risks is necessary in fields likely to be affected by climate changes, including health, agriculture and food, water and energy, infrastructure, planning and local authorities, readiness for emergencies, national security, and biodiversity. Yet 82% of public entities that responded to the Questionnaire, reported that they did not assess these issues as part of an organizational risk management process, and 77% did not map risks or influences of climate change on their actions.

2. Government Capacity Building for Adaptation

A. Establishing an administrative body with authorities, resources, and knowledge acquisition capacity

- (1) **Execution authorities / Execution powers for the CCAA:** The CCAA was granted a central role in the formulation, coordination, integration, and execution of the national policy for climate change adaptation. However, it was not given the necessary authorities to perform its roles. Thus the State of Israel's ability to plan, implement, and manage this issue has been impaired.
- (2) **Budgeting of the CCAA and the actions it leads:** The CCAA has not been allocated the resources necessary for promoting the actions for which it and its subcommittees are responsible, as the Civil Service Commission has not authorized an organizational framework or designated job positions for it. Due to the lack of budget, many activities have not been promoted, including research activities for effective adaptation; developing a methodology for risk management; and economic assessments of the damage to the economy, prevention costs, and direct and indirect benefits of actions required for national adaptation. The Climate Change Adaptation Report that the CCAA submitted to the Knesset for approval in 2021 includes recommendations for budgeting some 50 projects immediately. However, the CCAA has not been granted the required authorities to carry out its roles or a designated long-term budget to enable the implementation of adaptation actions.
- (3) **National Knowledge Center:** The CCAA lacks most of the entities that were recommended by the Scientific Study and Recommendations for National Strategy (that was adopted by the Government) and that are accepted globally: an umbrella scientific advisory committee, a knowledge and data center, and a risk assessment expert. These would be able to assist the CCAA to serve as a national knowledge entity that will act to produce the knowledge necessary for promoting national adaptation actions on the issue of climate change.



B. Budgeting and Implementation of Adaptation Plans in Israel

- (1) **Budgeting the national plan:** Despite Government Resolution No. 4079, which states that each entity is required to act to promote the climate risk adaptation plan, 84% of the public entities that received the Questionnaire do not have a climate risk adaptation plan, nor have they budgeted the necessary actions for it. In addition, 89% of the entities did not work with the Ministry of Finance to promote plans on this issue.
- (2) **Budgeting projects:** Of the 378 tasks included in Government Resolution No. 4079 relevant to the public entities listed in this decision, the public entities reported that 60 of the tasks (16%) were budgeted and included in the ministerial work plans, with schedules and deadlines for implementation were set for them.

C. Creating research knowledge for managing climate change uncertainty

- (1) **Scientific-meteorological aspect:** The CCAA did not take the necessary actions based on the Scientific Study and Recommendations for National Strategy¹ to address the research knowledge gaps. As a result, the existing scientific knowledge base in the Scientific Study and Recommendations for National Strategy has not been developed, updated, or validated since Government Resolution No. 4079.
- (2) **Economic aspect:** Although in 2009 the government decided to promote adaptation actions based on assessment of the economic and budget aspects resulting from implementation of the adaptation measures, this has yet to be performed.
- (3) **Economic assessment of adaptation cost:** The absence of tools, budgets, and professional staff in the CCAA necessary for performing full economic assessments may lead to that the State of Israel lacks a national scientific knowledge base that includes macro-economic assessment to promote adaptation to climate change.
- (4) **Knowledge gaps:** The CCAA lacks an organized plan for closing knowledge gaps on the issue of climate change adaptation, and it lacks a full status report

¹ The Scientific Study and Recommendations for National Strategy is a document of recommendations to the government for national strategic adaptation that was presented the government in December 2017, further to Government Decision No. 474 of 2009. It included details on climate change trends, risks to various sectors, and recommendations for action through 31 national tasks relevant for many public entities in the State of Israel. This study was adopted in Government Decision 4079 (July 2018).

on the studies carried out by public sector entities or planned studies on this issue.

D. Developing climate scenarios and entities' use of them

- (1) Although the Israel Meteorological Service (IMS) has updated meteorological data for past events and future trends, public entities make only partial use of it. Three-quarters of the entities that responded to the Questionnaire reported that they do not use the future meteorological trends.
- (2) Despite the needs for strengthening climate knowledge, building Israel's climate research capability, and building a scientific knowledge base to support decision-making under Government Resolution No. 4079, due to lack of budget, a national center has not been established for climate simulations within the IMS. Additional sections related to the need for strengthening climate knowledge were also not implemented. Without improving the technological capability of the IMS, the public entities in Israel will have difficulty gauging the future climate trends that will affect them. For this reason, a gap may be created between the government action and the actual climate trend, which may influence a certain sector or a particular population.

3. Formulating and implementing a national adaptation plan

A. Cross-government mainstreaming and integration of climate change adaptation considerations in actions and decision-making processes

- (1) In response to the Questionnaire, 60% of public entities reported that they have no contact with key entities such as the Prime Minister's Office, the Ministry of Finance, and the Planning and Budgeting Committee, regarding adaptation to the risks involved in climate change. One-fourth of these entities define climate change as an issue that will be included in their targets for the next few years.
- (2) The issue of climate change adaptation is managed by the CCAA as an additional extra task, beyond the scope of its regular responsibilities, without professionalization or specialization on the issue. Of the public entities that responded to the Questionnaire, 69% reported that they have no professional function for this issue.



B. Climate change risk identification and analysis

- (1) No dedicated subcommittee in the CCAA has been established to assess risks as per Government Resolution No. 4079. The other subcommittees in the CCAA that worked on risks did not address the issues that the Scientific Study and Recommendations for National Strategy recommended for inclusion as part of the activity of this committee. The CCAA did not complete formulation of a decision-making methodology based on risk management.
- (2) Of the public entities that responded to the Questionnaire, 77% reported that they have not mapped the risks associated with climate change, and 75% do not perform joint risk mapping together with other public entities; 82% of the entities did not examine the issue as part of organizational risk management; 92% of the entities reported that they do not follow prioritization or the CCAA's analysis of climate trends.
- (3) Risk to national infrastructure: there is a genuine concern about damages to Israel's national infrastructure due to climate changes, such as to desalination plants and mass transportation systems.

C. Recognition of the climate crisis as a national strategic threat:

As of July 2021, the National Emergency Management Authority (NEMA) has not included climate change in the national threat map. Therefore, climate change is not included in the aggregate national threat assessment.

D. Adaptation of the defense establishment to climate change risks:

As of July 2021, the Ministry of Defense and the Israel Defense Forces (IDF) were in preliminary stages of examining and studying climate change adaptation. They had not yet established working teams to formulate concrete work plans addressing the risks to the defense establishment in the coming years, as part of the IDF's multiyear plan that was authorized up to 2024 (the Momentum Multiyear Plan) and in the medium to long-term range.

E. Promoting adaptation in coordination with the higher education system:

The CCAA has not worked with the Council for Higher Education or with the Planning and Budgeting Committee (for higher education) to promote academic research, as determined in Government Resolution No. 4079.

4. Health Risks, Diseases, and Pandemics Caused by Climate Change

The State of Israel is located in a “hot spot” subject to the effects and risks of climate change which cause global ecological changes. These lead to the spread of vectors (disease spreaders) to new regions. Along with seasonal changes, disturbances of balances in nature, destruction of natural habitats, and loss of species, the State of Israel might be exposed to considerable risks. These will affect its national security in several spheres: the public health and welfare system, including concern about increasing frequency of disease and pandemic (such as COVID-19); social and mental effects; effects on women; food and water security; and geo-strategic aspects.

The national plan for health and environment that was outlined in Government Resolution No. 1287 (March 2016) was not presented for the approval of the Ministers of Health and Environmental Protection, nor was it presented for government approval. In addition, although the Ministry of Health examined certain actions according to Government Resolution No. 4079 (July 2018), this did not lead to any significant action to implement the underlying principle of the decision – to promote action plans and policy steps to reduce the health risk. As such, these Government Resolutions were not fulfilled, nor were their underlying rationales – promoting steps to improve the quality of life of the State of Israel’s citizens and of the coming generations, and to preserve their health.



The Israel Meteorological Service (IMS): The IMS performed major studies to construct climate scenarios as accepted around the world. It acted to collect data on past events and future trends, and prepared risk scenarios for three entities: the Ministry of Agriculture, the Electricity Authority, and the National Emergency Management Authority, using the professional tools in its possession.


Methodology for risk management and adaptation actions: The Ministry of Agriculture and the Water Authority formulated a risk analysis methodology for climate change adaptation, on the sectorial level. In addition, adaptation actions were conducted by several government-affiliated entities in the fields of transportation and aviation, and by the Israel Electric Company for adaptation to exceptional electricity demand during climate events.

International research and cooperation on educational programs: The Ministry of Foreign Affairs and Israeli educational institutions acted to promote research and international cooperation between Israeli and foreign educational institutions.



Key recommendations

1. National climate change adaptation

-  The audit recommends that the Ministry of Environmental Protection formulate a decision-makers proposal for government resolution in addition to Government Resolution No. 4079, so that the State of Israel and public entities will transition from the stage of recommendation and assessment of plans to the implementation of a national plan for adaptation in practice.

2. Government capacity building for adaptation

CCAA

- A. The audit suggests that the Ministry of Finance and the Ministry of Environmental Protection examine the need for allocating a designated, multiyear budget to the CCAA, adequate for the challenge and its ongoing nature, so that it may continue to promote climate change adaptation actions.
- B. The audit suggests examining the need for the Civil Service Commission to allocate designated job positions to be filled by experts and knowledge holders, for the purpose of professionalization of the CCAA staff and additional bodies in public entities and their specialization. The audit recommends that the Ministry of Environmental Protection, the IMS, and the Ministry of Science and Technology examine the actions necessary to enable the CCAA to serve as a national knowledge center; to make data accessible and to integrate it; and to grant it research capacities for analyzing the data and for promoting research that will enable it to understand the necessary actions – on the national level and for the public entities in Israel.
- C. The audit recommends that the CCAA strengthen the reporting mechanism of the entities on the progress of their actions, to verify that the information base available to decision-makers reflects the current scientific status, including future trends, to help them act efficiently and in accordance with climate change effects on various sectors and populations, as Government Resolution No. 4079 requires.

Updating the Knowledge Base

- A. The audit recommends that the CCAA act to update the scientific aspects of the knowledge base and to complete it, to ensure that the ministerial plans will be formulated in accordance with the current and best available data on concrete risks

in each field. The audit further recommends that the CCAA form a plan to overcome knowledge gaps on the issue of climate change adaptation, and set up a portal that will include the studies and data on the issue and make these available to public entities and the public. The audit further recommends that the Ministry of Finance, the CCAA, the Ministry of Environmental Protection, and the Ministry of Science and Technology act on the issue to promote economic studies on the national and sectorial level, which will support well-informed decision-making and prioritization of adaptation actions.

- B. The audit recommends that the Ministry of Finance and the National Economic Council act to assist the CCAA to formulate a national macroeconomic assessment as a basis for a national plan on climate adaptation.
- C. The audit recommends that the Ministry of Finance, the Planning and Budgeting Committee, the Council for Higher Education, the National Science Foundation, the Ministry of Science and Technology, the Ministry of Environmental Protection, the IMS and the Ministry of Foreign Affairs, examine the promotion of activities in international research bodies in cooperation with academic institutions, research institutes, and additional relevant entities. This will enable significant broadening of the professional knowledge base.



Formulating Climate Scenarios and Using Them as Part of the Activity of Public Entities

- A. The audit recommends that CCAA, the Ministry of Finance, the Ministry of Transportation, and the Ministry of Science and Technology will work with the IMS to examine ways of promoting the establishment of a national computation and calculation center for climate simulations, which will operate as part of the IMS and be accessible to Israel's scientific community.
- B. The audit recommends that the CCAA act such that the adaptation of public entities in Israel will be based not only on past data or internal assessments, but also on future meteorological trends that will indicate the relevant risks in each sector and for various populations, to achieve maximum suitability between the risks and the measures that should be promoted.



Public Entities in Israel

The audit recommends that the CCAA and the Ministry of Environmental Protection, the Prime Minister's Office, and government ministries named in Government Resolution No. 4079 complete assessment of the need to allocate a dedicated framework of resources for promoting national and sectorial adaptation actions, as customary in other countries, along with funding researchers and tools for professionalization.



3. Formulating and Implementing a National Adaptation Plan



A. Integration of adaptation considerations in public entities

- (1) The audit recommends that the central administrative bodies, including the National Security Council and the Ministry of Finance, act to integrate the need for climate change adaptation in promoting the government processes for national adaptation.
- (2) The audit recommends that in the early stages of the authorization of plans, the bodies responsible for planning and construction of infrastructure on a national level should verify the integration of inputs related to climate change, based on scientific data and expert opinions. In light of the systemic impact of the climate change, efforts must continue to formulate obligatory directives for adaptation and integrate them within these bodies, so that the planning and execution of core plans in the fields of infrastructure, construction, agriculture, and transportation in Israel, will be in accordance with the climate risks involved.
- (3) The audit recommends that the Civil Service Commission in cooperation with the CCAA and public entities in Israel examine the needs for a climate change-specialized organizational response in those offices and entities whose activity has a significant and systemic connection to adaptation.



B. Cooperation between public entities:

The audit recommends that the CCAA consider how to improve joint action to achieve the best possible adaptation to climate change. It also recommends strengthening the national framework of cooperation between public entities, addressing issues related to or overlapping climate change, including mapping the public stakeholder entities, and to generate a professional dialogue between them. In addition, the audit recommends encouraging the development of cooperative efforts by building educational frameworks and allocating resources to promote research and joint activities.



C. IMS Capabilities


- (1) The audit proposes that the CCAA, the Ministry of Finance, the Ministry of Transportation, and the Ministry of Science and Technology examine whether the capabilities of the IMS today are appropriate, considering the future challenges, and which actions should be promoted in the short and medium-to-long term so that the State of Israel will be equipped with the appropriate tools for best climate change adaptation. The audit also


proposes that these entities examine together with the IMS the methods of promoting the establishment of a national calculation center.

- (2) The audit recommends that the Ministries of Finance, Transportation, and Science and Technology, and the IMS, together with the CCAA and executive entities such as the National Fire and Rescue Authority, assess the needs and requirements for building additional capacities in the world of meteorological “intelligence,” the costs and benefits involved, and act according to this assessment.


D. Risk Management

- (1) The audit recommends that the CCAA act to formulate a decision-making methodology based on risk management, in consideration of the government risk management guide, the OECD proposed methodology, and the practice of other countries.
- (2) The audit recommends that the CCAA, with the assistance of the IMS, act with government ministries to promote a risk management process that each ministry can use to formulate an effective adaptation plan. This should be based on performing a specific risk management process for each sector and mapping of risk levels in each field, against concrete climate indicators.
- (3) The audit recommends that the relevant public entities assess the climate change risks applicable to them, based on scientific research and forecasts. In addition, they should promote adaptation actions for risk prevention, for infrastructure that is both planned and currently under construction.



 **E. National threat assessment:** The audit recommends that the NEMA examine the CCAA recommendations for treating climate change as a risk considered “a threat scenario on a national level,” and as such, examine the possibility of including it in the national threat assessment of Israel.

 **F. Defense establishment:** The audit recommends that the Ministry of Defense and the IDF act to implement climate change adaptation as part of the current multiyear plan, and that they act with the CCAA, based on the accumulated knowledge, to complete the strategic approach on the issue and formulate and implement operative steps. This should be done in parallel to an ongoing learning process on security preparedness, on regional and geostrategic levels and with a future-oriented approach.

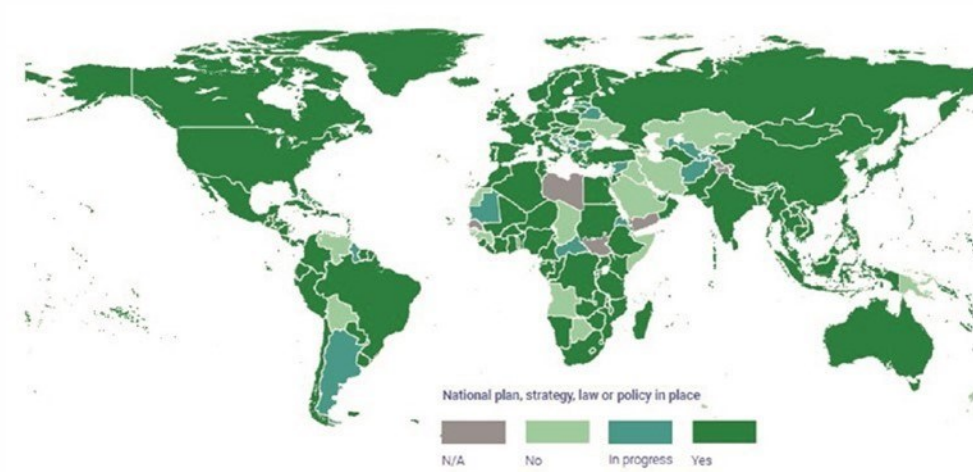


-  **G. Higher education:** The audit recommends that the CCAA work together with the Ministry of Education, the Council for Higher Education, the Planning and Budgeting Committee, the Ministry of Science and Technology examine the necessary actions for implementing the climate change issue and adaptation to its risks in educational curricula in the educational system and academia, to help raise awareness on the issue and develop skills in the field, in a manner that will give a response to future market needs. The audit further recommends that the CCAA act with the Council for Higher Education and the Planning and Budgeting Committee to promote academic research in the field.

4. Climate Change Risks to Public Health

-  **Actions for establishing a monitoring and early warning system and for reducing research knowledge gaps:** The audit recommends that the Ministry of Health and the Ministry of Environmental Protection work with public bodies such as the Israel Meteorological Service, the Council for Higher Education, the Planning and Budgeting Committee, the Ministry of Science and Technology, and the military health system, to examine the efficiency of these actions with regards to the State of Israel. These bodies should consider promoting similar actions related to establishing databases, monitoring, and acting to reduce knowledge gaps, so that the government ministers will have a complete picture of the status regarding risks of outbreaks of diseases and pandemics, which are expected to worsen due to climate change.
-  **Making Policy Decisions:** The audit recommends that the Ministries of Health, Finance, and Environmental Protection promote overall policy, set targets, and make operative decisions for implementation, *inter-alia*. decisionmakers should formulate a complementary proposal for Government Resolutions already made on this issue. This is for the purpose of promoting effective adaptation of the Israeli health system to climate change risks affecting public health.













Implementation of National Climate Change Adaptation Plans in Other Countries (Israel not indicated to have such a plan)



Source: UNEP Adaptation Gap Report, 2020.



Government recommendations for projects in the National Climate Change Adaptation Plan, and fields where budget discussions are currently being held with the Ministry of Finance

 <p>Local Government*</p>	 <p>Agriculture</p>	 <p>Flood Prevention</p>	 <p>Urban Planning</p>
<ul style="list-style-type: none"> Adaptation Drainage and runoff Shading 	<ul style="list-style-type: none"> Seed development Strengthening the fund for farmers' compensation Agricultural production and food supply 	<ul style="list-style-type: none"> Master plans for drainage Regulation Separation of municipal runoff from sewage 	<ul style="list-style-type: none"> Green building standard including Integration of climate considerations in planning
 <p>Forecasting Extreme Events</p>	 <p>Social Resilience</p>	 <p>Emergency preparedness*</p>	 <p>Protecting Infrastructure</p>
<ul style="list-style-type: none"> Establishing a climate calculations center Warning systems 	<ul style="list-style-type: none"> Mapping vulnerable populations Training social workers Amending labor laws 	<ul style="list-style-type: none"> Barrier area regulations for fire prevention Formation of national perception on emergency preparedness 	<ul style="list-style-type: none"> Mapping infrastructure Incorporating climate change in planning
 <p>Development of Research and Knowledge</p>	 <p>Education and Awareness</p>	 <p>Health</p>	 <p>Ecological Systems</p>
<ul style="list-style-type: none"> Knowledge center Overcoming knowledge gaps Innovation Risk management plan 	<ul style="list-style-type: none"> Incorporation in academic courses Public awareness Decisionmakers' awareness 	<ul style="list-style-type: none"> Mapping effects Disease monitoring systems Action plan 	<ul style="list-style-type: none"> National action plan for biodiversity Ecological corridors Rehabilitation of rivers

Based on the CCAA Adaptation Report 2021, adapted by the State Comptroller.

* Fields in which budget discussions are being held with the Ministry of Finance, as per the CCAA report.

Conclusion

Studies around the world indicate that despite countries' actions to reduce GHG emissions, global temperatures will continue to rise and could soar by as much as 3°C-4°C by the end of this century, with unprecedented effects. This reality requires countries around the world to prepare for climate change and the risks it presents and to strengthen the resilience of many systems. According to studies, approximately three-quarters of the world's countries have formulated (or are in the process of formulating) a national adaptation plan, which could reduce the expected negative impacts from climate change. These adaptation actions are based on sustainability principles for promoting positive effects on the economy, human health, and the environment. Improving climate change adaptation is a central component in the strategy for strengthen public resilience and readiness for national and regional crises.

Despite global developments and the growing recognition of the importance of early adaptation in the State of Israel based on a budgeted national plan, the findings of this audit chapter indicate that 84% of public entities, including most government ministries (which received the Questionnaire), do not have an adaptation plan for climate risks as part of their activities. In addition, central government bodies in Israel, particularly the Ministry of Finance and the National Security Council, do not participate in the national adaptation actions promoted by the CCAA in the Ministry of Environmental Protection.

This reality means that for as long as climate change worsens, Israel faces increasing risks. For this reason, the State of Israel must act on this issue and complete formulation of a national and sectorial action plan based on allocating the required resources, and join the global trend of adaptation to climate change.

