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המשרד לאיכות הסביבה
وزارة جودة البيئة
Ministry of the Environment
שלום עם הסביבה

Israel

NATIONAL REPORT FOR CSD-14/15 THEMATIC AREAS

Government focal point:

Ms. Valerie Brachya, Deputy Director General for Policy and Planning, Ministry of the Environment.

Responding Ministries/offices:

Ministry of the Environment; Ministry of Foreign Affairs; Ministry of National Infrastructure; Ministry of Industry Trade and Labor; The Israel Export and International Cooperation Institute.

A. ATMOSPHERE/AIR POLLUTION

Air quality in Israel is impacted by rapid industrial development, growing vehicle use, rising standards of living and a growing population. In recent years, measures have been initiated to reduce air pollution from all sources – transportation, electricity production, industry and quarrying operations. At the same time, efforts have been invested in implementing the provisions of international conventions on ozone depletion and climate change. In 2005 a few stringent measures were taken to improve air quality. These measures include improving the quality of fuels (by selling lead free gasoline and switching to low-sulfur diesel for transportation), lowering the purchase tax on hybrid cars, setting new regulations, reducing industrial emissions, increasing enforcement and encouraging the use of new energy-efficient cars.

Decision-Making: Strategies, policies, programmes and plans, legislation, policy instruments and the regulatory framework; involvement of Major Groups

- **Assessing ambient air quality and the levels of air pollution.**

Air quality monitoring was initiated in Israel in the early 1970s, near the major power plants of Tel Aviv and Ashdod. In 1994, a plan for a national monitoring network, based on individual stations and a national data processing control center, was initiated by the Ministry of the Environment. The establishment of the network of monitoring stations was based on the following categories:

- **General stations**: Designed to monitor air quality in densely populated areas with more than 150,000 residents. Stations are located in representative areas which are not adjacent to specific emission sources such as industrial plants, at roof height.
- **Secondary pollutant stations**: Designed to monitor secondary pollutants created downwind at relatively far distances from sources of emission at roof height.
- **Transportation stations**: Designed to monitor pollutants originating in transportation sources. Stations are located near primary traffic junctions at pavement height.

Today, within the framework of the national air monitoring system the Ministry of the Environment collects information from over one hundred air quality monitoring stations; 23 of these are operated by its own network and the rest by stations belonging to the Associations of Towns for the Environment and to the Israel Electric Corporation. The data retrieved from these stations are used to:

- Characterize air quality in Israel and identify the major sources of air pollution throughout the country, in both urban and rural areas;
- Develop a national database for long-term policy planning, formulation of standards and legislation and environmental research
- Analyze air pollution episodes;

- Identify immediate options for reducing air pollution when violations of air quality standards occur or are anticipated;
- Inform the public about air quality levels throughout the country;
- Connect local networks to ensure uniform operation and maintenance methods.

Moreover, an air quality management system is being prepared for the Ministry of the Environment, which will cover the entire country and will be based on emission data from all pollution sources including power plants, industry, transport, quarries, natural sources, and households, as well as on meteorological, topographical, geographical and traffic data.

For 2002 and 2003 air quality monitoring reports see:

http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Monitoring_Results&enZone=Monitoring_Results

In essence, the air quality data for 2004 compared to 2003 show improvements in the air quality in most major cities in Israel. This is expressed by the annual number of days in which high episodes of air pollution were recorded. For more information see:

http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Monitoring_Results&enZone=Monitoring_Results

These improvements in air quality are attributed both to climatic conditions that promote pollutant dispersion in the atmosphere and to the pollution abatement activities of the Ministry of the Environment.

- **Control of air pollution.**

In Israel the control of air pollution is based on six main laws and their regulations:

1. **The Prevention of Nuisances Law** of 1961 is the principal legislative instrument for controlling air pollution. This law deals in a broad fashion with the prevention of air pollution, stating that a person shall not cause any considerable or unreasonable pollution of the air from any source whatsoever, if it disturbs, or is likely to disturb,

anyone nearby. In a similar manner, the law deals with odor nuisances. The law authorizes the Minister of Environment to promulgate regulations defining what constitutes considerable or unreasonable air pollution and odors.

Regulations that have been promulgated pursuant to the **Prevention** of Nuisances Law include:

- Regulations of Air Pollution from Premises, 1962, prohibit emissions of black smoke into the air (in accordance with the Ringelmann Chart).
- Regulations on Air Pollution from Vehicles, 1963, prohibit the emission of black smoke from motor vehicles (in accordance with the Hartridge Smoke Meter). A companion regulation details how to measure smoke from vehicles.
- Regulations of Air Quality, 1971, revised and expanded in 1992, define ambient air quality standards for different air pollutants. The Israel ambient standards for the criteria pollutants are shown in http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Zone&enDispWho=Israeli_Ambient&enZone=Israeli_Ambient.
- Regulations of Emission of Particulate Matter in the Air, 1972, define the permissible emission rate of particulate matter from an industrial facility which uses raw material in its production processes.
- Regulations of Air Pollution from Heavy Fuel Oil Burners used for Household Heating, 1972, prohibit the use of heavy fuel oil in households for central space heating systems.
- Regulations of Prevention of Unreasonable Air and Smell Pollution from Solid Waste Disposal Sites, 1990, prohibit burning waste at solid waste disposal sites

and require measures to prevent emissions of air pollution, smoke and odors.

- Regulations of Prevention of Air Pollution and Noise from Quarries, 1998, define unreasonable pollution from quarries and require preventative measures for dust emission as well as corrective measures in case of need.
- Regulations of Prevention of Air Pollution from Vehicles on the Road, 2001, prohibit driving a vehicle unless it meets specified technological standards.
- A Criminal Procedure Order (Finable Offenses – Air Pollution from Vehicles on the Road) came into force in August 2001. It provides for efficient enforcement of the regulations on pollution from vehicles on the road by providing for fines relating to five categories of vehicular emission violations.

2. **The Traffic Ordinance** (New Version), 1961, authorizes traffic magistrates to enforce those provisions of the Abatement of Nuisances Law involving motor vehicles. Regulations promulgated under this ordinance prohibit registrating a vehicle unless it conforms to inspection standards for emissions, including European Union standards.

3. **The Operation of Vehicles (Engines and Fuel) Law**, 1960, allows the Minister of Finance, after consulting with the Minister of Transport, to regulate the kind of fuel by which any motor vehicle will be propelled and operated and the kind of engine which will be installed in a motor vehicle. The Minister of Finance is empowered to enact regulations under this law which may include examination of fuel station tanks and containers, spot checks of motor vehicles and fuel tanks, and fuel sampling directions.

4. **The Licensing of Businesses Law**, 1968, allows local authorities to impose special environmental conditions within the framework of business licenses. Environmental restrictions and conditions may be based on USEPA regulations, on emission standards issued by the Federal Government of Germany, or on any other standards acceptable to the Ministry of Environment.

5. **The Public Health Ordinance**, 1940, covers many aspects of public health; sections related to preventing environmental nuisances are implemented by the Health and Environment Ministries.

6. **Hazardous Substances Regulations** (Implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer), 2004, are designated to implement the provisions of the Montreal Protocol by setting restrictions on the production, consumption, import and export of substances that deplete or are likely to deplete the ozone layer and establishing inspection and control mechanisms.

All of the above laws and regulations allow the Israeli government to implement measures and activities to control air pollution in which the Ministry of Environment is a key figure. Additionally, a new clean air act is currently under discussion in Parliament.

- **Analysis of costs and benefits**

Based on European Union calculations on the external costs of pollutant emissions in different countries, an initial estimate of the external costs of pollutant emissions from different power plants was made in Israel. In addition, the Ministry of Environment has drafted air pollution abatement regulations which are specifically targeted at the electricity sector, which are based on European Directive 2001/80/EC. In accordance with a Ministry of Infrastructure request, the Israel Electric Corporation has prepared an analysis of the economic costs of implementing the regulations. The report reviews the potential impacts of implementing the

regulations, under different scenarios and timetables, on cost of electricity, reliability of supply and environmental performance. Calculations were based on three factors: estimates of investment, maintenance and operation of pollution reduction measures; additional cost for each kilowatt hour of electricity which is produced and sold; and estimated incremental cost of pollutant reduced per ton.

Today, the Public Utilities Authority – Electricity (Electricity Authority), an independent body responsible for overseeing the electricity sector, along with the Ministry of the Environment, is planning a cost/benefit analysis of the implementation of the draft regulations, in order to check cost to the economy, cost of alternative measures, impact on electricity tariffs and external costs. This will be the first time that decision making on air pollution reduction will be made on the basis of cost/benefit analysis.

- **Plan(s) to deal with severe air pollution incidents.**

Avoiding severe air pollution incidents:

Ramat Hovav is an industrial zone in the south of Israel that was designed as Israel's central site for chemicals and other heavy industries. Ramat Hovav poses a major risk of air pollution incidents. Conditions of business licenses are currently being revised to apply more strict environmental requirements. The industrial zone is self governed by a local council that conducts continues online monitoring with the Ministry of Environment. The "real time" monitoring includes all smokestacks of the industries, the park's boundaries, and four mobile stations in changing locations. In cases that the emission readings show that the pollution may impose a threat to the local population, the industries are required to reduce production and severe air pollution incidents are avoided. Additionally,.

Guidelines that respond to severe urban air pollution incidents:

Israel's major cities, where most of the population resides and works, pose the greatest threat to human health due to high pollution levels. In cases of severe air pollution the Ministry of Environment informs the public via the national and local

media. Guidelines have also been prepared on recommended measures for reducing exposure to pollution during high pollution days.

The following general guidelines were developed and distributed to help protect public health from incidents of severe air pollution. The aim of these cautionary statements is to reduce the exposure of both the general public and sensitive groups to high levels of air pollution.

Very High Pollution Days: Recommendations to individuals with heart and lung disease, the elderly, children and pregnant women: Avoid unnecessary outdoor exposure. For example: Avoid taking walks outside, shopping in outdoor markets, etc. while continuing to go to work, school, clubs, health clinics, etc. Recommendations to the general population (healthy individuals): Avoid prolonged and heavy exertion outside. For example: Avoid jogging, ball games (soccer, basketball, tennis), strenuous bicycling, vigorous walking or prolonged walking uphill.

High Pollution Days: Recommendations to individuals with heart and lung disease, the elderly, children and pregnant women: Avoid prolonged heavy exertion outside. For example: Avoid running outside, ball games (soccer, basketball, tennis, etc.), strenuous bicycling, vigorous walking or prolonged walking uphill. Recommendation to the general population (healthy individuals): Reduce or limit heavy exertion outside.

For more information:
http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^l2037&enZone=Public_Awareness

- **Policy measures taken to improve the quality of fuels.**

Electricity production

1. Moving to natural gas in electricity production. In Israel, the total electricity production in the first half of 2005 was 23,589.3 million kWh, 11.8% of which was generated by natural gas. This represents an increase of 4.1% from the previous year and is reflected in a 20%

decrease in the use of heavy fuel for electricity production. By 2010 it is planned to increase electricity generated by natural gas to 47%.

2. The three power plants using heavy fuel to produce energy are in process of being phased out. The Ashdod power plant has been converted to natural gas; the Tel-Aviv plant is about to operate on gas in the near future, and the Haifa plant is in the process to be converted to natural gas. However, all heavy fuel used today is low-sulfur fuel, and in specific meteorological conditions the plant switches to even lower sulfur fuel.
3. In the last decade, the Israeli coal-based power plants switched to high-quality low-sulfur coal (from an average of 0.72 percent of sulfur in coal in 1995 to an average of 0.5 percent in 2004).

The distribution of fuels used in the production of electricity*

	2002	2003	2004
Coal	7,500.2	7,715.5	7,810.6
Heavy fuel	1,869.0	1,932.6	1,408.2
Diesel fuel	422.5	420.3	343.0
Natural gas	–	–	1,080.2

*In thousand tons of oil equivalent (TOE)

Transport

4. In Israel consumption of leaded fuel is from old cars only due to a 1994 regulation that requires all cars to use unleaded fuel. Since April 2004 all leaded fuel is been marketed with a nontoxic potassium replacement.
5. Low-sulfur gasoline: since the 1st of January 2005, a new regulation prohibits the marketing of gasoline with over 50 ppm (parts per million) of sulfur.
6. In mid 2003, the quality of diesel oil (mainly used by the public transportation system) has been improved to contain a maximum of 50 ppm of sulfur. This change was made to comply with Euro 4 standards. The Ministry of National Infrastructures plans to further

improve the quality of oil for transport to the level of 10 ppm of sulfur by 2008.

7. Introduction of gas (LPG) driven vehicles: The Ministry of National Infrastructures, the Ministry of Transport and the Ministry of Environment set a directive enabling the conversion of gasoline-driven vehicles to automotive LPG.
8. Encouraging the purchase of hybrid cars: The Ministry of Finance lowered the purchase tax of hybrid cars from 89% in 2004 to 30% in 2005.

- **Specific policy measures designed to reduce the level of lead in gasoline.**

Since April 2004, all leaded fuel is marketed with a nontoxic Potassium replacement.

- **Policies promoting cleaner transportation measures and technology (e.g. vehicle technology, mass transit systems, reduced demand in vehicle-miles-traveled, modal shifts).**

Motor vehicles in Israel consume less than 20% of the country's energy resources. Nonetheless, their contribution to air pollution is more problematic than that of other point sources (as power-plants and industries). Unlike tall-stack plumes, car emissions occur at ground level, with little opportunity for dispersion. Furthermore, the mixture of pollutants including CO, NO_x, and volatile organic compounds (VOC) are particularly reactive and a major factor in the formation of photochemical smog.

Therefore, over the last decade much has been done to introduce new policies promoting cleaner transportation measures. Most of these policies aim at **increasing the supply of high quality mass transport systems**, **while decreasing the attractiveness of car use**.

- **Policies aimed at increasing the supply of high quality mass transport systems**. The government of Israel set a five-year (2003-2008) development plan to

significantly upgrade the national rail system. The five-year plan is budgeted with over 4 billion US dollars (USD). To date, numerous new rail connections were completed among the cities and towns of the Tel-Aviv metropolitan area (from Netanya in the north to Ashdod in the south). In addition, Ben-Gurion Airport was linked in 2004 to Tel-Aviv by metropolitan suburban train and the rail-road to Jerusalem was upgraded and re-opened.

A few more substantial projects are planned to take place, such as: connecting Jerusalem and Tel Aviv by an express train, reducing by almost half the current travel time; converting the main power supply of rail transport from diesel to electricity; connecting Haifa eastward to the Jordan valley.

Large investments are also being made to develop new urban mass transport systems. In Jerusalem, a light-rail system is under construction (to be completed by 2008 at the cost of over 3 billion USD). A light-rail is in an advanced stage of planning in the Tel Aviv metropolitan area.

- **Policies aimed at decreasing the attractiveness of car use.** In contrast to the notable achievements of the policies to increase the supply of high quality mass transportation systems, policies aimed at decreasing the attractiveness of car use and increasing the demand for mass transit systems still remains a national challenge. The main barrier is a wide-spread policy of wage agreements in both the public sector and the private sector. These agreements include:

A. Car allowances – car allowances are payments available to most employees and are not linked to the work function of employment. The allowances include funding car licensing, insurance of the car, and mileage. These payments often amount to a significant part of the salary.

B. Parking – generally all public sector employees receive free parking space near their work.

C. Company car – medium- and high-ranking staff usually receive a company car with all expenses paid. This policy is extremely widespread in the private sector.

These wage agreements encourage employees and staff to own and use a car rather than travel by public transport. Moreover, they reduce the incentives to carpool, and require employers to provide parking space for their employees, resulting in less efficient use of land. Moreover, employees with a company car or paid mileage do not consider the transportation costs in choosing their homes. Thus, employees have an incentive to move out of the city to less expensive and lower density residential areas which cannot justify the establishment of regular public transport, therefore increasing the daily use of cars and creating a cycle of urban sprawl.

- **Employer travel plan -** The Employer Transport Plan project – a joint initiative of the Israeli Ministry of Environment and Transport Today & Tomorrow (a non governmental organization (NGO)). This project seeks ways to reduce car use in home-to-work trips. In the initial part of the project, three policies are under consideration: A. Building preferential

parking for people that arrive by carpool. B. Establishing the legal framework for working from home. C. Revoking the legal basis for current practices in the public sector that link salary payments to car ownerships.

- **Emission limits on vehicular exhaust**

In January 2001, new regulations specifying permitted exhaust from diesel and gasoline vehicular exhaust were formulated under the Traffic Ordinance. All cars, other light vehicles, private buses and motorcycles are checked at least once a year for roadworthiness; vehicles that do not comply with the permitted emissions in the Traffic Ordinance regulations are declared not roadworthy. In addition, since 1994 all exhaust systems in imported cars are equipped with catalytic converters.

- **Role played by air pollution in urban planning, especially related to transportation**

Israel is predominantly urban (93% of the population lives in towns with more than 20,000 inhabitants). Planning policies continue to encourage high-density urban development capable of supporting public transport. A specific plan related to air pollution concerns prohibiting high-emission diesel-powered cars in the Tel Aviv city center. This project is expected to start as a pilot that will close the intensively transport-polluted area in the city's center to diesel-powered cars (unless they comply with the Euro 3 emission regulations). Estimates based on similar projects abroad predict a 10 to 20 percent decrease in the average pollution measured in the restricted area.

- **Economic and market-based incentives to meet national air quality goals**

Corporate social responsibility - On January 21, 1998, the Ministry of Environment and the Manufacturers Association of Israel signed a voluntary

agreement on Implementing Standards of Air Pollutant Emissions into the atmosphere. The contract includes maximum parameters on gaseous inorganic substances, volatile organic compounds, particulate matter, hazardous inorganic particulate matter, carcinogenic substances, nitrogen oxides, and sulfur dioxide.

- Following is a translation of a few excerpts from the agreement: "Reduction of pollutant emissions to the environment and promotion of sustainable development processes are important goals of the Ministry of Environment. Mandatory emission standards for air pollutants emitted during production processes and energy combustion are one of the central means of achieving this goal.

  The emission standards aim at reducing air pollutant emissions into the environment. The standards were established on the basis of the best available existing technologies. These technologies are defined as recognized and available technologies, with proven experience in plants of similar size in Israel or abroad. They are applicable in the relevant industrial sector, under reasonable economic and technological conditions, taking into account their costs and benefits and their efficacy in achieving a high level of environmental protection. The standards were established on the basis of existing European standards including TA-Luft and the European Directive on large incineration facilities.

  In Israel, responsibility for implementing the emission standards will, for the most part, be imposed on industry. The Manufacturers Association of Israel recognizes the importance of dealing with environmental problems, including air pollution generated by pollutant emissions in a way which will

ensure consistency in long-range planning of individual plants while protecting the legitimate interests of Israel's entire industrial sector. Therefore, the Manufacturers Association of Israel saw fit to continue the process of negotiation with the Ministry of Environment which was initiated when setting the emission standards, and to join this contract in order to foster the greatest degree of harmony between the policy of the Ministry of Environment and industrial activity, in a spirit of cooperation between the sides on behalf of efficient implementation of emission standards and continued future cooperation in establishing additional standards as needed.

The Ministry of Environment recognizes the importance of encouraging industry to take responsibility for reducing air pollution generated during production processes, and of equitably applying standards for the abatement of air pollution in Israel. Therefore, the Ministry saw fit to cooperate with the Manufacturers Association in establishing standards and implementing them by means of a contract. In so doing, the Ministry recognizes the legitimate interests of industry. Concurrently, the Ministry of the Environment will pursue consultations and cooperation with the public and with other relevant factors. The Ministry of Environment intends to establish emission standards as regulations under the law in the future. Therefore, and in light of the conviction of both parties that joint activity on behalf of compliance, implementation and control of the standards is preferable to one-sided enforcement, the

Manufacturers Association, on one side, and the Ministry of Environment, on the other side, have decided to sign this Covenant."

(extracted from: http://www.sviva.gov.il/bin/en.jsp?enPage=e_BlankPage&enDisplay=view&enDispWhat=Object&enDispWho=Articals^l2028&enZone=Industrial_Pollution)

- **Nature and impacts of transboundary air pollution (including pollutants emitted within your country as well as those received from nearby countries)**

We have no data indicating the presence of transboundary air pollution in the region.

- **Programmes designed to reduce ozone-depleting substances and promote alternatives under the Montreal Protocol**

Israel has been a party to the Montreal Protocol since 1992 and has ratified the London, Copenhagen and Vienna Amendments. It complies with all provisions of the protocol and its amendments, prohibits or severely restricts the import of ozone depleting substances (ODS), with the exception of permitted recycled materials, and enforces the restrictions placed on methyl bromide production. Production of methyl bromide is restricted and control is ensured by means of special conditions incorporated into the business license of the manufacturer.

An interministerial committee on ozone depletion was set up in 2000 to help formulate policy on reducing and phasing-out ODS in accordance with the provisions of the Montreal Protocol. In addition, regulations on implementation of the Montreal Protocol have been promulgated which relate to restrictions, inspection and control mechanisms for the import, production and consumption of substances that deplete or are likely to deplete the ozone layer. Additional regulations are currently being drafted that will relate to the management of ODS in existing systems (e.g., recovery of ODS from products and equipment, leakage

prevention from systems, bans on supply of ODS in disposable containers, phasing-out of ODS from existing systems).
The strategy is to phase-out import, consumption and production of ODS in accordance with the timetables set in the protocol and the amendments. The sale of new equipment (e.g., refrigerators, air conditioners) which uses controlled substances has already been prohibited, both in order to reduce use and in order to protect consumers from future implications of the purchase of such equipment.

Initial steps will include, inter alia, accelerated phasing-out of halons and CFCs in accordance with availability of alternatives. The Standards Institution of Israel has approved alternative substances in fire extinguishing systems, which will gradually phase out the import of certain halons, including those which are recycled and permitted for use.

Although not required to do so, Israel has begun to reduce the quantity of permitted recycled materials which are imported by restricting import licenses. The goal is to further limit the import of ODS and the production of methyl bromide as per the requirements of the Montreal Protocol and its amendments.

With the aid of expert committees and research groups, Israel has investigated numerous alternatives to methyl bromide. Recommendations have been made on using agrotechniques such as solarization, steam sterilization, resistant varieties, crop rotation and detached growing media.
(For more information see:
http://www.sviva.gov.il/bin/en.jsp?enPage=bulletin&enDisplay=view&enDispWhat=Zone&enDispWho=september_bull04&enZone=september_bull04&p=bulletin)

Capacity-Building, Information, Research and Development

- **Availability of data concerning: a) the impacts of air pollution on human health and ecosystems; and b) the levels *of pollution in different industries.***

As mentioned above in "Assessing ambient air quality and the levels of air pollution", monitoring is being carried out throughout Israel. Although information from monitoring is widely available few researches have been conducted that show the impacts of air pollution on human health. A Comparative Assessment of Air Pollution Public Health Risks in two Israeli metropolitan areas was conducted in 1995-1999 and published in 2002

- **Internet websites related specifically to the issues contained in these Atmosphere/Air Pollution Guidelines, providing homepage addresses (URL).**

Where available referred to in the text above.

- **R & D programmes in the areas of: atmospheric conditions; air quality management; air pollution control technology; clean fuels technology; environmental economics; environmental impact assessment; and remote sensing.**