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Annex 3: Israel

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Country profile

The total area of Israel is 22 072 sq km, of which 21 643 sq km is land area. About half of the land area in the south and east of the country is desert with less than 200 mm of rain per year (multi-year average). The northern and western parts of the country are characterised by a Mediterranean climate with precipitation ranging between 300 and 900 mm per year (multi-year average). The Sea of Galilee (Lake Kinneret) is the only freshwater lake in Israel. The length of Israel's Mediterranean Sea coast, which constitutes the country's western border, is 194 km. The salt-laden Dead Sea is the lowest point on Earth: 417 m below sea level. Israel is one of the most densely populated countries in the world, with the highest density in the centre of the country. Most of the country's population resides in urban areas, and a significant portion resides along the coastal plain, exerting major pressure on the environment in the coastal area.

Israel has a technologically advanced market economy, including rapidly developing hi-tech, agricultural, financial and service sectors. Israel was characterised by relatively high and stable economic growth in the previous decade and in 2010 joined the OECD (Organisation for Economic Co-operation and Development). Israel is a parliamentary democracy, with legislative, executive and judicial branches. Its major institutions are the presidency, the Knesset (parliament), the government (cabinet), the judiciary and the State Comptroller.

The global economic crisis, coupled with climate change and resource depletion, has influenced people and the environment worldwide, and Israel is no exception. In 2011, Israel's government decided to establish a national plan for green growth, focused on decoupling economic growth from environmental deterioration. This plan is based on the recognition that the environment can serve as an engine for increasing efficiency, resource savings and economic growth, for developing new clean-tech industries, for creating new jobs, for strengthening the social infrastructure and for increasing competitiveness on the global market.

Israel experienced a series of demonstrations in 2011, involving hundreds of thousands of protesters from a variety of socioeconomic backgrounds opposing the continuing rise in the cost of living. These protests have led to the adoption of a series of recommendations which may affect the population's wellbeing and the environment.

Some of the major driving forces of environmental pressures in Israel are the population density and growth rate. Israel has a very high population density, especially along the coast. Israel's population reached approximately 8 million in 2012, with a yearly population growth rate close to 2 %. This driving force poses high pressures on natural resources, such as land, water and energy.

Economic growth is another important driving force, which on the one hand contributes to the population's wellbeing but on the other hand causes an intensive use of natural resources. The Israeli economy exerts resilience and has grown by 20 % over the past ten years. Since the 1990s, the economy has grown by approximately 75 %. Israel relies on both imports and exports, and therefore depends on global markets and resources.

The manufacturing industry is responsible for about 12 % of net domestic product. Over the years, this sector has had a negative impact on air, streams and seawater quality. In recent years, environmental regulation has required the industry to improve its environmental performance and, as a result, reduce emission of pollutants to the environment.

Although the agriculture sector is responsible for less than 2 % of net domestic product, it has a major impact on land and water resources in Israel. Agriculture consumes close to 40 % of the freshwater resources. However, in recent years the use of recycled water in agriculture has increased. The cultivation methods are intensive and therefore involve heavy use of pesticides and fertilisers, which exert pressures on water and land quality.

Population increase and a rise in the standard of living in Israel have been accompanied by a rise in private car ownership and kilometres travelled. Consequently, transport is a main source of air pollution in city centres in Israel.

The population in Israel is expected to reach 11 million by 2030 as a result of natural growth, immigration and a rise in life expectancy. Economic growth, accompanied by a rise in the standard of living, is also foreseen. These trends are expected to accelerate pressures on natural resources, such as land, water and energy.

Assuming that the urbanisation trend continues, especially along the coastal plain, it will be necessary to take steps to protect open spaces and establish ecological corridors between remaining open spaces, such as river strips.

The economy in Israel is expected to keep growing, as is its dependency on global markets and resources. Environmental pressures will mirror economic activity and international connections.

Climate change is expected to exert increasing pressure on the natural and human environment throughout the world, and especially in the Mediterranean, which is defined as a climate change hotspot. Consequently, climate change is expected to have a huge impact on water resources, seawater quality, coastal areas and biodiversity. These changes, in turn, will impact on a variety of economic activities and branches, such as agriculture, infrastructure design and maintenance, health systems and the insurance industry. In addition, climate change will influence geopolitics, as immigration and water conflicts are expected to rise.

Priority thematic areas

Solid waste

Waste management policies must be based on the availability of resources and management of materials, as well as on the principle of turning waste from a nuisance into a resource. Hazards and nuisances that are associated with improper waste treatment include soil and groundwater contamination, air pollution and greenhouse gas emissions, proliferation of pests and spread of disease, safety problems, visual nuisances and odours. In addition, landfill can reduce land values and availability of land.

State and impact

Israel produces approximately 4.8 million tonnes of municipal solid waste each year, a quantity that is growing at an annual rate of 3–5 %. Each resident produces an average of 1.9 kg of waste per day. The major treatment method of solid waste in Israel is landfill, followed by recycling.

The ministry's policies and regulations evolved from the 1980s, when they mainly addressed unregulated waste dumping, to the 1990s, when they were focused on the closure of unregulated dumps and the opening of state-of-the-art landfill sites. Today, ministry policies and regulations are largely focused on integrated waste management. Fourteen controlled landfill sites are currently operational. An integrated waste management policy calls for a reduction of waste generated at source and of the amount buried in landfill, especially by means of recovering, reusing and recycling the waste that is generated. The main objective of this policy is to turn Israel's waste from a nuisance that has an adverse impact on the environment into a resource that can benefit the country and its citizens. In line with this policy, recycling rates for paper, plastic, glass and metals have grown in recent years.

In the past, illegal dumping of waste was responsible for air pollution, odour nuisances, greenhouse gas emissions, soil and groundwater contamination, as well as vast consumption of scarce land resources. In the last two decades, the closure of the country's illegal dumps and their replacement with controlled landfill sites has reduced these environmental ills. Nevertheless, greenhouse gas emissions and land consumption for landfill remain a difficulty and carry significant external costs.

Key drivers and pressures

Increases in population and standard of living are the key drivers in this theme. They are responsible for the generation of growing amounts of waste, which puts pressure on the environment, as described above.

Responses

Israel has gone a long way towards fulfilling its vision of Sustainable Materials Management in accordance with the motto 'From Nuisance to Resource'. The goal is to reduce the quantity of waste generated, in general, and the quantity reaching landfills, in particular, while increasing the percentage of waste that is recovered and recycled.

Accordingly, the current policy tools include promotion of separation of waste at source, increased landfill levies, extended legislation about producer responsibility, mandatory recycling and the establishment or upgrading of recycling and recovery facilities.

The Ministry of Environmental Protection (MoEP) launched a major financial programme to help local authorities establish infrastructure to separate waste at source into at least three streams: clean biodegradable, packaging waste ('recyclables') and all the rest. A prerequisite for the success of this programme is education and information. Therefore, the MoEP offered additional funds to the local authorities that were chosen to pioneer the programme, for educational activities aimed at changing behavioural patterns to encourage

waste reduction, reuse and separation at source for recycling.

So that the programme of separating waste could help Israel along the recycling path, significant funds were allocated to expand the capacity of material recovery facilities and recycling plants. This money was obtained from a landfill levy fund, aimed at reducing the amount of waste buried in landfill.

The extended responsibility of producers for treating dedicated waste streams is an important component of the recycling policy in Israel. Therefore, this principle was incorporated into the following laws: the Deposit on Beverage Containers Law, the Tyre Disposal and Recycling Law and the Packaging Law.

The 2020 outlook and possible impacts on the natural environment and human health

The current decade is expected to herald a major change in consumption and behavioural patterns that will lead to decreased waste generation and increased recovery and recycling. Plans are already ripe for further improvements, such as the addition of tens of thousands of households and dozens of local authorities to the separation at source programme and the launch of a multimillion-shekel programme for comprehensive waste treatment by local authorities of disadvantaged and minority communities, including infrastructure development, training, education and enforcement. The target is to reach at least a 50 % recovery and recycling rate by 2020.

Industrial emissions

Industrial activities are accompanied by the emission of pollutants, causing serious environmental and public health problems. Industrial emissions in Israel are a major source of pollution and are focused on a number of hotspots where major industrial activity is concentrated: Ramat Hovav industrial park in Israel's south, Haifa Bay in the north and the Ashdod industrial zone in the centre of the country. In all these areas, ecosystems and the local population are exposed to an increased environmental and health risk.

State and impact

In the last decade there has been a reduction in some industrial air pollutants, according to data from air monitoring stations, emissions tests in selected facilities and calculations. In particular, there has been a decrease in emissions of major pollutants from fuel combustion, owing to a change in the fuel mix and the introduction of enhanced abatement technologies.

In addition, a dramatic reduction in direct discharges of pollution to the marine environment was registered during this decade. Land-based source pollution has been a prime subject and the results are that there is no more sewage running to the sea. Of all sewage produced, 78 % is being reused in agriculture through the implementation of advanced technologies, whereas the rest undergoes secondary and tertiary treatments before being discharged into the environment. Industrial sources of pollution to the sea have been reduced to the extent that certain contaminant loads, such as heavy metals, organic matter, oils and nutrients, were reduced by 75–95 %, and efforts to reduce this further still go on.

The number-one hotspot, and the only one left in Israel, is the Shafdan sewage plant, sludge from which contributes at least 75 % and up to 98 % of the total load to the Israeli marine environment. It is planned that this source will be terminated by the end of 2015. By the year 2030, all of Israel's water for domestic use will come from desalination. The potential benefits for the region are great. However, it also means that great care should be taken to monitor the impacts of desalination plants, particularly on the marine environment.

Within the framework of environmental legislation, the Ministry of Environmental Protection (MoEP) has formulated a programme for the reduction of industrial pollution which sets specific requirements for large facilities, which are subject to the implementation of best available techniques (BAT) and integrated pollution prevention and control (IPPC) guidelines, and establishes framework conditions for small and medium-sized entities.

In parallel, a set of programmes was formulated for the rehabilitation of heavily polluted streams and soils. One example would be the Kishon River, Israel's second-largest coastal river, in which 10 years ago the pollution load from industrial plants was drastically reduced, by as much as 90 %, with continuing improvements later on. In addition, an action plan for sediment drainage and remediation is in place. This project will enable the rehabilitation of the river and its habitats, restoring its flow, conserving its unique natural assets and allowing it to function as an open area for the benefit of the public.

Key drivers and pressures

Economic growth and the rise in the standard of living in Israel are among the major forces for industrial development in Israel. As a result of these factors, pollution from industrial sources has grown with the increase in industrial production. Environmental awareness, legislation and enforcement measures have led to the recognition that industrial development can be decoupled from environmental damage. In 2011, Israel's government decided to establish a national plan for green growth, focusing on decoupling economic growth from environmental deterioration

Industry, for its part, has recognised that there is no contradiction between industrial development and environmental performance, and it is, therefore, working towards improving its environmental performance through pollution prevention at source, the implementation of advanced environmental technologies and the efficient use of resources.

Other pressures include a scarcity of natural resources, which in turn affects input prices and the competitiveness of the economy. Currently, industry relies heavily on fossil fuels and is susceptible to fluctuations in the fossil fuel markets.

Responses

In recent years, the MoEP has been making steps towards integrated pollution control in the light of the European Commission's Industrial Emissions Directive, which is based on principles such as integrated approach, BAT, flexibility, inspection and public participation. Based on accumulated experience and international developments, an integrated environmental permit law is currently being drafted for large-scale and medium-

be subject to regulation at the local level via their business licences.

Israeli Pollutant Release and Transfer Register (PRTR) law requires facilities to report on the emission and transfer of 114 pollutants — 89 pollutants which are emitted into the air and 92 pollutants which are released into freshwater, marine water and soil — as well as on waste transfers in accordance with the European Waste Catalogue and Hazardous Waste List. The law defines a list of 74 activities that must be reported to the registry by approximately 500 facilities in Israel, within the framework of several sectors: energy industries; metal industries; mineral industries; chemical industries; waste and wastewater; agriculture, food and beverages; and others.

In the framework of the PRTR law, free access to facilities' reports is available to the public through a website which is searchable using various parameters, including facility, pollutant, location and sector. In addition, a knowledge centre to be jointly set up by government and industry in cooperation with Israel's non-governmental organisations is now at the planning stage. Such a centre would provide a place for the collection and distribution of knowledge about clean technology and green production and for networking among stakeholders.

The 2020 outlook and possible impacts on the natural environment and human health

It is predicted that decoupling between industrial development and environmental deterioration will evolve. In addition, the manufacturing industry is expected to shift to cleaner fuels, such as natural gas, use renewable energy and improve energy efficiency. Today, Nimby (not in my back yard) syndrome